CHAPTER II

STRUCTURAL PARAMETERS OF THE AUTOMOBILE INDUSTRY

2.1 An Overview of the Automobile Industry in India

An all India analysis of the automobile industry has been presented in this chapter in order to get an overview of the industry. An integrated knowledge of the industry is essential to explain the causal relationship between the demand of inputs and supply of outputs. Cluster level analysis of the industry has been attempted in Chapter IV.

India is set to emerge not only as a large domestic market for the automobile manufacturers, but also as a crucial link in the global automobile chain. Among other industries, the automobile industry in India is understood to be the most dynamic. It has been experiencing strong growth rates after the deregulating of the industry in 1991, when major economic reforms took place in India¹. Until the 1990s, Maruti Suzuki, Tata Motors, Hindustan Motors and Premier Padmini primarily dominated the automobile industry in India in the passenger car segment. Ashok Leyland, Tata Motors and Mahindra & Mahindra dominated the commercial vehicle segment while Bajaj Auto dominated the two-wheeler segment. After 2000, further policy changes were introduced to focus on export promotion in the industry².

Some industry experts foresee the Indian automobile companies replicating the success of the Information Technology (IT) industry in the 1990s. It is believed that India will become a strong export base for automobile manufacturers in the near future. Of course, India will face stiff competition from BRIC countries, namely Brazil, Russia and China and from the East European counties in this regard³. India is, however, envisaged to be the third largest automobile market in the world by 2030 only behind USA and

China⁴. According to the UNIDO International Yearbook of Industrial Statistics 2008, India ranks 12th among the world’s top 15 automobile nations. Given below are some of the key features of the Indian automobile industry that indicate its size⁵:

- Fourth largest market for passenger cars in Asia;
- Second largest manufacturer of two-wheelers worldwide;
- Fourth largest passenger vehicle market in Asia;
- Fifth largest manufacturer of commercial vehicles worldwide;
- Largest manufacturer of tractors and three-wheelers worldwide.

Fig. 2.1: Attractiveness of the Indian Automobile Industry

Source: Based on literature survey done for this study.

⁴Indian Brand Equity Foundation (2008). IBEF is the research arm of the Confederation of Indian Industry.
2.1.1 Growth Targets Set in the Automobile Mission Plan (AMP)

The automobile mission plan is an approach paper brought out by the ministry of heavy industries for public enterprises for the period of 2006-2016. The AMP aims at increasing the growth rate of the automobile industry and doubling the contribution of the industry to 10 percent of GDP by 2016. However, there are challenges in achieving this target. There are growing concerns about whether India can sustain the cost advantage it enjoys and can about retain its engineering talent and increase the slow pace of consolidation in the industry.

![Fig. 2.2: Growth Drivers for the Indian Automobile Industry](source: Based on literature survey done for this study.)

There are two distinct sets of players in the Indian automobile industry: the vehicle manufacturers and automobile component manufacturers. While the former is engaged in assembling of all these components into an automobile the latter set is

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engaged in manufacturing of parts, components, bodies and chassis involved in automobile manufacturing.

The automobile manufacturing sector, which involves production of the automobile components, comprises two-wheelers, three-wheelers, four-wheelers, passenger cars, light commercial vehicles (LCVs), heavy trucks and buses/coaches. In India, mopeds, scooters and motorcycles constitute the two-wheeler industry, in increasing order of market share. Market concentration has been increasing in both vehicle and component manufacturing sector. Capital productivity, labour productivity and total factor productivity have been higher in two/three-wheeler manufacturers than in CV/PV manufacturers, while capital intensity has been higher in the latter. All these measures have been growing for all sub-sectors in the entire automobile industry in India.\(^7\)

**Fig. 2.3: Structure of the Indian Automobile Industry**

![Diagram of the Indian Automobile Industry](source)

The automobile industry is pyramidal in structure with the auto assemblers at the apex followed by a three-tier structure auto component firms down the structure. On the first rung are those manufacturers who supply directly to the automaker. The second rung comprises of component manufacturers who supply to the first tier and the third rung

\(^7\)ACMA Report, 2008-2009.
supplies to the second tier. The relationship between the automobile firms and component manufacturers in India is also significantly affected by the general changes in the global auto industry value chains.

2.2 Data Sources and Methodology Used

For the structural analysis, the following indicators have been selected from sources indicated with each indicator. The data has been presented by using suitable cartographic technique and statistical methods.

A. Composition of production (Source: Society of Indian Automobile Manufacturers, SIAM)

- Two wheelers
- Three wheelers
- Four wheelers
- Light commercial vehicle
- Heavy vehicles

B. Manufacturing of Products (Source: Society of Indian Automobile Manufacturers, SIAM and Automobile Component Manufacturers Association of India, ACMA)

I. Original Equipment Manufacturing

- Engine
- Body and Chassis

II. Component Products

- Electrical parts
- Drive Transmission and Steering Parts
- Suspension and breaking parts
- Other equipments e.g.; gear, brake shoe, bolt items etc.

