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STUDY ON THE AUTOMOTIVE CAR INDUSTRY IN INDIA: SCENARIO ANALYSIS AND NEW FUTURE BUSINESS MODELS.

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ABSTRACT

The Indian Automotive Car Industry, it is one of the major industries, as it is the fastest growing industry in the world as it has a strong democracy and global partnership.

In this scenario, the demand is increasing day by day in this country to raise the small car market in India. India is developing the 5th largest economy in the world and India holds the US $2.94 trillion nominal GDP and the US $10.51 trillion GDP (PPP).

Later after the Indian government's successes and impulsivity economic growth program focusing on economic policy in 1991, the automotive industry has drifted along. In consideration of the consequence of the sector at the world level, the current analytical research was conducted to analyze the latest updates and patterns to deliver inventory based on Porter's five forces model. Through economic and industrial reforms, the automotive car industry with low energy consumption has rendered it in attractive destination for worldwide automotive manufacture which is combined with an increase in per capita and expendable income of the working workforce.

However, the research indicates that the overall competitiveness of the Indian Automotive car industry in the current context can be considered as moderate. Consequently, the estimation for the expected growth rate in upcoming years and opportunities in the fragmented Indian rule market with supportive government initiatives, the desired aspect will decrease on a large scale.

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1.1 Introduction: An overview of India.

The Republic of India is situated in the southern part of Asia and is located to share borders with China, Nepal, Bhutan, Bangladesh, and Pakistan. India's currency is the Indian rupee (INR) as an official. India's natural resources are iron, coal, manganese, bauxite, mica, barite, limestone, thorium, diamonds, titanium, and crude oil.

India is the oldest civilizations of the Indus valley with large landscapes, great heritage sites, and dynamic culture. Indian stable democracy comprises 80 percent Hindu people, 14 percent Muslim, and the remaining 6 percent Christians, Sikhs, Buddhists, and Jains.

It has an ample English-speaking population and majorly exports in IT services and software workers. It has the best education system with advanced medicine, science, and mathematics. It is an attractive country for strategic investment in a vast range of industries with supportive governments. The main key is the youth of this country because of the powerful driver for demand and ample source of workers. The young generation is trying for growth and change in India. It has mainly industries such as agriculture, iron, steel industry with the manufacturing sector.

Indian prime minister Narendra Modi took office in 2014, to promote India's foreign policy to evolve economic relationships with global partnerships. Then in 2019, he was re-elected with a high margin victory in India.

1.1.1 Political structure.

India is a federal republic of democracy with a parliamentary arrangement of administration mostly similar to the UK based model. India has a union of 29

states and 6 centrally administered territories. As per the Indian constitution, the country obtained independence on 15 august 1947, and the Indian constitution was issued on 26 January 1950. The constitution proffers one citizenship for the entire nation to right vote after 18 years of age or older.

The central government's duty involves inter-state relations, foreign affairs, national security, poets and railways, national highways, trade, and commerce. it regulates rule-setting over business access, trade, investment and defense, and financial services. The state's government has the power of law and order, health, police, education, electricity, and water. It regulates business licenses and social infrastructure, roads, electricity, water, schools, and healthcare facilities.

1.1.2 Governmental size by major Indian states

The top individual tax rate is 30.9 percent with education tax and 32.4 percent the top corporate tax rate. The tax burden is 7.3 percent of domestic income. The Indian government spent 27.1 percent of the country's GDP in the last three years. Budget deficits have amounted to 6.9 percent of GDP with 69.8 percent of public debt.
According to, the Indian state's economic output is based on economic surveys 2016-2017 and 2017-2018.

- 60 percent economic contribution by 8 states such as the capital New Delhi, Andhra Pradesh, Gujarat, Kerala, Karnataka, Tamil Nadu, and Uttar Pradesh.
- 70 percent of exports of Indian states are Gujarat, Maharashtra, Karnataka, Tamil Nadu, and Telangana.
- 50 percent GST tax collected from 5 states of Maharashtra, Tamil Nadu, Gujarat, Karnataka, and New Delhi.

India's top 10 states of a major role in the economy.

- **Delhi NCR**

Delhi NCR is not only the central government headquarters in New Delhi. NCR has a healthy customer base-New Delhi's per capita income which is nearly three-fold the national average. It consists of a quarter of FDI inflows into India. It is

also a considerable hub that holds several financial zones and industrial groups, such as the Gurugram and Noida IT services centers and the Faridabad and Alwar production hubs.

- **Gujarat**

Gujarat is India's fifth-largest state economy and its strong economic execution has been primarily focused on infrastructure development, accountability for the public service, fiscal consolidation, and business regulations streamlining. It is per capita income which is 40% more than the national average, however, the home of Prime Minister Modi, receives tremendous national coverage.

- **Maharashtra**

India's second populated district and most economically developed state, consequently Maharashtra's Gross State Domestic Product (GSDP) grew up 7.3% annually in five years over the year 2017 and the district accounted for 31% of FDI inflows from the year 2000-2017.

- **Karnataka**

Karnataka is India's technical enabled, significantly growing state, where it complements the strengths in innovation such as ICT, healthcare, nanotech, and start-ups. Moreover, it complements urban infrastructure, life sciences, and water management as well. Bengaluru the state capital is India's Silicon Valley, home to the world's fourth-largest technology cluster. Apart from being IT-enabled services, biotechnology, and pharmaceutical sectors, it is the epicenter as well.

- **Tamil Nadu**

Tamil Nadu is the second state in India, which provides the highest economy and facilitates the opportunity in manufacturing, water supplies, and urban infrastructure. Moreover, the state is India's major producer of agriculture and has the highest per capita income and best indicators for health. Chennai, the state capital which is known as 'Detroit of India', and is the center of Indian automotive and product manufacturing center and one of the top 10 automotive hubs in the world.

- **Andhra Pradesh**

Andhra Pradesh is the leading state in terms of business ranking and there is an 11% per annum increase in the state's GSDP over three years to 2017. The attraction of the city is the construction of a greenfield capital city that attracted the majority of foreign players and offered an opportunity to metropolitan employees. The state which holds the highest per capita income and is being developed as a new fintech hub is the port city Visakhapatnam.

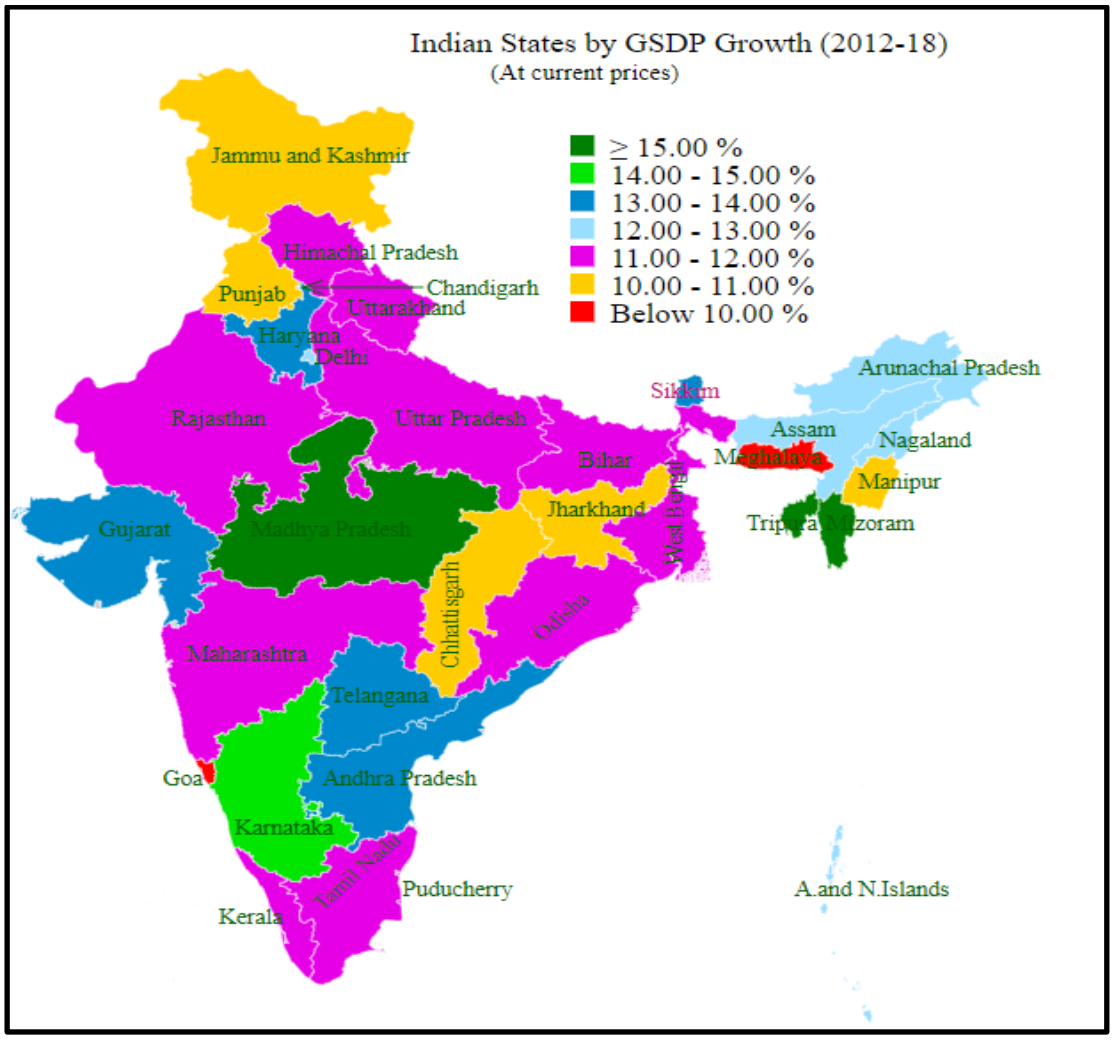

Figure 1: The map of India's Gross state domestic product (GSDP)

Source: Data from the Ministry of statistics and program implementation.

- **West Bengal**

India's third most populous state 'WEST BENGAL' is titled as the regional hub for mining and METS interaction, including as the gateway to Jharkhand,

Chhattisgarh, and Odisha minerals-rich state. Kolkata's state capital, which is India's third-largest megacity, outbreaking as a center of development and home to Indian oil. it forecasts to be in Asia's top 10 fastest developing cities by 2021.

- **Punjab**

Punjab gives vast opportunities in agricultural business, as it produces an agriculture powerhouse that produces 16% of India's wheat, 11% of rice, and a huge contribution to dairy products. More than 80% of the state is under intensive farming and commodity prices per hectare are around twice the national average.

- **Telangana**

India's upcoming state Telangana, which is India's one the leading economies with an annual growth of 9.5%per annum ever past three years to 2017, which has capability along with its biotech, health, and energy, financial services, and innovation. However, it is the Sixth largest metropolis city of India and the home of major companies such as Google, Apple, Facebook, and Microsoft.

- **Uttar Pradesh**

Uttar Pradesh is India's biggest state which is over 220 million which leads to national politics and 3rd largest state economy through agriculture. Agra which produces most of the cultivation, which includes cotton, dairy, and flour industries. However, it is the least developed state.

1.1.3 A Brief History of the Indian economy.

Since the independence Indian economy has been a mixed economy with a lower-middle-income level. Independence of time, India had 17 percent literacy, with 32.5 years of life expectancy. India is also called Bharat and Hindustan. India is more diverse from linguistic, food, geographical, and religious with 1.37 billion the high population with 28 states and 8 union territories. It has 17 percent of the

population with the second largest population in the world. The country is in South Asia with the 7th largest country by area.

During British rule (1793 to 1947), India's economy was a supplier of raw material to the export and import of final products from other countries. The rule did not measure the capita income and national income of this country. The economy was mainly dependent on agriculture with an engaged rural 85 percent population.

From (1947-1991) after freedom of British rule, it commenced primarily by the Indian national congress party. Nehru was the first prime minister of India, the Congress party governed by 44 years. Nehru started the economy of the foundation of this country with the cooperation of Sardar Patel, was a powerful deputy prime minister. Both endeavored to make a self-sufficient economy and achieved Indian companies into the competition. At that time, he regulated some industries and Indian railways, mining, and the western education system. Indian companies did evolve strongly under the new government. In that era, income and growth rate was low at 1.3 percent between 1950 to 1990 with 54 percent literacy.

The government replaced the rule minimum age for marriage to 18 years of age. In this country, there were macroeconomic crises due to supply from internal and external. There were two wars, the India-china war in 1962, the India-Pakistan war in 1965.

In the 1970s, banks and major trades held nationalized and increased top income tax 98 percent, 3.5 percent wealth tax. from 1969 to 1977, Indira Gandhi declared a new policy to abolish poverty (Garibi Hatao policy) with planning a providence for the poor. But the poverty ratio did drop at all until 1983. The growth rate was 4.4 percent a year from 1970 to 1980. Then it accelerated to 5.5 percent in 1990.

In 1991, India's main trading partner was the Soviet Union, it was collapsed with the gulf war, so it augments oil prices with a result of the balance of payment crisis for India. At that time, India took bailout loans from the international monetary fund (IMF) as the US $1.8 billion.

In 1991 reformations, the Indian government reformed with a new policy of economic liberalization and mainly concentrated on restrictive trade. They sold some non-profit businesses such as banks, airlines, and oil companies and proposed investment with foreign trade. After that many companies came to invest in India such as Pepsi, General motors. India's growth rate had a steady GDP growth with 5,86,212 crore rupees in 1991. From 1991 to 1996, the annual growth rate was picked high from 1.057 to 7.55 GDP. that five years were most important to increase the number of industries.

The first phase of growth, from 1991 to 2003, was with an acceleration average GDP of 5.4 percent a year. In the second phase with high growth, 2004 to 2008, it was rapid global growth. In 2005, US President Bush and Indian prime minister Manmohan Singh agreed to work on civilian nuclear energy and outer space cooperation then the USA passed that bill in 2008 but at that time GDP of India was 3.087 lower. The Indian economy entered on difficult times from 1997 to 2003, to slow to 5.7 percent GDP. then GDP growth lifted over 9 percent per year from 2005 to 2008. 2010-2011, there were more problems such as corruption, high bank losses, and electricity theft, a more specific environment, and land clearances.

In 2015, the new government of India faced the worst problems to achieve a growth rate of 7.5 percent. So, India has enhanced the fastest-growing economy in the world to have competition with china. It is a more prominent computer software and business services sector to evolve the export sector, carrying the US $110 billion with a growth of 7.5 percent from 2015 to 2016. The automotive industry was highly protected for decades and became a global hub in India to have more production and design in small cars.

In 2016, Gross Service Tax and demonstrations were applied to the economy to implement the money circulation. So, it directly impacts the economy in 2017, with slow growth. The gross tax revenue is US $168 billion, and the US $38.3 billion income tax in 2019. Indian companies raised the US $114 billion to help 768 initial public offers (IPO) in 2019. FDI equity inflows stood at the US $436.4 billion from 2000 to 2019, with a high contribution in computer software and hardware, service, automobiles, trading, construction, telecommunications.

1.2 Economic Profile of India.

Today, India is the fastest-growing economy in the world because it has powerful democracy and global partnerships. The Indian economy is now developing the 5th largest economy in the world in 2019. India has the US $2.94 trillion nominal GDP and the US $10.51 trillion GDP (PPP), it has the third rank in purchasing power parity. India has 1.3 billion of the high population with a 7.3 percent growth rate in 2018, to increase by 7.5 percent in 2019. The rate of overall literacy is 74 percent.

The economy's strength is mainly dependent on exports, agriculture, higher savings rates, and middle-class households. The recent government is more focused on "Make in India" in the manufacturing sector and digital India, startup India program.

In the agricultural production, it is the largest producer of milk, millets, ginger, bananas, mangoes, papayas, and cottonseed with the second-largest producer of tea, sugarcane, wheat, onions, potatoes, rice, and garlic. The agriculture and industry and services sectors are growing at 2.8, 2.5, and 6.9 percent as per individual. The employment rate was 93.1 percent in 2018.

The National Statistical Office (NSO) released an advance growth rate of 5 percent at GDP constant market price with the gross value added (GVA) 4.9 percent in 2019-2020. On 31 January 2020, NSO rated real GDP growth 6.1 percent with gross saving (current market prices) at 30.1 percent from 2018 to 2019, and 7 percent real GDP growth, 32.4 percent gross saving from 2017 to 2018. The constant prices are expected to continue stable at 10.5 percent with final consumption expenditure and gross fixed capital formation at 1 percent from 2019 to 2020. The Indian nominal GDP growth rate is 12 percent in 2019-20, and 11.5 percent for 2018-19. India has shown remarkable performance in the global market. The growth has continued to slowly grow in the last few years. The economy of global growth has been predicted to be more moderate.

Foreign exchange reserves achieved for the US $418 billion foreign exchange reserves with the US $390 billion foreign currency assets, US $23 billion gold assets. From 1998 to 2019, average foreign exchange reserves are US $221 million reserves. Indian Tourist destinations are better for international visitors

who visited 15.54 million to contribute 6.7 percent in annual growth rate in 2017. The gross tax revenue is US $168 billion, and the US $38.3 billion income tax in 2019. Indian companies raised the US $114 billion to help 768 initial public offers (IPO) in 2019. FDI equity inflows stood at the US $436.4 billion from 2000 to 2019, with a high contribution in computer software and hardware, service, automobiles, trading, construction, telecommunications.

Economic Profile: India

Indian Economy (Financial Year)	**1990**	**2000**	**2010**	**2018**
GDP (current US $ billions)	320.98	468.39	1,675.62	2,718.73
GDP growth (annual percent)	5.5	3.8	8.5	6.8
Inflation, GDP deflator (annual percent)	10.7	3.6	10.5	4.1
Agriculture, fishing, and forestry (percent of GDP)	27	22	17	15
Industry and value-added (percent of GDP)	27	27	31	27
Exports of (goods and services by percent of GDP)	7	13	22	20
Import of (Goods and services by percent of GDP)	8	14	27	24
Gross capital formation (percent of GDP)	29	27	40	31
Revenue, Excluding grants (percent of GDP)	12.4	11.7	13.2	12.9
(+) Net lending/ (-) Net borrowing (Percent of GDP)	-3.4	-3.8	-3.5	-1.9

Table 1: Overall performance and economic profile of India from 1990 to 2018.

Source: Data from the world bank group.

Gross Domestic Product (GDP)

According to the world bank group, in the GDP movement, in 2000, the annual GDP was 3.8 percent than in 2003, peaking at 7.86 percent GDP. in 2008, the GDP was 3 percent lower. From 2009 to 2010, it was high at 8.4 percent in 2010. after that from 2011 to 2016, it reached 8.17 percent in 2016. In the last 2 to 3

years, it continually declined to 7.1 to 6.8 from 2017 to 2018. The growth of the GDP rate is estimated at 5 percent in 2019 and 6.8 percent in 2018.

