



Automobile Industry In India: An Overview

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ABSTRACT:-

Indian Automobile industry is one of the leading automobile industries in the world. The scenario started changing after relicensing of the Indian sector in 1991. The opening up of 100 per cent FDI through the automobile route marked the beginning of a new era for the Indian automotive industry. The automobile industry contributes 7'0 per cent to the country's gross domestic product (GDP) and annual production of 23.96 million vehicles in FY 2020-21. India exported 4.13 million of vehicles in 2021. Indian automobile industry includes the manufacture of trucks, buses, cars, defenses vehicles, two-three wheelers etc. The automobile industry broadly divided into car manufacturing, two-wheeler manufacturing, and heavy vehicale manufacturing units.

KEYWORD:-Automobile, FDI, GDP.

INTRODUCTION:-

Automobile industry is the key driver of any growing economy and plays a pivotal role in country's rapid economic and industrial development. It caters to the requirement of equipment for basic industries like steel, non-ferrous metals, fertilizers, refineries, petrochemicals, shipping, textiles, plastics, glass, rubber, capital equipment, logistics, paper, cement, sugar etc. it facilitates the improvement in various infrastructure facilities like power, rail and road transport. The Indian automobile industry has been recording tremendous growth over the years and has emerged as a major contributor to India's Gross Domestic Product. The industry currently accounts for almost 7 per cent of the country's GDP and employs about 19 million people both directly and indirectly. According to the Automotive Mission Plan 2016-26, with Government's backing and special focus on exports, the automotive sector's contribution to the GDP is expected to reach in double figures up to 2016. It is important to know that how this growing sector is affecting the financial performance of companies under this sector.

The main growth drivers for Indian automobile industry are government policies, new innovations and product launchers, reducing cost to customer exporting outs to other countries. The government of India aims to made automobile manufacturing the main driver of 'Make in India' initiative, as it expects the passenger vehicles market to triple to 9.4 million units by 2026 as highlighted in the Auto Mission Plan (AMP) 2016-26. The technology advancement in Indian Automobile Industry i.e. Eco friendly cars that is CNG based vehicles, hybrid and electric vehicles to protect the environment. In the 1800s, Gottlieb Daimler, Karl Benz, Nicolaus Otto, and Emile Levassor significantly contributed to the automobile's technological advancement. Benz is credited with building the first gas-powered car with an internal combustion engine in 1885, marking a historic milestone in the automotive industry.





Henry Ford established the Ford Motor Company, an American car manufacturer that transformed the industry with mass production methods. These methods were later adopted by other major car companies such as GM and Chrysler. As the automobile industry expanded, several supply chains were created to sustain vehicle production and progress.

The automotive industry played a vital role in the military by producing wartime vehicles and other products essential to the war. After World War II, the automobile industry grew rapidly in global regions such as Europe and Japan. By 1980, with intensive marketing strategies, newly developed roads, and highways, automakers had become a global enterprise.

Although the automobile industry has changed over centuries, the industry continues to thrive and grow with constant product innovations, new engineering designs, and technology. With now fully electric vehicles, cars are smaller, less polluting, and more computer-aided.

OBJECTIVES OF THE STUDY:-

1. To Know The Automobile Industry in India.
2. To Study the overview of the Automobile Industry
3. To Study the Growth of the Automobile Industry

RESEARCH METHODOLOGY:-

This study is based upon secondary data. This study is the analytical type study based upon secondary data. The researcher has therefore used suitable research method for this study.

SOURCES OF SECONDARY DATA:-

The secondary data was collected with the help of following –

1. Newspaper, Journals & Periodicals.
2. Annual Reports of the Sample Automobile Companies.
3. Published Books and publicity material of sample automobile companies
4. Internet Sources.

Automobile Industry before World War I:-

In the early stage of automobile companies, were small shops, hundreds of which each produced a few handmade cars, and nearly all of which abandoned the business soon after going into it. The handful that survived into the era of large-scale production had certain characteristics in common. First, they fell into one of three well-defined categories: they were makers of bicycles, such as Opel in Germany and Morris in Great Britain; builders of horse-drawn vehicles, such as Durant and Studebaker in the United States; or, most frequently, machinery manufacturers. The kinds of machinery included stationary gas engines (Daimler of Germany, Lanchester of Britain, Olds of the United States), marine engines (Vauxhall of Britain), machine tools (Leland of the United States), sheep-shearing machinery (Wolseley of Britain), washing machines (Peerless of the United States), sewing machines (White of the United States), and woodworking and milling machinery (Panhard and Levassor of France). One American company, Pierce, made birdcages, and another, Buick, made plumbing fixtures, including the first enameled cast-iron bathtub. Two notable exceptions to the general pattern were Rolls-Royce in Britain and Ford in the United States, both of which were founded as carmakers by partners who combined engineering talent and business skill.