C. Employment composition (Source: Society of Indian Automobile Manufacturers, SIAM)

- Number of skilled workforce
- Number of research and development workforce
- Number of technical workforce
- Total number of employees
D. Change in share of imports and exports (Source: Society of Indian Automobile Manufacturers, SIAM)

E. Investment over the period (Source: Society of Indian Automobile Manufacturers, SIAM)

2.3 The Automobile Manufacturing Firms

The number of firms that are engaged in producing the automobiles, two-wheelers and three-wheelers has been steadily increasing from 1973-74 to 2006-07 (Appendix 14 and 26). This increase has been much more conspicuous and sharper in the mid-1990s. However, it can be noticed that there is a decline in the number of enterprises in both these sectors after the year 2000. There could be many possible explanations for this, such as consolidation of the smaller enterprises in the industry, closing down of sick firms and potential relocation of plants.

The numbers of firms manufacturing motor vehicles have more than doubled in the decade 1973-83. The increasing trend continued for the next decade of 1983-93. It has been sustained well since then and the trend has continued in the next decade though at a slower pace. The latter period was considered to be a phase of consolidation and establishment of more Greenfield firms. The number of factories steadily increased in the three decades with an ever-increasing demand of motor vehicles within and outside the country and a huge potential in India. This growth was led by Indian manufactures, foreign enterprises and sometimes by joint ventures. Until, 1997-98, the increasing trend persisted. However, since then, the number of factories has been declining steadily. This decline of manufacturing of vehicles has been evident both in rural and urban areas. The abrupt decline in number of factories from 1997-98 to 1998-99 is due to definitional change and the creation of a new category of manufacturing of parts and accessories out of manufacturing of motor vehicles.

Merger and acquisition among the firms have led to a decline in the total number of manufacturing units of motor vehicles since 1998-99. The trend for manufacturing of parts and accessories has witnessed a steady rise, which is underlined by India’s competence in this segment. Perhaps, the increasing trend in manufacturing of motor vehicles for the two and a half decades was driven by steady increase in manufacturing of parts and accessory firms rather than the units of manufacturing of motor vehicles.
Manufacturing of bodies for motor vehicles followed a trend similar to manufacturing of motor vehicles. A consistent rise was observed for two and a half until 1999-2000. Moreover, the decade 1983-1993 recorded the highest increase. In addition, since 2000, the number of factories has declined significantly below the 1999-00 level. Merger and acquisition could be the probable driving force behind this decline. Collaboration among production firms yielding economies of scale and quality of product is another factor.

Manufacturing of transport equipment has witnessed increasing trend for the first two decades 1970 to 1990. The number of factories since then has been fluctuating on yearly basis with no definite trend. Maintenance and repair of motor vehicles have always been on the rise due to higher demand of forward linkages and supply of outputs.

Fixed capital of automobile firms shows a mixed trend. The fixed capital in rural areas shows an increasing trend except from 2001-02 to 2002-03, whereas fixed capital has been on a decline in urban areas (Appendix 22). The net effect therefore has been an increase in fixed capital. The reason for increase in fixed capital in rural and semi-urban areas may be attributed to the availability of cheaper land and setting up of larger factories. The net fixed capital in the factories manufacturing automobiles, parts and accessories has been steadily increasing since the mid 1980s. This increase continued.

Source: Statistical Profile 2007-08 and 2008-09, SIAM and ASI data of different rounds.
until 1999-2000, after which this has fallen until 2003-04, but it has been on the rise thereafter. However, net fixed capital has been increasing among the firms manufacturing two-wheelers, three-wheelers and their components since the early-1980s, but with a decline in 1998-99.

2.4 Production of Vehicles in India

The total number of vehicles produced in 1960 was 69549; it increased to 10898708 in 2006 (Appendix 1) i.e., a growth of 156.70 times in just 46 years. No other segment of the Indian economy has recorded such a numerical and outstanding performance within the same period. This is because of market size and other advantages in India. Within the automobile industry, highest production growth rate has been recorded by two-wheelers followed by private vehicles. This can be linked to the socio-economic conditions of India, whereas majority of the people own two-wheelers because of their economic condition. This has been reflected in the number of registered motor vehicles at an increasing pace (Appendix 8).

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Three Wheelers</th>
<th>Total Two Wheelers</th>
<th>Total CVs</th>
<th>Total PVs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Fig. 2.5: Production of Vehicles**

Although, there has been significant growth in three wheelers and commercial vehicles in the total number but they still constitute 11.5 percent of the total vehicles in India (Table 2.1). The high GDP growth rate of India (8–9 percent) since 2004 to 2009, combined with the development of a large domestic market due to increase in prosperity and incomes in the country and a large pool of a skilled workforce at lower costs have attracted several major global automobile manufacturers to India.

Higher growth rate of the Indian automobile industry vis-a-vis the stagnant growth rate of the automobile industry in United States of America, European Union and
Japan has led to large scale shifting of capacity creation to India. This is facilitated by the easy availability of trained workforce at low cost and increasing productivity in the industry. According to the Automobile Mission Plan (AMP), increasing competition between manufacturing companies has led to improvement in productivity by 20 percent each year in the automobile industry, which is one of the highest in the manufacturing sector.