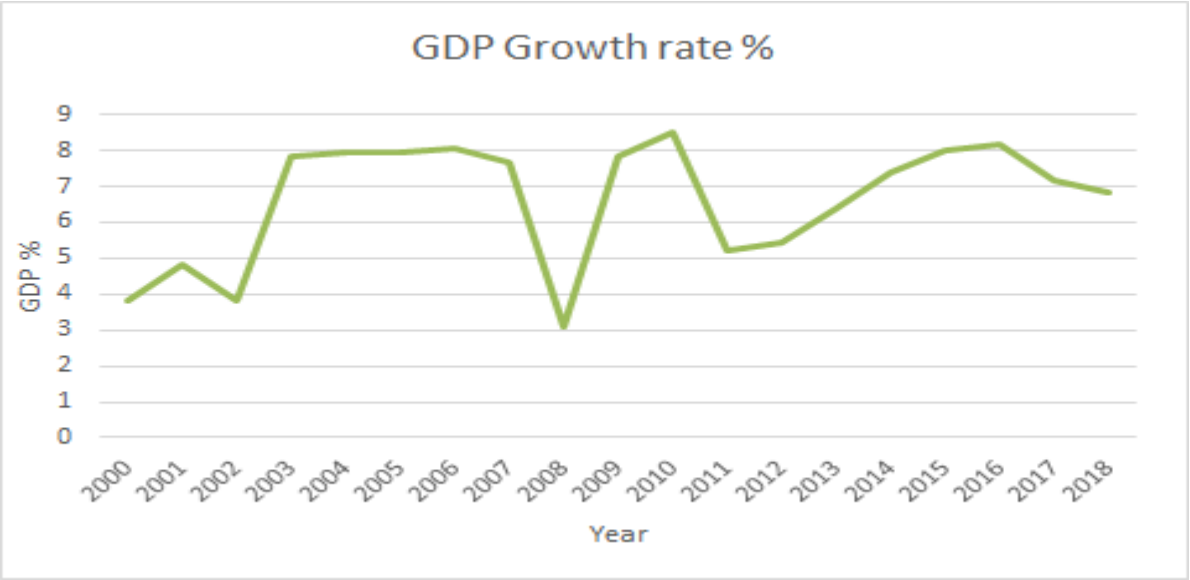

Figure 2: India's annual GDP growth rate from 2000 to 2018.

Source: Data from the world bank group.

According to the ministry of statistics and program implementation, India's GDP of constant price was 4.94 percent GDP than it continually grew at 9.8 percent in 2007. So, it dropped by 3.8 percent in 2008 but after that, it reached a maximum of 10.26 in 2010. From 2011 to2016, The GDP constant price gradually moderates at 6.6 to 8.2 percent but after that, it continually declined from 7.0 to 1.8 percent from 2017 to 2020.

Figure 3: India's annual GDP growth rate by constant price from 2001 to 2020.

Source: Ministry of Statistics & Program Implementation.

Inflation

The economy survey 2019-20 data presented in the parliament by the union minister for finance and corporate affairs of India. CPI (Consumer Price Index) inflation has increased from 3.7 to 4.1 from 2018-19 to the 2019-20 period. WPI (Wholesale Price Index) inflation has decreased from 4.7 to 1.5 from 2018-19 to the 2019-20 period.

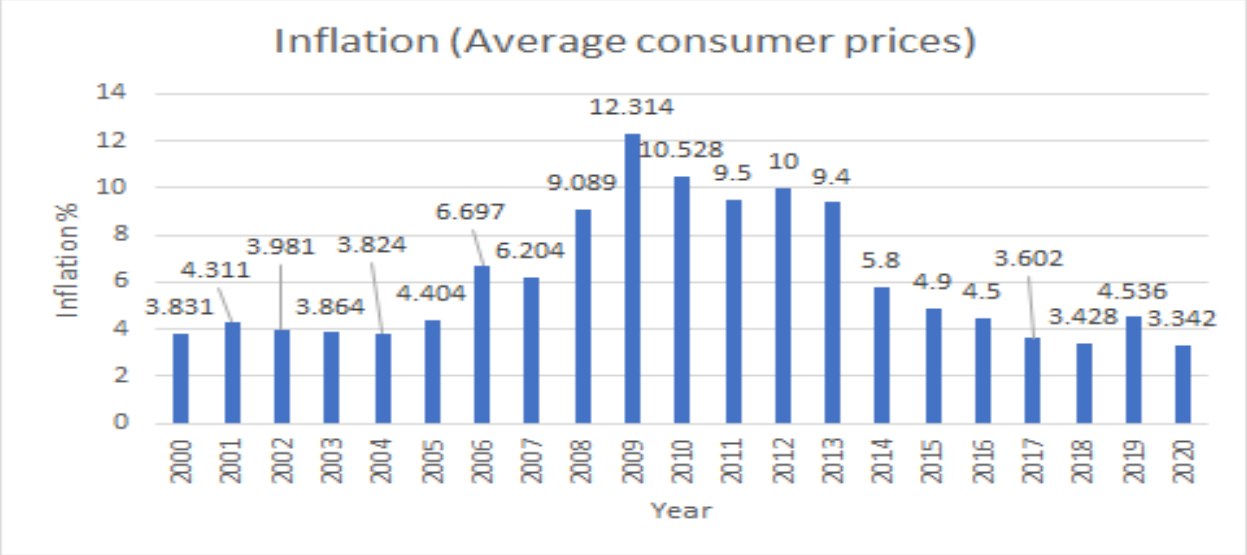

Figure 4: India's inflation rate by average consumer prices from 2000 to 2020.

Source: Ministry of Statistics & Program Implementation.

Inflation is estimated as average consumer prices to 3.8 percent in 2000. But then it continually increased to 12.31 percent in 2009. After that, it decreased in the last 9 years to 3.34 percent in 2020, according to data from the ministry of statistics and program implementation.

Employment

India has 3 largest startups based in the world from 8900 to 9300 startups. In 2019, 1300 startups are starting with 160 to 170 million labor force by 2020. The agriculture sector had the highest labor force with employment 45.6 percent in 2015. But then every year, it continued to decrease by approximately 1 percent, 42.38 percent in 2019. The industry sector had 24.05 percent of employment in 2015 than it increased to 25.57 in 2019. The service sector is the most important

sector at 30.26 percent in 2015 compared to rose 2 percent in 2019. Overall, the industry and service sector are raised in the last five years, so the result of the labor force is moved to getting employment in the city area.

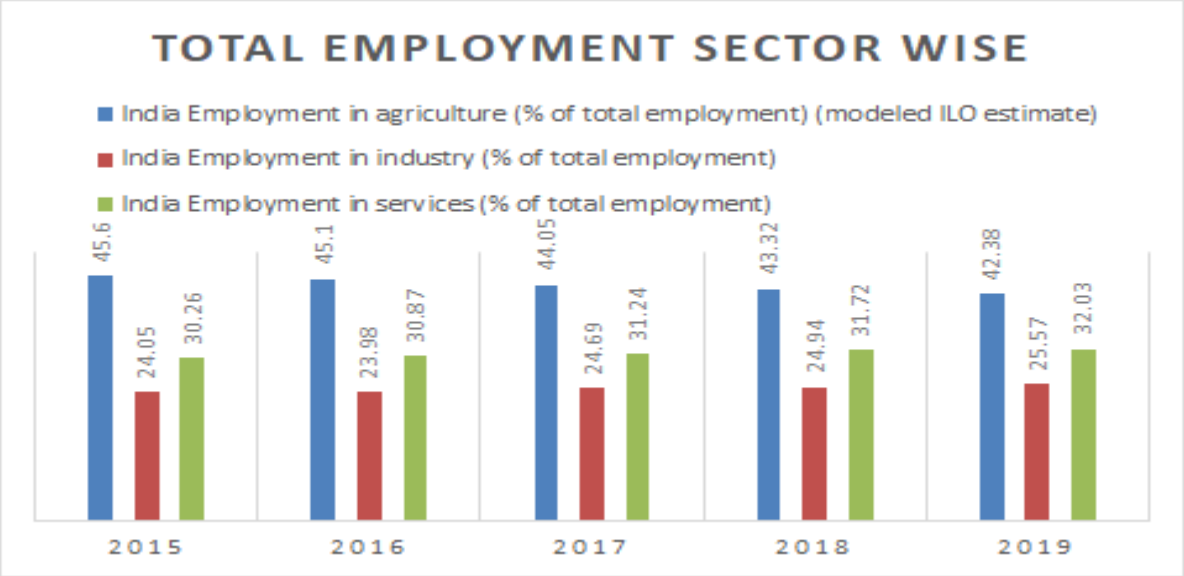

Figure 5: India's total employment by sector-wise from 2015 to 2019.

Source: Data from the world bank group.

Unemployment impacts on the economy

It is directly connected to the rising poverty problem and the young generation will join illegal and unsuitable activities for money to engage high crime into the nation. Without any job, people omit faith in democratic values, and they will be addicted to drugs, suicide, alcohol so the nation will lose manpower. For example, if unemployment increases 2 percent then it influences GDP to decrease by 4 percent.

According to the world bank's data, India's unemployment average rate is estimated at 5.6 percent by the world bank group from 1991 to 2019. First, we can see that the unemployment rate increased to 5.36 percent in 2019, but a less rate of 5.33 percent in 2018. The highest rate is reported at 5.72 percent in 2003 and the lowest rate of 5.28 in 2008.

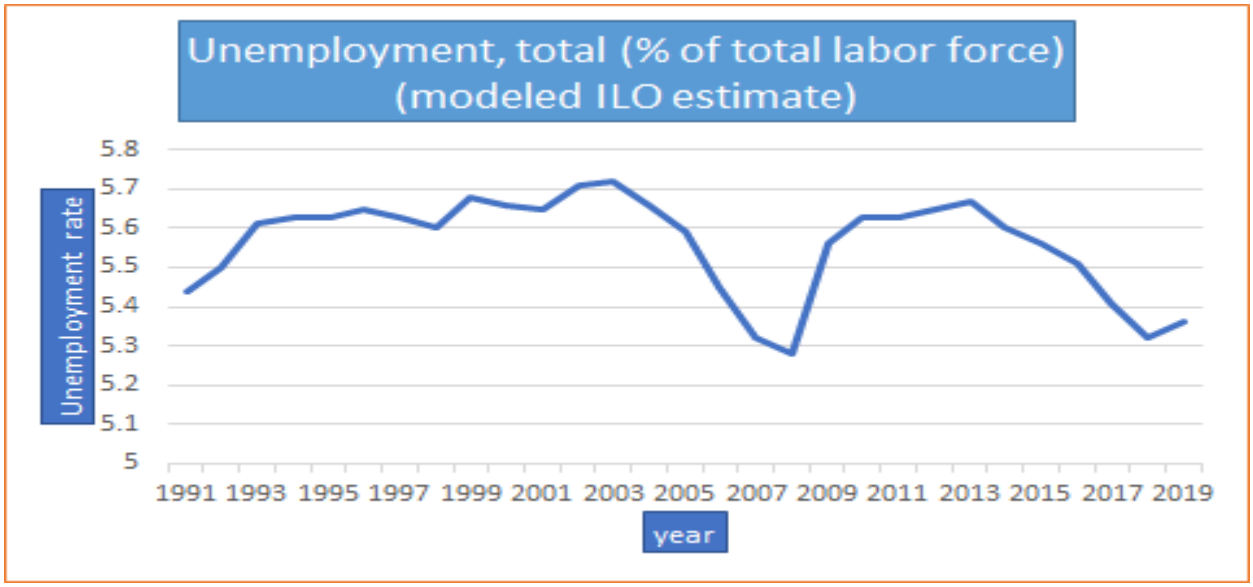

Figure 6: India's unemployment rate from 1991 to 2019.

Source: Data from the world bank group.

Export & Import

According to the Ministry of Commerce, India's overall exports in 2019-20 are estimated to be the US $263 billion. Overall imports are estimated at US $403 billion with the US $667 billion total trade in 2019-20. The highest trade achieved in 2018-2019 was the US $844 billion. The lowest trade was the US $658 in 2016-17.

In 2020, major exports are electronics goods to 32.81 percent, drugs & Pharmaceuticals to 12.37 percent, petroleum products to 2.9 percent, organic and inorganic chemicals to 2.5 percent, cotton yarn, and handloom products to 2.21 percent. India has main export partners such as the United States of America, Japan, China, UAE, Indonesia, and the European Union.

Major imports are gold to 31.52 percent, coal and coke to 24.41 percent, organic and inorganic chemicals to 11.98 percent, pearls and precious to 6.16 percent, electronics goods to 4.66 percent.

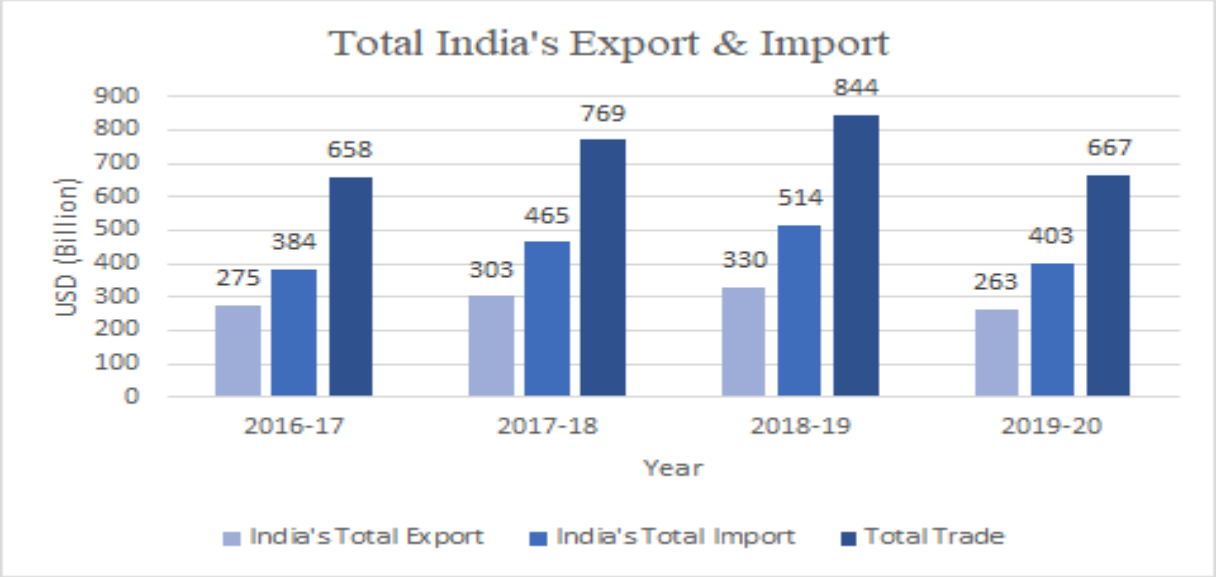

Figure 7: Total trade of India's Export & Import by year wise.

Source: Ministry of Commerce & Industry.

(FDI) Foreign Direct Investment

India has Forex reserves of US $ 476.09 billion with US $ 491.64 billion value of exports in February 2020, according to data from the Reserve bank of India. Foreign companies invest to take advantage of lower wages and tax exemptions. FDI equity inflows were the US $36.8 billion, to invest $6.52 billion in the service sector in 2019.

As per countries, during 2019-2020, the FDI equity inflows are estimated maximum from Singapore at the US $11.65 billion, Mauritius at the US $7.45 billion, Netherlands at the US $3.53 billion, Japan at US $2.80 billion, USA at the US $2.79 billion.

Recently, some major companies wanted to invest and already invested such as amazon investment is estimated to be the US $1 billion investment goal in small and medium businesses to create 1 million jobs in 2025. In 2020, Mastercard planned to invest the US $1 billion in India to enhance research and development. In 2019, the French oil and gas giant invested a 37.4 percent stake in Adani Gas Ltd of US $810 million. Reliance industries invested in India's biggest deal to Saudi Aramco will take a 20 percent stake at the US $75 billion in 2019. And

Facebook announced a 9.99 percent stake in Reliance JIO platforms at the US $5.7 billion in 2020.

S. No.	Financial Year	FDI Equity Inflow	Total FDI Inflow
1	2014-2015	29.74	45.15
2	2015-2016	40	55.56
3	2016-2017	43.48	60.22
4	2017-2018 (P)	44.86	60.97
5	2018-2019 (P)	44.37	62

(P) data is provisional (Amount in the US $ billion)

Table 2: Total FDI inflow of India by financial year.

Source: Reserve Bank of India (RBI).

The Cumulative FDI equity inflows are 456.79 billion from 2000 to 2019. As per investment share in FDI equity inflows, 6% UK, 7 % Japan, 31 % Mauritius, 21 % Singapore, 7 % Netherlands, 6 % USA, 3 % Germany, 2 % Cyprus and France and UAE. FDI, India had more than 100 IPO from 2018 to 2019.

1.2.1 Top Developing sectors of the Indian Economy.

- **Agriculture sector**

Agriculture is the rudimentary sector in India. It contributes 14.6 percent of the gross domestic product and offers 43 percent employment. In products, there are mainly products of wheat, rice, corn, tea, potatoes, sugar cane, cotton, and millet. Gross value added is 8.8 percent of agriculture, forestry, and fishing with the US $266 billion in 2019. The sector is 6th largest in the Indian food and grocery market, 5th largest in food production in the world.

In the growth of agriculture, the sector has been increasing from -0.2 to 6.3 percent from 2014 to 2016 then it dropped to 2.8 percent in 2019. GVA contribution had decreased from 17.7 percent to 15.2 percent from 2013 to 2017. With doubling, farmers' income would challenge some issues like credit, investment, and insurance coverage.

- **The industry sectors**

Industry sector growth is estimated to be 2.5 percent in 2019-2020 but 6.9 percent growth and share of GVA 29.6 percent in 2018-2019. It accounts for 26 percent of GDP. The main energy source is coal, which is the third-largest producer in the world. The chemical industry is the second number in the world. The industry sector is estimated to grow 0.6 percent as an index of industrial production (IIP) in 2019-2020, a 5 percent growth in 2018-2019. The main steel sector was 5.2 percent in 2019-2020, 3.6 percent growth in 2018-2019. India registered a total of 1.1943 billion telephone connections in 2019.

- **Manufacturing sector**

The manufacturing sector has evolved with high growth compared to the past years. Indian prime minister Narendra Modi had launched the "Make in India" program to evolve manufacturing hubs in India. In 2020, It is expected to reach its goal as the 5th largest manufacturing country in the world. It has a goal to create 100 million jobs with 25 percent GDP share by 2022. In 2018, the sector employed 24 percent of the manpower.
With the Make in India program, India will have that opportunity to boost the economy because it has many companies under the process set up of hi-tech manufacturing such as GE, HTC, Siemens, Toshiba, and Boeing. By these setups, it will increase consumers' purchasing power. The manufacturing sector is predicted to develop at 2 percent during 2019-2020

In 2020, Italy-headquartered tecnocap has announced a 75% share recently to enter India with JV Tecnocap oriental. Oriental company is based on packaging producers with a joint venture to set up a plant in Mumbai.

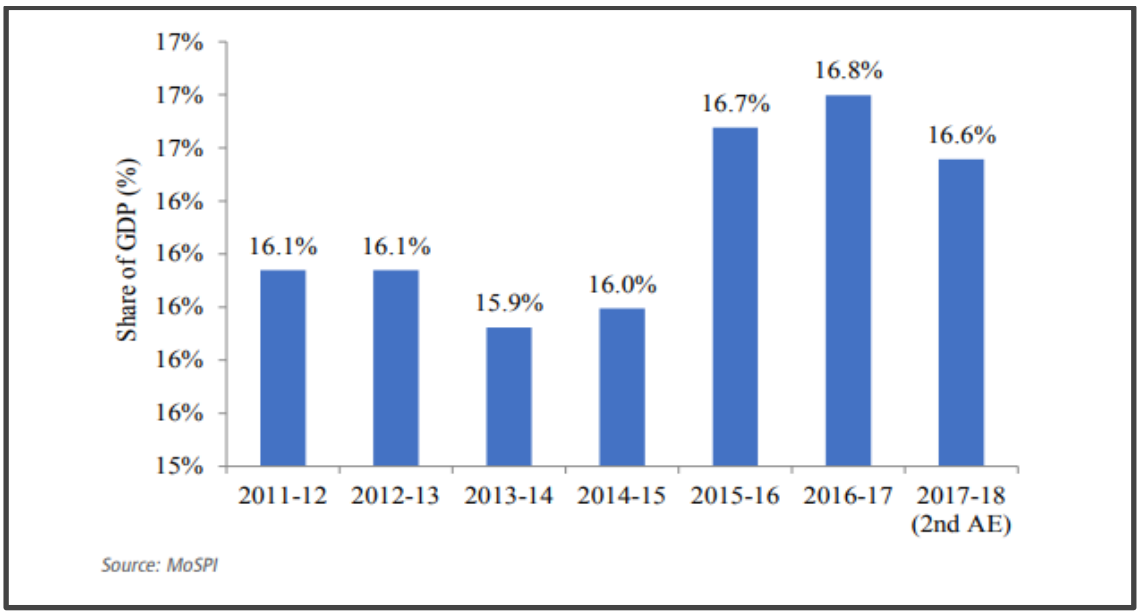

Figure 8: India's Manufacturing as a share of GDP from 2011-12 to 2017-18.