In the United States almost all of the producers were assemblers who put together components and parts that were manufactured by separate firms. The assembly technique also lent itself to an advantageous





method of financing. It was possible to begin building motor vehicles with a minimal investment of capital by buying parts on credit and selling the finished cars for cash; the cash sale from manufacturer to dealer has been integral in the marketing of motor vehicles in the United States ever since. European automotive firms of this period tended to be more self-sufficient.

The pioneer automobile manufacturer not only had to solve the technical and financial problems of getting into production but also had to make a basic decision about what to produce. After the first success of the gasoline engine, there was widespread experimentation with steam and electricity. For a brief period the electric automobile actually enjoyed the greatest acceptance because it was quiet and easy to operate, but the limitations imposed by battery capacity proved competitively fatal. Especially popular with women, electric cars remained in limited production well into the 1920s. One of the longest-surviving makers, Detroit Electric Car Company, operated on a regular basis through 1929.

Steam power, a more serious rival, was aided by the general adoption, after 1900, of the so-called flash boiler, in which steam could be raised rapidly. The steam car was easy to operate because it did not require an elaborate transmission. On the other hand, high steam pressures were needed to make the engine light enough for use in a road vehicle; suitable engines required expensive construction and were difficult to maintain. By 1910 most manufacturers of steam vehicles had turned to gasoline power. The Stanley brothers in the United States, however, continued to manufacture steam automobiles until the early 1920s.

Contribution of Ford:-

The mass-produced automobile is generally and correctly attributed to Henry Ford, but he was not alone in seeing the possibilities in a mass market. Ransom E. Olds made the first major bid for the mass market with a famous curved-dash Oldsmobile buggy in 1901. Although the first Oldsmobile was a popular car, it was too lightly built to withstand rough usage. The same defect applied to Olds's imitators. Ford, more successful in realizing his dream of "a car for the great multitude," designed his car first and then considered the problem of producing it cheaply. The car was the so-called Model T, the best-known motor vehicle in history. It was built to be durable for service on the rough American country roads of that period, economical to operate, and easy to maintain and repair. It was first put on the market in 1908, and more than 15 million were built before it was discontinued in 1927.

When the design of the Model T proved successful, Ford and his associates turned to the problem of producing the car in large volume and at a low unit cost. The solution was found in the moving assembly line, a method first tested in assembling magnetos. After more experimentation, in 1913 the Ford Motor Company displayed to the world the complete assembly-line mass production of motor vehicles. The technique consisted of two basic elements: a conveyor system and the limitation of each worker to a single repetitive task. Despite its deceptive simplicity, the technique required elaborate planning and synchronization.

The first Ford assembly line permitted only very minor variations in the basic model, a limitation that was compensated for by the low cost. The price of the Model T touring car dropped from \$950 in 1909 to \$360 in 1916 and still lower to an incredible \$290 in 1926. By that time Ford was producing half of all the motor vehicles in the world.

Large-scale organization:-

Although the appearance of mass production in the automotive industry coincided with the emergence of large-scale business organization, the two had originated independently. They were related,





however, and influenced each other as the industry expanded. Only a large firm could make the heavy investment in plant and tooling that the assembly line required, and Ford was already the largest single American producer when it introduced the technique. The mass producer in turn enjoyed a cost advantage that tended to make it increasingly difficult for smaller competitors to survive. There have been exceptions, but the trend has been consistent.

General Motors:-

General Motors Corporation (GM), which ultimately became the world's largest automotive firm and the largest privately owned manufacturing enterprise in the world, was founded in 1908 by William C. Durant, a carriage manufacturer of Flint, Michigan. In 1904 he assumed control of the ailing Buick Motor Company and made it one of the principal American producers. Durant developed the idea for a combination that would produce a variety of models and control its own parts producers. As initially formed, General Motors included four major vehicle manufacturers—Buick, Cadillac, Oldsmobile, and Oakland—and an assortment of smaller firms. The combine ran into financial trouble in 1910 and was reorganized by a financial syndicate. A similar combination, the United States Motor Corporation, was formed in 1910, collapsed in 1912, and was reorganized as the Maxwell Motor Company. General Motors survived. A new reorganization took place after Durant, with backing by E.I. du Pont de Nemours and Company, regained control in 1916. Durant, who had previously established the Chevrolet Motor Company, brought Chevrolet into GM in 1918.