Table 2.1: Percentage Share of Vehicles (1960-2007)

<table>
<thead>
<tr>
<th>Year</th>
<th>Total PVs</th>
<th>Total CVs</th>
<th>Total Two Wheelers</th>
<th>Total Three Wheelers</th>
<th>Total Motor Wheelers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960</td>
<td>35.40</td>
<td>39.60</td>
<td>24.29</td>
<td>0.71</td>
<td>100.00</td>
</tr>
<tr>
<td>1965</td>
<td>28.52</td>
<td>30.24</td>
<td>39.71</td>
<td>1.52</td>
<td>100.00</td>
</tr>
<tr>
<td>1970</td>
<td>21.96</td>
<td>20.20</td>
<td>55.75</td>
<td>2.09</td>
<td>100.00</td>
</tr>
<tr>
<td>1975</td>
<td>10.62</td>
<td>14.63</td>
<td>70.60</td>
<td>4.15</td>
<td>100.00</td>
</tr>
<tr>
<td>1980</td>
<td>8.17</td>
<td>12.24</td>
<td>74.83</td>
<td>4.75</td>
<td>100.00</td>
</tr>
<tr>
<td>1985</td>
<td>9.20</td>
<td>7.20</td>
<td>80.09</td>
<td>3.51</td>
<td>100.00</td>
</tr>
<tr>
<td>1990</td>
<td>9.37</td>
<td>6.24</td>
<td>80.31</td>
<td>4.09</td>
<td>100.00</td>
</tr>
<tr>
<td>1995</td>
<td>11.87</td>
<td>7.10</td>
<td>76.37</td>
<td>4.66</td>
<td>100.00</td>
</tr>
<tr>
<td>2000</td>
<td>12.94</td>
<td>3.14</td>
<td>79.48</td>
<td>4.44</td>
<td>100.00</td>
</tr>
<tr>
<td>2005</td>
<td>13.52</td>
<td>4.04</td>
<td>78.02</td>
<td>4.42</td>
<td>100.00</td>
</tr>
<tr>
<td>2006</td>
<td>13.51</td>
<td>4.45</td>
<td>77.14</td>
<td>4.90</td>
<td>100.00</td>
</tr>
<tr>
<td>2007</td>
<td>15.97</td>
<td>4.91</td>
<td>74.18</td>
<td>4.93</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Source: Statistical Profile (2007-08), Society of Indian Automobile Manufacturers.

2.4.1 Production Composition of Vehicles

In terms of production composition, commercial Vehicles have recorded the highest decline. This is because of manifold increase in the number of vehicles in other segments. The share of commercial vehicles has sharply declined between years 1960 and 1986, i.e., from 39.60 percent to 5.76 percent. At present, the share of commercial vehicles is less than 5 percent. A similar trend can be seen in the private vehicles segment that has witnessed a decline from 35.40 percent in 1960 of 8.02 percent in 1982.

However, the share of two wheelers increased by three folds from 24.29 percent to 74.18 percent in the same period. The spectacular increase of two wheelers was more particularly after 1982-83. Moreover, this threefold increase was in absolute number is

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very high. In case of three wheelers, the performance is very consistent and gradual; its share rises from 0.71 percent to 4.93 percent in the same period.

![Fig. 2.6: Production Composition of Vehicles](image)

**Table 2.2: Comparative Position and Growth recorded by the Automobile Vehicles**

<table>
<thead>
<tr>
<th>Vehicles</th>
<th>Total Three wheelers</th>
<th>Total two wheelers</th>
<th>Total CVs</th>
<th>Total PVs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share in 2007</td>
<td>4.93</td>
<td>74.18</td>
<td>15.97</td>
<td>4.91</td>
</tr>
<tr>
<td>Share in 1960</td>
<td>0.71</td>
<td>24.29</td>
<td>39.60</td>
<td>35.40</td>
</tr>
<tr>
<td>Times increase</td>
<td>Seven times</td>
<td>Three times</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Times decrease</td>
<td>Two and half times</td>
<td>seven times</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Prepared on the basis of Table 2.1.

### 2.4.2 Production Trends: Segment Wise

The growth of the automobile industry has been linked to the increase in production across all segments. The most noticeable increase in growth has been recorded in the passenger car segment followed by commercial vehicle segment and the three-wheeler segment. The largest volume in production is in the two-wheelers segment, followed by the passenger cars segment and the commercial vehicles segment. During the last few years, certain macroeconomic conditions have helped the automobile industry to grow positively.

There is easier availability of finance as compared to the 1990s and the real income of the Indian consumer is increasing. This leads to an increase in the purchasing power, which is driving demand in the passenger cars segment and the two-wheelers segment. Demand for commercial vehicles has increased due to further development of
the manufacturing sector, more trade and commerce between regions, increased road transport owing to the construction of more national highways and better roads.

**Fig. 2.7: Segment-Wise Production of Vehicles**

![Graph showing segment-wise production of vehicles over years](image)

Source: Statistical Profile (2007-08), Society of Indian Automobile Manufacturers.

Production of two wheelers i.e., motor cycles, scooters and mopeds, constitutes the largest share of total vehicles. Green revolution and package technology in the late 1960 has led to the spectacular growth in total number of tractors. In terms of market size of tractors, India is the third largest, followed by USA and China. Growth in the tractor-producing segment is directly related to growth in agricultural outputs and exports to neighboring countries. Production of tractors was 352827 in 2006-07 and was growing by more than 20 percent per annum (CAGR). Indian tractors are gaining acceptance in international markets. In the past three years, exports of Indian tractors have grown by a CAGR of 55 percent. The USA is the main market for exports, but exports to other Asian countries and African countries is also increasing. In 2006-07, a total of 33813 tractors were exported. Manufacturing facilities for tractors are mostly located in Punjab and Maharashtra. Out of 14 manufacturers, Mahindra & Mahindra is the market leader. One of the initiatives taken by the Government of India to boost the tractor-manufacturing segment includes setting up the National Centre for Testing of Tractors and Off Road Vehicles in the state of Uttar Pradesh, which will be responsible for conducting research and for testing of tractors.