Source: Data from the Ministry of statistics and program implementation.

Indian railways are also more focused on the Make in India program. It has a high speed own manufactured locomotive high-speed engine. The stronger Indian manufacturing sector is more linked to global business, especially to foreign intermediate goods for exporting to the world. The manufacturing sector creates more Indian jobs. India has an opportunity to build hubs as foreign companies.

- **The service sectors**

The service sector is the most important part of the Indian economy because it contributes 49 percent GDP and offers 32 percent employment. The software sector is boosting export and import services with major exporter IT modernizing India.

It is significant in the Indian economy to augment with 55 percent total size of the economy and GVA growth, ⅔ of FDI inflows, and 38 percent of total exports. According to the ministry of statistics and planning implementation, the sector remained to moderate 6.9 to 7.7 percent GVA from 2018 to 2020.

The service sector is predicted to grow 6.9 percent in 2019-2020, 7.5 percent in 2018-2019. The sector contributes 55.3 percent in Indian GVA in 2019-2020. The

main sub-sectors are trade, hotels, transport, financial and real estate services, and communication & service. The share of this sector is increasing with 3.5 percent in 2018.

1.2.2 Strength, Recent Development, and Future Aims.

The Strength of India

- Unity is the main strength of India. It's difficult to manage with different languages and cultures with 28 states and 8 union territories. It is an evolving superpower of the world because the birth rate is higher, so the young generation is raising with a wide education system.
- With a vast reservoir of high manpower, it helps to augment investment and saving to grow the future. It is an attractive country with ample resources so it has a lower cost of living than developed countries like the United States so Indians can easily survive with low income.
- Indian demographic is the advantage of market reforms to improve skills and education to more participating women. It produces a 7 percent output of the world's GDP.
- It's a better place for outsourcing. India has an official language of English the majority of people speak English because the British ruled India for 200 years. The global language of English is more useful for a business-like call center.
- The main strength is that diverse geographical areas with several efficient, educated, young high skilled people. The film industry of India is called Bollywood and it contributes 4.5 billion US$ in GDP.
- Technology is the main advantage. Indian Automotive market has the largest car producer with the largest motorbike market in the world. Technology is increasingly having a lot of opportunities in this scenario. India has the largest number of science and commerce graduates.
- Indian food production is ample for producing food, the second number in the world. It can produce more food. India is a hub for the global software business and developed highly advanced technology with the IT sector.

Recent development

In the development of reforms, it is needed to enhance the economy to require good governance. In recent years, the Prime Minister of India Mr. Narendra Modi initiated some new changes in the economy such as Goods and Services Tax (GST), Startup India, Digital India, and Make in India.
In this economic scenario, there have been many investments in many sectors of the economy. Mergers and acquisitions increased 53.3 percent with the US $77.6 billion in 2017.

- **Goods and Services Tax (GST):**

In 2016, The main evolution of GST rates was structured into direct and indirect tax in 5 slabs such as 0 percent, 5 percent, 12 percent, 18 percent, 28 percent tax rates. Direct taxes include income tax, registration, stamp duty. Indirect taxes include Central GST, customs duty, central excise, and VAT. The rates are applied on slab wise with one nation one tax.

- 0 percent tax rate includes food and certain essential items.
- 5 percent tax rate includes products such as mass production tea, spices, mustard oil, etc.
- 12 percent tax rate includes food processed items
- 18 percent tax rate includes such items as oil, toothpaste, soaps, smartphones, etc.
- 28 percent tax rate includes automobile, tobacco products, auto parts, cement, air conditioners, large tv, etc.

The implementation will make India a common market to grow GDP US $2.5 trillion with a 1.32 billion population to be a big draw for investors.

- **Demonetization notes:**

In 2016, the government of India announced the demonetization of Indian rupees 500 and 1000 currency notes and applied issuance to give new notes from bank exchange as per income tax. Then the main purpose is to eradicate counterfeit notes and stop black money and reduce human trafficking and terrorism funding. After that, the government estimated 3 lakh crore Indian rupees, which is 20 percent black money to remove from circulation.

- **Digital India:**

Digital India is a campaign launched by the government of India in 2015 to transform rural areas to connect digitally empowered humankind and knowledge of the future economy. It has nine pillars such as broadband highways, universal access to phones, public internet access program, E-governance, e-Kranti, IT for jobs, and an Early harvest program. It includes a digital locker, e-education, e-sign, and a national scholarship program. In 2018, it had recorded 1.3 billion population, 1.23 Aadhaar cards (digital biometric identity cards, 1.21 billion mobile phone users, 446 million smartphones, and 51 percent growth in online business.

- **Startup India:**

In 2016, the government announced a startup India program to help in three action plans such as handholding, funding support, and industry partnerships. It is playing a rudimentary role in evolving electric mobility, charging infrastructure, and mobility services to grow opportunities in new business models. The plan is the 3rd largest ecosystem of startups to evolve 50,000 startups with 12 to 15 percent growth in 2018. It will evolve economic growth and generate high scale employment.

- **Make in India:**

The Indian Prime minister gave a clarion call in 2014 to make in India, zero defect, zero effect policy. The main ultimate objective is to make a renowned manufacturing hub for the sector. Global companies would be invited to invest and expand industry in India so Indian people would get talented and skilled manpower to make zero defect products to boost economic growth. India is rapidly moving toward electrifying mobility to demand in the global market. Make in India program is more focused on automotive industries and components. It is required to increase the purchasing power of an Indian consumer to boost demand and development. The main goal is that 17 percent from 25 percent of GDP will contribute to the economy.

Future governmental aims

The Indian government of planning and implementing department have documented the future implement as “Strategy for New India @75”
The main aims are doubling farmers’ incomes, a startup with new talent, boost make in India product, the goal to get 22 percent tax to GDP ratio and 36 percent investment rate by 2023

The goal is to make a US $5 trillion economies by 2030 and to reach an 8 percent growth rate. The prime minister declared that he wanted to make the US $5 trillion economies by 2024. Recently, India is a US $2.8 trillion economy, but it is more challenging than achievable. Agriculture individual income will double in the next 5 years because they made a strategy to use maximum technology with good resources. The government of India wanted to improve agricultural productivity.

Make in India program is working on the global manufacturing industry to establish a big export hub. It will create more jobs to boost economic growth and urge more investment in India. Top sectors with this campaign: Automobile, general manufacturing, electronics, pharmaceuticals and biotech, heavy engineering, information technology, metals and metallurgical products, services sector. The automobile industry is expected from the US $74 billion to reach the US $300 billion by 2026.

In the union budget 2020, the finance minister announced the basic customs duty of completely built units (CBU) on electric vehicles will be raised to 40 percent to exit 25 percent from 2021. The import of electric vehicles will double as per the ecosystem to protect globally. The country is expected to attract investment of US $100 billion in oil and gas infrastructure for the next five years and that agriculture export will reach the US $60 billion by 2022, government approved US $29.59 million in 2019 to aim for doubling farmers income. Indian want to spend on the public health care sector at 2.5 percent of GDP by 2025.

The strategy for new India @75, the government wants to implement in many sectors. Especially in female labor focus participation is 23.7 percent, which will increase to 30 percent by 2022-23.

By 2022-23, India's rail network should be efficient, reliable, and safe, cost-effective with goods and people to increase capacity and speed in new infrastructure. It will enhance service delivery to reach on-time arrivals at 95 percent. The young generation level is higher in India because 65 % of the population is young. So, there are more opportunities to evolve and increase the working-age population. It could be helpful to enhance the level of demand for skilled labor. India is focusing more on energy from renewable sources to reach 40 percent energy from non-fossil resources by 2030.

1.2.3 Opportunities and Challenges.

Opportunities:

India has economic opportunities to support education, training, and jobs for millions of young people. In the last two decades, the working-age population is increasing to 200 million over 1 billion.

The recent budget of India 2020-2021, is looking at controlling red tape, creating the best use of technology, making social infrastructure, digital India, pollution-free India, makes in India, job creation in every sector. The strategy of Make in India program into the industrial base and manufacturing export to play a key role to enhance theory position in the global market.

After the global world trade war with China, the Indian economy has a chance to work as a second option after competition from China, especially in the manufacturing sector and India has the capabilities and resources in IT and digital requirements. Indian economic growth and development of the government need to enhance infrastructure in transport and power networks.

India has an opportunity to obtain a huge market in agricultural products because it has top producers in many agricultural products to increase export by reducing tariffs, improving warehousing, and cold storage.

E-commerce and digital payment sectors are growing rapidly in India, to attract investors from the global market. So online business will be beneficial to Indian companies to create more jobs in e-commerce.

As per the economic survey, the Indian Airline industry will grow airport capacities and aircraft. Airports are to be made more than 100 operational and 520 new aircraft by 2023-24. So advance airports proffer more employment opportunities.

Challenges:

Economic performance is strong, but challenges continue the same. There are many challenges to tackle future opportunities.

- **Population, Poverty level, and Health system.**

The population is facing poverty due to more competition between reach and poor people. Twenty-two percent population is under the poverty level. The birth rate is increasing rapidly due to a lack of control over delivery and no awareness in backward people. Poverty is the main challenge in India because the population is surviving under $2 per day with 69 percent of the population. It impacts a different way to people as child labor, malfunction, lack of education, some harmful diseases.
Health care is needed to improve for massive scale training and high quality of treatment. For example, due to coronavirus, more critical care is needed for requirements such as insufficient ventilators, sanitizers, masks, and scrub suits.

- **Development of skill and creation of jobs for future manpower.**

The unemployment rate is increasing day by day in India. According to the world economic forum's report 'The future of jobs 2018', the demand for skilled workers is more required in the next years so reskilling is required to meet that talent of demands.
Skill development is the main challenge because of low productivity and weak human capital of a high percentage of workers are low skilled.
India faces new challenges in health and sustainable life, so it is alarming rates of harmful pollution to connect global warming in India. It would be free pollution, healthy quality of life, and high healthcare support.

- **Corruption and women protection**

In 2019, the corruption perceptions index (CPI) is ranked 41 scores more corrupt. India is facing high corruption levels, which should be handled quickly and wisely in both the private and public sectors. The economy has the most serious challenge inequality and pending justice, so it reduces women's participation rate and crime has increased in the last five years.

- **Global warming impacts due to pollution**

Climate change impacts on the standard of living of humankind, more than 600 million people face water shortages, 40 percent of the population will have no availability of drinking water by 2030. Pollution and environmental issues are more challenging in India because of the degradation of land, loss of biodiversity, depleting natural resources, traffic, and heavy construction.

1.2.4 Impact on the current economic situation due to Coronavirus

The financial year 2020, from 25 March, the government enforced a total 66 days lockdown in India till 31 May 2020, due to COVID-19. It is the worst economic scenario to impact the economy. Every country is facing the same problem. Recently, due to coronavirus, prime minister Mr. Narendra Modi announced an economic package of US $283.73 billion, which is almost 10 percent of India's GDP.

According to the Asian Development Bank forecasts a 4 percent growth rate with 1.5 billion financings from ADB to India. Economic activities are stopped so unemployment will increase in large amounts due to higher migration labor. The government announced a US $6.5 billion emergency fund to the informal sector. The Indian economy is suffering an economic crisis from coronavirus due to health emergencies. So, the IMF and the world bank expected India's growth rate between 1.5 to 3 percent with a 1.9 percent expansion in 2020.

The governmental forex reserves are emptying because most exports are denied to all countries due to risk so there is an uncertain future for Indian industries. It has been applied to reduce operations and shut down, to decrease employment numbers

1.2.5 Forecasting of future growth scenario.

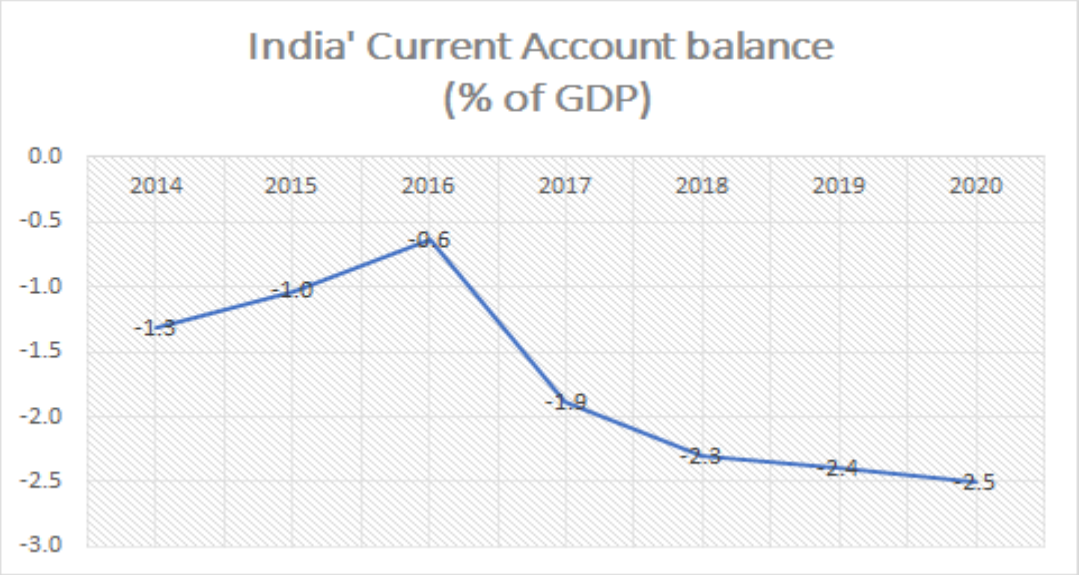

Figure 9: India's Current Account Balance per percent of GDP by year wise.

Source: Asian Development Outlook 2020, ADB

The above graph represents India's Current balance. In 2014 Nation's economy was decreased by 1.3 percent, however, the economy increased by 0.5 percent till the year 2016, then in 2017 GDP was decreased by 1.9 percent which shows a huge loss for the nation. Over three years till 2020 GDP was decreased by 1.0 percent each year.

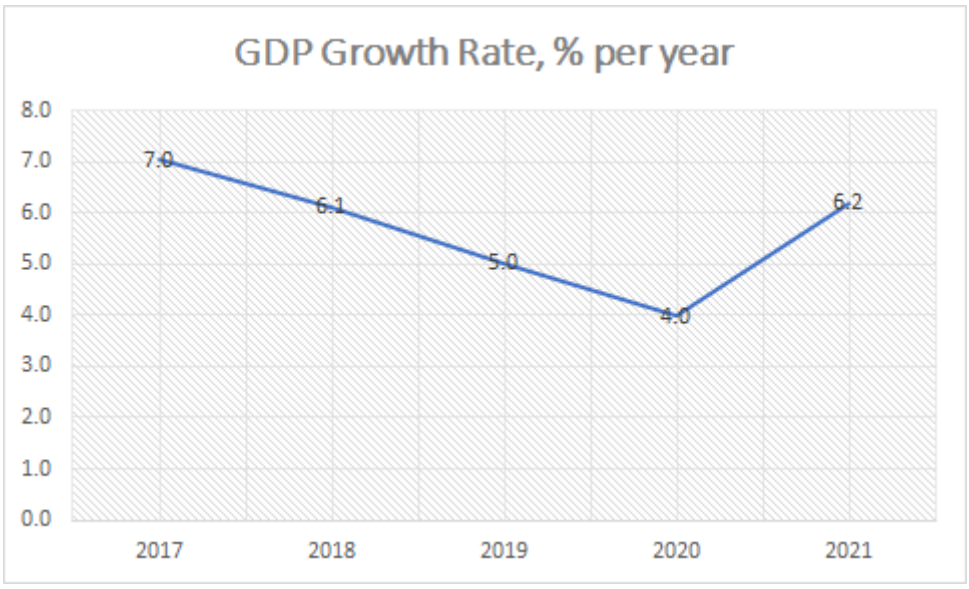

Figure 10: Forecasting India's GDP growth rate per percent at year wise.

Source: Asian Development Outlook 2020, ADB

The above graph replicates the GDP Growth rate percent for five years until 2021. Here, in 2017 the GDP Growth Rate was 7 percent, however, then the growth rate was decreased by 1 percent each year till 2020. Lastly from 2020, the GDP Growth was suddenly increased from 4.0 to 6.2 percent which is a sign of positive growth for the nation's GDP.

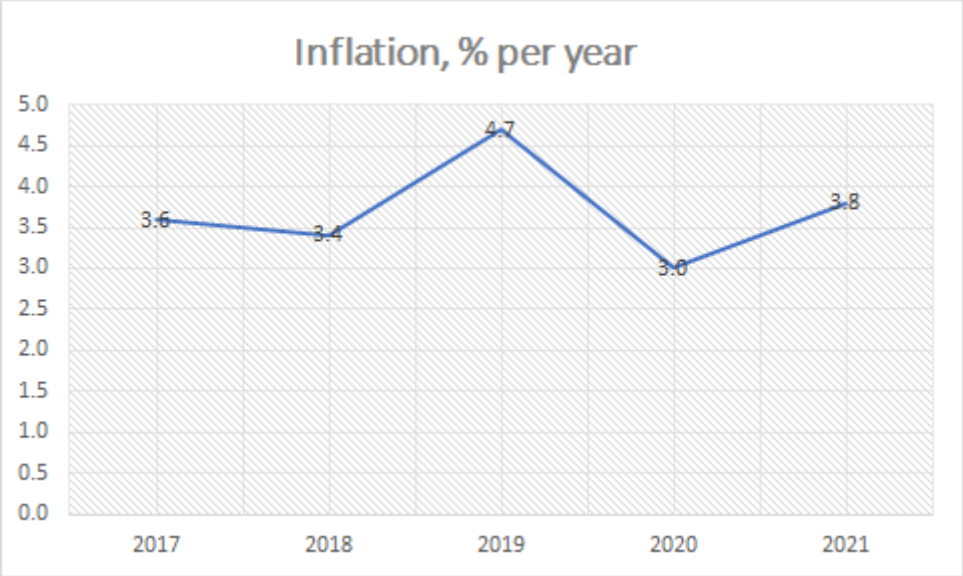

Figure 11: Forecasting India's inflation rate at year wise.

Source: Asian Development Outlook 2020, ADB

The above graph shows Inflation which shows the purchasing value of money flow. However, from the above graph in 2017, inflation was 3.6 percent which was decreased by 2 percent in the next year. Consequently, in 2019 the inflation was suddenly increased from 3.4 to 4.7 percent and then was a sudden fall in money development by 1.7 percent in 2020. However, in 2021 India's economy showed development and the economy increased from 3.0 to 3.8 percent.