Rise of the Big Three:-

At the end of World War I, Ford was the colossus, dominating the automotive scene with the Model T not only in the United States but also through branch plants throughout the world. British Ford was the largest single producer in the United Kingdom. GM was emerging as a potential major competitor in the United States. No other automotive firms of comparable size existed.

During the next decade there was a striking transformation. The depression of 1921 had far-reaching effects on the American automotive industry. GM was plunged into another financial crisis. Alfred P. Sloan became president of the corporation in 1923 and raised it to its unchallenged first place in the industry. Among other steps, he gave GM a staff-and-line organization with autonomous manufacturing divisions, which facilitated management of a large corporate structure and became the model for other major automotive combinations. Henry Ford also went through a crisis because the 1921 crash caught him involved in the construction of a large new plant (River Rouge) and in the process of buying out his stockholders. Ford weathered the storm (though many of his dealers, unable to sell cars and not permitted to return them, went out of business), but the Ford Motor Company had reached its crest.

The third member of the “Big Three” automotive manufacturers in the United States was created at this same time. When the Maxwell Motor Company failed in the 1921 depression, Walter P. Chrysler, formerly of General Motors, was called in to reorganize it. It became the Chrysler Corporation in 1925 and grew to major proportions with the acquisition of the Dodge Brothers company in 1928. When Ford went out of production in 1927 to switch from the Model T to the Model A (a process that took 18 months), Chrysler was able to break into the low-priced-car market with the Plymouth.

By 1929 the Big Three supplied three-fourths of the American market for motor vehicles; most of the remainder was divided among the five largest independents—Hudson, Nash, Packard, Studebaker, and Willys-Overland. In less than 10 years the number of automobile manufacturers in the United States





dropped from 108 to 44. Some of the minor carmakers had technological or personal interests, including Nordyke and Marmon, makers of Marmon luxury cars, and E.L. Cord, who marketed front-wheel-drive cars between 1929 and 1937. The depression years of the 1930s eliminated all but the largest independent manufacturers and increased still further the domination of the Big Three. Motor vehicle production declined from a peak of more than five million in 1929 to a low of just over one million in 1932. It rose again slowly but had not returned to the 1929 figure when World War II broke out.

While these years were difficult economically, they saw some significant developments within the industry. Greater emphasis was placed on style in passenger-car design, with the general trend in the direction of incorporating the body, bumpers, and mudguards into a single pattern of smoothly flowing lines. A number of technical features came into general use: the V-8 engine, introduced by Ford in 1932; three-point engine suspension; freewheeling (permitting the car to coast freely when the accelerator was released); overdrive (a fourth forward speed); and, on a limited scale, automatic transmission.

The Automotive Industry in World War II:-

During the first World War; the productive capacity of the automotive industry first demonstrated its military value. Motor vehicles were used extensively for transport and supply. In addition, automotive plants could readily be converted into facilities for manufacturing military equipment, including tanks and aircraft. For all of the belligerents the conversion of automotive facilities was an afterthought, improvised after the beginning of hostilities, and the American industry, involved only for a short time, never fully utilized its capacity.

More preparation was made for using the resources of the various automotive industries as World War II approached. The British government built “shadow factories” adjacent to their automotive plants, equipped to go into military production (principally aircraft) when war came, with managerial and technical personnel drawn from the automotive industry. France attempted conversion, but belatedly and inefficiently. The German automotive industry, which built the military vehicles needed for blitzkrieg, was not fully converted to military production until 1943. In the United States the preparation for industrial mobilization was negligible until 1940; in fact, there was no serious effort even to restrict civilian automobile production until after the attack on Pearl Harbor in December 1941. Still, the American automotive industry represented such a concentration of productive capacity and skill that, once its resources had been harnessed to war production, its contribution was tremendous. Between 1940 and 1945 automotive firms made almost \$29 billion worth of military materials, a fifth of the country’s entire output. The list included 2,600,000 military trucks and 660,000 jeeps, but production extended well beyond motor vehicles. Automotive firms provided one-half of the machine guns and carbines made in the United States during the war, 60% of the tanks, all the armoured cars, and 85% of the military helmets and aerial bombs.

