

Czech University of Life Sciences Prague

Faculty of Economics and Management

Department of Management



Master's Thesis

**Foreign Trade of India -
Case Study on Automobile Industry**

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CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE

Faculty of Economics and Management

DIPLOMA THESIS ASSIGNMENT

Kaustubh Haresh Lachake

Economics Policy and Administration
Business Administration

Thesis title

Foreign Trade of the India – Case study on automobile industry

Objectives of thesis

The main aim of the thesis is to conduct analyses of the foreign trade of India and its automobile industry. The partial objective is to analyze the export & import of India according to available statistics and other web resources. Other goals are to assess factors determining competitiveness in the automobile sector and assess the impact on employment in the country.

Methodology

In the thesis, there are used descriptive and comparative methods. In the case of the theoretical part, the illustrative method is used to describe theories of foreign trade, trade policies, and international institutions associated with foreign exchange. The theoretical part is elaborated based on available literature and internet articles. In the practical part of the thesis, both descriptive and comparative methods are used. The illustrative method is primarily used to describe the significance of trade and to describe selected automobile producers in India. In addition, there are analyses of exports and imports, which are performed through time-series analyses.

The proposed extent of the thesis

60 – 80 pages

Keywords

Foreign Trade, Automobile Industry, Economic Impact, Competitive Framework, National Employment

Recommended information sources

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Expected date of thesis defence

2021/22 SS – FEM

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Declaration

I declare that I have worked on my diploma thesis titled "Foreign Trade of India - Case Study on Automobile Industry" by myself, and I have used only the sources mentioned at the end of the thesis. As the author of the diploma thesis, I declare that it does not break the copyrights of any person.

In Prague on 31.03.2022

Kaustubh Haresh Lachake.

Acknowledgment

I would like to thank **Prof. Ing. Mansoor Maitah, Ph.D.** et Ph.D. for his help in preparing the thesis and invaluable recommendations. He provided invaluable support from the beginning of the topic selection until the completion of the thesis. I want to thank all professors at the Czech University of Life Sciences for gaining knowledge in economics and management.

Foreign Trade of India - Case Study on Automobile Industry

Abstract

The master thesis focuses on foreign trade in India, specifically in the automobile industry. The main objective of this thesis is to analyze foreign exchange in India for the automobile industry. This thesis is divided into theoretical and practical parts. The theoretical part of this thesis first addresses the importance of foreign trade and therefore explains the development of foreign exchange from an economic point of view. In theory, comparative and descriptive methods are used. The practical part is focused on the analysis of the automobile industry in India. Initially, there are more detailed descriptions of imports and exports in India within the automobile industry analysis framework; the thesis focuses on the competitive factors in the automobile industry in India and further investigates the impact of the sector on national employment. The study found that the automobile industry is considered one of the most important industries within India due to its economic impact, high engagement, and access to facilities.

Keywords: Foreign Trade, Automobile Industry, Economic Impact, Competitive Framework, National Employment

Zahraniční obchod Indie - Případová studie o automobilovém průmyslu

Abstrakt

Diplomová práce se zaměřuje na zahraniční obchod v Indii, konkrétně na automobilový průmysl. Hlavním cílem této práce je analýza devizových prostředků v Indii pro automobilový průmysl. Práce je rozdělena na teoretickou a praktickou část. Teoretická část této práce se nejprve zabývá významem zahraničního obchodu, a proto vysvětluje vývoj deviz z ekonomického hlediska. V teorii se používají srovnávací a deskriptivní metody. Praktická část je zaměřena na analýzu automobilového průmyslu v Indii. Zpočátku existují podrobnější popisy dovozu a vývozu v Indii v rámci analýzy automobilového průmyslu; práce se zaměřuje na konkurenční faktory v automobilovém průmyslu v Indii a dále zkoumá vliv odvětví na národní zaměstnanost. Studie zjistila, že automobilový průmysl je považován za jeden z nejdůležitějších průmyslových odvětví v Indii kvůli svému ekonomickému dopadu, vysoké angažovanosti a přístupu k zařízením.

Klíčová slova: Zahraniční obchod, automobilový průmysl, ekonomický dopad, konkurenční rámec, národní zaměstnanost

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List of abbreviations

Abbreviations	Full Form
GDP	Gross Domestic Product
FTA	Free trade Agreement
NAFTA	North American Free Trade Agreement
IMF	International Monetary Fund
EXIM	Export-Import Bank of India
PLC	Product Life Cycle
OEM	Original Equipment Manufacturer
ASEAN	Association of Southeast Asian Nations
H-O	Heckscher-Ohlin Model
HS Code	Harmonized System Code

1. Introduction

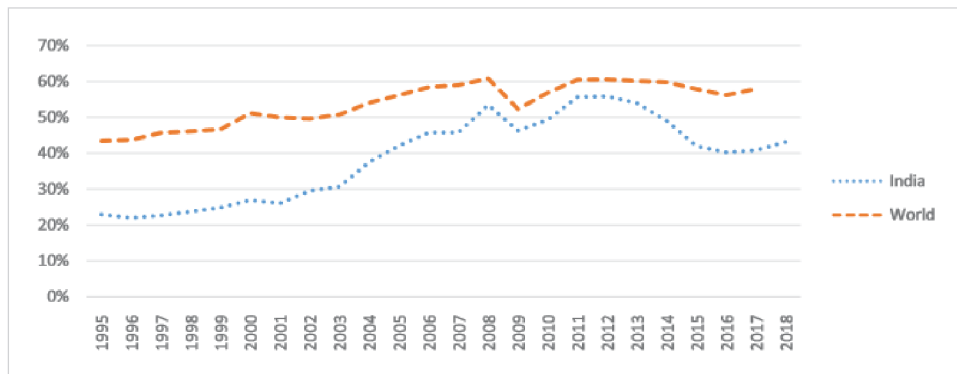
India continues to be counted among the world's fastest-growing economies, despite a small estimate of its GDP growth to 6.1% by 2019 and expected to be taken to 7% by 2020. This is between a revised estimate of 3% global growth in 2019 and 3.4% in 2020. Even though the recession is expected in the medium term, there are still plenty of opportunities for a dramatic increase in a long time. This good look comes from a few realities, including a positive population dividend, urban growth, and rising income and consumption levels. The population of Indians between the ages of 15 and 64 is expected to grow from 860 million in 2015 to about 1 billion in the next 20 years, which means that its workforce will increase by almost 30%, making it more prominent than in China. (Wilson & Purushothaman, 2003)

1.1 Indian GDP

In terms of global operations over the past few years, India's position has been highly commendable in both exports and export services. Between 1995 and 2018, India exports increased from \$ 31 billion to the US \$ 326 billion, with AAGR registering 11.8%. As a result, India's global exports increased from 0.6% in 1995 to 1.7% in 2018. In terms of services, India's exports multiplied at an average rate of 16.9% between 1995 and 2018, and exports increased from US \$ 7 billion in 1995 to the US \$ 205 billion in 2018. It may be interesting that global exports simultaneously showed an AAGR of 7.3%. India's share in international service delivery was recorded at 3.5% in 2018.

India's integration with the world economy can be confirmed because India's trade and GDP ratio has grown steadily over the past 25 years. Trade, as a percentage of GDP, which was almost 23% in 1995, has nearly doubled since then and recorded more than 43% in 2018. The global trade and GDP ratio of more than 57%, thus showing the basis for growth. The automobile industry is categorized by the presence of automobile manufacturers (also called First Manufacturers, or OEM integrators or end customers) and suppliers from complex to advanced functions near the value chain (also called Category 1, Tier 2 and -Tier 3), similar to a pattern that occurs elsewhere in the world. (Srinivasan, 2006)

Figure 1: India's Trade to GDP Ratio (Compared to World)



Source: CMIE Industry Outlook, December 2019; EXIM Bank Research

<https://industryoutlook.cmie.com/>

1.2 Automobile Sector

The automobile sector is an essential catalyst for its economic growth as it strengthens river connections downstream. The importance of multi-sectorial communication is that the automobile sector can bring about many sectors of inequality, and only the automobile sector is the core. For example, automobile production will require metal, steel, aluminum, plastic, glass, textiles, computer chips, and rubber. Considering the interactions with many industries in the economy, the automobile industry becomes a measure of economic growth in any economy. So the growth of this industry can bring about inclusive growth and social development, and economic growth.

Indirect rental employment includes hiring auxiliary and partial industries, car stations, financing agencies for car purchases, and customers who drive commercial and leased vehicles. As a result of this widespread communication, many governments in developing countries, aiming to create faster industries, are giving greater importance to the automobile industry. During the period 2006-2016, the automobile industry achieved a goal of creating 25 million jobs. In addition, according to the Automobile System Report, direct and indirect job opportunities will be completed by the Indian automobile industry of approximately 65 million. This is more than the 25 million created in 2006-2016. (Lin, 2011)

2 Objectives and Methodology

2.1 Objectives

The main aim of the thesis is to conduct analyses of the foreign trade of India and its automobile industry. The partial objective is to analyze the export & import of India according to available statistics and other web resources. Other goals are to assess factors determining competitiveness in the automobile sector and assess the impact on employment in the country.

2.2 Methodology

In the thesis, there are used descriptive and comparative methods. In the case of the theoretical part, the illustrative method is used to describe theories of foreign trade, trade policies, and international institutions associated with foreign exchange. The theoretical part is elaborated based on available literature and internet articles. In the practical part of the thesis, both descriptive and comparative methods are used. The illustrative method is primarily used to describe the significance of trade and to describe selected automobile producers in India. In addition, there are analyses of exports and imports, which are performed through time-series analyses. This part of the thesis is elaborated based on selected literature, annual reports, and other available internet resources, which are listed at the end of the thesis.

3 Literature Review

3.1 Definition of Foreign Trade

The term "foreign trade" refers to the exchange of products and services between international areas and borders. There are several types, including import and export.. They are essential concepts in the world economy. Countries set goals based on these ideas. Decisions, steps, etc., those they use to achieve their goals include foreign trade policy. Foreign trade in goods and services is the oldest and most important form of international trade. International trade relations benefit all stakeholders: companies gain more markets, increase profits, and value their services. This increases the income of private households, which is, among other things, used to buy foreign goods that are not produced in the country at the same standard or at a higher price or that are not available at all (raw materials). Finally, greater diversity of goods contributes to increased prosperity and is the basis of consumer sovereignty. In the past, foreign trade was dominated by the exchange of various products ("anti-banana machines"). This intra-industrial trade is primarily offset by intra-industrial trade. (Gulati et al., 2007)

All countries in the world must meet the needs of their communities. Goods and services are required to meet the requirements. Other resources are needed to produce resources and goods. However, not all countries have sufficient resources to deliver goods and services. Therefore, it cannot meet its production needs alone. With this, it gains support for procurement elsewhere. This requirement is met by foreign trade. To better understand the concept of foreign trade, first, understand the concept of trading. Trading is usually the exchange of some good or service for another good, service, or money. It is the oldest in history. The concept of trading, which began in the form of trading, has come to the fore with the gradual development of the idea of trading. Foreign trade is the flow of services or money generated outside a country's borders. Buying and selling that allows manufactured goods and services to be provided to consumers represent the concept of trade. Making these purchases and exports means the idea of foreign trade. Foreign trade occurs in imports and exports in connection with buying and selling. (Jackson, 1997)

This concept can be said to be the whole process of importing and exporting. Exports play an essential role in the country's economic development. Often countries set policies to increase exports and reduce imports. Foreign trade occurs between many countries. With this, the products are exported and exported. Countries are in the middle of a transaction. Detailed legislation and implementation procedures are in place for implementation. Measures should

be taken against all potential risks at the time of purchase. The whole series of events includes foreign trade. Foreign trade is the exchange of large amounts of money, goods, and services that cross international borders or regions. It represents the most significant gross domestic product (GDP) share in many countries. While international commerce has existed throughout history, its economic, social, and political importance has grown in recent decades. (Agbo et al., 2018)

All countries need goods and services to meet the needs of their people. Production of goods and services requires resources. Each country has limited resources. No country is capable of producing all of its own commodities and services. It must import what it can create or make under its requirements.

Similarly, it exports its goods at a higher price. India also acquires and imports various types of goods and services. There is usually no independent country. It must depend on other countries to import goods that may not be available or available at low prices. Similarly, it can export goods, which are also expensive and much needed abroad. International trade is the exchange of goods and services between two or more nations. International trade involves different currencies and is governed by the countries concerned with laws and regulations. Thus, international trade is very complex.

Industrial trade, advanced transport, global trade, international companies, and job creation profoundly impact the international trade system. The increase in international trade is crucial to the advancement of globalization. Without international commerce, states would be restricted to the production of goods and services inside their boundaries. International trade is no different from domestic trading as the motivation and behavior of the parties involved in the business do not change fundamentally whether the work crosses the border or not. The main difference is that international trade is more expensive than domestic trade. The reason is that the edge often imposes additional costs such as taxes, time costs due to border delays, and costs associated with different countries such as language, legal system, or culture. International trade consists of 'export trade' and 'foreign trade.' Exports include the sale of goods and services abroad. Importing involves importing from abroad. (Baier & Bergstrand, 2007)

International or foreign trade is considered the most critical factor in developing the national economy globally. The foreign exchange consists of the internal (import) and export (export) of goods and services, resulting in cash outflows. So it is also called EXIM Trade. Several laws have been enacted to provide, regulate, and create the necessary conditions for its systematic growth. India's foreign trade is governed by the Foreign Trade (Development and

Regulation) Act of 1992 and the rules and regulations issued below. Export and export charges are governed by the External Finance Management Act, 1999. The Taxation Act, 1962 regulates the supply of goods and services through various modes of transport. To make India a quality producer and producer of goods and services abroad, without producing such an image, the Important Sales (Quality Control and Inspection) Act of 1963 has been in force. The level of development of foreign trade depends on the International Export Policy, which is also internationally adopted. Even EXIM Policy 2002-2007 puts pressure on simplifying processes sharply to reduce transaction costs further. (Wadsworth et al., 2002)

3. 2 Significance of Foreign Trade

Foreign trade is an example of the country's economic growth. It also helps in the efficient use of global resources. The main reason foreign trade is essential to the national economy is that it helps expand the business and disband the private sector, increasing competition. It also promotes product innovation and brings a broader range of goods and services to choose from. Modern techniques used in business processes help to improve product quality and quality. Foreign trade is regarded as a catalyst for global economic growth and contributes to the efficient use of global resources. In the view of the host country, foreign investment helps increase employment opportunities and improve the use of resources. (Helpman, 2009)

International companies are also helping to expand local suppliers. Modern techniques used in business processes help increase product quality and quantity and reduce costs. Foreign investors transfer technical and administrative information to less developed and developed countries. It assists in the training and development of employees and the adoption of less expensive strategies. The volatility of commodities can be controlled by indulging in foreign trade. If the price of a particular item increases due to shortages, the same can be imported to reduce the rate of inflation. Similarly, if commodity prices fall due to the domestic market's increased availability, surplus money can be exported to raise prices to a higher level. (Correa & Zuniga, 2013)

Foreign investment helps increase the employment sector and helps increase income and investment levels in the participating country. Savings, foreign trade, foreign exchange, and technology are essential for economic development. Foreign investment contributes to economic growth by filling savings, employment, and technology gaps. Foreign investment helps to increase government spending in the form of corporate taxes. It also helps to reduce

trade shortages by growing exports and a corresponding decrease in imports. Foreign trade is considered an essential factor in determining international relations. In contrast, good relations also help to promote trade relations and help achieve global economic integration and political peace. (Erceg et al., 2005)

Use plenty of raw materials - Some countries are naturally rich in raw materials - oil (Qatar), metals, fish (Iceland), Congo (diamonds) Butter (New Zealand). Without trade, these countries would not benefit from natural resources. Eli Heckscher and Bertil Ohlin developed the theoretical model for this; the Heckscher - Ohlin (H - O model) model states that countries will specialize in producing and exporting goods using the bulk of local supply. Countries will import those goods when resources are scarce.