Chapter 2. Evolving Car industry

2.1 Automotive Car Industry: An Overview

2.1.1 A short timeline of the Global Automotive Car Industry in the world.

An automotive car is the biggest creation in the past for allowing fasting mobility in the world. In the past, before the car invention, it had transportation as carts and horse carriages for people and goods. but engineers worked on that same design horse carriage then improved the frame of the vehicle.

In 1672, it was the first model created as a form of toy. It was a steam engine with a 65 cm long scale model by the Chinese emperor. cars were into the global market to use in the 20th century because developed countries depended on that market. In 1806, it was the first car with an internal combustion engine as fuel. In 1886, modern cars came into the market by German inventor Karl Benz as per Benz's patent of Motorwagen, so Germany is the birth destination of cars and he gave a four-stroke cycle petrol engine to the world. In 1888, Karl Benz and his wife took their first road trip by car and proved the first invention for cars.

A four-stroke diesel engine was invented by Rudolf Diesel. In that era, battery-electric cars were begun by Hungarian AnyosJedick, who invented electric motors and Gaston Plante invented the lead-acid battery in 1859. In Rochester, New York, the first car design was made by George Selden in 1877 as an American car of internal combustion engines.

From 1899 to 1911, FIAT (the Fabbrica Italiana Automobili Torino) was established by Giovanni Agnelli and many investors. the company opened a factory with 150 workers at Turin, Italy. They produced 24 cars and after some years, the company has had many brands such as Maserati, Ferrari, Fiat, Alfa Romeo, the Chrysler Group, and many more. During that 19th century, Benz was the largest company in the world to produce 572 units in 1900 than at the end of this century, many companies started to come to America and Europe. But at that

time cars were expensive to have a few rich people. At that time, middle-class people could not buy their cars. So, after that manufacturing units were increased in Europe and America to reduce costs in the production line. Ransom Olds founded affordable automobiles an Oldsmobile factory in 1902. In 1903, Henry Ford established the Ford motor company and sold 1700 cars in the first year. In 1939, Mercedes Benz introduced the first diesel car, which was 260-D. In 1963, Lamborghini was established by Ferrico lamb, which was popular in high-end sports cars.

In 1920, General Motors became the world's first largest automotive manufacturer and. After that three giant companies that had 90 percent in the US market, they were General Motors, Daimler Chrysler, Ford. In that year, The USA manufactured 2.3 million cars. In 1929, the USA produced 90 percent of the world's cars. The first Volkswagen model was launched by the German labor front in 1937. General Motors sold 44 percent of total car sales in the USA in 1941.

the eponymous company was established by Enzo Ferrari to manufacture racing cars in 1946. Then after 2 years, the first ignition key was invented by Chrysler, which was a new starter button to start the car and, they evolved a new four-wheel disc brake system and power steering system from 1949 and 1951. German and American engineers invented airbags in cars for safety purposes in 1951.

In 1966, Toyota sold 40 million cars of corolla models, which was the best-selling car in the world, and they started to collaborate with Yamaha for the 2000GT supercar. In 1970, World car production was 28 percent USA, 18 percent Japan, 15 percent Germany, and 9.3 percent France. In 1980, Volkswagen launched Audi Quattro with a turbocharged engine and four-wheel drive. world’s first navigation system launched by Honda, alpine electronics, and Stanley electric company then Mazda launched a GPS navigation system in the first production of the car in 1990.

from 1997 to 2000, the first mass-produced hybrid car launched by Toyota with a fuel-efficient car then smaller cars had more revenue in that era. From 2001 to 2003, three technologies added in-car features like the first hands-free Bluetooth kit, reversing camera, and automatic car parking.

In 2008, Tesla launched the Roadster as the first electric battery car. China surpassed that car market and became the biggest market in the world with 13.5 million vehicles and 10.4 million vehicles in the USA in 2009. Hyundai became the 4th largest automaker in the world in 2010 and Nissan launched all-electric cars in the USA and became best-selling cars.

In 2010, Google launched an invention as the self-driving car, which was called Google X. The electric hybrid car of Chevrolet Volt was launched by general motors in 2011. In 2014, Tesla added the first to offer autopilot on model S, which can manage car steer and change lanes on the way. 4G Wi-Fi hotspots system added new technology to connect the internet for passengers in 2014. In 2015, Toyota launched a model of the Mirai with hydrogen fuel cell cars. After that general motors added a Chevrolet bolt, which can travel 200 miles per singer charge.

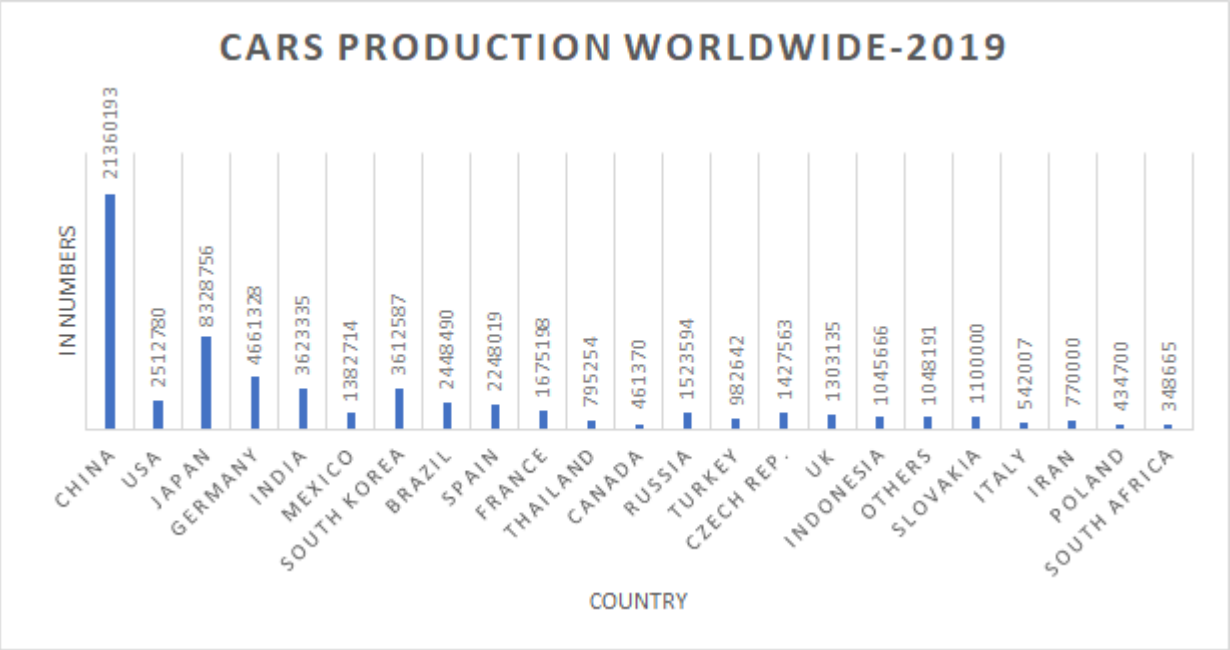

Figure 12: Total car production in different countries in 2019.

Source: International Organization of Motor Vehicle Manufacturers (OICA)

In Europe, there are approximately 268 million cars today and it has an average life of 11.1 years with 24 percent of production cars in the world. and 5.4 million cars exported to be worth 127 billion euro worldwide in 2018. In 2020, google

projected to release google self-driving cars (WAYMO), which completed driverless rides on public roads in the past.

- **The giant car companies in the global ranking 2019 list.**

Sr. No	Company	Country
1	Volkswagen	Germany
2	Toyota	Japan
3	Daimler	Germany
4	Ford	United States
5	General Motors	United States
6	Honda	Japan
7	SAIC	China
8	BMW	Germany
9	Nissan	Japan
10	Dongfeng	China
11	FAW Group	China
12	Hyundai	South Korea
13	Peugeot	France
14	BAIC Group	China
15	Renault	France
16	GAC Group	China
17	Geely	China
18	KIA	South Korea
19	Volvo	Sweden
20	Tata	India

Table 3: The table of the top 20 global car manufacturing companies in the world.

Source: Data from the Fortune global 500, in 2019.

According to OICA, the chart represents the total number of production cars by country wise in 2019. China had the highest production of cars at 21.36 million. Secondly, Japan was second in the largest production at 8.3 million cars in 2019.

Lastly, we can see that Germany and India had production cars at 4.6 and 3.6 million.

2.1.2 History of Indian Automotive Car Industry

In the early age of India, the first car was that on Indian roads in 1897 and the first owner of that car was Jamshedji Tata in 1901. In 1920, the automotive industry had started to import cars for rich families and did not have any manufacturing capability to produce cars for the country. After independence, the Government of India tried to uphold the sector by encouraging automobiles. Before that, cars were imported directly from outside of the country.

In the 1940s, the main emergence was augmented for the evolving industry in different regions. Then it was India's independence that Hindustan motors were manufactured that first automotive vehicle in 1942. From 1942 to 1960, many companies had entered such as Hindustan Motors, General Motors, Fiat, and Mahindra & Mahindra. Premier automobiles company was an Indian manufacturing company in 1944 and launched first vehicle production under Dodge and Plymouth. After that in 1951, the fiat 500 model was in the Indian market then fiat 1100 in 1954 but premier changed the name premier Padmini in 1973. Then in the 1980s, the automotive industry started to evolve as a significant role in India. because the industry was dominated by Hindustan and Premier. and Maruti Suzuki was first successful in the car segment.

In 1983, the Indian government started a collaboration with Maruti Udyog (Suzuki from japan). The company launched the first model, the Maruti 800, became more popular in the automotive market. After then they launched many successful models such as Omni van, Gypsy, Esteem, zen, Baleno, and more. In past years, it was two very famous models of premier Padmini (fiat) and ambassador in 1984.

In the reformed economy in 1991, global automotive companies were started to come as an FDI in India and many companies such as General Motors, Ford, Hyundai. From 1990 to 2000, many prominent global manufacturing companies entered to set up some units with (JV) joint ventures with Indian companies to help with FDI policy such as General Motors, Ford, Honda, Toyota, Suzuki,

Hyundai, Renault, Mitsubishi, Nissan, BMW, Benz, and Volkswagen. In 1992, Hindustan motors founded the manufacturing unit by Brila. then it continued to grow as a leader in the market until 1980. Which was a very prominent Ambassador car of Hindustan motors, is being used mostly as taxicab and government purpose. After fast-moving competitors, the company stopped production in 2014. In 1997, Hyundai launched the Santro model, which was more popular in those days. After one year, Honda city was popular in the Indian market.

In 2002, Mahindra and Mahindra company launched the first popular SUV Scorpio model. Indian passenger car and the commercial car industry is the top ten in the world because of the annual production of 3.90 million units in 2011-2012. India is also Asia's 4th largest exporter of passenger cars in 2011. Mahindra Electric mobility-limited is also known as Reva electric car company in Bangalore, India. it was the first model of the REVAI electric car in 2011. In 2018, the Indian industry exported major models of cars such as a Ford EcoSport and Figo, Kia Seltos, Nissan Sunny, GM Beat, Suzuki Baleno, Hyundai Grand i10, Verna and Creta, and Volkswagen Vento. That year, ford exported the highest 181000 cars to overseas.

Indian Emission Standards in cars		
Reference	Standard	Year
Euro 1	India 2000	2000
Euro 2	Bharat Stage 2	2005
Euro 3	Bharat Stage 3	2010
Euro 4	Bharat Stage 4	2017
Euro 5	Bharat Stage 5	skipped
Euro 6	Bharat Stage 6	2020

Table 4: Emission standards in the Indian car industry.

Source: Ministry of Petroleum and Natural Gas.

Electric car companies sold 1200 units in 2018. In 2019, electric car companies launched Hyundai Kona, eZS (MG Motors), eKUV-100 (M&M), Leaf (Nissan), Zoe (Renault), and E-Tron (Audi) in 2019. In 2019, Indian major car companies are Maruti Suzuki, Tata Motors, Ford, Honda, Fiat, Hyundai, Skoda, Toyota. The main goal of companies is focused on the middle-class group then high-income group because in India the middle class is much more than others. Indian markets

are growing rapidly to the demand for luxury cars because of highly advanced features and brands of status such as Audi, BMW, Lamborghini Mercedes, Rolls Royce, Aston martin. The Indian Government implemented emission standards as per year in the below table.

2.1.3 Indian Automobile clusters and Top ten companies in India

India has the main 4 major production sites as a Delhi, Gurgaon, and Faridabad north part of India, Mumbai, Pune, Nashik, and Aurangabad in the west part, Chennai, Bengaluru, and Hosur in the southern part, and Jamshedpur, Kolkata in the east part of India. In India, there are many manufacturing units to evolve new markets in India.

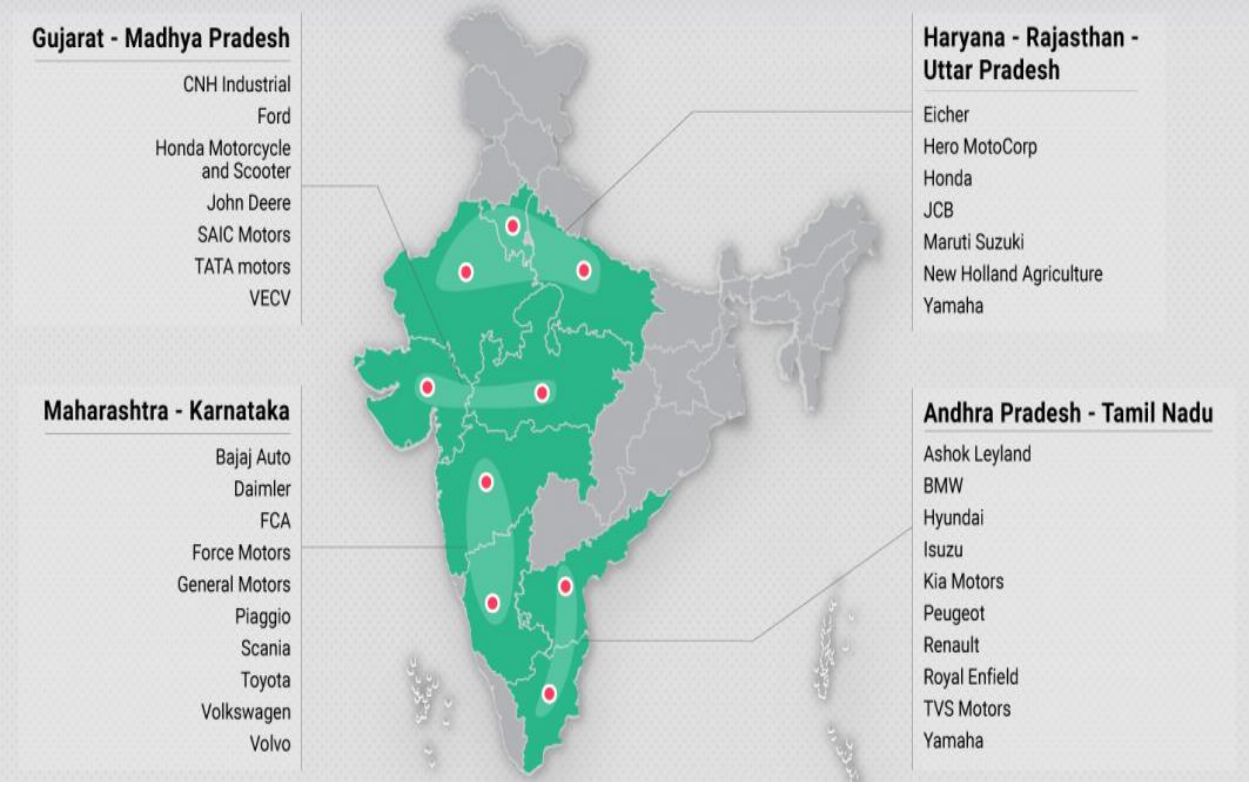

Figure 13: Automobile clusters in India

Source: map from (invest India) government India.

First, the northern part of India, it has mainly 3 states: Haryana, Delhi, and Uttar Pradesh. The northern part of India's main plant is Maruti Suzuki's largest manufacturing plant for the first rank in car production at Gurgaon and Manesar

(Haryana) and contributes 32 percent of the Indian manufacturing car market and 50 percent of total small cars.

The western part of India, it has many companies in Maharashtra state like Volkswagen, General Motors, Mahindra and Mahindra, Skoda, Tata Motors, Land Rover, Jaguar cars, Mercedes Benz, Fiat, Force Motors. the major city Pune and Mumbai are contributing 33 percent of the revenue share. It has the main unit of Mahindra and Mahindra to assemble the engine unit of SUV cars. Gujarat is evolving in the automotive sector to have a manufacturing industry of general motors, tata motors, Ford, Maruti Suzuki.

The southern part of India, Chennai, and Bangalore accounts for 21 percent of cars, Chennai is the main biggest Indian city to contribute 35 percent revenue share. and has 60 percent of the automotive industry like Ashok Leyland, Ford, Hyundai, Nissan, Renault, Daimler, BMW, Hindustan Motors, KIA motors. As per data of the Society of Indian Automobile Manufacturers, 5 million vehicles sold in 2015 and projected 9 million in 2020, predicting 611 million vehicle production in 2050. Chennai exports 60 percent of vehicles in the world.

Profile of Top 10 Automotive Car companies in the Indian market.

1. **Maruti Suzuki**

Maruti Suzuki India limited is known as Maruti Udyog in the past and founded in 1981 in New Delhi. Maruti 800 was launched in 1983. It is based in the Japanese company, Maruti Udyog and Suzuki motors corporation connected with joint ventures from the last 4 decades. It is the largest company in the passenger car industry. It has a 53 percent market share in India and believes in green technology. it exports 1.8 million units in 125 countries. Last year, the one-millionth car was exported from Gujarat at Mundra port. successful models were Swift, Alto, Brezza, Ertiga, and Celerio. In 2015 the company started a new deal with the Nexa brand with premium cars like Baleno RS, S-cross, XL-6. Maruti Suzuki launched as the first car maker to implement BS-VI (Bharat Stage 6) to equivalent euro-6 emission standards in Wagon R and Swift petrol in 2020. It is the market leader in the car segment, so it has a 50 % market share in this segment of car sales in 2018. That sold 1779574-unit sales from 2017 to 2018. It is a

carmaker to provide BS-VI in the first car, for example, Swift petrol and Wagon R in India in 2019. But in that year, it witnessed a decline in sales to 17%.

2. Hyundai

Hyundai motor is the 2nd largest car manufacturing company in India, which is the number one exporter in India. South Korean company Hyundai entered India in 1996 with an unknown brand. Hyundai has current models like Santro, Grand i10, Elite i20, Aura, Xcent, Verna, Elantra, Venue, Creta, and Kona electric. Hyundai has a manufacturing plant in Chennai to export to 88 countries from all over the world. It has 493 dealers and 1309 service centers in India. The main prominent feature is cutting edge global technology. The first model Santro was very successful in the Indian market in 1998. The company proffers hybrid and hybrid-electric cars in the vehicle segment.

3. Tata Motors

As per Indian company, Tata Motors company is ranked number one in top companies in India with cost-effective vehicles and founded in 1945 in Mumbai. It is the largest carmaker company in Asia and 17th largest in all over the world. It is very prominent in Cars, Trucks, Vans, and Buses. etc. Tata Motors offers the best vehicle to give a better experience to the customer. The successful models are Sumo, Tiago, Nexon, Zest, Hexa, Nano, Harrier, and Safari. Tata Motors acquired the company Jaguar and Land Rover in 2008. They launched Tata Nano cheapest cars as the US $2146 in India, and have many plants in other countries like Argentina, South Africa, and Thailand. In 2020, Tata will launch the second electric car. Tata Motors' total domestic sales dropped 25 percent at 38,057 units as compared to 50,470 units in November 2019.