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The real spurt in two wheelers industry in India come after 1982 with setting up of Hero Honda plant in Gurgaon in Haryana. Car production is continuously rising in trend from the day of its inception switching from the era of assembling. This was prominent until the 1980’s. In the post-liberalised era cost reduction and tariff lowering to increase the net profits has happened in the car segment. Merging and acquisition of firms for comparative advantage is the current phenomena in this segment. Following this tradition Tata has acquired and merged London based Jaguar and Land Rover in April 2008. Tata Motors has come up with the Nano to compete with other car manufacturers in India.

2.4.3 Sale of Vehicles

Sale of vehicles followed the same pattern as production. Maximum sale was that of motorcycles, followed by scooters, mopeds, cars, tractor, commercial vehicles (by both M&HCVs and LCVs) and jeeps.

![Fig. 2.8: Domestic Sales Trend of Automobiles](image-url)

Source: Statistical Profile (2007-08), Society of Indian Automobile Manufacturers.
2.4.4 Domestic Market Share of Automobiles

Two third of domestic market share (2007-08), is covered by two wheelers. The reason has already been explained because of nature of Indian demand and socio-economic requirements. It is followed by passenger vehicles (16 percent), because of market size and unaffordability of private vehicles. Next in order were commercial vehicles and three wheelers.

2.4.5 Automobile Exports

In the domestic market, maximum demand is for two wheeler vehicles against international demand of cars. Here, the noticeable fact is that though the cars are internationally demanded but it does not constitute the majority of exports from India. The majority of exports are of two wheelers, because India is surrounded by developing countries, particularly, Sri Lanka, Bangladesh and Nepal which are at the top of the list. The other destinations include countries from Africa (Kenya, Nigeria and Angola) and
South America (Peru and Columbia). Three wheelers, commercial vehicles and passenger vehicles follow exports of two wheelers.

Three wheelers seem to be concentrated in three continents of Africa, Asia and South America with Sri Lanka as the top destination. All the export destinations are from the developing world (Appendix 10).

2.4.6 Automobile Imports

Automobile imports have also been rising rapidly since 2001-02. The share of vehicles in total automobile industry imports has risen from 5 percent in 1996-97 to 10 percent in 2005-06. Automobile imports declined, on an average, from 1996-97 to 2000-01, while they have seen an AAGR of about 39 percent from 2001-02 to 2005-06. Consequently, the share of vehicle imports in total auto imports has also increased. After analyzing the segment-wise growth rates of vehicle imports, it can be seen that all segments except public transport vehicles and cars have seen growth in imports in the same periods. Massive decline in car imports in the late 1990s can be attributed to the setting up new vehicle manufacturing facilities of global automobile players in India. Growth in car imports from 2001-02 to 2005-06 could probably be due to the surge in demand of high-end cars in India because of sustained per capita income growth in this period. Import growth of most of the non-passenger vehicles have declined between 2001-02 and 2005-06, perhaps because of growing production capacities in the country.
2.5 Largest Manufacturers in the Automobile Industry

The largest Indian passenger car manufacturers include Tata Motors, Maruti Suzuki, Mahindra & Mahindra and Hindustan Motors. Presence of foreign players such as Mercedes-Benz, Fiat, General Motors and Toyota has also been growing in this segment. Recently, the passenger car segment has also seen the entry of other global majors such as BMW, Audi, Volkswagen and Volvo.

**Table 2.3: Largest Manufacturers in Each Segment within the Automobile Industry**  
(Both domestic and foreign manufacturers)

<table>
<thead>
<tr>
<th>Passenger Cars</th>
<th>Commercial Vehicles</th>
<th>Two-Wheelers</th>
<th>Three-Wheelers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maruti Suzuki</td>
<td>Ashok Leyland</td>
<td>Hero Honda</td>
<td>Bajaj Auto</td>
</tr>
<tr>
<td>Tata Motors</td>
<td>Tata Motors</td>
<td>Bajaj Auto</td>
<td>Piaggio</td>
</tr>
<tr>
<td>Mahindra &amp; Mahindra</td>
<td>Eicher Motors</td>
<td>TVS</td>
<td>Mahindra &amp; Mahindra</td>
</tr>
<tr>
<td>Hindustan Motors</td>
<td>Swaraj Mazda</td>
<td>Royal Enfield</td>
<td>TVS Motors</td>
</tr>
<tr>
<td>Honda</td>
<td>Volvo</td>
<td>Kinetic Motors</td>
<td>Tata Motors</td>
</tr>
<tr>
<td>Toyota</td>
<td>Man</td>
<td>LML India</td>
<td>Force Motors</td>
</tr>
<tr>
<td>Volkswagen</td>
<td>ITEC</td>
<td>Suzuki Motors</td>
<td>-</td>
</tr>
<tr>
<td>General Motors</td>
<td>Scania</td>
<td>Yamaha Motors</td>
<td>-</td>
</tr>
<tr>
<td>Ford</td>
<td>Mercedes-Benz</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Audi</td>
<td>Hyundai</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: The table has been compiled based on literature survey done for the study.