Comparative Profit - Comparative profit theory states that countries should specialize in assets with relatively lower costs. Even if one country can produce two goods at a meager price, they should not make everything. India, which has low labor costs, can have a comparative advantage in production that requires more workers (e.g., call centers, garment manufacturing). Therefore, it would be advisable for India to roll out these services and goods. In contrast, an economy like the UK may have the opportunity to compare education and video game production. Trade allows countries to operate exclusively-more details on how the benefits of comparison can enhance economic well-being. The theory of comparative gain is limited, but it defines at least certain aspects of international trade. (Anderson, 2006)

Big Consumer Option - New trading theory emphasizes comparative profitability and related input costs. The new trading theory states that the best thing about trading in the real world is giving consumers a vast selection of different products. India imports BMW cars from Germany, not because they are too cheap but because of the quality and image of the product. The commercials make a wide selection of music and film that appeals to people who love it when it comes to music and film. When the Beatles visited the US in the 1960s, they exported British music to other countries - the related operating costs were insignificant. Probably the best example of clothing such as clothing. Other clothing (e.g., the value from Primark - price is significant and will likely be bought in less expensive countries like Bangladesh. However, India also imports Gucci (Italy) Chanel (France). Economists argue that international trade is often associated with a competitive model of one-person rule; in this model, an essential factor is the fragmentation of products. (Jovanovic, 2003)

Professionalism and economics of scale - excellent efficiency - Another aspect of new trade theory is that it does not matter which countries are experts. What is important is the

pursuit of expertise, enabling companies to benefit from a level economy that surpasses many other factors. Sometimes, countries may specialize in specific industries without reason for overcrowding - it may be a historical risk. But, that technology allows for improved efficiency. International companies often divide the production process into a global production system in high value-added products. For example, Apple designs its computers in the US, but the production contract has gone to Asian factories. Trade enables the product to have multiple world resources. The production process is usually global, with engines, tires, design, and marketing all possible from different countries. (Chan et al., 2013)

Service sector trade - Trade often produces images of tangible goods, importing bananas and exporting vehicles. However, increasingly the services sector economy means that more trade is for the private sector - services, such as insurance, IT services, and banks. The global economy with modern communications allows for much smaller trade, which would not have happened in the pre-internet era. Global economic growth and development - International trade has promoted economic growth. This growth has led to a complete decline in poverty - especially in Southeast Asia, with high growth rates since the 1980s. (Pilat, 2001)

3.3 Reason for Foreign Trade

Loss of trust in the local market - The home market may be struggling due to economic pressures. Still, if anyone travels around the world, they will quickly reach an unlimited range of customers in areas where there is plenty of money to spend. Because unique cultures have different needs and requirements, they can differentiate the product range to make this difference. Increasing Opportunity to Succeed - Unless their prices are wrong, the value of the products anyone sells increases when they make more profit, and trading abroad is an obvious way to increase sales. To support this, UK Trade and Investment (UKTI) states that companies traveling worldwide have a 12% chance of survival than those who choose not to export. Increased efficiency - Benefit from the export economy that exports can bring - travel around the world and take advantage of any excess volume in the business, smooth out the burden and avoid seasonal peaks and disruptive shipping to the production manager's life. (Rivera-Batiz & Romer, 1991)

Productivity growth - Statistics from UK Trade and Investment (UKTI) say companies involved in overseas trade could improve their product by 34% - imagine, more than a third without crop growth. Economic Profit - Take advantage of currency fluctuations - export where the pound's value is lower than other currencies, and get real benefits. Words of warning,

though; note the import prices for the country anyone is exporting to, and look at the value of sterling. They do not want to be plagued by any sudden increase in pounds, or they may lose out on all the hard work put into earning it.

New Design - Because sellers export to a wide range of customers, they will also get a broader response to the products, leading to tangible benefits. UKTI statistics show that businesses believe that exports lead to innovations - increased product development to solve problems and meet the needs of a broader customer base. 53% of the companies they spoke to said that a new product or service was already available due to their overseas trade. Growth - The sacred beauty of any business, and something that has long been lacking in our manufacturing industries - more employment abroad increased growth opportunities for the benefit of the company and our economy. (McCloskey, 2010)

Technological Differences - Profitable trade can occur between countries if countries differ in technical capabilities to produce goods and services. Technology refers to turning resources (labor, money, land) into products (goods and services). Differences in Service Delivery - Profitable trade can occur between countries if countries differ in service delivery. Service delivery refers to the skills and competencies of the country's workers, the natural resources found within its borders (minerals, farms, etc.), and the complexity of its significant assets (machinery, infrastructure, communication systems).

Differences in Demand - Profitable trade is possible between countries if demands or preferences differ between countries. People in different countries may have other interests or needs for different products. For example, the Chinese are more likely to demand more rice than Americans, even if consumers are facing the same price. Even though they all face the exact costs, Canadians may want more beer, Dutch more wood shoes, and Japanese fish more than Americans. Economic Presence of Manufacturing - A moderate economy in production is sufficient to produce a profitable trade between the two countries. Scale economics refers to a production process where production costs decrease as production scale increases. This aspect of production is also known as "increasing the return on the scale." (Kabene et al., 2006)

Availability of Government Policies - Government tax and subsidy programs change the tariffs for goods and services. These changes are not enough to produce benefits in the production of certain products. In these cases, profitable trade may arise due to differences in government policies around the world. There are very few trading models covering all five reasons to trade simultaneously. The reason for this is that such a model is impractical to deal with.. Economists make the world easier by choosing a model that usually contains one logic.

This does not mean that economists believe that one reason, or one model, is enough to explain all the results. Instead, one should understand the world by looking at what a collection of different models tells us about the same event.

For example, the Ricardian trade model, which combines technological differences between countries, concludes that everyone benefits from trading. In contrast, the Heckscher-Ohlin model, which combines endowment variations, ends that winners and losers. Change the basis of the trade, and they may change the trade results. In reality, ponderous elephants face the aggressiveness of racing little people.. Every single model provides only a glimpse of some of the possible consequences. Therefore, everyone should expect that the combination of the different effects presented by the various models is a true reflection of the real world, as understanding the complexities of the natural world is still a masterpiece of science. (Giovanni et al., 2014)

3.4 Theories of Foreign Trade

Over time, economists have developed ideas that define globalization. These theories explain what is happening in International Trade. There are six economic ideas under International Trade Law listed in four: (I) Mercantilist Theory of trade (II) Classical Theory of trade (III) Modern Theory of trade (IV) New Theory of trade. Both categories, past, and present, present several international theories.

Mercantilism - This idea was popular in the 16th and 18th centuries. The national treasure contained only gold or other precious metals at that time, so experts suggested that countries should start accumulating more gold and other metals. European nations began to do so. The Mercantilists, at the time, said that all these gems represented the nation's wealth believed that the country would only grow more potent if the government imported less and exported more. They said this was good trade equity and would help the nation become more prosperous. Mercantilism flourished in the 1500s because of the rise of new countries, and the rulers of these provinces wanted to strengthen their governments. The only way to do this was to increase trade and commerce; as a result, these emperors were able to raise more money for their tribes. These rulers encouraged the export of goods by imposing restrictions on imports. This method is called protectionism and is still used today. However, Mercantilism is one of the oldest theories and is still part of modern thinking. Countries like China, Taiwan, Japan, etc., still love Protectionism. Almost all countries have implemented a defense policy in some way to protect their economy. Export-focused countries prefer protection policies as they like.

Import restrictions lead to higher costs of goods and services. Free trade benefits everyone; however, mercantilism protection policies only benefit the selected industries. (Magnusson, 2019)

Absolute Cost Advantage - This idea was developed by Adam Smith, the father of Modern Economics. This theory emerged as a strong reaction against the views of protective mercantilists in international trade. Adam Smith supported the need for free trade as the only guarantee of increased employment. He said the country should produce only those that fully benefit from it. According to Smith, free trade encouraged the segregation of workers worldwide. Specifically, segregated labor producers with advantages can always benefit more from remote production. He focused on producing what the country is focused on to make more at a lower cost than other countries. The idea is that the country should export a cost-effective product to it. Adam's vision clearly states that the earth's prosperity should be considered, not in terms of gold and other precious metals, but rather in the quality of life of its inhabitants. (Tsaliki et al., 2018)

Comparative Cost Advantage Theory - The theory of relative costs was first presented by David Ricardo. J. S. Mill later polished it, Marshall, Taussig, and others. Ricardo said entire profits were not required. He also said that the country would produce a comparative advantage. Theory suggests that each country should focus on delivering those products that are more profitable or less harmful. Therefore, the state will export those goods that have the most profit and import those goods that have little effect on them. Comparative gain arises when a country cannot produce goods more efficiently than another country; however, it has the resources to make that product more efficient than other goods. (Deardorff, 2011)

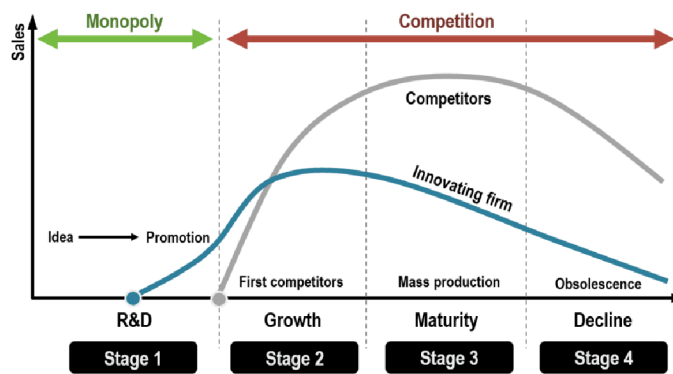
Heckscher Ohlin Theory (H-O Theory) - The ideas of Smith and Ricardo did not help countries see which products could bring the best benefits to the world. In the 1900s, Eli Hecksher and Bertil Ohlin worked out how the government could profit by creating most of its natural resources. They found that the abundant features in terms of demand would be cheaper and that the features that were more needed than their supply would be more expensive. H-O theory is also known as Modern Theory or General Equilibrium Theory. This theory focuses on factor endowments and prices as the most critical decisions for international trade. H-O is divided into the H-O theory and the Factor Price Equalization Theorem. H-O theory predicts a trade pattern while the factor-price equalization theorem is related to the impact of international trade on commodity prices. The H-O theorem is further divided into two parts: factor intensity and factor abundance. Factor Abundance can be defined as visual units and the number of

corresponding items. Portable units include cash and labor, and related costs include related costs such as rent, labor costs, etc. On the other hand, factor intensity means capital, labor or technology, etc., or whatever the country has. (Baldwin, 2008)

Porter's National Competitive Theory - The theory of diamonds was provided by Michael Porter. The approach is that the qualities of the homeland are crucial to the success of the business. This theory got its name because it is in the form of a diamond. It describes the factors that influence the success of an organization. There are Six Model Factors in this theory, also known as determinants. The following are the decisions: Feature Status; Terms of Service; Supporting Related Industries; Strong Strategy, Structure, and Competition; Opportunity; and Government. (Grant, 1991)

Product Life Cycle Theory - The idea was developed by Raymond Vernon. In the mid-1960s, he was a professor at Harvard Business School. This theory was created after the failure of Hecksher Ohlin's Theory. The approach is that the product goes through various stages during its development. These categories are (1) the new product category, (2) the mature product category, and (3) the established product category. The idea was that the production of a new product would take place in the nation where it was established. In the 1960s, this was an instrumental theory. At that time, the United States of America was the world's largest production producer after World War II. (Mercer, 1993)

Figure 2: PLC Chart



Source: The Geography of Transport System

<https://transportgeography.org/>

Phase I: New Product - The stage introduces a new product to the market. The company will embark on new positive development. The call will be small, and sales will be relatively low. Vernon thought that the development or development of products would be done mainly in developed countries due to the country's economy. To measure the effect of small sales, companies will keep production in place. As sales increase, companies will export goods to different countries to increase revenue and sales. *Phase II: Mature Product Stage* - Productivity falls into this category once the demand is established in developed countries. Manufacturers will need to open production factories in each country where the product is required. As a result of domestic production, labor costs and export costs will decrease, reducing the price of each unit and increasing revenue. This category may include product development. Demand for the product will continue to rise at this stage demand can also be expected in less developed countries. It will start a home tournament and another partnership. *Phase III: Standard Product Stage* - The export to the developed and underdeveloped countries will begin. Competition of foreign products will reach a climax because the product will lose its market. Demand in the nation from which the product originates will decline and eventually decrease as the new product attracts the public's attention. The product market is now completely over. Then, the new product cycle begins.

The ideas mentioned above have helped economists, government, and industry to understand international trade healthily. The view of mercantilists reigned in the 17th and 18th centuries. The Mercantilists held that trading was free and was primarily about making more money. However, they have failed to meet various challenges. Adam Smith opposed the Mercantilist Theory and highlighted the importance of free trade in increasing international

prosperity. David Ricardo and others criticized Smith's theory. According to Ricardo, each nation should produce the most productive assets. Heckscher-Ohlin defined the trading base concerning factor endowments. Vernon's theory explored the impact of technological change on the international trade pattern. Mercantilist's theory, Cost Advantage theory, and Comparative Advantage have taken only two factors, factories and countries, and other factors as unchanged. On the other hand, new approaches, including Product Life Theory and Porter's Diamond, were based on more elaborate speculations, which spoke of evolution. Therefore, new ideas are better at defining the world trade pattern today.

3.5 Institutions of Foreign Trade

In the post-war world, almost all countries thrive through exports and imports. To ensure international trade growth and development, it is necessary to regulate and regulate international organizations. In the post-global era of trade, the emerging global economy has paved the way for international economic institutions tasked with imposing the same rules and regulations on participating countries to ensure an efficient and effective trading system in all economies.