4. Mahindra & Mahindra

Mahindra and Mahindra’s limited company is based on Indian car manufacturing at Mumbai, India. It has 3rd rank in market share in India with successful models such as Scorpio, Bolero, XUV500, Xylo, and Verito. It is very renowned for its high performance with an aerodynamic design. The company was founded in Bengaluru in 1994 and has Mahindra electric mobility limited as a subsidiary to give the advantage to fuel-free cars. the company proffers as a remote mode

application in smartphones to get real-time data and updates to manage features in cars.

5. **Honda Cars India Ltd**

Honda cars India Limited is India's counterpart and leading manufacturer of premium cars. The company was founded in 1995 with a joint venture between the Usha international of the Siddharth Shriram group. It is a subsidiary part of Honda Motor Co ltd., japan. The most famous car models are Honda City, Honda Accord, Honda CR-V, Honda Brio, and Honda Jazz. It has 371 dealerships in India, and they sold 189,062 units from 2014-2015.

6. **Ford India private limited**

Ford motor company and Mahindra & Mahindra are partners as a collaboration of a 50-50 joint venture. It is a renowned car manufacturing company and was established in Chennai in 1995. many capabilities are that ladder on frame design, amazing road presence, and masculine style. The Chennai plant can produce 2,00,000 cars. It has integrated manufacturing facilities in India. in 2019, ford has 541 service and sales centers in 292 cities in India.

7. **Renault India Private limited**

It is a fully owned subsidiary of the French automaker Renault. Renault India Pvt Ltd. It offers the current five models like SUV duster, the compact MPV Lodgy, and Triber, Kwid, and Captur. The main plant is Chennai to produce and export cars to produce 480,000 cars per year. SUV cars will have more demand to drive success in the Indian market.

8. **Skoda Auto Volkswagen India Private limited**

Volkswagen is a German company. It is 2nd top automobile company in the world. in the Indian market. It has a manufacturing plant at Pune, Maharashtra to have an annual capacity to produce 200,000 they have a weak service network and supply channel after-sales, failure in support to customers. Polo and Vento are more popular models in Indian markets. The Volkswagen group focus on the

sales and manufacture of Audi, Volkswagen, Skoda, Porsche, and Lamborghini cars in India.

9. Toyota Kirloskar Motors Private limited

In India, Kirloskar Group is a minority owner as an 11 percent share of the Toyota motor corporation of japan. It has plants and sales groups in India. The company was established in 1997 and became leading to better quality management in manufacturing India. In 2017-18, they manufactured 139,566 car production. They are exporting cars from Indian manufacturing plants to foreign countries. They have more popular models like Toyota Innova and Etios, Toyota Camry, Toyota Prius, Toyota land cruiser, Toyota Yaris, and Toyota Fortuner.

10.Nissan Motor India Private Limited

The company has a subsidiary of Nissan motors from japan. It was established in 2005 in India. for cars, it has a good capability in durable frames and superior engines. The company has many popular models like Nissan Micra, Nissan Sunny, Nissan kicks, Nissan GT-R, and Datsun Go.

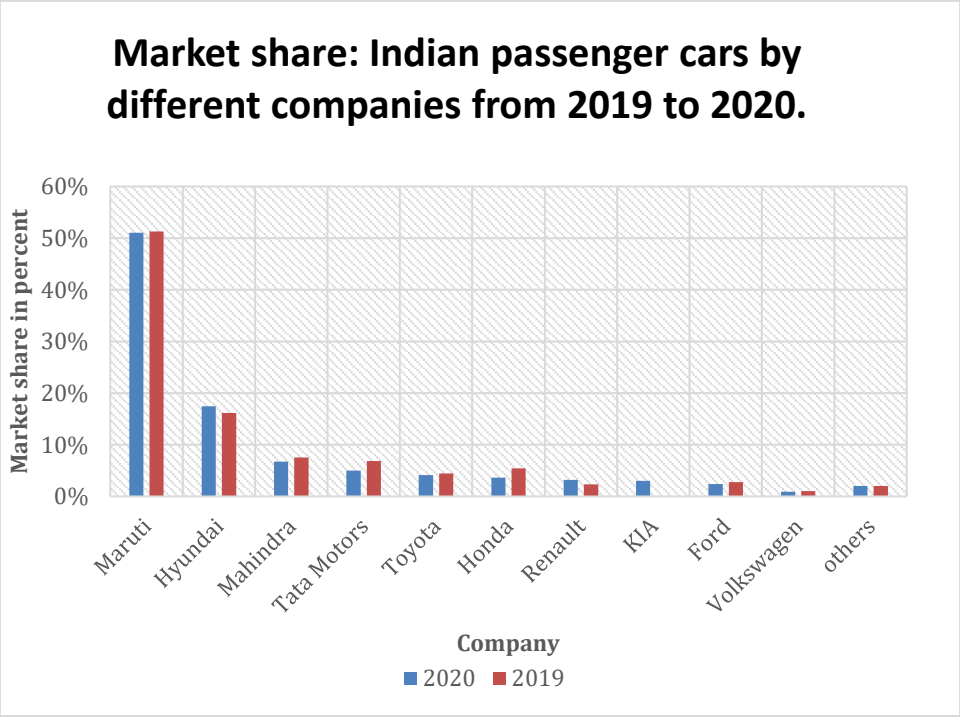

Figure 14: Market share of an Indian passenger vehicle by different companies from 2019 to 2020.

Source: Society of Indian Automobile Manufacturers.

2.2 The Current Situation of the Automotive Car Market in India.

2.2.1 The Present Scenario of the Car segment Industry in India.

Private car mobility is more popular in this fast-moving scenario all over the world. The automotive car industry is contributing an integrated approach with global partners to create eco-friendly engines and reduce harmful gases. day by day, global carmakers are putting technology to reduce emission and consumption of fuel. Nowadays, cars have improvements in performance with less pollution. electric and hybrid cars are better options to evolve in the new era.

Disposal income has been increasing so Indian consumers are very conscious of buying patterns to connect the new lifestyle. Tata nano model is the cheapest car in the world suitable for the middle-income group. Indian market exports 12 percent of cars to all over the world.

The Indian automobile industry has 4th rank in the world and will be taken over 3rd rank by 2030. The Automotive industry has 37 million employees to connect directly or indirectly to contribute 7.1 percent GDP in India with the 4th largest manufacturer of cars in India.
In the current scenario, automakers are struggling with economic problems because of the price drop to minimize production and risk of employment. The government is initiating automakers to support and survive with policy. The worldwide passenger car segment industry has been facing difficult times. Especially in India, the car segment is facing a slowdown in sales because of the economic slowdown, increasing fuel prices, and the coronavirus effect. Currently, India's population is 1.37 billion, so India has a ratio of 22 cars per 1000 individuals.

The automotive industry plays an essential role in the Indian economy. The main profitability of this industry is dependent on the production of car products. The production of an engine is the heart of the vehicle because it has the main function

to provide power to run the vehicle. It upholds an important role in the Indian economy and plays a significant driver for technological development in India.

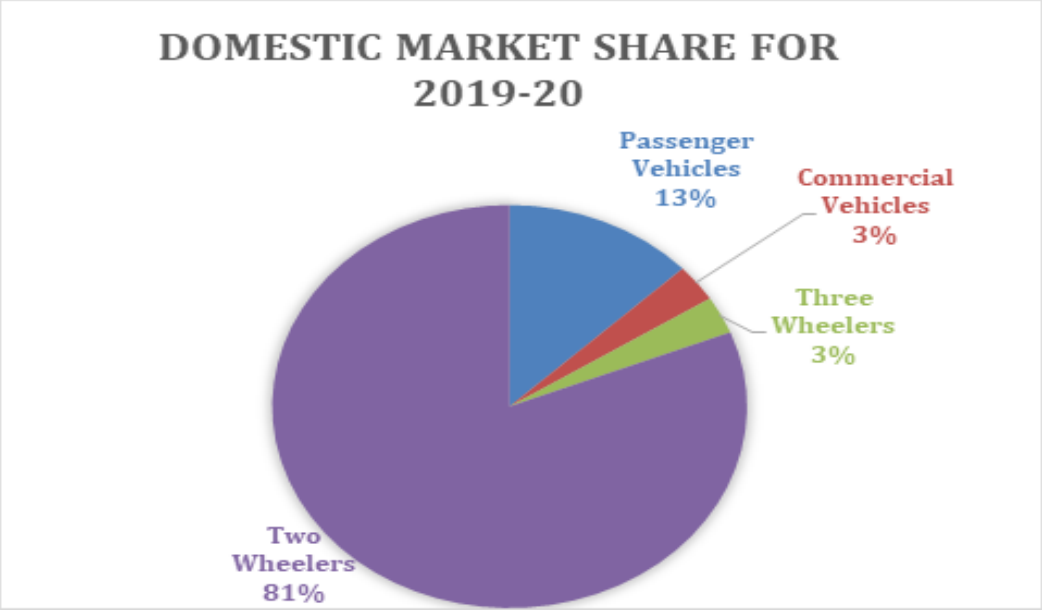

Figure 15: Domestic Market Share of different vehicles from 2019-20.

Source: Society of Indian Automobile Manufacturers.

2.2.2 The Indian Mission Plan is an evolving car industry.

As per the government of India, Automotive Mission Plan (AMP 10 years) 2016-26, it will augment from 7% to 12%. India wants to expand the world's third-largest passenger vehicle industry by 2021. The automotive industry is generated by 19 million employment in India. It has a 40 percent share in global R&D and a 4.30 percent share in India's exports.

As per the year of 2018, the industry is manufactured 25 million vehicles out of 3.5 million vehicles are exported. In the future, India wanted to be projecting the 3rd largest automotive market in the global world. Now it's the 4th number of the position in the world. In 2020, it will be expected to sell more than 6 million hybrid and electric vehicles in the automotive industry in India. Because the Indian market is focusing more on the "Make in India" plan as maximum manufactured components in India. The plan has played a vital role in the global market to boost the overall economy. The Indian automotive market is focusing

on eco-friendly vehicles because of future demand as a safe world, to aim to produce more hybrid and electric vehicles. The industry can be classified into passenger vehicles, commercial, 3-wheelers, 2-wheelers vehicles. And 2-wheelers vehicles are a dominant position in the market because of high demand from middle-cast families and other purposes.

The automobile industry has a simple business plan to sell as maximum vehicles as per demand flow and provide after sell business as a repair and maintenance. The car industry is evolving with tremendous growth day by day because manufacturers are facing high competition to make innovative and new advanced features to gain profit in the Indian market. Government policies are impacting the automotive industry. New entrants always wanted to invest in a high growth market with liberal policy and tax reliefs. And the second reason is a higher standard of living to gain a new generation. The automotive car market has been augmenting in the last few years because of tax reliefs and new policies of the government of India.

2.2.3 Slowdown of the Car Industry

Recently, the Indian economy has been slowing down. It is 5% in the quarter by the end of June 2019. We can say that it is the lowest in the last five years. So, it drops private investment and the crisis in the banking sector. As per that effect, it goes to weak consumer demand. Indian administration is also applying to change the scenario of the car (auto) industry from fuel consumption car to electric cars over the next decade, because of fall 41% car sales in two decades. The automotive industry is the biggest, it offers 35 million employment directly or indirectly. Goods and services tax (GST) and banknotes Demonetisation have seriously impacted in the last 5 years, because of an economic growth slowdown and higher oil prices.

Nowadays, due to coronavirus, the slowdown in supply of Chinese automotive components will affect India so automakers will slow in production. so, the future will be unclear for this segment because of human loss and slow down the supply chain in this global world. it predicts 1.8 approximately GDP in India because of this lockdown situation.

As per data of SIAM, sales of cars fell at 52.12 percent with 85,229 units in March 2020 due to the lockdown situation. there are the most challenging months for the automotive sector in India due to 68 days of lockdown, and more impacting on production and sales with the high fixed cost of the industry. The degrowth range was -22 percent to -35 percent in many automotive segments. In 2020, Passenger vehicles of sales were 143,014 units as compared to 291,861 units in 2019, by making a difference of -51 percent in this situation. As per SIAM, the industry is losing the US $23 billion in production turnover due to everyday closure.

Chapter 3. Overall market demand in the Indian car industry.

3.1 Development and Future Prospects of the Car industry.

3.1.1 Global Car sales of market growth

As a worldwide, day-by-day life in this global market, we can always see new changes and updated innovations in this sector as advanced technology and ecosystems in the Auto-car industry. SUV is very popular in this market and especially, nowadays electric SUV is rising in the growth of this segment worldwide.

In 2005, passenger cars sold 45.4 million worldwide. Then from 2007 to 2009, it continued 50.8 million to 49.6 million units. from 2010 to 2017, it constantly sold 55.8 million to 70.6 million units of cars then it dropped slightly to 68.6 million in 2018. In 2019, worldwide cars sold at 64.3 million. so, it has been declining sales in the last three years.

Figure 16: Total number of New car sales all over the world from 2005 to 2019.

Source: International Organization of Motor Vehicle Manufacturers (OICA)

The global car market will not have a good situation at the height of the financial crisis because this year, the sales dropped by 4 million vehicles compared to last year according to a lobby group in the German auto industry. and the global automotive industry earned more chances to lose jobs in the next 12 months because of the global recession.

Figure 17: Market share by segment from 2017 to 2018

Source: data from JATO.

3.1.2 Car Sales trend in the Indian market.

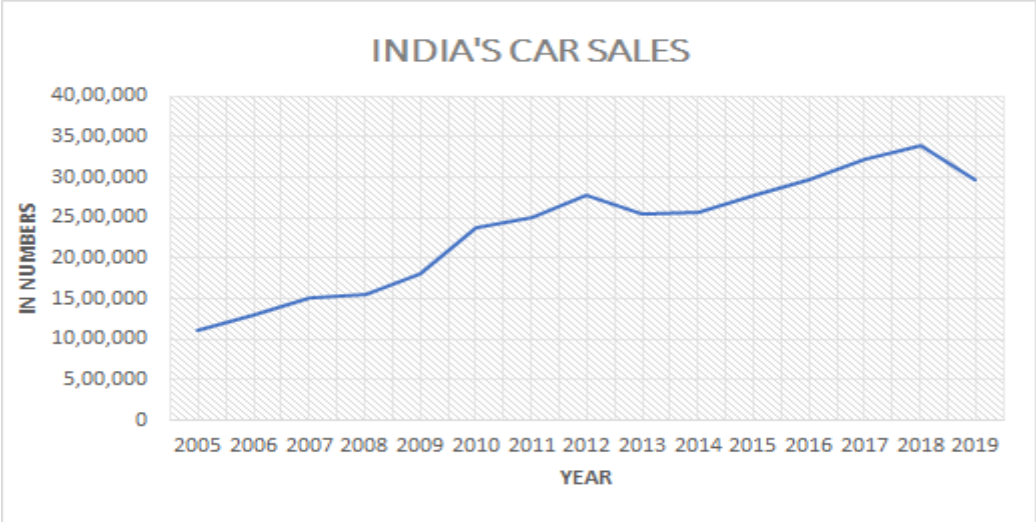

Figure 18: The total number of car sales in India from 2005 to 2019.

Source: International Organization of Motor Vehicle Manufacturers (OICA)

According to OCIA, India was 5th rank in passenger car sales in 2018 and 7th rank in 2013 all over the world. In 2005, car sales were 11,06,863 units then after it raised every year and stood at 27,81,919 units in 2012. In 2009, car sales were 1.82 million and then 3.39 million units in 2018 so the annual average rate is 7.63 percent and passenger car sales declined by -23.58 percent in 2020.

Indian passenger car market is the 5th largest in the world. Due to the recent corona crisis, this country is facing a 51 percent sales drop in the month of March 2020. passenger vehicle sales were 291,861units in 2019 and now it was 143,014 units in March 2020. The government announced a lockdown to close production and sales of auto cars and another reason is that the new system Bharat Stage-6. It is mandatory for the BS6 system in new cars from April 2020. So, high technology adds more expensive new cars compared to the past.

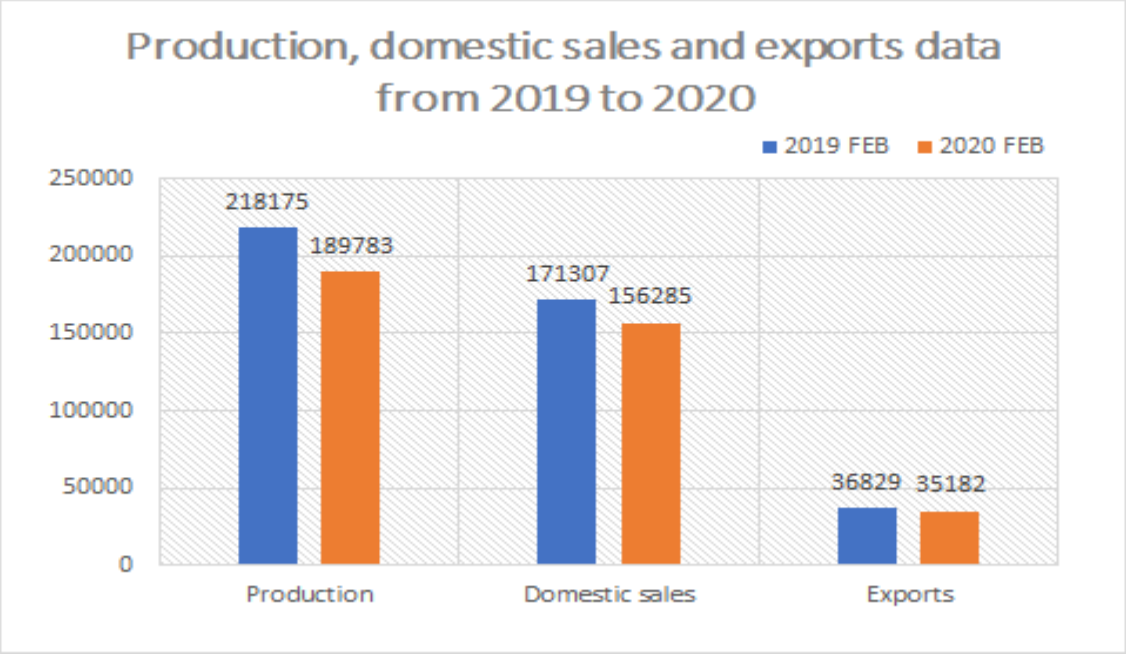

Figure 19: Production, domestic sales, and export data from 2019 to 2020.

Source: Data from the Society of Indian Automobile Manufacturers (SIAM).

In this chart, we can see that production of cars was 2,18,175 units and sold 1,71,307 units and exported 36,829 units in 2019. In 2020, it is the worst situation because of the Corona crisis so it was 1,89,783 cars production and 1,56,285 cars domestic sales, and 35,182 units export cars. Now it will affect the 2021 Feb of production and sales of cars.