2.5.1 Passenger Cars and Utility Vehicles

The Indian passenger car market is known to be one of the most price sensitive car markets in the world. The small car sub-segment is contested by several carmakers.
Small cars account for 71 percent of the domestic market of passenger cars. Global automobile players such as Hyundai and Suzuki already have establishments to produce small cars in India, and companies like Honda, Ford, Renault, and Volkswagen are finalizing their small car plans. For instance, Toyota has announced plans of setting up a new small car manufacturing plant by 2010 with an annual production capacity of 100,000 units. Tata Motors has launched a small car called Nano in March 2009, priced at US $2,500 making it the world’s cheapest car. Given the current projections for the Nano, India can become the world’s second largest market for small cars soon.\(^\text{10}\)

**Fig. 2.13: Passenger Vehicles (2006-07)**

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Market Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maruti Suzuki India Ltd</td>
<td>46%</td>
</tr>
<tr>
<td>Honda Siel Cars India</td>
<td>14%</td>
</tr>
<tr>
<td>Hindustan Motors</td>
<td>16%</td>
</tr>
<tr>
<td>Tata Motors</td>
<td>4%</td>
</tr>
<tr>
<td>Toyota Kirloskar Motor</td>
<td>7%</td>
</tr>
<tr>
<td>Skoda Auto India</td>
<td>4%</td>
</tr>
<tr>
<td>Hyundai Motors India</td>
<td>3%</td>
</tr>
<tr>
<td>Ford India</td>
<td>1%</td>
</tr>
<tr>
<td>Force Motors</td>
<td>1%</td>
</tr>
<tr>
<td>Mahindra &amp; Mahindra</td>
<td>1%</td>
</tr>
<tr>
<td>General Motors</td>
<td>1%</td>
</tr>
<tr>
<td>Fiat India Automobiles</td>
<td>1%</td>
</tr>
</tbody>
</table>

Source: Statistical Profile (2007-08), Society of Indian Automobile Manufacturers.

Within the segment of **passenger vehicles**, Maruti Suzuki India Ltd has dominated the market of production by producing 46 percent of total passenger vehicles in 2006-07. However, there are a number of players, which produce passenger vehicles, but the domination is limited to a few of them, who are cost competitive, fuel-efficient and provide better servicing arrangements. The Maruti Suzuki Ltd. because of cost competitiveness and very high efficiency recorded such outstanding performance. Second to the Maruti Suzuki is Tata Motors, followed by Hyundai Motors India, Mahindra & Mahindra, etc. In fact, the first three comprised 76 percent of the total passenger vehicles and rest accounted for a 24 percent share.

**Passenger car segment** followed more or less the same pattern as that of the passenger vehicles. Again, the maximum share was of Maruti Suzuki India Ltd followed by Hyundai Motors India and Tata Motors. The first three constituted 86 percent of the total passenger cars and the rest only 15 percent.

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10 The Economic Times, New Delhi, 22\textsuperscript{nd} January 2008.
Utility vehicles segment is dominated by Mahindra & Mahindra, followed by Tata Motors and Toyota Kirloskar Motors. Together, they account for 83 percent of utility vehicles. Other players are General Motors, Force Motors Ltd, Maruti Suzuki India Ltd, Ford India Pvt. Ltd, etc. Cost-competitiveness and efficiency are the two most important factors for market domination.

In spite of Maruti Suzuki India Ltd’s better performance in passenger vehicle and passenger car segments, it has poor performance in utility vehicle segment because of above mentioned reason. Also, it has a policy to be specialized in specific vehicle segments rather than in all segments.

2.5.2 Commercial Vehicles

The commercial vehicles segment in India can be divided into two sub-segments, medium and heavy commercial vehicles and light commercial vehicles. Commercial vehicles production has grown at an average rate of 21.4 percent between 2003–2004 and 2006–2007. Growth in this segment is driven by factors like general economic trends,
improvement in infrastructure and replacement period of vehicles. The highway network expansion is expected to improve road conditions and affect the commercial vehicles market positively.

2.5.2.1 Medium and Heavy Commercial Vehicles

The medium and heavy commercial vehicles sub-segment consists of rigid trucks, tractor-trailers, semi-trailers, bulkers and tippers. These vehicles have a range of two to twelve axles and they mostly run on diesel. Indian companies namely Ashok Leyland, Eicher Motors and Tata Motors dominate manufacturing in this sub-segment. In India, there are certain regulations for entry and exit of trucks and for operation of trucks in certain areas depending on the time. It can be possible that to defy the regulation, large consignments are broken up so that smaller commercial vehicles can be used that may not have as many applicable regulations as there are on heavy commercial vehicles.

The two largest manufacturers of buses in India are Tata Motors and Ashok Leyland. Another vehicle included as part of medium and heavy sized commercial vehicles is the tempo. Tempos are smaller than full sized trucks that cater to the rural and urban areas where big trucks cannot travel. Manufacturing in this sub-segment is taking place between Indian companies and global companies through joint ventures as well. Eicher Motors of India has recently tied-up with Volvo to manufacture trucks, Force Motors has tied up with MAN of Germany to manufacture tempos, Nissan and Ashok Leyland announced plans of manufacturing commercial vehicles, Mercedes-Benz and Hero Group have also tied up to manufacture commercial vehicles.