World Bank Group - Founded in 1944 in Washington DC, at the Bretton Woods Conference, and the IMF, the World Bank's primary goal is to promote economic growth and development in the middle- and low-income countries to reduce poverty. The motto of the World Bank is "Working for a world without poverty." The World Bank Group has five international organizations, namely International Bank for Reconstruction and Development (IBRD), International Development Association (IDA), International Finance Corporation (IFC), Multilateral Investment Guarantee Agency (MIGA), and the International Institute for Investment Dispute Resolution (ICSID). All these organizations work together to achieve the goals of the World Bank. (Park, 2013)

International Monetary Fund (IMF) - The International Monetary Fund was established at the Bretton Woods Conference in 1944 and the World Bank. With its headquarters in Washington D.C., the IMF's primary goal is to oversee the global financial system's stability. It facilitates international economic cooperation, provides assistance in establishing an international payment system, and eliminates foreign trade restrictions. (Vreeland, 2006)

World Trade Organization - The World Trade Organization is the only international organization specializing in international trade. It was established on January 1, 1995, under

the Marrakesh Treaty; and replaced the General Tax and Trade Agreement (GATT). The WTO coordinates trade in intellectual property rights, goods, and services between participating countries by providing them with a negotiating framework. (Barfield, 2001)

Asian Development Bank - Founded in 1966, the Asian Development Bank is based in Manila, Philippines. India was one of the Asian Development Bank's founding members. The bank's primary purpose is to eradicate poverty; and promote prosperity, inclusion, resilience, and resilience in the Asia-Pacific region. The first President of the ADB was Takeshi Watanabe. Currently, it is led by Masatsugu Asakawa. Through that program, Japan is the largest shareholder in the Asian Development Bank, followed by the USA, China, and India. (Rauniyar & Kanbur, 2010)

New Development Bank - With its headquarters in Shanghai, China, the New Development Bank was formerly known as the BRICS Development Bank, established by BRICS member states (Brazil, Russia, India, China, and South Africa). The vision of the BRICS bank was introduced at the fourth BRICS Summit in 2012 (New Delhi). This vision was realized during the sixth General Assembly in 2014 when the leaders of the member states signed an agreement to establish a New Development Bank. The announcement was made known as the Fortaleza Declaration, in which five party leaders agreed to establish a \$ 100 billion New Development Bank. (Abdenur & Folly, 2015)

3.6 Agreements of Foreign Trade

GATT Part of the Agreement - The recent General Taxation and Trade Agreement (GATT) following a significant change in 1994 is part of the WTO's guarantees. GATT similarly includes a specific agreement developed to control certain non-payment barriers. It is one of the essential WTO trade agreements. (Daly & Goodland, 1994)

Textiles and Clothing (ATC) Agreement - Trade agreements were developed under the WTO to eliminate allocation limits as set by developed countries in the provision of materials and textiles to form developing countries. Developed countries placed different barriers under the Multi-Fiber Arrangement (MFA) itself, which significantly departed from the GATT's primary goal of free trade. (Brambilla et al., 2010)

An agricultural Agreement (AOA) is an agreement to ensure free and fair agricultural trade. Although the original GATT rules applied to agribusiness, these faced specific opportunities such as exemptions from member states to use other tax-free methods such as property taxes, foreign divisions, and grants to protect the interests of farmers in their home

country. AOA is an essential step towards systematic and fair trade in agricultural products. (McMahon & Desta, 2012)

General Trade Services Agreement (GATS) - Services that mean intangible actions or performances cannot be touched or melted as an asset. The GATS is regarded as a historic achievement of the Uruguayan Round as it extends the rules and regulations of many nations to the resources. Because of GATS, the basic rules governing 'trade-in goods' now apply to 'trading in services.' (Marchetti & Mavroidis, 2011)

Trade-in Intellectual Property Agreement (TRIPS) - The WTO Agreement on Trade-Related Intellectual Property Rights (TRIPS) was negotiated in 1986-1994. During the Uruguay Round of GATT negotiations, it was the Uruguay Round GATT negotiations that laws on intellectual property rights were discussed and introduced as part of a global trade program. Intellectual property refers to information with trading values such as ideas, fiction, artistic expressions, and more. (Correa, 2020)

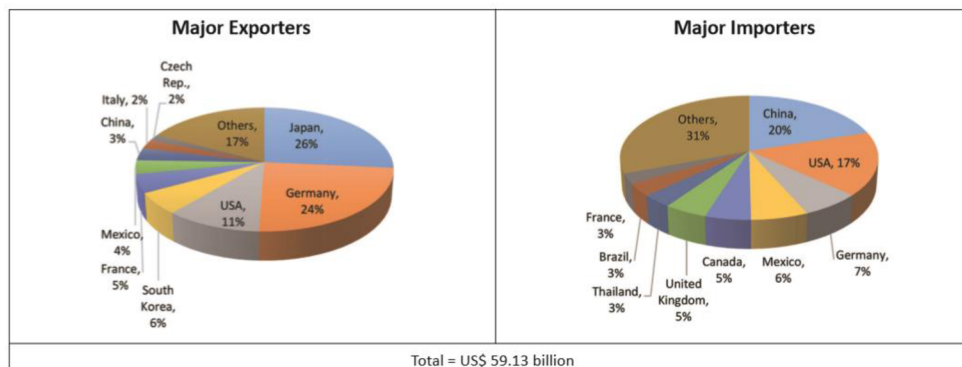
3.7 Global Automobile Scenario

Profits from the car sector were projected at Euro 1.9 trillion in 2015, with 90.8 million vehicles produced (excluding two- and three-wheelers), representing a 3.6 percent compound annual growth rate over the period.the 2008-15 period. China, the USA, and Japan were the most prominent car manufacturers globally, together accounting for the share of global production in 2015. They are followed by Germany, South Korea, India, Mexico, Spain, Brazil, and Canada. India holds a 5% share in global car production. Over the past few years, there has been a steady increase in global trade in automobile products worldwide. According to data collected by the WTO, exports of automobile products worldwide in 2014 were estimated at \$ 1.4 trillion. Exports worldwide grew by about 3.6% in 2014, over the previous year; the CAGR for 2010-2014 is 6.3%. (Alhawaish, 2014)

Regional-wise data on automobile exports show that Europe's share in exports dropped slightly from 51.6% in 2010 to 51.5% in 2014, although the total car share of EU exports increased to -10.5% in 2014 from 9.9% in 2010. According to the categories, motor vehicles and vehicles had the highest export value reaching the US \$ 709 billion in 2014. Germany, with a share of 23% in exports, and Japan (12%) led the way. Senders. Both countries are exporting cars once cars cost about \$ 249 billion. The largest exporters of cars and vehicles in the same year are the USA (22%) and China (9%). The second-largest commercial vehicles segment is freight vehicles, with exports costing \$ 125 billion in 2014. Mexico, USA, and

Germany together account for 37% of the world's freight forwarding vehicles. Significant exporters of freight vehicles include the USA (19%), Canada (11%), and the UK (6%).

Figure 3: Major Automobile Exporters & Importers in World



Source: UN Comtrade Database; EXIM Bank Research

<https://comtrade.un.org/>

Exports of motorcycles (including mopeds) amounted to \$ 22 billion. China sold motorbikes (including mopeds) worth \$ 5.7 billion and surpassed the United States as the world's largest exporter, accounting for 26% of total exports. Other significant exporters of motorcycles (including mopeds) were Japan (14%), India (9%), and Germany (8%). The USA, France, and Germany were among the largest exporters in terms of imports. International trade in passenger cars in public transport was estimated at US \$ 17 billion in 2014. Japan was the world's largest exporter, with an 18% share, followed by China (17%). Significant exporters include France (6%), the USA, Germany, and Saudi Arabia (5% each). Global trade in tractors was worth \$ 56 billion in 2014. Germany, Mexico, and the USA were the largest exporter of tractors, with collections accounting for more than 43% of total exports. The largest exporters of tractors to other countries were the USA (22% share in world purchases), Canada (8%), Germany (6%), and Poland (4%). (Frederick et al., 2019)

The global automobile parts industry includes automobile parts manufacturers, rear market parts manufacturers, suppliers, dealers, and wholesalers in all its diversity. Trends in the automobile parts industry depend on the development of the automobile industry as the material manufacturers are the main buyers of the automobile parts industry. The manufacture of automobile parts is slowly shifting to Asian countries such as China, India, and others due to the high market forces and the less expensive production options available.

Exports of automobile products worldwide reached \$ 1105 billion in 2014 and have grown in many smaller categories over the past few years. The most sold items worldwide are

gearboxes, driving axles, steering wheels, road wheels, suspension shock absorbers, clutch, bumpers, radiators and brakes, and servo-brakes. Global shipping of car gearboxes totaled \$ 59 billion in 2014, the world's highest number of car parts. Japan and Germany were the most prominent exporters under this product category, accounting for more than 50% of exports. The largest buyers of car gearboxes in the same year included China (20% of the world's total exports), followed by the USA (17%).

Exports of international travel axles amounted to \$ 22 billion in 2014. Germany is the world's largest exporter with 21%, followed by Mexico with 15%. The USA became the largest importer of 17% in terms of exports. Other significant exporters are Mexico (10%), Germany (10%), and the United Kingdom (6%). Exports of international travel wheels were estimated at the US \$ 20 billion in 2014. Germany and the USA are the leading exporters under this product category, making up more than 30% of exports in 2014. Other major traders were Mexico (9%), France (9%), China (7%), Japan (6%), and Poland (5%). The major exporters of imported tires include the USA (20% share in world purchases), followed by Germany (12%), China (10%), Mexico (9%), Canada (6%), and France (6%).

Exports of bumps and parts to \$ 7 billion in 2014. Germany also became the world's largest exporter, accounting for 20% of exports in 2014. Other major traders were the USA (10%), Japan (6%), China, and Canada (5% each). In terms of consumer goods, the USA became the most oversized consumer goods globally. Other significant importers of bumpers include Germany (8%), China (6%), Canada, and the United Kingdom (5% each). Radiography exports amounted to \$ 7 billion in 2014. China has become the largest exporter of export radios, up to the US \$ 1 billion (17% share of exports). Other major radiator senders were Germany (15%), Poland, and the USA (8% each). Major buyers of radiators include the USA (15%), Germany (15%), China (6%), Mexico, and Canada (5% each).

The world's fastest-growing trading world is opening up new avenues for the automobile industry and automobile parts, significantly as it transforms into electric, electric, and versatile vehicles, considered the most efficient, safe, and reliable modes of transportation. Shortly, this will lead to new developments and opportunities for automobile parts manufacturers, who will need to adapt to change through systematic research and development. This could lead to remarkably high international trade prices, especially considering that new technologies will take time to establish a manufacturing base in low-cost countries. (Benotmane et al., 2020)

3.8 Indian Automobile Scenario

India's automobile industry has grown healthy, aided by economic stability and infrastructure development; growth in the middle class with income and access to affordable consumer financial services. The sector produces almost all primary transport vehicles such as cars, multi-service cars, light vehicles, buses, trucks, tractors, motorcycles, mopeds, and three wheels. India is currently the largest manufacturer of tractors, the second-largest manufacturer of two wheels and buses, fifth-largest trucks, sixth-largest car manufacturer, and eighth-largest commercial car manufacturer globally. Over the past few years, there have been fluctuations in car production in India, both in price and quantity. Although growth slowed in 2012-13, and more recently in 2015-16, the industry registered positive change. India's automobile production capacity recorded a CAGR of more than 6% during 2011-12 to 2015-16. By 2026, India is expected to become the third-largest car market globally.

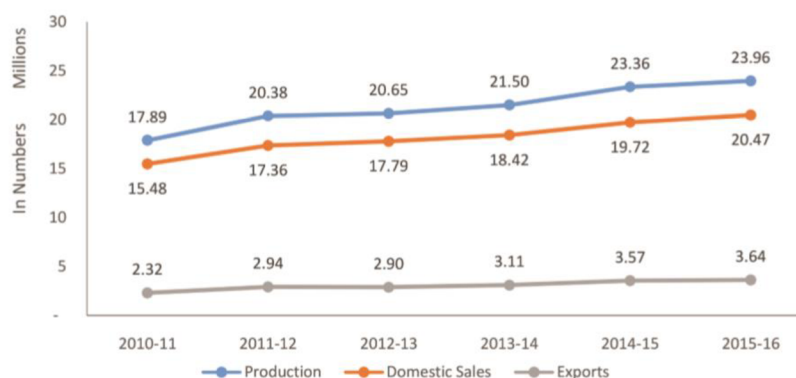
The growing number of working people and the growing middle class are expected to remain drivers of essential needs. The two-wheeler comprises the largest share of car production nationwide, accounting for 79% of production in 2015-16, followed by the passenger car segment, with a share of about 14%. The three wheels made 4% followed by the sales cars by 3%. Production of two wheels has grown steadily annually between 2010-11 and 2015-16. On the other hand, the output of part of passenger cars declined in 2013-14 while those of commercial vehicles with three wheels recorded poor growth over three years during these five years. (Toba et al., 2020)

Domestic car sales in India followed a growing trend during 2010-11 to 2015-16. The developing economy, rising revenue, easy access to finance, and a few other factors have contributed to the growth of car sales in India during this period. During the first three quarters of 2016-17 (April-December), annual passenger car sales increased by 8.6 percent while sales cars increased by 3.5 percent. Sales of three-wheelers and two-wheelers recorded 1.9 and 10.0 percent growth, respectively. Going forward, the implementation of the Seventh Salary Commission is expected to increase revenue as it will improve the salaries of 4,700,000 government employees and 5,200,000 pensioners.

This will lead to a lot of spending that is expected to encourage the sale of passenger cars. Favorable factors such as lowering interest rates, stable fuel prices, and higher disposable earnings will boost sales shortly. Exports of vehicles have gradually increased to 3.6 million units during 2015-16. Exports as a percentage of production increased from 12.97% in 2010-

11 to 15.20% in 2015-16, reflecting the growth of the Indian automobile industry to meet international standards and the growing acceptance of Indian manufactured cars in world markets.