Car sales by segment-wise:

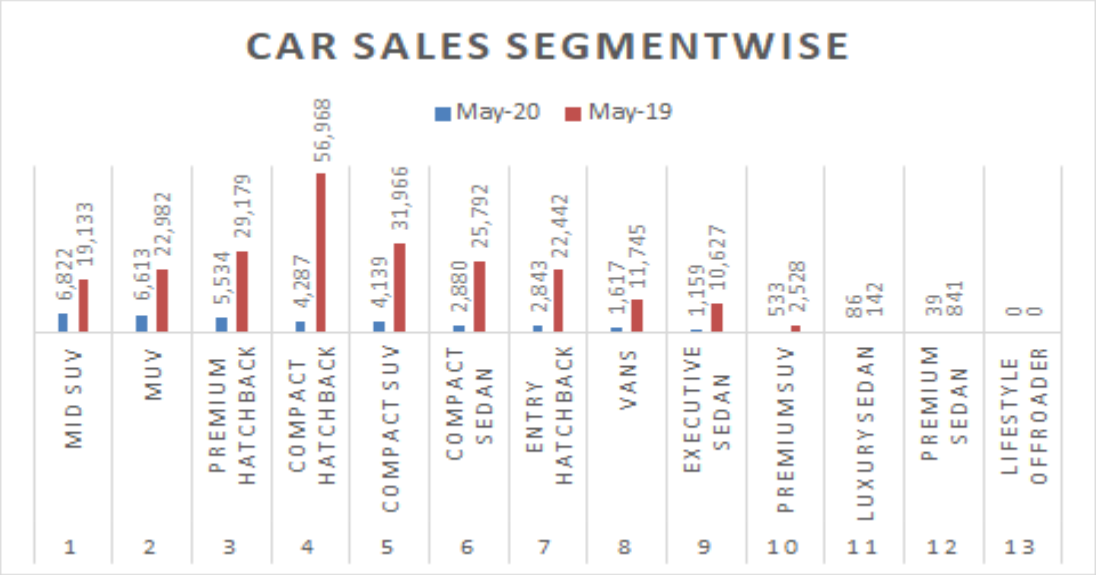

Figure 20: Car sales data by segment-wise from May 2019 to May 2020.

Source: Data were taken from Auto punditz.

Mid SUV is the first preference of customers in May-2020 in India. Hyundai Creta was the best model in 2020. Secondly, the MUV segment is more popular as an Ertiga model in 2020. The compact hatchback was the highest sales popular segment at 56,968 and second rank of compact SUV in 2019. The Premium sedan was the worst scenario sales in 2020. In 2019, the Compact hatchback, premium hatchback, and compact SUV are most popular in customer preference as per the highest top-three rank in sales.

EXPORT: India's top 25 models of cars to export all over the world.

Top 25 exported cars to contribute 93 percent of the total exports in 2019-20. The ecosport model of ford is the highest exported 88,000 units in 2019-20. it is exported to more than 50 countries. General Motors of the Beat car model has exported 69,933 units and produced at the Talegaon plant, Maharashtra. it exports mainly in Latin America. Nissan Motor India is a giant export player of Sunny at 66,667 cars.

RANK	OEM	MODEL	FY 2019-20	FY 2018-19
1	Ford	Ecosport	88,429	91,546
2	Chevrolet	Beat	69,933	77,330
3	Nissan	Sunny	66,667	40,917
4	Hyundai	Verna	60,065	40,279
5	Volkswagen	Vento	45,088	51,656
6	Hyundai	Creta	40,994	37,308
7	Maruti Suzuki	Baleno	33,518	37,757
8	Ford	Figo	28,755	56,043
9	Hyundai	Grand i10	24,482	45,823
10	Kia	Seltos	21,461	0
11	Hyundai	Xcent	17,063	19,376
12	Renault	Kwid	14,312	11,198
13	Ford	Figo Aspire	14,292	15,212
14	Maruti Suzuki	OZIRE	13,135	13,342
15	Hyundai	Elite i20	12,436	16,679
16	Maruti Suzuki	Alto	11,158	17,181
17	Maruti Suzuki	Swift	10,711	7,342
18	Volkswagen	Polo	10,529	10,138
19	Maruti Suzuki	Celerio	9,029	11,273
20	Hyundai	Santro	8,199	690
21	Maruti Suzuki	IGNIS	6,794	9,258
22	Toyota	Liva	6,747	5,634
23	Hyundai	Venue	6,607	0
24	Mahindra	KUV 100	6,460	5,186
25	Nissan	GO	5,980	6,429

Table 5: India's top 25 models of car to export all over the world from 2018-19 to 2019-20.

Source: Data was taken from Autopunditz.

The Verna sedan car is a popular model of Hyundai and exported at 60,065 cars into more than 91 countries. Maruti Suzuki is the leader of the Indian car industry, in the third position in export to 1,00,294 cars. Baleno had the highest export at the Maruti Suzuki company in 2020. In the short term, new player Kia motors made one entry in the top 10 list and exported the highest Seltos model in 2020.

Car sales by top 25 model:

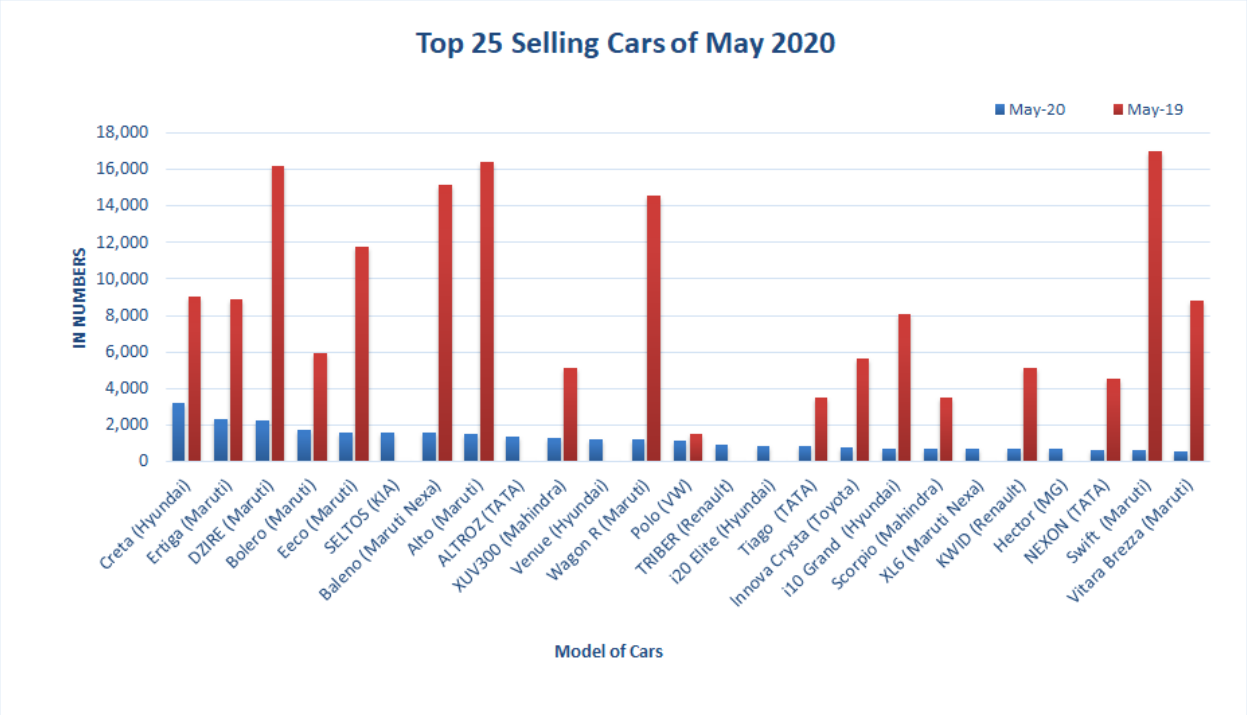

Figure 21: Top 25 Selling Cars by the successful models in India from May 2019 to May 2020.

Source: Data were taken from Auto punditz.

In 2020, Hyundai's Creta was the bestselling car but Maruti Suzuki had eight models out of the top 25 models as a Swift, Ertiga, Dzire, Baleno, Eeco, Alto, Wagon R, and Vitara Brezza. Maruti Ertiga was the second-largest selling car in 2020. Dzire was the third-largest selling car in 2019 and 2020. New global player Kia Motors had one model of Seltos as a 6th rank in 2020. Volkswagen of polo was not popular, and Swift was the first highest selling car in 2019. So major models of the Maruti Suzuki brand were very evolving in the Indian market in 2019.

Car Sales of top 14 OEMs in India:

Top 10 original equipment manufacturer (OEMs) companies are growing in car sales in 2020. Maruti Suzuki is first on the ranking of car sales at 17,31,179 units and 14,85,943 units from 2018 to 2019. Hyundai is the second-largest selling as per OEM at 5,10,260 units in 2019 and Mahindra is the third-largest selling car at 2,19,663 from 2019. Kia Motors and MG motors have a good position at 45,494

and 15,284 cars as per the new players in the Indian market in 2019. Tata motors were 2,13,625 sales cars in 2018. So finally, we can see that the 2018 year of demand was better for car selling to compare to 2019.

RANK	OEM	2019	2018	2019 MS	2018 MS
1	Maruti Suzuki	14,85,943	17,31,179	50.6%	51.7%
2	Hyundai	5,10,260	5,50,002	17.4%	16.4%
3	Mahindra	2,19,663	2,32,181	7.5%	6.9%
4	Tata	1,52,944	2,13,625	5.2%	6.4%
5	Honda	1,34,741	1,74,880	4.6%	5.2%
6	Toyota	1,26,701	1,51,480	4.3%	4.5%
7	Renault	88,869	82,368	3.0%	2.5%
8	Ford	73,636	97,804	2.5%	2.9%
9	Kia	45,494	0	1.5%	0.0%
10	Volkswagen	32,324	37,029	1.1%	1.1%
11	Nissan	23,580	41,583	0.8%	1.2%
12	MG	15,930	0	0.5%	0.0%
13	Skoda	15,284	16,692	0.5%	0.5%
14	FCA	11,238	19,030	0.4%	0.6%

Table 6: The top 14 OEMs car sales from 2018 to 2019.

Source: Data were taken from Auto punditz.

Car sales by fuel type:

Maruti Suzuki sold 1.15 million of 77.5 percent petrol cars in 2019. it had petrol based mostly all models of the car, so it has better technology with cheaper cost models compared to other companies in patrol cars. Hyundai was 72.7 percent car sales in petrol at 0.37 million units' cars. Tata had 65 percent of sales of petrol cars at 99540 units and 41 units of electric/hybrid cars. Honda was better in petrol car demand at 78 percent with 0.1 million units. Renault and Nissan were 91.2 percent and 81.5 percent in sales of petrol cars.

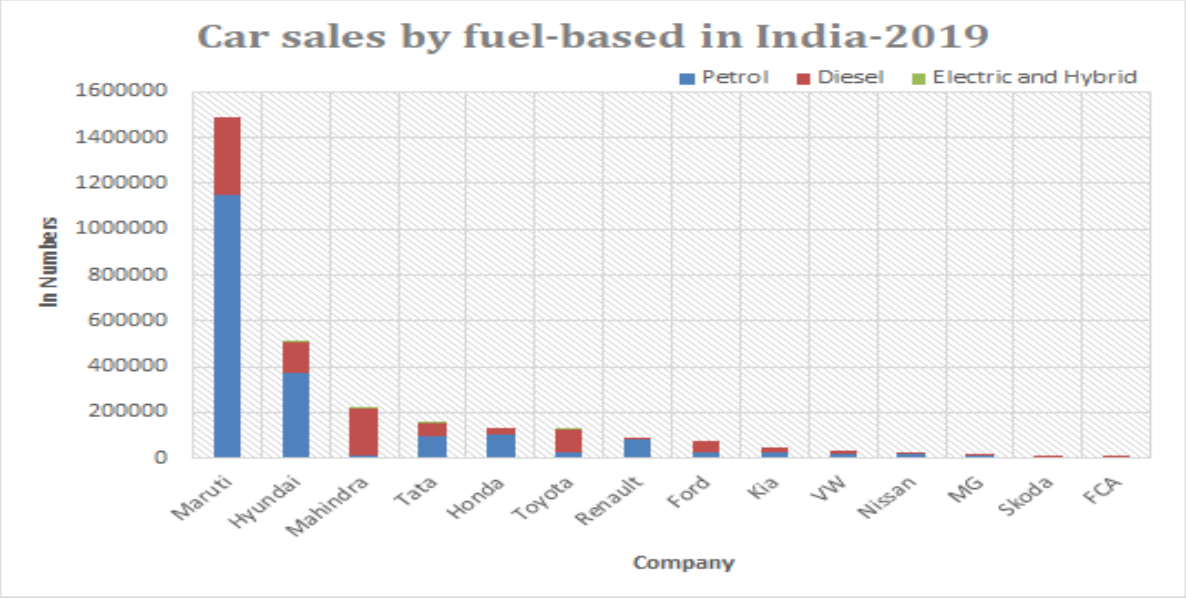

Figure 22: India's fuel-based type of Car sales in 2019.

Source: Data was taken from Autopunditz.

If we look at diesel cars in 2019, Mahindra was a big player in the diesel sales market at 93.9 percent with 0.2 million units. Toyota had second-largest sales of diesel cars at 76.8 percent with 97280 units. Skoda, Ford, and FCA were 60.4 percent, 59.3 percent, and 58.7 percent sales of diesel cars. In electric and hybrid cars, Toyota and Mahindra sold 0.09 percent cars with 673 and 875 units in 2019.

3.1.3 Car industry attractiveness analysis in the Indian Market.

The five forces analysis represents the profitability of the automotive car industry below. So as per this analysis, it is a low-moderate profitable car segment of the industry to evolve the automotive industry in the Indian market.

The threat of new entrants (barriers of entry): Low

Any firm cannot start and enter in this industry. For new entrants, it requires high capital, skills, technologies, scale, and experience of the Indian market. The global market is the main factor affecting the domestic market because there are many foreign carmakers. so large amounts of capital required, and innovative product ideas are required. largely Autocar makers have brand and reputation. In India, brand equity and capital are required to invest in the new entry.

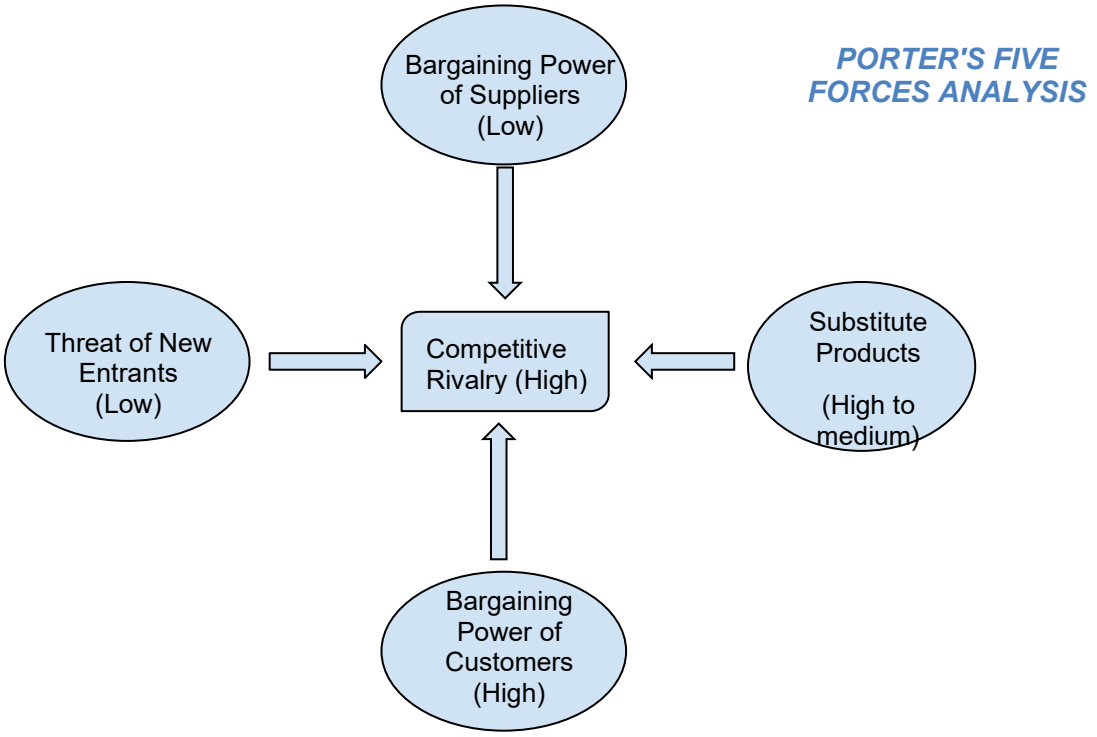

Figure 23: Porter's five forces analysis of the car industry in India

Source: Analysis done by porter's point of view.

Competitive rivalry: High

The industry has many competitors such as Maruti Suzuki, Tata Motors, Hyundai, Mahindra & Mahindra, Toyota, Ford, GM, Volkswagen, etc. so a highly competitive market is generally low earnings due to high-cost competition and price-based competition in auto segments. The problem is that the design of the car is the most important part of this competition because of the many new designs in the market. if there are any changes required to delay and risk propositions, slower revenue growth. Due to competition, many carmakers are offering lower prices at the same level of features. competition is more intensive because of newcomers from foreign automotive companies.

The threat of substitutes: High to Medium

There are many substitutes for this auto industry, such as SUV, mini car, utility car as per the purpose. There are many alternative vehicle options for electric,

hybrid, CNG, LPG, Petrol, and Diesel cars. As per segment availability, it is the most popular two-wheeler demand as per the cheaper price of the vehicle. and many alternative options are airplanes, trains, and buses for traveling to long trips.

Bargaining power of Customers: High

Due to high competitors, the industry has strong bargaining power as per Indian customers, there are many choices in the market, so customers are very sensitive in price based. efficient cars give value for money as per demand from customers

Bargaining power of Supplier: Low

Due to many suppliers in India, there are many auto component suppliers as domestic and foreign suppliers so there is low bargaining power. Most auto carmakers are dependent on major suppliers and specialized segments so one or two clients for that segment.

3.1.4 Future trends of Investment in the Car Industry in India.

There are some main reasons to uphold the benefits of this segment in India. Firstly, the main reason is the strong growth rate in the young generation of the population and higher middle-class family income in this country. The Indian economy of the auto industry is wanted to rise 5 times to increase the export of future mission plan 2026.

Secondly, it has a highly competitive advantage because of the low cost of manufacturing components compared to Europe and the USA, good availability of skilled workers and resources. Finally, the Indian government wanted to increase electric cars because of the global warming problem to reduce emissions with harmful gases and wanted to establish an R & D giant sector in India.

Nowadays, as supporting government policy, the new GST policy will reduce 12% to 5% for electric vehicles so more benefits to investing in electric vehicles. In this recent demand for electric cars, suppliers are evolving on battery technology to evolve the capacity for long-distance trips. Many companies are working on electric cars for example Mahindra and Mahindra, tata, MG Motors, Hyundai, Toyota, BMW, and Maruti Suzuki testing the new first EV model in

2020. NEMMP (national electric mobility mission plan is given by the Indian government to uphold electric car manufacturing capabilities for carmakers. The government announced an investment of US $1733 million for incentive demand, US $240 million for research and development, US $666 million for power infrastructure, and the US $160 million for improving infrastructure. Tata motors are evolving in Delhi for charging stations up to 400 and then more cities. The auto industry will be expected to reach 16 to 18 trillion Indian rupees (the US $ 251 to 283 billion) by 2026. Maruti Suzuki India Ltd will produce batteries for electric cars at the Hansalpur manufacturing plant in 2020. Competitive advantage is that India is the second-largest rank in steel production in the world as per to have a cost advantage.

3.1.5 Key Success Factor and SWOT Analysis of the Car Industry.

Key Success Factor of the car industry in India:

A key success factor is mainly related to the solution way between customer and seller. The key success factor is labour productivity and flexibility, capital efficiency, quality manpower, raw material availability, and infrastructure changes in the car industry in India. Technology and techniques are the main KSF to obtain a competitive advantage under government policies to profit the car industry in India. There are other key success factors such as buying experience, after-sales and service, Location, technological advantage, and low-cost maintenance and ownership. Maruti Suzuki is the cost leader in the domestic market for small cars.