It had been assumed that automotive facilities could be readily converted for aircraft production, but this proved more difficult than anticipated. Automobile assembly plants did not readily accommodate airframes, nor could an automobile engine factory be converted without substantial modification. These problems were eventually resolved, and automobile companies contributed significantly to aircraft production.

The Automobile Industry after 1945:-

After World War II there was a striking expansion of motor vehicle production. During a 35-year period the total world output increased almost 10-fold. The most significant feature of this increase was





that most of it occurred outside the United States. Although American production continued to grow, its share of world automotive production fell from about 80% of the total to 20%. Among individual countries the United States was the leading producer until the recession of the early 1980s. In 1980 Japan, which had had little automotive manufacturing before the war, became the leading producer, with the European Economic Community (EEC) ranking second. The United States regained the lead in vehicle production in 1994, since by that time Japanese manufacturers were building more of their products in factories in their major overseas markets, such as the United States, in response to economic and political pressures in those markets. However, in the early 21st century, China became the leading manufacturer of cars.

Europe after World War II:-

In Europe motor vehicles were recognized as an export item that could help restore war-shattered economies. Britain, for example, earmarked more than half of its automotive output for export and restricted domestic purchases for several years after the war. In addition, the horsepower tax was abandoned to enable British manufacturers to build profitably for the world market. The most popular British designs (excluding specialized luxury vehicles such as the Rolls-Royce) continued to be lightweight cars, including several models with an ingenious front-wheel drive. The trend to consolidation led in 1952 to the merger of Morris and Austin to form the British Motor Corporation, Ltd., a combine that accounted for about two-fifths of Britain's motor vehicle production. Another British combine was formed around Leyland Motors, which had grown into the country's largest manufacturer of commercial vehicles and became a power in the passenger-car field by acquiring Standard-Triumph and Sunbeam in the 1950s. Leyland and the British Motor Corporation united in 1968 as the British Leyland Motor Corporation (later British Leyland Ltd. and, after 1978, BL Ltd.); this move, sanctioned by the government, was intended to forestall possible American domination of the British automobile industry. Except for Rolls-Royce, whose automobile production was only a very small part of the company's business, British automobile output was then largely controlled by four firms: British Leyland, Ford, Vauxhall, and Rootes, which came under Chrysler control in 1967 but was sold off to France's Peugeot-Citroën in 1978. When British Leyland had financial difficulties in the early 1970s, it was taken over by the government.

In the 1980s the remaining parts of BL, which by then was focused on building Jaguar, Mini, and Rover cars and Land Rover sport utility vehicles and commercial trucks, became the Rover Group. Eventually Jaguar regained profitability, and the British government sold off the company through a public stock offering. The remaining Rover/Mini operations were acquired by British Aerospace Corporation. Rover then entered into a cooperative venture with Japan's Honda in which cars of Honda design were built at Rover plants for sale in Britain and other European countries under the Rover and Honda brands. A small number also were exported to the United States under the Sterling name. Eventually Honda became dissatisfied with the venture, and British Aerospace sold the Rover/Mini operations to BMW of Germany in 1994. In 2000 BMW sold the Land Rover segment to Ford, which had acquired the stock of Jaguar in 1989, while its Rover cars segment was spun off to a British consortium and became MG Rover Group Ltd. BMW retained the profitable Mini operations. In the late 1990s Britain's Rolls-Royce Motor Cars, then owned by Vickers PLC, became the subject of a bidding war in which Germany's Volkswagen emerged as the owner of the company's Bentley brand and all of its manufacturing facilities; BMW emerged as the owner of the Rolls-Royce brand with respect to cars, effective at the end of 2002. Three years later the ailing MG Rover





Group was forced to sell off its assets, and in 2008 Ford sold Jaguar and Land Rover to the Tata Group of India. In addition, GM sold Vauxhall to the French PSA Group in 2017.

The Modern Automobile Industry

The automobile industry in the modern age is huge. In the United States it is the largest single manufacturing enterprise in terms of total value of products, value added by manufacture, and number of wage earners employed. One of every six American businesses is dependent on the manufacture, distribution, servicing, or use of motor vehicles; sales and receipts of automotive firms represent more than one-fifth of the country's wholesale business and more than one-fourth of its retail trade. For other countries these proportions are somewhat smaller, but Japan, South Korea, and the countries of western Europe have been rapidly approaching the level in the United States.