The commercial vehicles segment is expected to grow at a high rate. Increasing competition in the commercial vehicle segment is expected to boost its growth further. In the same way, increasing competition had a positive impact on the passenger car segment. However, the fastest growth is expected in the heavy trucks sub segment11.

2.5.2.2 Light Commercial Vehicles

In India, apart from the medium and heavy trucks, there is growing popularity of light commercial vehicles. The light commercial vehicles are popular in rural and semi

urban areas, where due to infrastructural constraints like bad and narrow roads, only small trucks can operate. For example, Tata Motors produced mini truck called Tata Ace. Tata Ace is very popular; both in the cities as well as in the rural areas where it can travel easily carrying light weight products effectively, thus providing more penetration.

![Fig.2.16: Commercial Vehicles (2006-07)](image)

Source: Statistical Profile (2007-08), Society of Indian Automobile Manufacturers.

Rural-Urban linkages can be further strengthened by focusing on more efficient products in this sub-segment. Poor linkages are one of the main causes of backwardness in rural India. It has been observed that areas which have better linkages are even better served. Within commercial vehicles, Tata Motors accounted for 64 percent (jointly by M&HCVs and LCVs) of market share in 2006-07, followed by Ashoka Leyland, Mahindra & Mahindra, Eicher Motors, etc.

### 2.5.3 Two-Wheelers

India has experienced an increasing penetration of two-wheelers. This is driven by the rise in the household incomes, reduction in excise duties and easy availability of two-wheeler finance. The two-wheeler is the most common mode of transport in India. The two-wheeler market mainly consists of scooters, motorcycles and mopeds. In terms of number of units produced, the two-wheelers segment is the largest.

#### 2.5.3.1 Growth of the Two-Wheeler Segment in India

Two-wheeler sales have grown at a CAGR of 11 percent over the last decade and are expected to maintain strong growth rates as more and more people form the middle class in India. Most of the population lives in rural and semi-urban areas where most people use cycles as a mode of transport. Therefore, when income levels increase in those
areas, the first vehicle purchased is the two-wheeler. Hence, at its current growth rate, with increasing incomes, the number of two-wheelers being purchased will increase manifold. Rapid urbanization of semi-urban and rural areas, easy availability of finance and innovations in manufacturing of two-wheelers is resulting in a large number of new models being introduced each year, which will also facilitate growth in this segment.

2.5.3.2 Production Trends in the Motorcycles Sub-Segment

Between 2005–2006 and 2006–2007, production of scooters has decreased whereas production of motorcycles has increased. In fact, motorcycles make up 84 percent of two-wheeler production and have displayed the highest growth rates. There have been minor changes in the production figures of mopeds while production of electric two-wheelers has begun recently in India. Motorcycles have replaced the scooters because of two reasons. First, fuel efficiency, high capacity, low servicing demand and second, better design and comfort level.

![Fig. 2.17: Two Wheelers (2006-07)](image)

Source: Statistical Profile (2007-08), Society of Indian Automobile Manufacturers.

India houses the world’s largest motorcycle manufacturer, Hero Honda. In India, the market for motorcycles is different from that in developed countries, where motorcycles are powered by big engines and cater to a niche market. The most popular motorcycles are in the sub 150 CC category and the next category of motorcycles is the

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150 CC–500 CC categories. Neither are there many available models nor are there many customers in the 500 CC plus category.

**Fig. 2.18: Motorcycles (2006-07)**

![Pie chart showing market share of different motorcycle manufacturers](image)

Source: Statistical Profile (2007-08), Society of Indian Automobile Manufacturers.

**Fig. 2.19: Scooters (2006-07)**

![Pie chart showing market share of different scooter manufacturers](image)

Source: Statistical Profile (2007-08), Society of Indian Automobile Manufacturers.

### 2.5.3.3 Three-Wheelers

Three-wheelers are light vehicles also known as auto-rickshaws that are mostly used as small taxis, pick-up vans and delivery vans for short distances in India. Auto-rickshaws are very useful modes of urban passenger transport given the road conditions and infrastructure in India. Two stroke or four stroke engines drive them on petrol, CNG or liquefied petroleum gas (LPG). There are few manufacturers of this type of vehicle but the three-wheeler segment has witnessed strong growth rates of 9 percent CAGR over the past decade and a growth rate of 28 percent in 2006–2007. There were 4,34,000 three-
wheelers produced in 2005-2006 and 556000 three-wheelers produced in 2006-2007 in India\textsuperscript{14}.

### 2.6 India and the World

In 2006-07, Passenger vehicles exports from India was highest to Algeria followed by South Africa, Italy, Germany, Mexico, Columbia, Sri Lanka, etc. However, in terms of value South Africa tops the list. From Appendix 10, it is clear that exports go all over the globe, be it Africa (South Africa, Algeria, Morocco, Congo, Egypt, Sudan, Ghana), Europe (Spain, Germany, U.K., Greece, Belgium), Asia (Sri Lanka, Turkey), South and Central America (Mexico, Chile and Columbia). India has an added advantage over various countries in terms of production function and cost of manufacturing. Hence, the industry has a very bright future in two ways. One, the domestic market is ever increasing due to economic development and second, demand is increasing world over.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{fig220.png}
\caption{Passenger Vehicles Exports (2006-07)}
\label{fig:Passenger Vehicles Exports (2006-07)}
\end{figure}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{fig221.png}
\caption{Car Production (Year 2006)}
\label{fig:Car Production (Year 2006)}
\end{figure}

The **Passenger Car** is the most vital segment for the growth and development of the automobile industry in India. Since, steel is the basic input for car production its cheap availability can put threat to other countries in the world. Indian companies have an advantages over others. In addition, if the same rate of economic growth continues for one more decade, the car will be more demanded in the Indian market itself.