Figure 4: Trends in Production, Sales and Exports of Automobiles in India



Source: SIAM; EXIM Bank Research

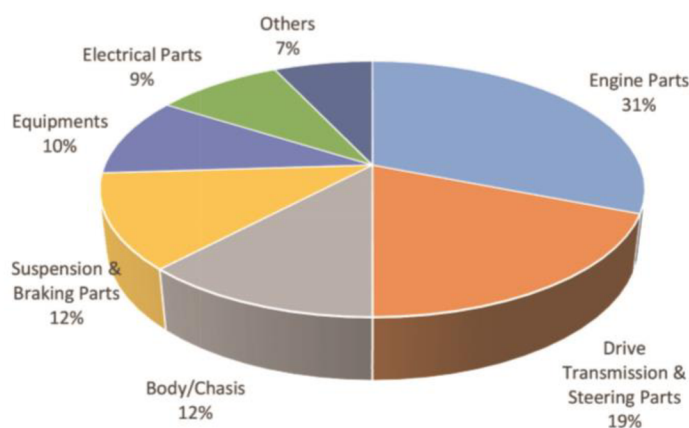
<https://www.eximbankindia.in/>

Commercial vehicle manufacturing climbed from 7.61 lakh units in 2010-11 to 7.83 lakh units in 2015-16, according to the classifications. Simultaneous exports increased from 74,043 units to 101,689 units. Manufacture of passenger vehicles increased from 29.83 lakh units in 2010-11 to 34.14 lakh units in 2015-16. Passenger vehicles' transmission simultaneously rose from 4.44 lakh units to 6.54 lakh units. Production of two wheels has increased from 133.49 lakh vehicles in 2010-11 to 188.30 lakh units in 2015-16. Exports of two-wheelers increased from 15.32 lakh units to 24.81 lakh units over the same period. Production of three wheels rose from 7.99 lakh units in 2010-11 to 9.34 lakh units in 2015-16. Simultaneous exports increased from 2.70 lakh units to 4.04 lakh units.

India exports almost all vehicles; among the major categories, two wheels have more than two-thirds of the units in terms of units released 2015-16. In fact, over the years, two wheels have become the leading exporter among various car parts, according to the number of units. In terms of value, the combined total exports of Indian vehicles reached the US \$ 9.5 billion in 2015-16, increasing from the US \$ 6.6 billion in 2010-11 CAGR of 7.6%. Passenger cars were the most significant exports in 2015-16, followed by motorcycles (including mopeds), tractors, and freight vehicles. Over the past few years, passenger cars have been the largest exporter among Indian imported cars, in terms of value, followed by two wheels and tractors. (Xie et al., 2020)

Exports of passenger vehicles for 2015-16 amounted to R5612 million. Mexico was the largest passenger car market, with an 18 percent share in themes coming from India. A large percentage of passenger cars are also exported to South Africa (10 percent), the UK (6 percent), Italy (6 percent), Sri Lanka (5 percent), and Saudi Arabia (4 percent). Egypt, Spain, and the UAE, with a 3 percent share in Indian passenger cars, are essential destinations. In terms of price, two-wheeled wheels were the second-largest exporter in the Indian automobile export basket and exports amounting to \$ 1778 million in 2015-16. The bulk of this category is exported to countries such as Colombia (13 percent), Sri Lanka (12 percent), and Nigeria (12 percent).

Figure 5: Auto-Component Production in India



Source: ACMA; EXIM Bank Research

<https://www.eximbankindia.in/>

Other critical areas for 2015-16 included Bangladesh (7 percent), Nepal (6 percent), Philippines (6 percent), Mexico (5 percent), and -Iran (4 percent), and Guatemala (3 percent). India's export of tractors was estimated at the US \$ 991 million in 2015-16. Exports to the USA account for more than 31 percent of total revenue. This was followed by exports to Turkey (12 percent), Bangladesh (6 percent), Nepal (5 percent), Algeria (5 percent), and Sri Lanka (4 percent). Exports of Indian freight vehicles were estimated at the US \$ 836 million in 2015-16. Bangladesh and Sri Lanka were India's leading markets with 17 and 16 shares, respectively, followed by the UAE (7%), Nepal (6%), South Africa (6%), and Kenya (5%). India's export of buses was estimated at \$ 237 million in 2015-16. Sri Lanka accounted for 19 percent of India's total exports, followed by Senegal (12 percent), UAE (11 percent), Qatar (9 percent), Saudi Arabia (8 percent), and Kuwait (8 percent). Nepal, Tanzania, and Ghana were important bus routes for Indians.

3.9 Industry Challenges & Strategies

Major Challenges

- **Fuel Price fluctuations** - Fixed fuel prices are contributing to the growth of the automobile industry worldwide. Many countries have, in recent years, implemented policies on fuel-efficient vehicles to address pollution problems and reduce their dependence on fossil fuels. As a result of these policies, manufacturers have invested heavily in technologies that improve fuel efficiency and reduce carbon emissions because of the vital need to improve fuel economy. These product options were offered at a premium in anticipation that higher fuel savings would lower operating costs. However, lower fuel prices change the return on investment accounting to consumers surprisingly. As oil prices have remained very low over the past few years, the demand for this technology has declined. Lower fuel prices increase consumer pay times - the time required to repay a fuel-saving investment and more consumers are less likely to pay the premium, thus making it more challenging for producers. (Larson et al., 2014)
- **Environmental Issues and Law Enforcement** - The automobile sector affects the environment in many ways, from using hazardous materials to managing waste disposal. However, it is estimated that much of the damage done to the background during the vehicle's lifetime occurs while driving and is thus associated with fuel emissions. That is why many countries do not encourage the sale of fuel-efficient vehicles, such as air-conditioning vehicles, through appropriate tax policies. There are estimates that the automobile industry accounts for about a quarter of the global anthropogenic GHG emissions. Therefore, to combat the environmental challenge, firms focus on avoiding pollutants in production and focusing on fuel efficiency and standards and owners. The industry also addresses this challenge by conducting research to improve fuel economy and reduce CO₂ emissions.
- **Growing Competition** - The Indian automobile industry and car parts have increased in recent years. Previously, regulatory framework and market conditions have placed Indian OEMs in the oligopolistic marketplace. With the opening of the market and the downgrading of the rules, many new players have entered the fray. Indian players enter into joint ventures with foreign companies to access their technological advances and design engineering. In the automobile segment, although there are active units that produce high-quality products and supply them to global OEMs, the market attracts

international players who expanded their product portfolio and improved their production skills, thus increasing competition among domestic players.

- **Changing Consumer Preferences** - There has been a steady shift in consumer demand in the automobile industry, encouraging companies to focus on innovation on an ongoing basis. With the growing purchasing power among Indian consumers, the need for better and more efficient cars is growing. Extensive competition in the industry has led to the development of hybrid vehicles and new car ideas. In addition to customers, the latest technology also allows designers to change every aspect of car design. Frequency, product quality, cost reduction, new technologies, and environmental issues influence the consumer demand for cars and thus innovations in the automobile industry. (Bucherer et al., 2012)
- **Low R&D Orientation** - It is evident worldwide that competition is not dependent on factors such as the availability of skilled workers, low-cost operations, and infrastructure. Continuing competitor in the automobile industry comes with the development of production, which requires a continuous new establishment for players. However, Indian car companies spend less on R&D; therefore, their R&D status is low compared to world standards. Creating new designs is expensive unless the market for new designs is world-class. Indian firms are also very focused on designing cars in domestic markets or other emerging markets. Still, they are not creating a global market, creating a better environment, and competing with international brands. In addition, the efforts of Indian car manufacturers are more focused on quantitative engineering or modification of existing models to improve performance, not on newer models.
- **Infrastructure Issues** - Inadequate road infrastructure and traffic congestion can be a barrier to the growth of the automobile industry. In India, the increase in traffic volume has been delayed by traffic growth. China has reportedly seen a dramatic change in the automobile industry due to the rapid development of road infrastructure. Poor port connection is another bottle to deal with industry, mainly when exporting vehicles. Chennai and Mumbai Ports own a large number of car exporters. In addition to inadequate port management infrastructure, there are also challenges associated with the area, especially the parking and construction of repair shops in the port yard. (Peyrouse & Raballand, 2015)

- **Tax Incidents / Services** - Due to tax evasion, detailed compliance obligations, and tax cuts, India's current indirect tax system provides a complex tax situation. In addition, the automobile industry has its complexities. To name a few, long investment cycles, vendor/component development, outsourced processes, and market difficulties. The Indian car industry is reported as 'highly taxed.' Currently, motor vehicle tax is divided into four slabs, with a smaller tax rate applicable to smaller vehicles. However, with the expected use of the GST, taxes levied on the Centre, such as property taxes and levies, such as sales tax, road tax, and registration tax, will all be imposed in one place. Assuming that the proposed 18-20 percent rate is acceptable, car prices are expected to be more affordable, thus furthering demand.
- **Minimum Import of Metal** - Government The government has imposed a minimum import price (MIP) on steel which has reduced the profitability of low-cost car companies. The impact has been particularly acute for commercial vehicle manufacturers, including trucks and tractors, where metal makes up most raw materials. Foreign-based car manufacturers have also been hurt as their export contracts are linked to international prices. The government has been expanding the legitimacy of the MIP as a step towards boosting sales of domestic steel producers since its launch in February 2016. The MIP was operational until February 2017, after which it was reportedly no longer in place.
- **Low visual ICT connector** - While cars were once regarded as machines, they increasingly became more sophisticated electronic devices. Digital integration and communication have emerged as significant barriers to consumer preferences. As customers increasingly aim to be more efficient and stay connected, relationships are ready to move from OEMs to the information and communication technology sector. As customers in all regions become more aware of the value of their data, they will look to a reliable source that offers the most exciting benefits as a return of their data. Communication will open up an entirely new data path with a business model driven by service in the automobile sector. Therefore, the customer relationship center will switch to companies in the ICT industry. The connected car and app-based transportation service providers like Uber and Ola force disruptions and innovations that drive consumers away from car ownership. This is a challenge and a great opportunity in the automobile sector.

- **Low-Value Added Products dominate the export of Auto parts** - Most of the export parts of the car currently include standard mechanical components such as engine parts, gearboxes, brakes, etc.; High-value products such as high security and advanced electronic features make up less than 10 percent of the shipping of mechanical parts. Therefore, there is a need to focus on high-quality products that will showcase the capabilities of Indian companies and result in the more significant achievement of each corporate unit. Demand will be felt in the future because component manufacturers will face challenges due to improved fuel efficiency, safety, and ventilation in export markets, particularly in North America and the EU.
- **Workers' Challenges** - One of the critical factors in the growth of the Indian automobile industry may be the availability of qualified workers. It is estimated that the industry will need many skilled workers if our country becomes a hub for automatic production earthily. The governments of North America and Europe, which have been the hub of the automobile industry over the years, are increasingly experiencing a decline in the number of older workers who contribute to employment levels from factory workers to middle and senior managers, thus creating talent for the industry. This decline in labor in these economies is gradually attracting more and more people from India. This challenge needs to be addressed urgently, so the country does not lose the vital talent important to India to become an essential automobile hub. (Bhattacheryay, 2020)

Key Strategies

- **Energy Sources and Combined Vehicles** - The allocation of vehicles on the road, which uses petroleum products such as petrol, has remained the same (over 90%) in the last few decades. This was even though cars on the road were constantly changing in all other respects. In other words, product development has taken place in all other aspects, except for the use of alternative energy sources. The government has taken specific steps to promote the purchase of electric and hybrid vehicles using FAME (Faster Adoption and Manufacturing of Hybrid and Electric Vehicles in India) - India Scheme. Phase 1 of the scheme is for two years, FY 2015-16 and FY 2016-17 from 1 April 2015, with an approved amount of Rs. 795 pounds. Under this scheme, claim compensation is available to the buyer in the form of a pre-reduced purchase price to allow for a broader acquisition depending on the type of vehicle/type of technology for

the consumer of electric/hybrid vehicles. However, no subsidy is provided by any manufacturing companies. In addition, there is no provision to grant 50% property tax clearance under the FAME-India Scheme. The government, in turn, may consider incorporating commodity tax agreements while providing benefits to producers in their investment in clean technology. This will give a significant impetus for the development of products that use alternative energy sources, as well as R&D in hybrid vehicles.

- **Improving Competition** - Cost efficiency is required in the Indian automobile industry to improve its global competitiveness. Many international auto-majors, mainly from Japan, have launched cost-cutting tests. Other firms have also shifted from general to Kaizen and direct costs. Some of them even set up target costing offices worldwide and set up an office building for Kaizen. Cost management strategies may also include working with suppliers to reduce costs, implementing less expensive designs / product components, or minimizing waste. Strengthening the reduced production processes, which are accepted in India and internationally, can also help to improve the competitiveness of the Indian industry. Such actions show excellent efficiency in machine operation, a few hours per machine, shorter set-up times, identification issues, and opportunities to reduce costs quickly. Both the automobile industry and the automobile segment are interdependent and dependent on each other for survival. That is why the hub and model in question may be an alternative to both costs. Local industrialization is essential in India, where consumers are more sensitive to prices. With the hub and talk model, the automobile industry assists in establishing automatic component units near its integration areas and assists in the development of technology, R&D, and equipment and equipment identification. Mechanical component units focus on timely delivery and order service and cost savings on production, and thus promote competitive prices among industry players. (Osterwalder & Pigneur, 2010)
- **Consumer Preferences** - The strength of the Indian car market is changing with the changing preferences of consumers. For example, part of two wheels were controlled by a scooter, which was taken by motorcycles in the past. Changes in consumer preferences have been the primary cause of fuel efficiency and design, and technology development. Although newer scooters are slightly reviving the scooter market, the market share may not reach the previous level. Similarly, consumer preferences have changed the demand for other car parts, driven mainly by design and technology. Indian

auto-majors must adapt to changing consumer preferences and appropriately modify design or technological improvements to increase their market share. (Herring & Roy, 2007)

- **Obedience to Nature** - The environmental challenges to automobile design is not limited to exhaust standards. There are also life-threatening challenges in vehicles, especially waste management. Although adequate measures are being taken in India to meet international air emissions standards, there is still a need for acceptable action on environmental compliance in automobile manufacturing. A significant amount of resources are needed as an investment to create R&D programs to address these environmental challenges. The industry needs to develop a similar strategy for designing natural vehicles, mainly if India emerges as a global automobile manufacturing facility. The automobile industry needs to accelerate its readiness for low-carbon earth to stay afloat. Climate change specialists should be put on board, and car manufacturers should invest heavily in low-emission vehicles to address the issue of environmental compliance.
- **Adding R&D Orientation** - Basic research, design, and engineering of new vehicle models, and development - these are the three key areas of R&D that the national ecosystem is focused on. Global research and the unique ecosystem offer companies worldwide the opportunity to explore the talent found here. India's R&D Centres serve both local markets and assist parent companies worldwide in developing new next-generation products. The Indian automobile industry needs to create an active culture in investing in R&D rather than a responsive culture. This will help the industry to understand the complexities of automobile users and bring about new product innovations through changes in design and development. The R&D position in the Indian automobile parts industry is not the same as international standards. However, a few large firms are expanding their role in innovation to compete on the world map. (Hertenstein & Williamson, 2018)

4 Practical Part

4.1 Trade Significance in India

At current prices, India's gross domestic product (GDP) is estimated at Rs. 232.15 trillion (US \$ 3.12 trillion) on FY2021-22. India's foreign trade sector has had a significant impact on GDP growth and increased per capita income. According to the Department of Trade and Industry, India's total exports between April 2021 and December 2021 are estimated at \$ 301.3 billion (up 49.6% YoY). Although total exports between April 2021 and December 2021 are estimated at \$ 443.82 billion. (Tlale, 2019)

India's sales between April 2021 and December 2021 are estimated at \$ 299.74 billion (up 48.85% YoY). Exports between April 2021 and December 2021 are estimated at \$ 219.63 billion (growth of 80.89% YoY). According to Mr. Piyush Goyal, Minister of Trade and Industry, Textiles, Consumers, Food and Distribution, aims to increase exports and provide more jobs for the young, the skilled, the highly educated, and the unskilled. Indian workers. As of January 28, 2022, the exchange rate in India stood at \$ 634.287 billion. (IBEF Automobile Industry Report, 2022)

External Sector: Recent developments in the external sector are as follows:

- In January 2022, India extended to Sri Lanka a \$ 500 million debt line to help the country meet its fuel purchases.
- In January 2022, Mr. Pravind Kumar Jugnauth, Prime Minister of Mauritius, and Prime Minister of India Mr. Narendra Modi jointly launched India-assisted projects in Mauritius, including a US \$ 527 million debt line.
- In January 2022, India and the United Kingdom hosted their first round of free trade talks, expressing their desire to boost trade.
- In November 2021, India and the United States hosted their 12th India-United States Ministerial Trade Policy Forum (TPF) in both countries in anticipation of economic growth and trade exceeding the US \$ 100 billion mark. January-September 2021.
- In October 2021, the Governments of Dubai, Jammu, and Kashmir signed a Memorandum of Understanding (MoU) on developing commercial real estate, industrial parks, and state-of-the-art hospitals worth Rs. 28,400 crores (US \$ 3.80 billion).