The trend toward consolidation in the industry has already been traced. In each of the major producing countries the output of motor vehicles is in the hands of a few very large firms, and small independent producers have virtually disappeared. The fundamental cause of this trend is mass production, which requires a heavy investment in equipment and tooling and is therefore feasible only for a large organization. Once the technique is instituted, the resulting economies of scale give the large firm a commanding advantage, provided of course that the market can absorb the number of vehicles that must be built to justify the investment. Although the precise numbers required are difficult to determine, the best calculations, considering both the assembly operation and the stamping of body panels, place the optimum output at between 200,000 and 400,000 cars per year for a single plant. Increasingly stringent and costly regulations aimed at correcting environmental damage due to the rising number of vehicles on the road also have been a factor in the move toward consolidation.

The structural organization of these giant enterprises, despite individual variation, resembles the pattern first adopted by General Motors in the 1920s. There is a central organization with an executive committee responsible for overall policy and planning. The operating divisions are semiautonomous, each reporting directly to the central authority but responsible for its own internal management. In some situations the operating divisions even compete with each other. The Ford Motor Company was consciously reorganized on the GM pattern after World War II; other American automotive firms have similar structures.

In addition, the largest producers decentralize their manufacturing operations by means of regional assembly plants. These permit the central factory to ship frames and components rather than complete automobiles to the areas served by the assembly plants, effecting substantial savings in transportation costs. This system was developed for the Ford company in 1911.

Some alteration of that principle took place in the 1980s and '90s as Japanese firms built new plants around the world and American and European manufacturers adopted, to varying degrees, the Japanese "just-in-time" inventory method. Rather than stockpiling a large number of parts at the assembly plant or shipping all the parts from central locations, automakers have yielded the manufacture of many noncritical components (such as seats and wheel assemblies) to independent suppliers to make the pieces at small facilities close to the assembly plants. The components are often assembled into larger groups of parts or modules (a complete instrument panel, for example) and sent to the assembly plant in the exact sequence and at the exact time needed.





Diversity of products

The automotive industry's immense resources in production facilities and technical and managerial skills have been devoted predominantly to the building of motor vehicles, but there has been a consistent and strong incentive to extend into related products and occasionally into operations whose relationship to automobiles is remote. The Ford Motor Company, for example, once manufactured tractors and made the famous Ford Trimotor all-metal transport airplane in the late 1920s and early '30s. GM manufactured refrigerators and diesel-powered railway locomotives. By the end of the 20th century, however, Ford and GM had divested themselves of most of their nonautomotive operations and had spun off the majority of their automotive component-making divisions into separate stock companies—Delphi Automotive Systems in the case of General Motors and Visteon Automotive in the case of Ford.

In Europe, but to a lesser extent, automakers also divested noncore operations, while depressed economic conditions in Japan forced auto companies there to begin divorcing themselves from nonautomotive and components companies in which they had long held interests. By the late 1990s the trend was toward more international consolidation of core automotive operations.

New car development

The process of putting a new car on the market has become largely standardized. If a completely new model is contemplated, the first step is a market survey. Since there may be an interval of five years between this survey and the appearance of the new car in the dealers' showrooms, there is a distinct element of risk, as illustrated by the Ford Motor Company's Edsel of the late 1950s. (Market research had indicated a demand for a car in a relatively high price range, but, by the time the Edsel appeared, both public taste and economic conditions had changed.) Conferences then follow for engineers, stylists, and executives to agree on the basic design. The next stage is a mock-up of the car, on which revisions and refinements can be worked out.

Because of the increasingly competitive and international nature of the industry, manufacturers have employed various means to shorten the time from conception to production to less than three years in many cases. This has been done at GM, for example, by incorporating vehicle engineers, designers, manufacturing engineers, and marketing managers into a single team responsible for the design, engineering, and marketing launch of the new model. Automakers also involve component manufacturers in the design process to eliminate costly time-consuming reengineering later. Often the component maker is given full responsibility for the design and engineering of a part as well as for its manufacture.

Conclusion:-

In This research article to overview in the Automobile Industry has made great strides over the past two decades, sufficient to be noticed at a global level and be counted as a major auto manufacturing hub. The automobile has come a long way since de-licensing. Today, numerous choices are available to the users in terms of type, capacity, brands, models etc. with regard to the automobiles. The Indian Automobile industry is now riding high on success, and the bright picture does tend to obscure the problems and challenges that lay on the track of its growth. Poor road conditions, heavy pollution and large scale traffic related accidents are serious impediments in the way of the industry's growth. However, steps are being initiated by the government to address these problems at various levels, and solutions are being worked out at a steady pace.



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