Strategic Planning Technique of the Indian car industry: SWOT Analysis

Strengths: The popular car segment is evolving with increased export levels and available cheaper labour and low-cost ownership of cars. The population is a higher middle-class group and a working-class income group of people. higher skill in the small car segment market and good availability of engineers. The Car industry has a higher market position and brand with a strong distribution channel and higher production.

Weaknesses: Low-quality products are available compared to European countries with low labour productivity. The interest rate is high and production

costs higher compared to china. there is a low level of investment in R&D and low demand in the luxurious car market

Opportunities: Higher growth of the population is evolving with road infrastructure. lifestyle is rising as a symbol of the status of the next generation to change buying patterns. Innovation and technology are better in demand, so the working-age of women is rising in numbers in this car segment. The future is calling for the next demand for electric/hybrid eco-friendly cars so there is an opportunity for global and domestic companies.

Threats: Other segments have a higher share of the market, for example, 81 percent market share of the two-wheeler segment. The industry has less skilled manpower so tariff and maintenance costs will increase due to recent situations. competition and natural disaster impact on sales performance in the car industry from global players.

3.1.6 Automotive components of suppliers and used car market in India

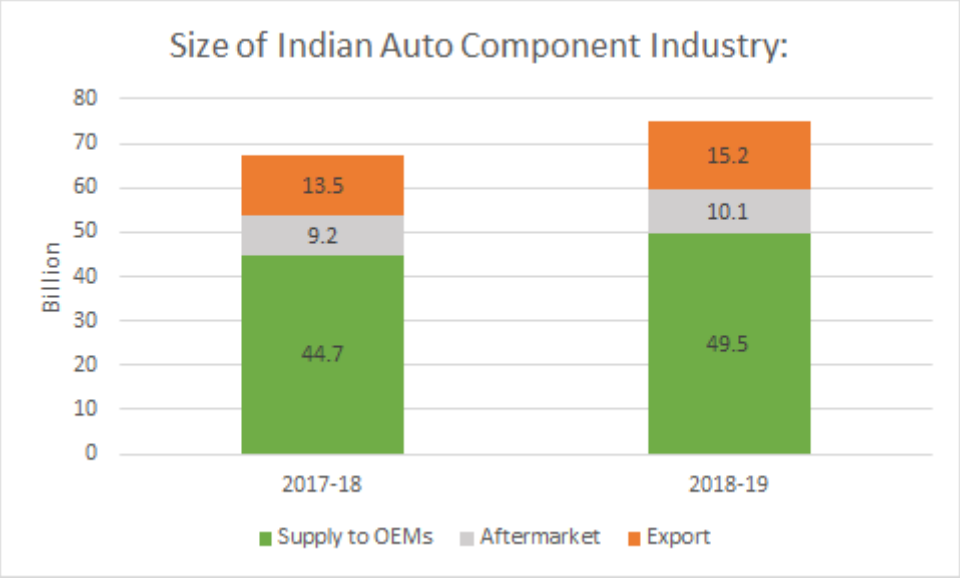

Figure 24: Size of Indian auto component industry.

Source: The Automotive Component Manufacturers Association of India (ACMA)

Chinese firms, it supplies between 10% and 30% of auto parts at various Indian carmakers. The maximum dependence of the automotive market is in the sourcing of braking and steering systems, engine parts, and illumination systems. In 2018-

19, automotive components worth $4.5 billion (out of a total of $17 billion) were exported from China to India.

Indian passenger vehicles have a 43 percent market share to supply OEMs into the domestic market. Many companies in India produce major auto parts of cars.

Bharat Forge:
It is the largest exporter in the automotive sector of auto parts from India. It has the most powerful capability in chassis components in the world. The company is engaged in a strong IT platform through design and seamless engineering. It produces front axle beams, connecting rods, crankshafts, and steering knuckles.

Motherson Sumi systems limited (MSSL):
The company was established with a partnership between the Samvardhana Motherson Group and Sumitomo wiring systems, japan in 1986. It is mainly involved in supplying electric wiring harness, mirrors, plastic parts like bumper, dashboard and rubber components, car interior, and exterior parts.

TVS (Sundaram fasteners limited):
It is a global supplier in manufacturing automotive components and other sectors from 1966. The company is more focused on powertrain components, fasteners, radiator caps, iron powder. it has a total income of 655 million in 2019.

There are many suppliers for example Bosch, Spark Minda, JBM Group, Gabriel India Limited, Ametek group, and Exide. Some companies have their plant, for example, Maruti Genuine parts and Tata auto parts.

Used car market:

We can see that the Indian used car market value was US $24 billion in 2019 with 4 million units compared to 3.4 million units in the new car market. It is a very popular used car market with higher compare to the new car market. In the new car market, it applies up to 18 percent more GST, so it is expensive. The used car market applies 12 to 18 percent GST from the government so it is beneficial for customers, so it is growing high. Another reason is that the Bharat Stage-six system and advanced technology are compulsory from 2020 in the new car market so it will be expensive in 2020.

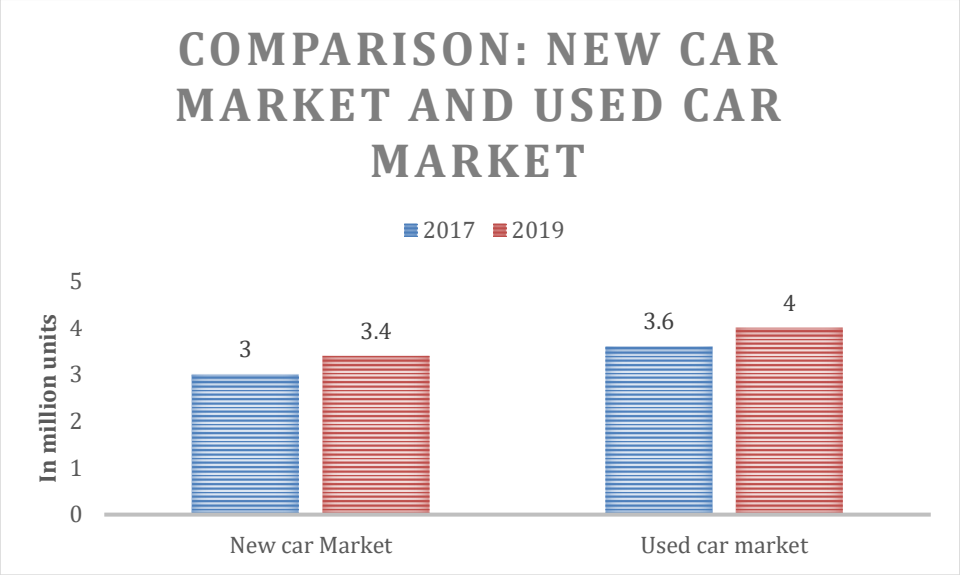

Figure 25: Comparison between new cars and used car market sales performance.

Source: (SIAM) The Society of Indian Automobile Manufacturers

Many companies involved in sell cars by an online and offline platform such as OLX, Mahindra's first choice wheels, Maruti True value, cars24, and Hyundai H promise. They have the largest share market in India used car market. The petrol car market is higher in this country compared to the diesel car market, so most companies wanted to reduce production in the next years. In the used car market, luxury cars have a higher demand in the market. The growth of luxurious car demand is steadily increased to 35 percent last year. But recently, due to COVID-19, the demand is declining in this country.

Chapter 4. Automobile Car Business in India

4.1.1 Indian governmental policy evolves towards new future implementations

The government of India is following this four-phase in the car segment in the Four-wheeler segment (Cars, vans, and motor utility vehicles).

- **Phase 1**

B7 complaint Compression ignition engine passenger cars and utility vehicles would be produced and available in India by 2020. they will change the availability of biodiesel from 0.001 percent to 5 percent in this phase.

- **Phase 2**

From 2020 to 2025, all new vehicles will be mandatory to produce with the BS-VI system and the oil industry will increase the capability of B7 fuel to provide 5 percent availability of biodiesel.

- **Phase 3**

From 2025 to 2030: new diesel cars would be applied to B7 and hybrid and electric cars will be popular eco-friendly markets.

- **Phase 4**

From 2030 to 2047, electric cars will be set up on a large scale and will be expected to provide urban transport mobility. and Another way, biodiesel fuel of the car market would be supported by the government to reduce the import of crude oil.

Besides, the AMP-2026 plan will support the vehicle end life policy of vehicles and upgrade norms to reduce emissions. the recent ministry of road transport and highways adopted BS-IV norms to change in development. Another plan for NEMMP 2020 was promoted in 2013 to improve manufacturing capability and

ecological and energy security in EV and hybrid. The strategies of NEMMP will work on efficient environmentally friendly by 2020.

Faster adoption and manufacturing of hybrid/electric vehicles (FAME) plan was launched in 2015 by GOI to enhance the sector of EV and hybrid vehicles. The NITI Aayog reported a mobility solution to complete the transformation of mobility to be 100 percent EV in the public sector and 40 percent in the private sector by 2030. It works in 3 phases to apply on capacity building and development market, production capability, increase economies of scale, and new innovative business models.

4.1.2 Self-drive of the Rental Car business

It is a rapidly growing trend in India and more options for suitable cars as per requirement. According to an analytics report by Statista, the Indian rental car industry has been growing in the vast population of India. In 2018, the rental car business accounted for approximately 12 million car rentals US $250 million and expected to reach the US $570 million with a 14 percent growth rate in 2023. Car rental revenue estimated the US $1431 million in 2020 and accounted for 2.2 percent of user penetration.

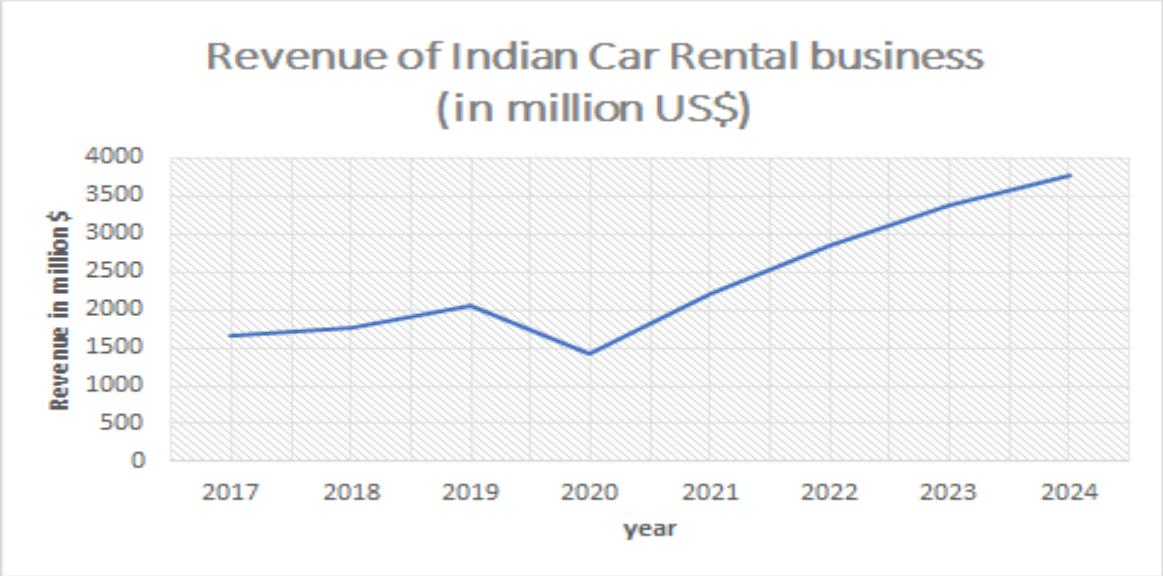

Figure 26: Forecasting revenue of the Indian car rental business from 2017 to 2024.

Source: Based on forecasting data provided by the Statista website

From 2020 to 2024, the annual growth rate of revenue will reach 27.5 percent with the US $3781 million. So, the car rental business is rapidly expanding in India as per user base and creating awareness of concepts.

Indian top car rental companies are Zoom car India private ltd, Revv, Mychoize, Drivezy India, Vroom drive India, Myles, Zipcaars, Avis India, Jiffy cars, and Eco rent a car. The segment is bigger in many countries, but this segment is not big in India or the recent market of this segment. The market for rental cars has a positive trend and will be geared up in the future as an effective business model. Car rental is similar to rent property, who can pay monthly base rent to the owner and use the car as per the requirement of choice. service and maintenance fees included in the monthly rental fee. if there is any problem, companies have other spare cars.

Car rental is boosting demand and increasing sales by user experience. The recent car market leader of Maruti Suzuki wanted to start a car rental service in India through an existing dealer network. Volkswagen India launched a new service of car rental. There are some benefits such as spanking new dream car, no down payment, only monthly fees, no risk of resale value, no other expenses like maintenance, risk-free experience

4.1.3 Car-sharing business

Car-sharing business offers convenient and cost-effective mobility to users to evolve transportation network systems. According to NITI Aayog, the strategic policy mentioned information on shared mobility about any mode of transportation with shared users based on need as per an hourly or daily basis or other option. so, the car-share model is still growing in India as per preliminary stages because this segment is more popular in the young generation in India. carsharing types are round-trip, point-to-point, and peer to peer car sharing.

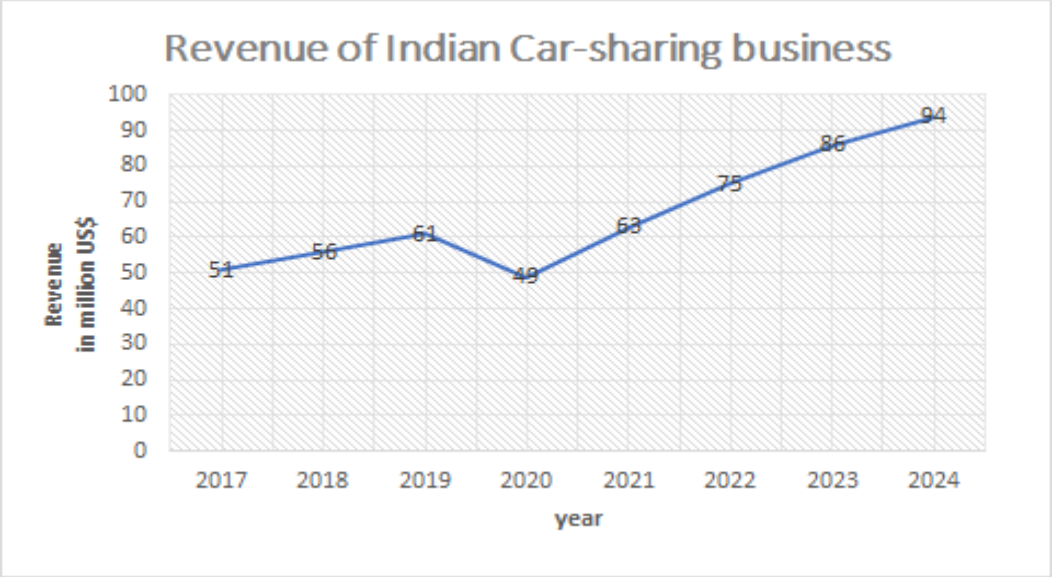

Figure 27: Forecasting revenue of the Indian carsharing business from 2017 to 2024.

Source: *Based on forecasting data provided by the Statista website*

According to an analytics report by Statista, the Indian car-sharing business is estimated to cost the US $49 million in 2020 and is expected to reach an 18.7 percent (CAGR) annual growth rate of revenue with the US $97 million from 2020 to 2024. the user penetration rate is 0.1 percent in 2020. As per the study of Deloitte's 2019 global automotive consumer, the concept of sharing car mobility is increasing in the country to about 600 million population with under the age of 25. In this segment, the business has 1.5 million users in 2020 and it will reach 1.9 million users in 2024.

Indian car-sharing business is dominated by three main companies. Uber, Ola, and Zoomcar dominate the market of shared mobility of cars but Zoomcar company first introduced that concept in India in 2011. There are many competitors in this segment such as Drivezy India, Vogo, wicked ride, Meru, Carzonrent, Mega cabs, etc. Ola is involved in cab service and implementing charging stations for electric cars more than 200 units at the Nagpur pilot project. and it has more than 50 chainring stations at Nagpur.

4.1.4 Luxury Car business

The luxury car business declined last year in 2019. Due to the economic slowdown, high import duty and BS-VI systems are applied in recent changes, so

it is expensive compared to the past because of new technology but the overall market record was positive compared to the last 10 years from 2008 to 2018.

Figure 28: Sales of the luxury car market in India from 2007 to 2019.

Source: *Based on data provided by* autopunditz website

In 2019, the market sales rate dropped 13 percent and the market will be worse in 2020 due to COVID-19. According to industry, approximately 34500 to 35500 luxury car units were sold in 2019 but it was sales of 40340 units cars in 2018. The luxury car market has the highest duty and GST (higher 50 percent) and registration taxes and a new system of BS-VI.

Luxury car industry sales were at 35274 units and Mercedes was first in rank of highest sales, then second BMW, and third Jaguar land rover. Mercedes is the biggest company in the luxury car market in India. It was first in higher sales of cars in this segment and has the highest degrowth from the last 13 years. Mercedes-Benz India had sold 13,789 units of cars in 2019 but they sold 15538 units more in 2018.

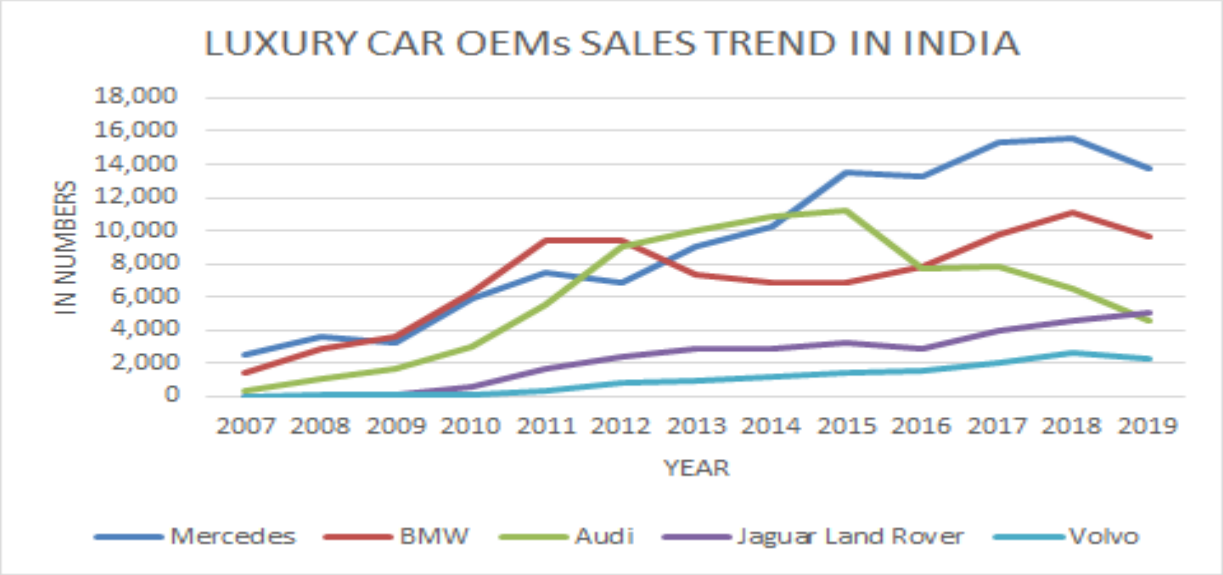

Figure 29: Luxury car OEM sales trend in India.

Source: *Based on data provided by* autopunditz website

BMW is a global brand in the luxury car market in India. it has the second number of the highest sales. BMW company sold 11105-units and 9641-units' cars from 2018 to 2019 with a decline of 13.2 percent in 2019. Audi sold 4594 units of the car with a 29 percent decline in 2019. Audi did not manage overall performance in the last 5 years. It was the highest fall in 2019.