- In September 2021, India and the US launched a ‘Climate Action Forum and Cash Coordination (CAFMD)’ to strengthen bilateral relations and improve climate planning and economic development.
- In September 2021, the Minister of Defense, Mr. Rajnath Singh, announced that India and Australia are planning to explore new artificial intelligence (AI) and uncrewed vehicles.
- In September 2021, India and the US signed an airline project to launch a crewless aerial vehicle.
- In September 2021, the Union Cabinet approved a Memorandum of Understanding (MoU) between the Geological Survey of India (GSI), India, and the Joint Stock Company Rosgeologia, Russia, to apply national science.
- • In September 2021, India and Germany held talks to strengthen their cooperation in global economic management, waste management, and climate change issues.
- In August 2021, the Union Cabinet approved an MoU between the Institute of Professional Accountants of Russia (IPAR) and the Institute of Chartered Accountants of India (ICAI) to strengthen the two-state alliance to improve accounting skills, training - Professional accounting, technical research, expertise, ethics, and professional development and expertise.
- In July 2021, the Union Cabinet approved a Memorandum of Understanding (MoC) between the Japan Trade Commission (JFTC) and the Indian Competition Commission (CCI) to promote and strengthen the alliance in the legal and competitive environment. In June 2021, India and Bhutan signed an MoU to develop co-operatives in the natural environment.
- In June 2021, the Export Bank of India (Exim Bank) announced that it had extended a \$ 100 million credit union (LOC) to the Sri Lankan government to fund projects related to the solar energy sector.
- In June 2021, India and Australia announced a major cyber-enabled technology partnership, emphasizing the need to improve critical information security infrastructure such as 5G telecom networks.
- In May 2021, Shahi Litchi, the first season's goods from Bihar, were shipped to the UK, promoting GI-certified products export.
- In May 2021, India and Israel signed a three-year action plan (2021-2023) on agricultural cooperation and strengthening bilateral alliances.

- In May 2021, India and Oman renewed the memorandum of understanding (MoUs) in the military and naval cooperation.
- In May 2021, Alankit Imaginations Ltd. collaborated with Digital Swiss Gold (DSG) to allow consumers to trade gold digitally in Switzerland.

Foreign Trade Policy: The latest developments in foreign trade policy are as follows

- In January 2021, exports rose to the US \$ 34.06 billion, registering an increase of 23.69% annually. With the forthcoming 2021-26, the government plans to increase exports emphasizing a higher share of MSMEs.
- India is on track to earn US \$ 400 billion in exports and has negotiated several Foreign Trade Agreements (FTAs) with the UAE, the EU, and Canada.
- The 2021-26 foreign trade policy focuses on MSMEs and new export capabilities. In March 2021, the federal government announced a new system to increase immigration testing to protect domestic producers. The new testing process will be provided in the 2021-26 foreign trade policy, which is expected to begin next month.
- Available data can help local manufacturers analyze such goods' market potential.
- The 2021-26 foreign trade policy will boost MSMEs and e-commerce deployments and identify new areas to improve domestic exports.
- On 2 December 2020, a meeting of the Trade Board (BOT) was held under the leadership of the Minister of Trade and Industry, Mr. Piyush Goyal. The discussion focused on the new Foreign Trade Policy (2021-26) and outlined policies and measures to facilitate domestic production and exports.
- Mr. Piyush Goyal said, “We are looking at a single window that can help us improve our business. People all over the world should rely on them to come and buy property, get the necessary permits, engage in Indian trade and industry, expand the manufacturing sector and network of services.”
- During the review period of Foreign Trade Policy (FTP) 2015–20, the Department of Trade and Industry developed the scope of Export Shipments from India Scheme (MEIS) and Export Service from India Scheme (SEIS), boosting MEIS promotion ready and built by 2% and increased SEIS compensation by 2% and increased the legitimacy of Employment Credit Cards from 18 months to 24 months. In April 2020, the Government extended FTP for one more year until March 31, 2021.

India's GDP growth rate before 1991 was 3.5%. This is associated with an export contribution of ~ 4.5%. Trade liberal reforms increased GDP growth (up to 6%) after 1991, and exports contributed > 11% to GDP. Thus, international trade emerged as an effective engine for economic growth in India. Many of this GDP-led growth in exports may be due to free trade policies, rising public spending, favorable tax policies, private investment growth, and changes in the financial sector that boost FDI inflows.

The contribution of exports to India's GDP stood at 31.5% in 2018-19 and recorded a downward decline to 27.8% in 2019-2020. In terms of real value, Indian foreign trade cost Rs. 75,751 crores (the US \$ 10.2 billion) in 1990-91. Total foreign trade value gradually increased to Rs. 374,624 crore (US \$ 50.4 billion) in 1999-2000 and increased to Rs. 5,902,401 crore (the US \$ 795.2 billion) for 2018-19, according to India's 2019–20 Economic Survey. The total value of sales from India was Rs. 2,396,337 crores (the US \$ 323 billion) for 2018-19.

The Way Forward - India is currently known as one of the most critical players in the global economic situation. Its trade policies, Government reforms, and natural economic power have resulted in its position as the most sought-after investment destination globally. Also, technological advances and infrastructural development across the country set the stage for future trade and economic development.

The Government of India has been working to sign essential agreements with Japan, Australia, and China to increase its contribution to its economic development and global market growth. India can increase its exports and services to Australia to \$ 15 billion by 2025 and US \$ 35 billion by 2035.

4.2 Foreign Trade in India

Foreign Direct Investments - The Indian government encourages foreign investment in the automobile sector and allows 100 percent FDI under the automatic route. It is a fully relicensed industry, and free imports of automobile components are permitted. Moreover, the government has not laid down any minimum investment criteria for the automobile industry. The automobile sector received the sixth largest FDI of US\$ 24.21 billion in the country, accounting for 5.15 percent of the total FDI inflows from April 2000 to March 2020.

Foreign Trade R&D - Rising disposable income, growing urbanization, expanding rural market and government initiatives like Smart Cities, promoting the country as the Research & Development (R&D) center by setting up of National Automobile Testing and R&D Infrastructure Project (NATRiP), and Automobile Mission Plan 2016-26 are dominant factors

that will propel the automobile industry in India. However, the current pandemic and lockdown in the economy are expected to reduce the production and sales of the overall automobile industry in 2020-21. The outlook for the sector is neutral in the medium term.

Foreign Trade Government Initiatives - The Automobile Mission Plan 2016-26 (AMP 2026), the collective vision of the Government of India (Government) and the Indian Automobile Industry, emphasizes where the vehicles, Over the next decade, the auto components and tractor sectors should surpass each other in terms of scale, contribution to India's growth, worldwide footprint, technical maturity, competitiveness, institutional structure and capabilities, and institutional structure and capabilities.. To make India an R&D hub, the government has formed the National Automobile Testing and R&D Infrastructure Project (NATRiP) with a total project cost of US\$ 585 million. Thus, the sector will be able to adopt and execute worldwide performance standards. (Ranawat & Tiwari, 2009)

Acceleration of (Hybrid &) Electric Vehicle Adoption and Manufacturing in India (FAME India Scheme) The National Electric Mobility Mission Plan 2020 was announced in 2013 as a six-year component of the FAME India plan. It will support the hybrid and electric vehicles market development and its manufacturing eco-system to achieve self-sustenance at the end of this period. The Government of India is committed to instilling confidence in the industry, planning required investments, and creating needed capacities.

The program focuses on technology development, demand creation, pilot projects, and charging infrastructure. Grant is awarded to the Integrated Automotive and Industrial Development Council (DCAAI) for the completion of the electric mobility project and new research and development projects related to the establishment of automotive testing centers such as changing safety standards and gas research institutes at the Automobile Research Association of India (ARAI), Pune, Vehicle Research and Development Establishment (VRDE), Ahmednagar and Central Institute of Road Transport (CIRT), Pune and other R&D centers in the country.

The launch of the new National Vehicle Policy and the Accelerated Adoption and production of Hybrid and Electric Vehicles (FAME) II for a cleaner future journey were approved in February 2019 with a US \$ 1.39 billion FY20-22 funding requirement. The Government of India has introduced a policy that allows organizations and researchers to purchase bulk data related to vehicle registration each year. To install the electric vehicle infrastructure (EVSE) electric vehicle (EV) infrastructure, various public sector firms,

railways, and various services have come together to build infrastructure and production units. (Prasad & Prasad, 2018)

Importance of Foreign Trade for Indian Economic - Industrial trade, advanced transport, global trade, international companies, and job creation profoundly impact the international trade system. The increase in international trade is crucial to the advancement of globalization. The following points explain the need and importance of foreign exchange in the nation:

- *Efficient Use of Resources*: Due to expertise, waste of resources can be avoided, and resources are distributed to produce those goods that can bring high returns. Therefore, there is a full utilization of resources at the international level due to foreign trade.
- *Large-Scale Economy*: Manufacturing economy, transportation, finance, administration, and marketing are available to manufacturers as a result of foreign trade.
- *Price Equity*: Prices can be tightened by foreign trade. It helps to keep demand and supply conditions stable, stabilizing prices.
- *Multiple Options Availability*: Foreign trade helps to provide numerous options to the consumer worldwide.
- *Cultural Diversity*: The import and export of goods and services present the testing and popularity of one group of people worldwide.
- *Monopoly Termination*: Sometimes, goods and services may be imported and the remainder exported. In both cases, the trader cannot create a monopoly on the market.
- *Employment Opportunities*: Foreign trade helps create jobs by increasing workflow and resources. It produces direct employment in the transport sector and indirect work in other sectors.
- *Economic Development*: due to foreign trade, both the production and the increase in per capita income will result in economic prosperity
- *Maintains Payment Position Balance*: Each country must buy from other countries, resulting in foreign exchange, and operate by export to earn foreign currency. Therefore, it helps to maintain a balance of payment

Foreign Trade Regulations in India - In India, various Acts have been introduced to regulate and provide the necessary space for its proper growth. India's foreign trade is governed by the Foreign Trade (Development and Regulation) Act of 1992 and the laws and regulations issued below. Export and export charges are governed by the External Finance Management

Act, 1999. The Taxation Act, 1962 regulates the supply of goods and services through various modes of transport. The Important Sales (Quality Control and Inspection) Act of 1963 has been in force to make India a quality producer and producer, and exporter of goods and services. The level of development of foreign trade depends on the Export Policy, which is also internationally adopted. Even EXIM Policy 2002-2007 puts pressure on simplifying processes sharply to reduce transaction costs further.

New Foreign Trade Policy in India - Section 3 of the International Trade (Development and Control Act) [FT (D&R)] Act, 1992 empowers the Central Government to make provision for the development and control of foreign trade by facilitating imports and increasing exports, by order published in the Official Gazette. Section 5 of the International Trade (Development and Regulation) Act, 1992 empowers the Central Government to create and post in the Official Gazette, export and import policy, and similar amendments by notice. Recently the "Foreign Trade Policy 2009-14", promulgated 27-8-2009, has expired, and the same is being replaced by the new Foreign Trade Policy 2015-20. (Gunningham & Sinclair, 2017)

The new Foreign Trade Policy came into effect on April 1, 2015, and will continue until March 31, 2020. Foreign Trade Policy 2015-20 was announced on 1 April 2015. The primary purpose of this policy is to double India's exports of goods and services to the US \$ 900 billion by 2020 under the theme 'Make in India.' A significant motivating factor for an Indian exporter is delivering benefits on a five-year foreign trade policy.

- India will play a significant role in world trade by 2020.
- SEIS will apply to Indian service providers instead of Indian service providers.
- This policy will reduce the export obligation by 25% and empower domestic production.
- Under the new MEIS (Shipping from India Scheme), SEIS Encouragement (SEX Shipping Services from India Scheme) for SEZ and E-commerce handicrafts, handicrafts, books, etc. MEIS must benefit.
- Industrial products will be supported in large markets with 2% to 3%.
- The Agricultural and Village Industry products will be supported at a rate of 3% and 5% under MESIS.
- There is no need to re-submit portable copies of the documents found in the Export Profile.
- The export method for monitoring the situation has changed from Rupee to US dollar.

- The online process for uploading digitally signed documents by a Chartered Accountant / Secretary / Cost Accountant.

India's foreign trade performance is related to exports, imports, and foreign trade balance. Table 1 shows the export performance of India between 2015-16 and 2019-20.