![Fig. 2.22: Commercial Vehicles (Year 2006)](source)


The **Commercial vehicles** are less in India as per world average. India is the second most populous country in the world but it ranks eighth in commercial vehicles because of the poor availability and linkages across the country. Even countries like Spain, Thailand, and Mexico are better served than India. This is the sector where India needs to introspect and act sincerely.

![Fig.2.23: Two Wheelers Production (Year 2006)](source)


The **commercial vehicles export** destinations seems to be concentrated in two continents of Asia and Africa. The neighboring countries of Sri Lanka and Bangladesh
are most preferred destinations because of proximity. Nepal also features high on the demand in the list. Italy and Spain are the only two non Afro-Asian export destinations.

2.6.1 International Trade Scenario

Most of the growth in the automobile industry is domestically driven. India’s share in world trade is small. International sales of vehicles have been increasing gradually. The Government of India is taking measures to facilitate growth in the industry through development of automobile clusters that will serve as a base for automobile companies to produce and export from their manufacturing facilities. Various fiscal incentives are being offered and a strong increase in exports in the industry is expected\textsuperscript{15}.

2.6.2 Automobile Exports

The Indian automobile industry is gaining worldwide recognition with a steady increase in the rate of growth of exports. The automobile exports crossed the US $ 1 billion mark in 2003-2004, and increased to US $ 2.76 billion in 2006-2007. The industry exported 15 percent of its passenger car production, 10 percent of commercial vehicles production, 26 percent of three-wheelers production and 7 percent of two-wheelers production in 2006–2007. The key exporters for passenger cars are Maruti Suzuki, Tata Motors and Hyundai Motors. The key exporter for MUVs is Mahindra & Mahindra and the key exporters for two-wheelers are Bajaj Auto and Hero Group. Key destinations of exports are the SAARC countries, European countries, Middle East and North America.

2.6.3 Automobile Imports

Automobile imports have decreased substantially over the past decade. The most notable decline in imports has been in the commercial vehicles segment. This can be attributed mainly to a substantial increase in production capacities of commercial vehicles in India from 2000-2001 onwards.

Table 2.4: Declining Imports across Most Segments
(Figures are in percentage, based on constant prices for 1993–1994).

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Passenger Cars</td>
<td>8.51</td>
<td>6.55</td>
</tr>
<tr>
<td>Commercial Vehicles</td>
<td>73.96</td>
<td>10.08</td>
</tr>
<tr>
<td>Two-Wheelers</td>
<td>13.95</td>
<td>8.61</td>
</tr>
<tr>
<td>Tractors</td>
<td>13.71</td>
<td>9.35</td>
</tr>
</tbody>
</table>

Source: Determinants of Competitiveness of Automobile Industry in India, ICRIER report (year 2006-07).

Import of passenger cars declined between 1996-1997 and 2000-2001 (8.51 percent to 6.55 percent). This was due to the expansion of manufacturing facilities in India during this period. Growth in passenger car imports took place between 2001-2002 and 2005-2006 due to increase in demand for premium and luxury cars. Buyers of premium and luxury cars are very few and pertain to a very special class. This class does not bother about cost of products rather their main concern is quality, comfort, safety measures and number of functions.

2.7 Automobile Component Industry in India

The number of parts and accessory firms show an increasing trend in both rural and urban areas. This is an outcome of the competitiveness of India in this segment. In addition, this sphere requires lesser capital as compared to manufacturing of vehicles. Fixed capital in parts and accessories has increased steadily with rural areas witnessing a higher rate of increase than the urban areas. Number of workers in parts and accessories has increased over the years at a rapid pace in rural areas and at a relatively slower pace in urban areas. This is due to availability of cheaper labour in rural areas; even less skilled labour is required as compared to manufacturing of motor vehicles and motor bodies (Appendix 14). Numbers of factories in both rural and urban areas do not confirm any trend, with increase in some year and decrease in another year. The net effect however, has been a decline in total number of firms.

Total turnover of auto components is consistently increasing and crossed US $ 18000 in 2007-08. The growth has been recorded in all segments i.e., exports, imports and investment. Auto-component exports have raised their share from 49 percent in 1996-97 to 70 percent of total domestic products in 2001-02, which, however, fell again to 49 percent in 2005-06. Auto-component exports have been growing throughout the
period considerably and their Average Annual Growth Rate (AAGR) from 2001-02 to 2005-06 has been over 21 percent. However, the AAGR of their share in total auto exports has declined because the AAGR of vehicle exports in the same period has been over 55 percent. Vehicle exports have recovered from a decline in the 1990s and have achieved an AAGR that is more than twice that of auto-component exports from 2001-02 to 2005-06. Turnover, exports, imports and investment all are consistently increasing which is a good sign for automobile component industry.

![Fig.2.24: Automobile Components Industry](image)

Source: ACMA, 2007-08 and 2008-09.