The top ten luxury cars with an approximate price.

Model	***Ex-showroom Price***
Maserati Quattroporte	The US $17.1 - 21.1 Million
Mercedes-Benz E-Class	The US $5.9 - 15.3 Million
Volvo XC90	The US $8.09 - 14.2 Million
Lamborghini Aventador	The US $50.1 - 62.5 Million
BMW 5 Series	The US $5.54 - 6.84 Million
Mercedes-Benz S-Class	The US $13.5 - 27.8 Million
BMW X6	The US $ 9.5 Million
BMW M Series	The US $15.4 Million
Volvo S60	The US $3.85 - 5.602 Million
Jaguar XF	The US $5.567 Million

Table 7: The top ten luxury cars with a price estimate in India

Source: Based on data provided by the Zigwheels.com website

Luxury carmakers are Audi, Jaguar Land Rover, and Mercedes-Benz in India, they increased the price of luxury cars due to high import duty in the budget of 2018-2019. Former Finance Minister Arun Jaitley had applied custom duty on the import of motors cars from 7.5 to 15 percent with more US $1 million compared to the past. so due to higher price impacts on customers of this segment. The government of India increased import duty to focus on the Make in India plan to promote production India from other segments

4.1.5 Revolution of Eco-Friendly Business: Electric Car Mobility

The electric car market is steady growth shortly of the forecast period because people of India are preferring zero-emission hybrid and electric vehicles. The main problem is that reducing crude oil reserves and affecting the environment. global battery production capacity is increasing day by day to grab economies of scale in the electric segment, so the battery is a major driver to evolve this industry in India.

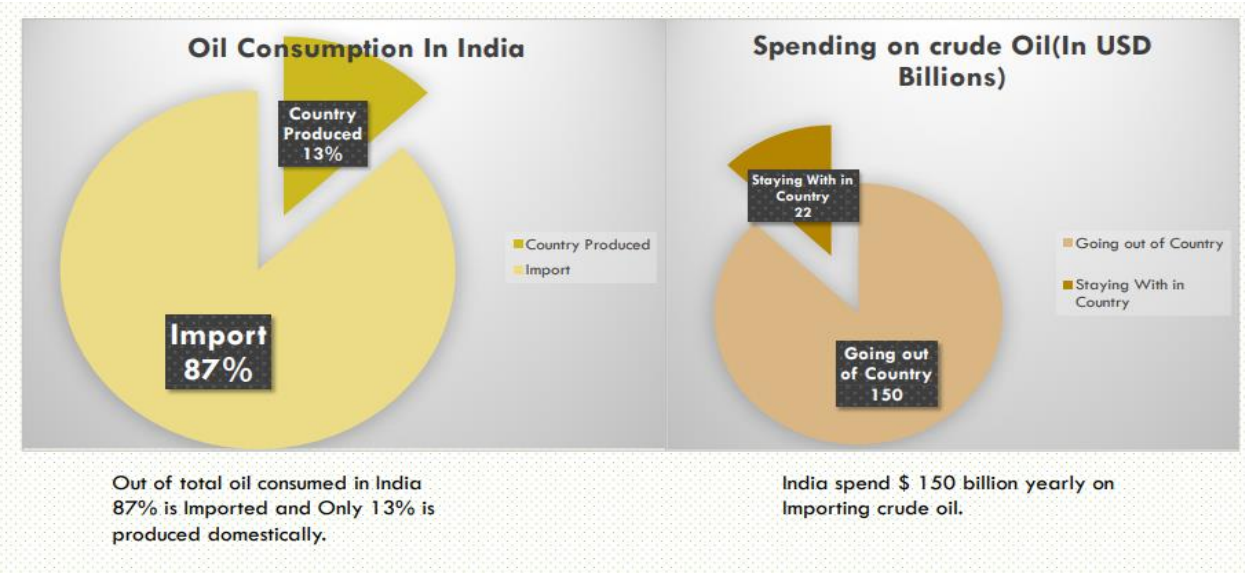

Figure 30: The overall oil consumption and spending on the import of crude oil.

Source: The Society of Manufacturers of Electric Vehicles (SMEV)

The Indian electric car segment of the industry is as much far from the global industry. It has 1 percent of sales in total sales of cars and Indian electric cars accounted for 1200 to 3600 units from FY 2018 to FY2019. As per SMEV, the

electric cars will be boosted in the premium segment as per positive signal faster than the IC Car segment with a higher volume of E-cars in FY 2020-21.

According to the Society of Manufacturers of Electric Vehicles (SMEV) In 2020, Indian electric car sales stood at a 6 percent drop with 3400 units compared to 3600 units in 2019. As per SMEV, India imported 87 percent fossil fuel and 13 percent produced in the country, it will be 92 percent by 2020. because of population rise to more demand in the future. so, it is necessary to enhance the new segment, which will be eco-friendly. because electric and hybrid and electric cars are expected to have less emission from 35 of 45 percent as compared to IC engine cars.

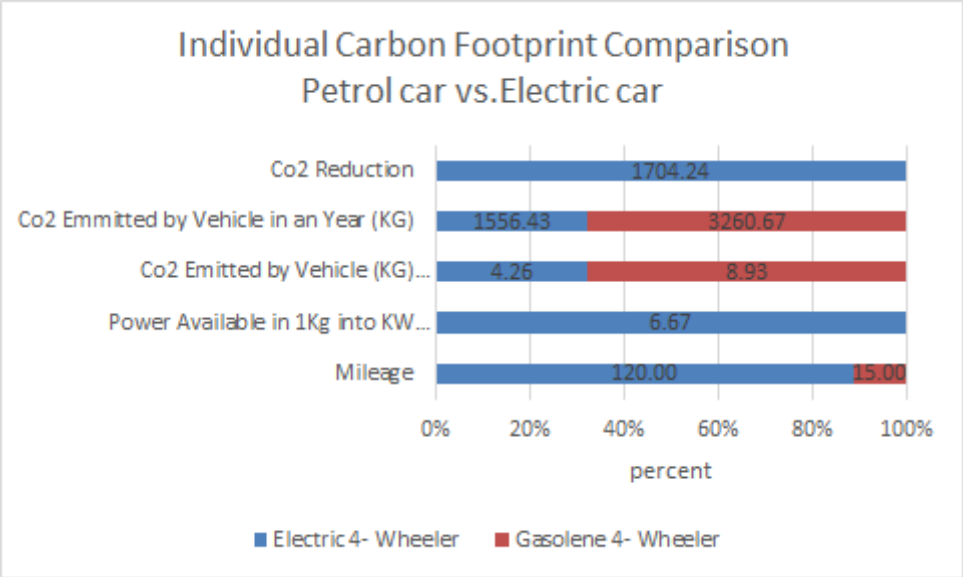

Figure 31: Individual carbon footprint comparison between petrol car and electric car

Source: The Society of Manufacturers of Electric Vehicles (SMEV)

In this modern world, electrifying cars are quickly evolving to be more valuable as per sustainable and economic benefits to humankind. The Indian government is supporting the EV industry in many ways like GST deduction, a suitable location for plants, and promoting awareness. They also proffer purchase incentives through flagship plans from FAME to different segments of EV. India is expected to evolve the growth of EV mobility in the long term with the National Electric Mobility Mission Plan (NEMMP). It invested 140 billion INR for the development of electric mobility infrastructure for 8 years. The government of India (GOI) is supported to buy 10000 units of electric cars from Tata Motors to

change government old vehicles in 2017. GOI has a plan to adopt a new demand to have 100 percent EV by 2030.

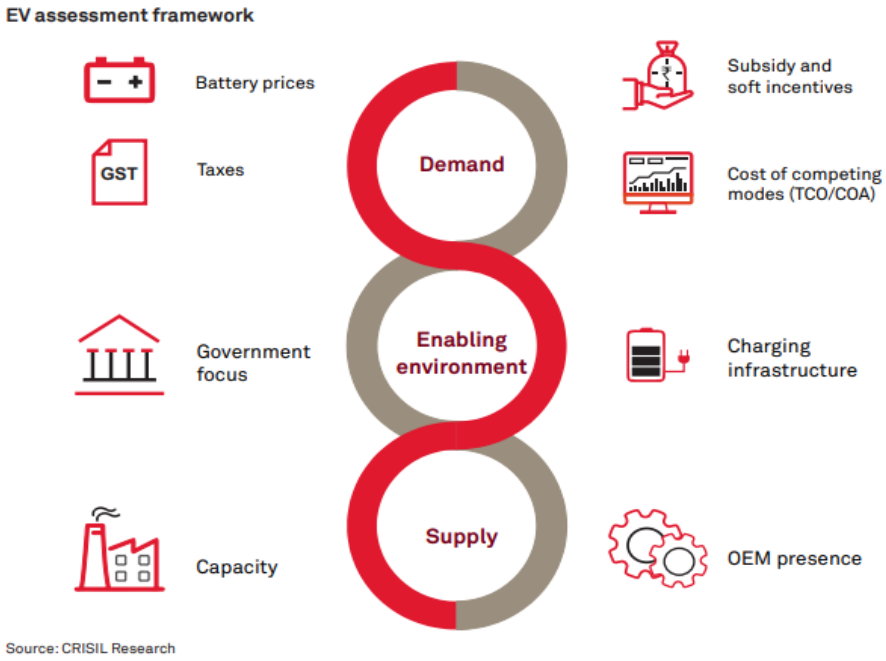

Figure 32: EV assessment framework

Source: figure taken from CRISIL Research

The main requirement to enhance an E-CAR segment in the Indian car industry.

- **Charging infrastructure**
  The lack of charging stations, it is a big problem that is not useful for long trip users because India currently has 200 public charging points compared to having 30000 to 50000 in the USA.

- **Charging timing is long duration**
  EV cars have problems charging for a long time from 30 minutes to 12 hours as per the capacity of the battery. but if we look at petrol and diesel cars it takes less time to refill fuels.

- **Price sensitivity and customer knowledge**
  It is the main challenge of customer price sensitivity for buying EV cars. Indian customers are highly price-sensitive about investing in eco-friendly expensive E-cars. The electric car is expensive because the battery is mostly imported from China. India is expected to set up a lithium-ion

battery plant under Bharat heavy electricals and, other parts are expensive because it has a long lifeline, so capacity is more required to drive long distances.

Comparison of the performance characteristics of an ICE and an electric car

Characteristics	ICE car	Electric car
Mileage and range	790 kilometer	110 kilometer
Max power	65 hp@ 4000 RPM	41hp@ 4000 RPM
Speed	151 Kmph	86 Kmph
Maximum torque	160 nm@ 2000 RPM	91 nm@ 3000 RPM
Refuelling time	3 minutes	11 hours 30 mins (slow)/ 1 hour 20 mins (fast)
Fuel economy	17.8 km per liter	7.5km/kWh
Cost	The US $0.76 million	The US $0.925 million

Table 8: Comparison of the performance characteristics of an ICE and an electric car

Source: Report October 2019 ceew.in

4.1.6 Mergers and acquisitions

In this slowdown auto industry from the last 1 year, mergers and acquisitions sectors are not rising and stood at the US $ 449 million. In 2019, the slowdown year in the auto industry will have new challenges so it will increase mergers and acquisitions in the future.

The list of mergers and acquisitions in the Indian car and car component industry.

1. The Mahindra SUV specialist company and Ford motor company deal were valued as a joint venture to evolve vehicles in the Indian market at

the US $275 million. Mahindra had a 51 percent stake and 49 percent stake in Ford company with joint operational development in mid-2020. The joint operation plant is at Chennai and Sanand, Gujarat.

2. Mahindra acquired Aurangabad electricals at the US $125 million in 2019. Mahindra and Mahindra signed a deal with Zoomcar to the US $40 million with a 16 percent stake to enter shared mobility in 2018. Mahindra and Mahindra invested 1 million to Carnot technologies with a 23 percent stake to develop IT solutions for smart car devices in 2018.
3. Mahindra and LG companies signed a collaboration to develop li-on battery technology in electric vehicles in 2017-18.
4. Hyundai motor company and Kia motors will invest the US $300 million in ride-hailing platform Ola to develop mobility solutions in specific EV cars in 2020.
5. Bharat Forge is an auto component company signed a deal with Tork motors to the US $5 million and a 45 percent stake to enhance EV powertrain and new technology in 2018.
6. Minda Auto components company acquired Delvis Gmbh with 23.06 million in 2019.
7. Suzuki Motor, Toshiba, and Denso signed a joint venture to develop lithium-ion batteries in India. Suzuki had a 50 percent stake, Toshiba 40 percent stake, and Denso 10 percent stake in 2017.
8. Fiat India, Tata Motors, and Maruti Suzuki had a joint venture to supply diesel engines to Maruti Suzuki and Tata motors from a Fiat company in 2017.
9. Force Motors and Rolls-Royce made a deal of joint venture to 51 percent stake of force motors and 49 percent stake of Rolls-Royce to invest the US $3000 million.
10. Toyota and Suzuki made a deal of EV in the Indian market and Suzuki will supply EV to Toyota and it will give a technical support system in 2017.
11. The PSA group and FCA had merged two giant automakers in 2017. PSA Group has brands like Peugeot, Citroen, DS, Opel, and Vauxhall, and FCA has branded such as Fiat, Dodge, Chrysler, Alfa Romeo, Maserati, etc. so a total of 12 brands are working together.
12. Toyota declared a 4.94 percent stake in Suzuki's stock to value at US$ 907 million and Suzuki bought shares of Toyota at the US $453 million in 2017.
13. Indian company Maruti and Japanese company Suzuki motor merged with a 70 percent stake Suzuki and 30 percent stake Maruti joint venture in

2012. Maruti Suzuki India invested US $ 40 million to establish a new center of ITI at Becharaji, GUJARAT. It included the development of skill training for students such as training lab, safety simulation hop, weld shop workshop.

14. Motherson Sumi systems of a popular auto component company acquired Reydel Automotive Group at the US $201 million to expand new geographic.
15. Mahindra and Mahindra announced a joint venture with Sri Lankan ideal motors with a 35 percent stake in JV in 2017-18.

In recent years, many automotive car companies invested in the EV segment in India.

KIA Motors invested the US $2 billion for developing manufacturing in 2018 in India. Honda invested the US $1.3 billion to establish 3rd factory for electric and hybrid vehicles in Gujarat in 2018. Hyundai invested the US $200 million to grow the EV market with new investment and produce affordable EV cars in 2019. Great wall motors wanted to invest the US $1 billion in India lunch new its first SUV will be in 2022. MG Motors India invested $ 735.5 million in product development, plant, marketing & electric vehicle.

Chapter 5. CONCLUSION & SUGGESTIONS.

In a nutshell, the study of the Indian car industry proffers new opportunities and challenges of market demand in India with ample resources. In this fast-moving development, the Indian automotive car industry is contributing to the fourth-largest manufacturer growth of market share in 2019.

The main profit of passenger cars is in the small and mid-sized cars segment with a 12.9 percent market share of passenger cars in 2020 and 14.2 percent CAGR from 2016 to 2020.

Nowadays, India is the fastest-moving economy in the world due to strengthening democracy and global partnerships. Indian economy is 5th largest in 2019 with the US $2.94 trillion nominal GDP and US $10.51 trillion GDP (PPP). India has a high population of 1.3 billion with 74 percent overall literacy. The main strengths are exports, agriculture, middle-class households, and young manpower. (Make in India) the plan is boosting the manufacturing sector in the car industry.

Maruti Suzuki is the market leader of the passenger car industry to have 50 percent market share and sold 1.1 million cars in (April-December) 2019 to have a perfect opportunity to grow in the electric passenger car segment. The luxury car market is estimated to evolve at 25 percent CAGR from 2017-2020. The rental and sharing car business models are growing in demand in the market because the population is buying capacity to afford 23 cars per 1000 citizens in 2019, compared to 69 cars in China and 786 cars in the US. So, it links to grab the opportunity to increase cars per 1000 citizens by e-mobility cars in the future.

Moreover, Maruti Suzuki is the best company in India for overall performance as per high car sales and high revenues to have a strong position in the current market. and Mahindra & Mahindra company is second best in overall performance in India. It has a strong liquidity position and will lead to the electric car segment, but the company needs to enhance the working capital management system.

The future is calling for eco-friendly cars due to many reasons. Indian automotive industry has a 1 percent market share of electric cars, so the industry is focusing on reducing technology cost and battery cost with long trip batteries, and the availability of charging stations of the electric-hybrid cars segment in India. In the future business of cars, electrified cars will lead to positive impacts on macroeconomic and environment friendly. because CO2 emissions will be lower in electric cars from 8 to 24 percent compared to the IC engine car. and battery production will be expected to increase within 2030.

From the government policy, it focuses on electric cars to reduce emissions because India is 5th most polluted country in the world. The current government has aimed to enhance the automotive industry and build R&D hubs. Automotive Mission Plan 2016-26 and Make in India plan, it has a clear vision to boost that car industry and reform the GST structure to uphold the manufacturing sector's development. It supports new start-ups for the electric vehicle segment and creates more jobs. Disposal income is higher with the young generation population, so it has an opportunity to evolve in the car industry.

In general, the car industry is surely going down of COVID-19 to impact on the future. Due to lockdown in India, SIAM announced that the automotive and component industry will lose 23 billion per day and it will directly affect the car industry in India. Overall, the main purpose is that it is a relationship between business and sustainability and to obtain future long-term benefits for human health and happiness.

In the past, the automotive business model for cars was a simple scheme because it relied on selling cars as per possible capacity then to depend on after-sales such as service, maintenance, and repair.

Nowadays, there are significant changes in the business model because of the advanced technological value chain and structure of ecosystems. There are three elements of the business model such as value and product network and rules-regulations. Rules-regulations have the main perfects of environmental, legal, and government.

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Acronyms and Abbreviations

FDI	Foreign Direct Investment
IMF	International Monetary Fund
ADB	Asian Development Bank
NITI	National Institution for Transforming India
RBI	Reserve Bank of India
CBU	Completely Built Units
CPI	Corruption **Perceptions** Index
CPI	Consumer **Price** Index
GST	Goods and Services Tax
IIP	Index of Industrial Production
WPI	Wholesale Price Index
GDP	Gross Domestic Product
IPO	Initial Public Offers
GVA	Gross Value Added
NSO	National Statistical Office
PPP	Purchasing Power Parity
GSDP	Gross State Domestic Product
MOSPI	Ministry of Statistics and Programme Implementation
SUV	Sport Utility Vehicle
FIAT	Fabbrica Italiana Automobili Torino
GPS	The Global Positioning System,
JV	Joint Ventures
AMP	Automotive Mission Plan
SIAM	Society of Indian Automobile Manufacturers.
BS-VI	Bharat Stage 6

BMW	Bayerische Motoren Werke AG
OCIA	International Organization of Motor Vehicle Manufacturers
MUV	Multipurpose Utility Vehicle
LPG	Liquefied Petroleum Gas
CNG	Compressed natural gas – methane.
NEMMP	National Electric Mobility Mission Plan
KSF	Key success factor
ACMA	The Automotive Component Manufacturers Association of India
EV	Electric vehicle
FAME	Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles
COVID19	Coronavirus disease of 2019.
IC	Internal combustion
SMEV	The Society of Manufacturers of Electric Vehicles
BEV	Battery electric vehicle
ICEV	Internal combustion engine vehicle
NATRIP	National Automotive Testing and R&D Infrastructure Project
OEMs	Original equipment manufacturers
CAGR	Compound Annual Growth Rate
FY	Indian Financial Year (April to March)
GOI	Government of India