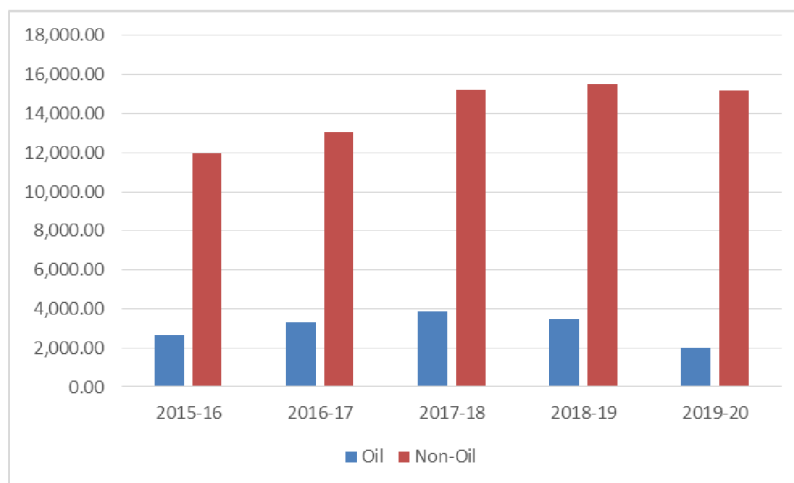
Table 1: Export Performance of India

Year	Oil	Growth	Non-Oil	Growth	Total	Growth
2015-16	2,679.15	41.92	11,980.45	25.56	14,659.60	28.26
2016-17	3,308.19	23.48	13,035.00	8.80	16,343.19	11.48
2017-18	3,832.48	15.85	15,217.63	16.74	19,050.11	16.56
2018-19	3,460.82	-9.70	15,503.63	1.88	18,964.45	-0.45
2019-20	1,985.76	-42.62	15,158.48	-2.23	17,144.24	-9.60
Total	2,2219.61		1,0974.7		1,31,294.31	

Source: Directorate General of Commercial Intelligence and Statistics

<http://www.dgciskol.gov.in/>

Figure 6: Export Performance of India



Source: Directorate General of Commercial Intelligence and Statistics

<http://www.dgciskol.gov.in/>

Table 1 clearly describes the export of oil and non-oil exports. Oil exports show a high growth rate of 41.92 percent in 2015-16. In 2016-17 it decreased to 23.48% and after that established a further decline in the upper period. The non-oil growth rate represented a very high 25.56 percent in 2015-16. It has since shown signs of growth and fall over the years. The

overall growth rate of exports represents a high of 16.74 percent in 2017-18. After that, it also indicates a continuous decrease in the above period.

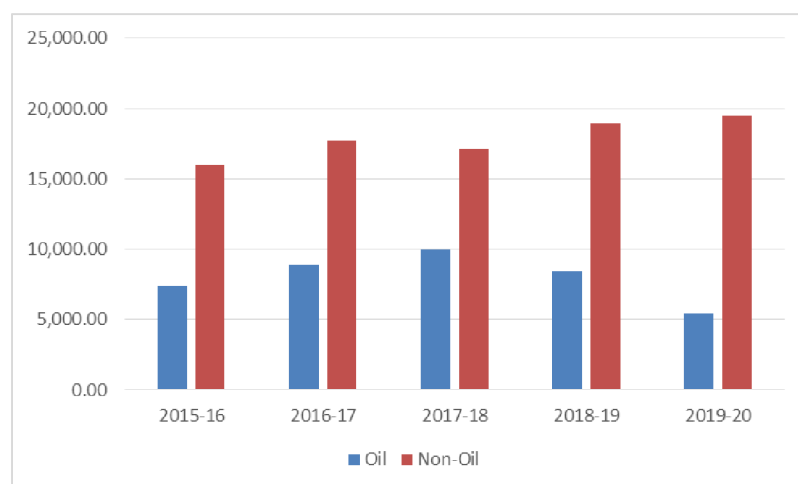
Table 2: Import Performance of India

Year	Oil	Growth	Non-Oil	Growth	Total	Growth
2015-16	7,430.75	54.07	16,023.88	33.40	23,454.63	39.32
2016-17	8,918.71	20.02	17,772.91	10.92	26,691.62	13.80
2017-18	9,978.85	11.89	17,175.48	-3.36	27,154.33	1.73
2018-19	8,428.74	-15.53	18,942.12	10.29	27,370.87	0.008
2019-20	5,400.69	-35.92	19,458.58	2.73	24,859.27	-0.09
Total	61,035.4		1,37,843.97		1,98,879.37	

Source: Directorate General of Commercial Intelligence and Statistics

<http://www.dgciskol.gov.in/>

Figure 7: Import Performance of India



Source: Directorate General of Commercial Intelligence and Statistics

<http://www.dgciskol.gov.in/>

Table 2 clearly describes the importation of oil and non-oil imports. The highest growth rate for oil products represents 54.07 percent in 2015-16. The year 2017-18 cites a low percentage of 11.89 and indicates that no growth rate continues over the period. Imports of non-oil exports indicate a high growth rate of 33.40 percent in 2015-16. After that, it shows a decrease and in 2017-18 shows -3.36%, which is the lowest. The overall growth rate of exports represents a high of 10.29 percent in 2018-19.

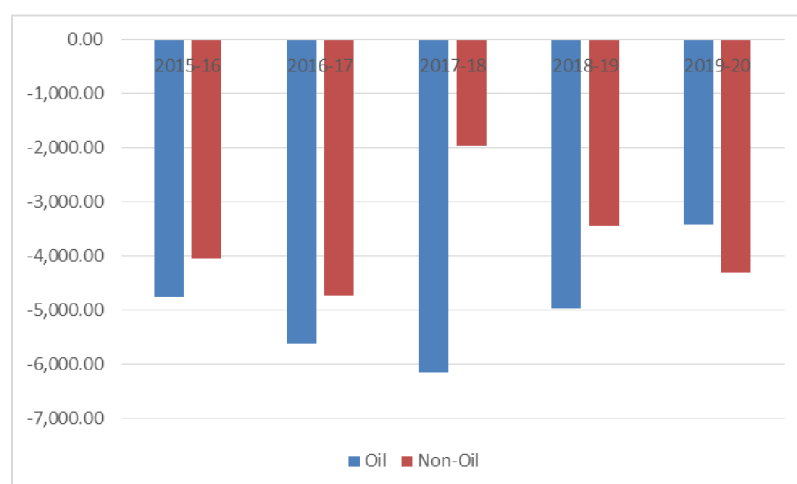
Table 3: Trade Balance of India

Year	Oil	Growth	Non-Oil	Growth	Total	Growth
2015-16	-4,751.60	61.89	-4,043.43	63.67	-8,795.03	62.71
2016-17	-5,610.52	18.08	-4,737.91	17.18	-10,348.43	17.66
2017-18	-6,146.37	9.55	-1,957.85	-58.68	-8,104.22	-21.69
2018-19	-4,967.92	-19.17	-3,438.49	75.62	-8,406.41	3.73
2019-20	-3,414.93	-31.26	-4,300.10	25.06	-7,715.03	-8.22
Total	-38,815.79		-28769.27		-67,585.06	

Source: Directorate General of Commercial Intelligence and Statistics

<http://www.dgciskol.gov.in/>

Figure 8: Trade Balance of India



Source: Directorate General of Commercial Intelligence and Statistics

<http://www.dgciskol.gov.in/>

Table 3 outlines the differences between exporting and importing oil and non-oil products. Both show a negative attitude in the above periods. The highest growth in the oil trade balance represents 61.89 percent in 2015-16, and the lowest ratio showed -31.26 percent in 2019-20. Non-oil trade estimates also show opposing positions of 75.62 percent, which is very high, and in 2017-18 showing -58.68 percent very low. The foreign trade balance growth rate shows a very high 62.71 percent in 2015-16 and a deficient -21.69 percent in 2017-18.

International Payment Balance is an annual record of its financial performance with other countries worldwide. It is also known as the balance of international payments. Individuals, firms, and government bodies carry out these transactions. Thus, the balance of payments covers all the country's visible and invisible external activities. The BOP is an essential

indicator of the fundamental economic downturn in its foreign exchange rate. Payment Balance consists of two accounts: the current account and the main account. The existing account includes sales, investment income, Government receivables, dividends, transfer payments, current transaction amount, errors and disbursements, and amounts. Thus a financial performance combines short-term with long-term international borrowing and gold borrowing between countries. The currency account reflects the actual state of the country in the global market.

4.3 Automobile Industry in India

The car industry is responsible for the design, development, manufacture, marketing, and sale of automobiles. Two-wheelers dominate the sector, accounting for 81 percent of the overall domestic market share, followed by passenger vehicles at 13% and commercial vehicles and three-wheelers at 6%. The industry contributes 7.1% to India's gross domestic product. It employs over 30 million people throughout the country. India is the world's largest manufacturer of two- and three-wheelers, as well as tractors. India is also the world's fifth largest automaker.. (Arya, 2019)

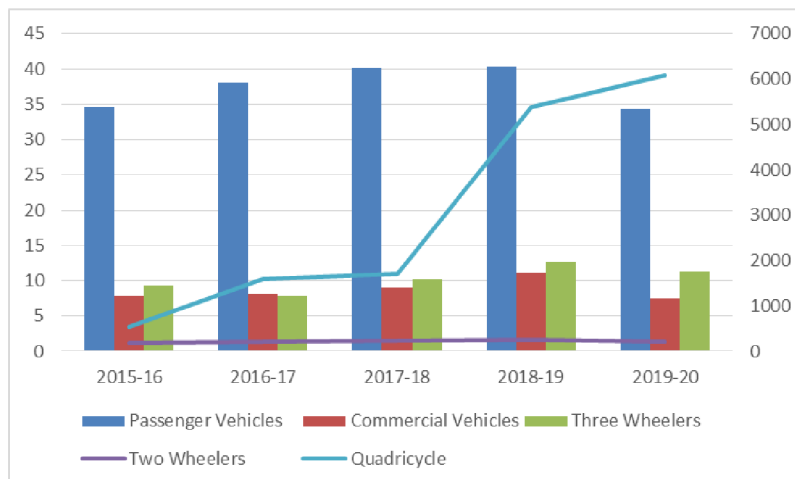
Automobile Industry Production - In 2019-20, passenger vehicles accounted for 13 percent of the total automobile market, while commercial vehicles and three-wheelers accounted for 3 percent of the market. Two-wheeler vehicles made for 81 percent of the country's overall automotive market.

Table 4: Automobile Production Trend

Category	2015-16	2016-17	2017-18	2018-19	2019-20	% CAGR
Passenger Vehicles	34.65	38.02	40.2	40.26	34.34	1.28
Commercial Vehicles	7.87	8.1	8.95	11.12	7.5	1.49
Three Wheelers	9.34	7.84	10.22	12.69	11.33	3.62
Two Wheelers	188.3	199.34	231.55	245.03	210.36	2.61
Quadricycle	531	1,584	1,713	5,388	6095	84.06
Grand Total	240.17	253.31	290.94	309.15	236.62	2.44

Source: Society of Indian Automobile Manufacturers (SIAM) <https://www.siam.in/>

Figure 9: Automobile Production Trend



Source: Society of Indian Automobile Manufacturers (SIAM)

<https://www.siam.in/>

The production of automobiles stood at 236.62 lakhs in 2019-20, compared to 233.58 lakhs in 2014-15, registering a CAGR of 2.44 percent. Three-wheeler vehicle production increased at the fastest rate of 3.62 percent of all automotive categories throughout this time. The production of commercial vehicles and passenger vehicles also noticed a positive trend, increasing from 6.99 lakhs and 32.21 lakhs in 2013-14 to 11.12 lakhs and 40.26 lakhs in 2018-19, respectively. However, the movement halted in 2019-20, with the overall industry witnessing a y-o-y decline of 0.23 percent, with a reduction in production across all categories of automobile production except the quadric cycle.

In India, the automobile market is dominated by Japanese and Indian manufacturers, with more foreign corporations investing in the country. The major foreign car manufacturers in India are Honda, Toyota, Ford, Fiat, Daimler Chrysler, etc. Top Indian players Maruti Udyog, TATA motors, Hindustan motors, etc. Automobile production in India has grown significantly over the past five years. 77% of the market share is taken on two wheels. Passenger and commercial vehicles account for approximately 19% of the market share. In China, JVs have given preference to automobile industry development. In contrast, in India, the government has made an effort to develop the automobile industry through the domestic private sector before independence.

As a result, key players in India have different ownership structures in which developers, banks, and financial institutions hold key corporate shares. Maruti was developed as part of the Suzuki. The government owns about 10.27% of the owners, and Suzuki Motors owns about 54% of all shares. In the case of Tata Motors, Indian corporations have significant shares

(33%), and only about 7% come from FDI. In both companies, FII owns a limited number of shares. In the case of Hindustan motors, developers own approximately 29%, financial institutions 11%, and individuals 31%. (Estrin & Prevezer, 2011)

Domestic manufacturers initially focused on producing small and basic models in India under a secure environment. Most foreign players in India are concentrated in the middle market (excluding Hyundai's Santro) with models that have been successful in other countries. Many MNCs took precautionary until Indian buyers were ready for larger vehicles. It has been a gradual but steady progression. However, like the Chinese market, the Indian automobile industry also faced investments that led to overcrowding. Some companies changed their strategy and started exporting to deal with a problem related to demand.

The whole Automobile Components industry is very diverse and has significant quality issues. More than 300 small and medium-sized companies operate directly at more than 20 automobile companies in the country, as well as up to 5,000 other companies working for first-class suppliers and changing markets. Mainly due to regulation, the dependence on the import component is also tiny, with 87 percent of domestic demand satisfied by local firms. Apart from these local manufacturing standards, the industry is small in international standards. Indian car manufacturers can capitalize on cost savings due to cheap labor and adequate space, but they cannot do so due to low demand and low production capacity. (Barrett, 2017)

Automobile Industry Export - The automobile industry registered a CAGR of 5.92 percent during 2014-15 to 2019-20. The highest growth was seen in two-wheeler vehicles, which reported a CAGR of 7.45 percent during this period, followed by three-wheeler vehicles and passenger vehicles that recorded CAGRs of 4.26 percent 1.73 percent, respectively. On the other hand, commercial vehicles recorded a negative CAGR of (-) 6.92 percent during the same period. The growth of overall automobile exports was mainly because of a substantial increase in quadric cycles and two-wheeler vehicles in 2019-20. The overall exports from the industry witnessed a growth of 2.9 percent in 2019-20 compared to the previous year.

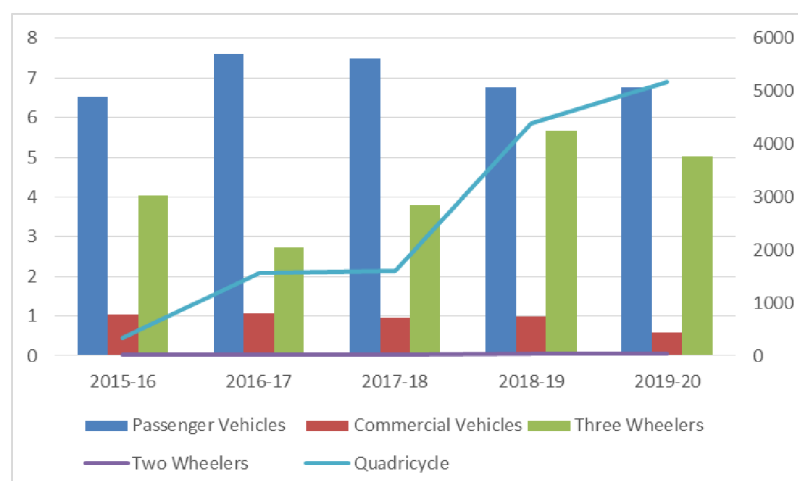
Table 5: Automobile Export Trend

Category	2015-16	2016-17	2017-18	2018-19	2019-20	% CAGR
Passenger Vehicles	6.53	7.59	7.48	6.76	6.77	1.73
Commercial Vehicles	1.03	1.08	0.97	1	0.6	-6.92
Three Wheelers	4.04	2.72	3.81	5.68	5.02	4.26
Two Wheelers	24.83	23.4	28.15	32.81	35.2	7.45
Quadricycle	334	1,556	1,605	4,400	5185	98.49
Grand Total	36.44	34.81	40.43	46.29	47.65	5.92

Source: Society of Indian Automobile Manufacturers (SIAM)

<https://www.siam.in/>

Figure 10: Automobile Export Trend



Source: Society of Indian Automobile Manufacturers (SIAM)

<https://www.siam.in/>

4.4 Automobile Trade in India

International trade in the automobile sector includes the trade-in automobiles and parts. This field contains 82 digit HS codes. In the study, those were divided into seven broad categories: rubber and glass parts (Group I), metal and metal parts (Group II), engine and parts (Group III), small parts such as pulleys, gaskets, electrical appliances, etc. (Group IV), body parts, bumpers, brakes, clutches, and other safety components (Group V), seats, indicators, components of bicycles and motorcycles (Group VI) and fully automatic vehicles (Group VII).

Table 6: Automobile Sector Import & Exports

Export	2015-16	2016-17	2017-18	2018-19	2019-20	CAGR
GR-I	37.19	36.04	42.19	63.51	62.79	13.99
GR-II	89.16	77.89	112.50	183.05	214.55	24.55
GR-III	174.69	164.34	187.35	294.10	401.97	23.16
GR-IV	73.02	73.40	119.61	143.04	202.93	29.11
GR-V	309.15	306.01	370.95	475.87	663.86	21.05
GR-VI	73.81	65.54	67.28	55.91	58.65	-5.59
GR-VII	338.36	285.09	489.97	949.13	1381.75	42.15
Import	2015-16	2016-17	2017-18	2018-19	2019-20	CAGR
GR-I	41.17	41.20	49.75	67.29	82.54	18.99
GR-II	43.77	44.19	61.23	81.86	101.63	23.44
GR-III	186.38	182.95	198.57	282.12	364.22	18.23
GR-IV	185.39	216.39	231.06	318.20	384.91	20.04
GR-V	281.18	249.03	220.89	423.56	661.18	23.83
GR-VI	8.93	7.65	9.05	9.55	15.93	15.58
GR-VII	27.40	33.10	86.11	94.45	109.73	41.47

Source: Society of Indian Automobile Manufacturers (SIAM)

<https://www.siam.in/>

Figure 11: Automobile Sector Import & Exports



Source: Society of Indian Automobile Manufacturers (SIAM)

<https://www.siam.in/>

India's export position is designed to address the problem of overcrowding. As a result, all sectors are not equally prepared for export. From the year 2015-20, the average growth rate from this group was more than 42%. Exports are much lower than in China, but unlike China, India's exports are higher than imports in most countries in many categories. In parts, total exports and imports are very close by 2020.

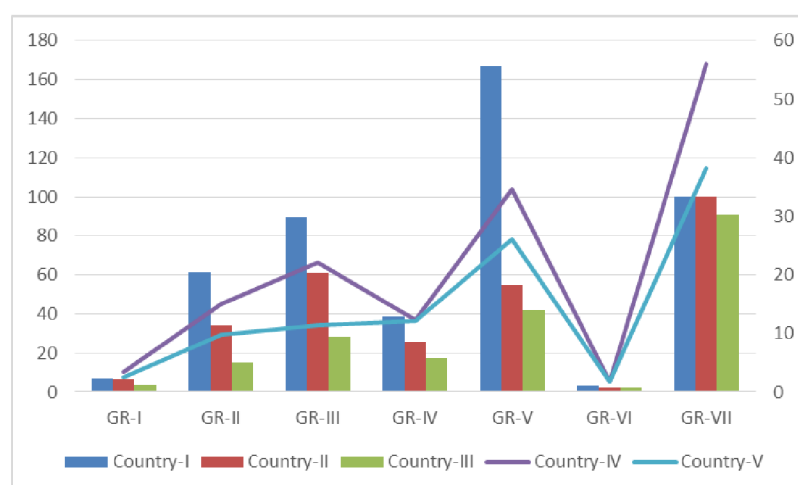
Table 7: Automobile Sector Import & Exports (Country Based)

Summary	Country-I	Country-II	Country-III	Country-IV	Country-V	WORLD
GR-I	UK	USA	Germany	UAE	Mexico	
	7.14	6.45	4.03	3.53	2.46	62.79
GR-II	USA	Bangladesh	Germany	UK	UAE	
	61.26	34.37	15.26	15.03	9.74	214.55
GR-III	USA	Germany	UK	Sri Lanka	UAE	
	89.88	60.78	28.01	22.08	11.35	401.97
GR-IV	USA	UK	Germany	Italy	China	
	38.44	25.47	17.44	12.29	12.08	202.93
GR-V	USA	UK	Italy	Germany	UAE	
	166.84	54.91	41.99	34.68	26.17	663.86
GR-VI	UK	Bangladesh	USA	Malawi	Italy	
	3.02	1.90	1.90	1.85	1.82	58.65
GR-VII	UK	Italy	USA	Germany	UAE	
	100.01	99.80	90.66	56.07	38.17	1381.75

Source: Society of Indian Automobile Manufacturers (SIAM)

<https://www.siam.in/>

Figure 12: Automobile Export Trend (Country Based)



Source: Society of Indian Automobile Manufacturers (SIAM)

<https://www.siam.in/>

India's leading export destinations are developed countries such as the USA, UK, Germany, the Middle East, and SAARC. Unlike China, Japan is not among India's top 5 export destinations. Also, India is trying to find a South Asian market for its products that seems to be like Sri Lanka. Bangladesh is among the major export destinations for certain product groups.

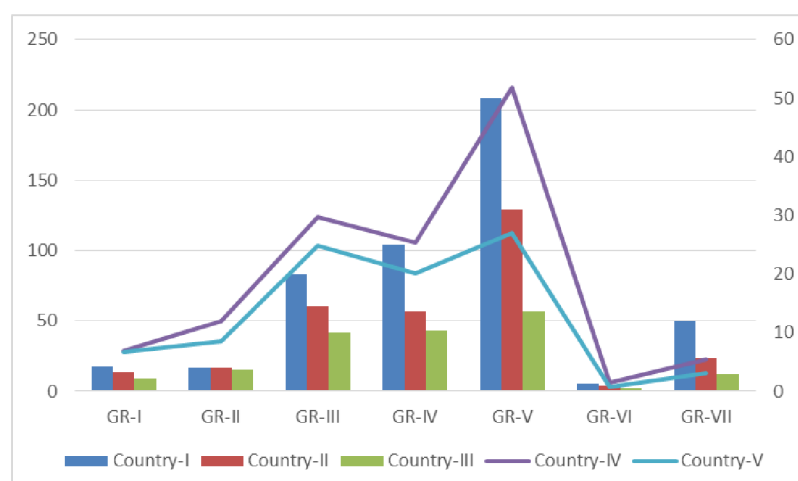
Table 8: Automobile Sector Import & Exports (Category Based)

Summary	Country-I	Country-II	Country-III	Country-IV	Country-V	WORLD
GR-I	Japan	USA	Germany	Korea	UK	
	17.06	13.74	9.14	6.94	6.68	82.54
GR-II	Japan	Germany	Korea	USA	UK	
	16.53	16.23	14.95	11.90	8.47	101.63
GR-III	Japan	Korea	USA	UK	Germany	
	82.70	60.72	41.41	29.69	24.82	364.22
GR-IV	Germany	Japan	USA	Korea	Italy	
	104.41	56.95	43.26	25.36	20.07	384.91
GR-V	Korea	Japan	Germany	Thailand	USA	
	208.66	128.73	56.29	51.88	27.03	661.18
GR-VI	Japan	China	Thailand	Italy	Germany	
	5.35	3.47	2.22	1.52	0.73	15.93
GR-VII	Japan	Germany	Korea	Thailand	UK	
	50.11	23.12	11.89	5.36	3.15	109.73

Source: Society of Indian Automobile Manufacturers (SIAM)

<https://www.siam.in/>

Figure 13: Automobile Export Trend (Category Based)



Source: Society of Indian Automobile Manufacturers (SIAM)

<https://www.siam.in/>

The Indian export basket is very different from China in the category of full cars. India mainly exports motorcycles, passenger cars, tractors, transit vehicles, and freight vehicles for

more than ten people. Although India is not very profitable in world trade, gradually, the country specializes in safety parts and engine parts. It is also expected that due to R&D's strength of R&D, India can be a good decision for sub-system development and design.

When exporting, Japan, USA, Germany, UK, Korea Rep are essential countries that need help. The highest intake is observed in the body parts and the safety section. Thailand also helped as significant brakes, clutch, and other essential equipment supplier. The India-Thailand FTA has focused on the auto parts trade, and in the future Indian imports from Thailand are expected to grow.

The size of the Indian market is not as great as in China. Due to its strict import control policy, it has a trade balance in that sector. Indian import duties on cars are historically higher than in other selected countries. In the industry, the number of exports and imports remains very close. The basket of Indian exports contains motorcycles, passenger cars, tractors, and freight cars. Recently, the growth in passenger car sales has been dramatic. India is slowly focusing on small cars and two wheels. The Indian automobile parts sector was not designed to be exported but should only address the need of domestic manufacturers. But it is believed that the industry has reached a certain level of maturity and will increase its exports shortly.

Automobile Industry Growth - India is also an emerging market for auto-giants worldwide. Due to low labor costs, many international companies are investing in India. Its automobile industry has multiplied since the mid-1990s. Recently, two significant investments are expected to improve the sector, one from Maruti and Honda Spiel. Tata's proposed investment in cheap cars is also expected to boost the industry.

India is the second-most populous country globally, and India's economic growth rate is very high, indicating an excellent need for diversified industrial sectors. The automobile industry is no different. India's automobile industry has great demands from its own country. This need is also tempting the largest car manufacturers in the world to come and invest in the Indian automobile industry. (Kotwal et al., 2011)

Due to the contribution of many different things such as sales benefits, the introduction of new models, and variations associated with the availability of cheap cash and luxury payment options, demand and sales of cars are increasing steadily. The government has also contributed to this growth by liberating foreign investment policies and technologies from other countries, which seems to have benefited the automobile sector. Total car production increased from 4.2 million in 1998-99 to 7.3 million in 2003-04. This type of vehicle will likely exceed 10 million in the next few years.

The increase in car exports is due to global fluctuations. After a brief decline between 1998-99 and 1999-00, such exports have registered strong growth rates over the past few years. Investment is also a significant factor in the growth of the Indian automobile industry, with investments exceeding the US \$ 11.11 billion profits in the automobile industry exceeding the US \$ 13.22 billion in 2002-03. Profits increased to the US \$ 18.5 billion at the end of 2004-05. As recently as 2006, Maruti invested US \$ 0.67 billion, and Honda invested US \$ 0.2 billion in small cars. It is expected that by 2016, the revenue of the Indian automobile sector will grow to \$ 145 billion. Today, the industry has emerged as a sector of sunrise.

However, the problem of overcrowding worries many players as demand may not increase significantly. Therefore, many players want a foreign market for Indian cars. The prospects for the parts industry are excellent. Leading local firms have established more than 200 technical cooperation agreements with foreign firms to meet international standards on cost and production. (Khaliq & Noy, 2007)

5 Results and Discussion

5.1 Policy Framework Initiatives

Automotive Mission Plan 2026 - According to the plan, the government and industry have set a target of three times more industry revenue, \$300 billion, and seven times more exports, to the US \$ 80 billion. By doing so, the sector can create an estimated 65 million jobs over the next ten years, and the result could be better competitive manufacturing and reduced emissions. The vision is to develop the Indian Automobile Industry into the engine of the “Make in India” program and promote safe, efficient, and comfortable travel for all the country's people, with a view to environmental protection and social and personal access transportation options. (Arya, 2019)

National E-Mobility Programme - The National Electric Mobility Mission Plan (NEMMP) 2020 is a National Mission document that provides a vision and guides for the rapid adoption of electric vehicles and their production. Launched by the Department of Energy, the plan aims to give impetus to the entire e-mobility ecosystem, including car manufacturers, charging infrastructure companies, operators and service providers and will be implemented by Energy Efficiency Services Limited (EESL). As part of NEMMP 2020, the Department of Heavy Industries has developed a Scheme namely. Rapid Adoption and Manufacturing (Hybrid & Electric Vehicles in India (FAME India) in 2015 to promote the production of electric and hybrid electric vehicles and ensure sustainable growth. In the first phase of the program, approximately 2.78 lakh EVs are supported by the total number of benefits of `343 crore. In addition, 465 buses were authorized to travel to various cities/regions under the program. Based on the experience gained during Phase 1 of the Fame Program and the proposals of multiple stakeholders, including industry organizations, the Heavy Industries Department informed Phase II of this Program with the use of `10,000 Crore for three years from 1 April 2019. . To address carbon emissions, the government wants to bring in local standards in line with international standards, allowing India to move from BS-4 to BS-6 emissions (equivalent to Euro 6) by 2020. In addition, India has implemented Corporate Average Fuel Efficiency (CAFE) procedures to improve the fuel economy of vehicles that require OEMs to improve their fuel efficiency by 10% between 2017 and 2021 and by 30% or more from 202231. In August 2019, the government approved 5,595 electric buses in 64 cities to operate between towns and convents under the second phase of the FAME India program to promote clean public transport. These buses will travel approximately 4 billion kilometers during the contract

period and are expected to accumulate about 1.2 billion liters of fuel during the period, which will result in avoiding 2.2 million CO₂ emissions. (Dash & Behera, 2019)

National Mission on Transformative Mobility and Battery Storage - Batteries used in modern electric vehicles use lithium and are similar to batteries that enable a portable computer. Generally, battery costs include 1) Lithium acquisition, 2) Designing a battery pack to meet strict standards of safety and reliability, and 3) Building an environment where batteries are produced, the final component covering 30% of battery cost. To improve the rapid adoption of EVs in India by making them accessible to a wide range of consumers and entering a large potential market, Japanese carmaker Suzuki Motors has partnered with Toshiba and Denso to establish a production unit for the production of lithium-ion batteries and electrodes at Hansalpur, in Gujarat, which will also be the largest unit of lithium-ion battery production in the world. The program was launched in March 2019 to further the transition from internal combustion engines (ICE) to EV vehicles. The policy aims to finalize and implement strategies for mobility flexibility and Phase Processing Plans (PMPs) for electric vehicles, their components, and batteries. A phased roadmap to use battery production on the Giga scale will focus on large modules and plants to integrate parks in 2019-2020, followed by integrated cell production for 2021-2022. To support these efforts, the Indian Oil Corporation (IOCL), to reduce China's future reliance on lithium purchases, will suspend the 1 Giga Watt industry to manufacture batteries in EVs using non-lithium raw materials located locally. One of the most significant government initiatives to build energy is Energy Efficiency Services Limited (EESL). The company plans to address the shortage of infrastructure by establishing about 1,000 charging stations and hopes to invest about 5,000 vehicles next year in various government departments. (Gode et al., 2021)

Tax Incentives - To allow for faster EV adoption, excise duty has been reduced from 18% to 12% on battery-operated vehicles by July 2019, compared with 31% to 48% for other vehicles. Rs 1.5 lakh on interest paid on borrowed money taken to buy EVs. Tax laws vary slightly from state to state. EV policy in Tamil Nadu exempts 100% car tax on all-electric motorcycles, buses, tricycles, and other goods vehicles by 2022. Uttar Pradesh's EV national policy aims to convert 70% of public transport vehicles into EVs by 2030 and to abolish the percentage of registration fees and traffic taxes for the first 100 thousand EV buyers. It also proposed setting up 200,000 power charging stations and placing 1 million EVs (including 1 thousand buses) on the road by 2024.

To begin with, the government has identified Varanasi, Lucknow, Gorakhpur, Agra, Prayagraj, Kanpur, Mathura, Ghaziabad, Meerut, and Noida as ‘cities of mobility models.’ The National Smart Grid Mission, Department of Energy, in this regard, recommends that the EV charging station be designed to generate solar power to reduce dependence on fossil fuels throughout the supply chain, thus switching to clean energy. The use of flexible pricing models and intelligent grid tools in charging stations to promote setting at low frequency is also why assistance in High Load Management is encouraged. Large consumer groups' adoption of V2G technology will play a key role in enhancing and achieving the goals set.

Strategic partnerships with private players to build EV charging infrastructure -

To halt India bus charging infrastructure, Tata Motors Limited has partnered with the West Bengal regional government and Madhya Pradesh to suspend 40 chargers on the Kolkata route and two Indore chargers on 40 vehicles. Phase II of the FAME program, in this regard, has set a target of 2700 charging stations in more than four million cities, high-speed charging stations on approximately 25 km each and high-speed charging stations every 100 km. . To supplement these plans, the City Model Building By-Laws from 2016 were also revised to authorize 20% of parking within residential and non-residential buildings and the provision of EV charging infrastructure. The cap is also set at the highest rate charged by the public charging station, 15 percent above the average supply cost. In addition, to reaffirm their commitment to e-mobility in India, Tata Motors and Tata Power have teamed up to set up 300 fast-charging stations in five major Indian cities. With the suspension of the first seven fast chargers in Pune, another 45 will appear in Mumbai, Delhi, Bengaluru, and Hyderabad at the end of FY 20. (Haugh et al., 2010)

5.2 Make in India Initiatives

The Prime Minister launched the Make in India program in September 2014 as part of a broader nation-building program. Designed to transform India into a global design and manufacturing world, Make in India was a timely response to a crisis. By 2013, the cheapest emerging markets had exploded, and India's growth rate had plummeted to the lowest level in a decade.

The promise of the BRICS nations (Brazil, Russia, India, China, and South Africa) was dashed, and India was considered one of the so-called ‘Fragile Five’ countries. Global investors argue that the world's largest democracy is a threat or an opportunity. The 1.2 billion Indian

citizens asked whether India is too big to succeed or fail. India was on the brink of severe economic failure and needed more pressure.

Make in India presented by the Prime Minister, Mr. Narendra Modi, against the background of this problem and soon became the complaint of countless Indian stakeholders and allies. It has been a powerful, inspiring call to action for Indian citizens and business leaders and an invitation to potential partners and investors around the world, but Make in India is more than just an inspiring slogan. Represents a complete and unprecedented adjustment of outdated procedures and policies. Most importantly, it means a complete transformation of the concept of government - from the issuing authority to the business partners, in line with the Prime Minister's motto 'Small Government, Great Governance.'

To start a movement, the seller needs a motivating, empowering, and equally empowering strategy. Make in India needs a different kind of campaign: instead of the usual newspaper ads full of statistics, this program requires informative, well-packaged, and most importantly, convincing messages. It should (a) promote confidence in India's potential among potential overseas partners, Indian businesspeople, and citizens at large; (b) provide a framework for a large amount of technical knowledge in the industrial sector; and (c) reach more local and international audiences through a social media platform and keep them informed of opportunities, changes, etc. (Saranga et al., 2017)

The Department of Industry Promotion and Internal Trade (DPIIT) has worked with a team of specialized agencies to build a brand new infrastructure, including a dedicated help desk and a first mobile website that has packed a lot of information into a flexible and straightforward menu. Designed especially for mobile screens, the site's design ensures that the whole lead levels are set correctly so as not to overwhelm the user. Twenty-25 sector brochures have also been developed - content including key facts and statistics, policies and programs, and industry-specific contact details, all of which are made available through print and website.

The Indian automobile industry produces almost all primary vehicles such as automobiles, utility vehicles, commercial vehicles, buses, trucks, tractors, motorcycles, motorbikes, mopeds, and three wheels. Currently, India is the largest manufacturer of tractors, the second-largest manufacturer of two-wheeled wheels and buses, the fifth largest manufacturer of large trucks, the sixth-largest car manufacturer, and the world's eighth-largest commercial car manufacturer.

The Indian automobile sector is one of the largest globally and accounts for more than 7.1% of gross domestic product (GDP) 7. It also contributes about 22% of the country's gross

domestic GDP⁸. The sector was first opened for foreign direct investment (FDI) in 1991 when it liberated the Indian economy and has come a long way since then.

Today, 100% of FDI is approved in the sector by automatic authorization route, which means foreign investors do not need prior approval from the Government of India. The impact of this decision can be seen in the data released by the Department of Industry Policy and Development (DIPP), which indicates that the industry attracted USD 15.79 billion in foreign direct investment from April 2000 to September 2016.

Therefore, it can reasonably be concluded that India has emerged as one of the world's most important players (both a consumer and a manufacturer) in the automobile industry. It has seen tremendous growth, especially in the last few years, and has become the foundation of global producers. Volkswagen, Nissan, Fiat, Renault, General Motors, Ford, Honda, Suzuki, Hyundai, Daimler, BMW, Skoda, Audi are all in India and integrated locally. Mercedes-Benz recently decided to make India's GLA-class Sport Utility Vehicle (SUV). Japanese two-wheeler manufacturer Honda Motorcycle and Scooter India (HMSI) has opened its 4th and largest factory in Gujarat. At the same time, Fiat Chrysler plans to invest USD 513.5 million in Maharashtra to model the Jeep Grand Cherokee.

Over the past few years, India's automobile industry and automobile parts have grown at a healthy pace, aided by economic resilience and infrastructure development, growth in the middle class with the proceeds, and availability of accessible consumer financial services. The Indian automobile industry and auto components currently produce various types and products. The industry has seen tremendous progress as rising profits and exports promise a bright future for the country. (Goswami & Daultani, 2021)

5.3 Electric Vehicle Initiatives

The Indian government aims to maintain this growth industry for the automobile industry and has launched several efforts to achieve the same. Automobile Mission Plan 2016-26 (AMP 2026) is one such initiative. It sets out the collective government's vision of how the automobile sector should contribute to national development, technological maturity, global competitiveness, and institutional structure. It aims to make India one of the top three car manufacturers globally and increase exports quickly to reach 35-40% of total production. It also aims to increase its contribution to GDP by more than 12%, create another 65 million jobs and improve the industry's size to \$ 300 billion by 2026. (Mohanty & Kotak, 2017)

FAME Scheme - based on the NEMMP (National Electric Mobility Plan) 2020 roadmap, FAME (Rapid Acquisition and Manufacture of Electric Vehicles in India) was launched by the Department of Heavy Industries, Government of India for a cheap ₹795 crore (approximately US \$ 130 million). It will cover all segments, namely two / three wheels, cars, LCVs, buses, etc., and all types of hybrid and clean electric vehicles¹⁵.

With the emergence of 5 major car groups in the country, namely Delhi-Gurgaon-Faridabad in the North, Sanand-Halol, and Mumbai-Pune-Nasik-Aurangabad in the West, Chennai-Bengaluru-Hosur in the south, and Jamshedpur-Kolkata e. in the East, India is becoming one of the world's largest car manufacturers. The Indian government is very committed to leading this case and assisting the sector in every way to help it achieve its full potential. (Sharma & Anwer, 2021)

The prospect of rapid global warming has necessitated reducing the use of fossil fuels and related gases. Electricity flow increases at a rapid rate. In 2018, the number of electric vehicles worldwide increased by 5.1 million, increasing two million since last year and almost double the number of new electric cars.

It is noteworthy that these policies continue to impact the development of electricity flow significantly. EV capture usually begins with establishing a target set, followed by vehicle acceptance and charging standards. In China, policy ideas are slightly different around the world. Restrictions were placed on investments in the new ICE automobile manufacturing industry and other vehicle motives based on their battery characteristics.

The global perception of EVs today has changed to the broader plans for the EV30 @ 30 campaign launched by the Minister of Clean Energy in June 2017, which aims to achieve 30% of the EV market share in all but two tires by 2030²³. The countries that have approved the campaign are Canada, China, Finland, France, India, Japan, Mexico, the Netherlands, Norway, Sweden, and the UK. Global cargo in the automobile sector, in particular, reached 5.1 million in 2018, an increase of 63% compared to the previous year. This equates to an annual growth rate of 57% in 2017 and 60% in 2016. Battery-powered vehicles (BEVs) make up 64% of the world's electric cars. (Valera & Agarwal, 2020)

Niti Aayog initiated India's current approach to transit change to build an ecosystem "shared, connected and electrified" and capable of reducing the country's energy needs by 64% and carbon emissions by 37% by 2030²⁶. This is expected to result in a reduction of 156 Mote's annual diesel and petrol consumption, saving ₹3.9 lakh crore or US \$ 60 billion (US \$ 52/bbl. of crude). The savings collected for 2017-2030 are expected to be 876 Mote of petrol and diesel,

which could cost ₹22 lakhs or US \$ 330 billion, plus one gigatonne for carbon-dioxide emissions. This adds to the country's major development goals to meet climate obligations and explores ways to reduce the risk of fuel shortages by relying more heavily on crude oil sales to meet the needs of crude oil.

The electric car industry is in the growth phase of India, making up less than 1% of the total number of vehicles sold, which is aimed at growth with the purchase subsidy driving the first acquisition. There are more than 4 lac electric wheels and a few thousand electric vehicles on Indian roads. Two wheels in India have become a significant part of EV sales, with 54,800 cars sold in 2018. Given that 79% of vehicles on Indian roads have two wheels²⁷, EV approval is expected to be driven.

Relative profitability, direct costs, and opportunity costs open the case with two electric wheels that result in significant reductions in CO₂ and lower fuel costs but in contrast to two fuel wheels, leaving consumers with more significant savings at the end of five years. (Khurana et al., 2020)

6 Conclusion

The Indian automobile industry has dramatically improved and has become one of the hallmarks of Indian manufacturing. The Indian automobile industry, highly protected, came out successfully during the competition after the liberation of the Indian economy. Aside from being home to almost all major car manufacturers, today's country is one of the most oversized export wheels of two wheels.

Although the industry's growth over the past two decades has been very positive, the industry today is at a crossroads. Emerging power, namely, increasing awareness about clean energy vehicles, the implementation of the Rapid Transit System, the growing growth of transport links, changing the choice of cars, among many others, will change the status of the Indian automobile industry; thus, industry players and policymakers need to stay together strategy, so that Indian players in the category continue to be in the driver position.

The share of Indian cars in the global market was empty in 2001, which stood at 1.1% in 2018 - thus indicating a dramatic headroom of growth. The target of US \$ 80 billion exports to the automobile industry, aimed at the Automobile Program 2025-26, will need to improve commercial competitiveness, attract significant foreign investment, and most importantly, identify the right market with the right product mix right time.

To sum up all the results, it can be said that the entire automobile industry has a strong position in India and will continue to recover from the economic downturn. Indian car manufacturers must continue developing new products and technologies to maintain a stable market environment. The expansion of facilities into recent locations in India will lead to job creation and thus positively impact employment. The continued economic development and the industry's growth are essential for future development and growth.

7 References

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8 Annexure

HS Code & Description	Groups
400930: Tubes, pipes& hoses vulcanized /rubber reinforced with textile material without fittings	GR-I
400940: Tubes, pipes & hoses vulcanized rubber reinforced, without fittings	
401320: Inner tubes of rubber for bicycles	
401693: Gaskets, washers, and other seals of vulcanized rubber	
681210: Fabricated asbestos fibers; mixture with a basis of asbestos and magnesium carbonates	
681310: Asbestos brake linings and pads	
681390: Asbestos friction material and articles	
700711: Safety glass toughened (tempered) vehicles, aircraft, spacecraft/vessel	
700721: Safety glass laminated for vehicles, aircraft, spacecraft, or vessels	
700729: Safety glass laminated	
700910: Rear-view mirrors for vehicles	

HS Code & Description	Groups
731815: Bolts o screws, with or without their nuts or washers, iron or steel	GR-II
731823: Rivets, iron, or steel	
731824: Cotters and cotter-pins, iron or steel	
731829: Non-threaded articles of iron or steel	
732010: Springs, leaf and leaves thereof, iron or steel	
732020: Springs, helical, iron, or steel	
732090: Springs, iron, or steel	
732619: Articles of iron or steel, forged or stamped, but not further worked	
830120: Locks of a kind used for motor vehicles of base metal	
830230: Mountings, fittings& similar articles of base metal f motor vehicles	

HS Code & Description	Groups
840731: Engines, spark-ignition reciprocating, displacing not more than 50 cc	GR-III
840732: Engines, spark-ignition reciprocating, displacing >50 ccs but not more than 250cc	
840733: Engines, spark-ignition reciprocating displacing > 250 ccs to 1000 cc	
840734: Engines, spark-ignition reciprocating displacing more than 1000 cc	
840820: Engines, diesel, for the vehicles of Chapter 87	
840991: Parts for spark-ignition type engines	
840999: Parts for diesel and semi-diesel engines	
841330: Fuel, lubricating, or cooling medium pumps for internal combustion piston engines	
842123: Oil or petrol filters for internal combustion engines	
842131: Intake air filters for internal combustion engines	
870600: Chassis fitted with engines for the vehicles of head No 87.01 to 87.05	

HS Code & Description	Groups
841520: Air conditioners used in vehicles	GR-IV
842139: Filtering or purifying machinery and apparatus for gases	
848310: Transmission shafts and cranks, including camshafts and crankshafts	
848320: Bearing housings, incorporating ball or roller bearings	
848340: Gears & gearing, ball screws, gearboxes, speed changers/torque converters	
848350: Flywheels and pulleys, including pulley blocks	
848360: Clutches and shaft couplings (including universal joints)	
848390: Parts of power transmission equipment/other goods used to transmit power	
848410: Gaskets of metal sheeting combined with other material	
848420: Mechanical seals	
848490: Gasket sets consisting of gaskets of different materials	
851120: Ignition magnetos, magneto-generators, and magnetic flywheels	