Analysis of growth rate of exports within the auto-component sector is necessary to obtain a sub-sector overview. From 1996-97 to 2000-01, exports in all categories of auto component have recorded double-digit growth except bodies and chassis and electrical parts (about 11 percent to 39 percent). Drive transmission and steering parts, suspension, braking and exhaust, screws, springs, forgings and stampings and rubber/plastic parts have also seen high growth in this period.

![Fig.2.25: Auto Component Industry Investment](image)

Source: ACMA, 2007-08 and 2008-09.
AAGRs of exports of all categories except screws, springs, forgings and stampings, engine parts, rubber/plastic parts and suspension, braking and exhaust have been much higher in the period between 2001-02 to 2005-06 as compared with the earlier period. For example, exports of drive transmission and steering components have grown at more than 40 percent per year while others have also grown impressively. The AAGR of aggregate auto-component exports stands at 21 percent in 2001-02 to 2005-06, which is 1.5 times more from 1996-97 to 2000-01.

Fig.2.26: Percentage share of Auto Components (2007-08)

![Pie chart showing percentage share of different auto components](source)

### Source:
ACMA, 2007-08 and 2008-09.

By value, engine parts constitute the largest share, followed by drive transmission & Steering parts, body and chassis, suspension and braking parts, etc.

Fig.2.27: Auto Component Turnover

![Bar chart showing auto component turnover](source)

### Source:
ACMA, 2007-08 and 2008-09.
2.7.1 Direction of Auto-Component Exports

Auto component parts are mostly directed to the developed countries where a low development of unorganised sector and high cost of manufacturing prevail. In India, these auto components are mostly made in the unorganised sector. In 2006, maximum export was directed to Europe (39 percent) followed by North America (27 percent), Asia (12 percent) and Africa (11 percent). The exports are in keeping with level of development in these countries.

2.7.2 Composition of Auto-Component Exports

Before the 1990’s, the share of OEM export was significantly high (65 percent) and aftermarket was only half of OEM’s but in 2007, the scenario changed altogether.
This is due to changing nature and relationship between demand of inputs and supply of outputs. Now the aftermarket covers three fourth of export share as against one fourth of OEM.

2.7.3 Problems Associated with the Production of Auto Components

The auto component manufacturing is one of the fastest growing industries in India. These units have a significant share in the exports of the auto industry. As part of a highly fragmented industry, these companies mostly in the unorganised sector. They operate in a tier framework and most of the companies in the SME segment are in Tier II or below. Sustenance and survival remains an issue of concern for these companies and they have to absorb global best practices in a competitive environment.

Cost competitiveness, customer orientation, lead-time are some key factors that the auto components will have to imbibe to survive in the new global set-up. At the same time, these companies face the limitations of being SMEs. Other obstacles are low capital base, limited generation of surplus funds for re-investment due to tight working capital cycle, lack of awareness of business opportunities inadequate exposure to international competitiveness, obsolete technology and poor infrastructure facilities.

To overcome the above obstacles, the government of India has initiated cluster-based development of enterprises having similar lines of business, which gives rise to external economies and favours emergence of specialized technical, administrative and financial services. This form of networking of small firms is a means of achieving
economies of scale. Extending these initiatives further, the government is encouraging banks to adopt a cluster-based lending approach.

<table>
<thead>
<tr>
<th>Initial Years</th>
<th>1980s</th>
<th>Early 90s to Mid 90s</th>
<th>Mid 90s to early 2000s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing was licensed</td>
<td>Entry of MUL, better product with Govt. support</td>
<td>Seller's market long waiting periods</td>
<td>Buyer's market</td>
</tr>
<tr>
<td>High customs duty on imports</td>
<td>Seller's market long waiting periods</td>
<td>Delicensing in 1993</td>
<td>Increase in Indigenization</td>
</tr>
<tr>
<td>Steep excise duties and sale tax</td>
<td></td>
<td>Removal of capacity restrictions</td>
<td>Easy auto finance</td>
</tr>
<tr>
<td>Two major player: Premier Automobiles Ltd &amp; Hindustan Motors</td>
<td></td>
<td>Decrease in custom and excise duty</td>
<td>Manufacturers diversifying into related activities: finance ease, fleet management, insurance and pre-owned cars market</td>
</tr>
</tbody>
</table>

Source: Based on http://www.authorstream.com/Presentation

There have not been many changes in excise duty except in the case of multi utility vehicles (MUV's) and cars. The excise duty for MUV's has been cut down sharply in two phases, i.e., 2001-02 and 2003-04 and is presently just over half of its value a decade ago. The duty on commercial vehicles (CVs) has been increased marginally in 1999-00, and has remained unchanged since then. The same trend is observable for three wheelers and two wheelers of less than 75cc. The duty on two wheelers of more than 75cc has been reduced by one third of its value a decade ago. The tax structure suggests that there is an incentive to produce more MUVs and cars as well as two wheelers of more than 75cc (Appendix 7). The basic customs duty has been lowered down gradually in case of all categories of vehicles and has become one fifth of its value a decade ago (Appendix 7).
2.8 Summary and Conclusions

The Indian automobile industry has been experiencing remarkable developments with maximum growth in the two-wheelers and passenger cars segments. Most importantly, the component industry has grown faster in the post-liberalization period. By the end of two decades of liberalization, the industry has experienced a shift from consolidation to expansion which has been traced in this chapter. The conclusions which emerge from the analysis in this chapter, are as follows:

1. There has been a growth of 156.70 times in the production of total number of vehicles in India in just 46 years. The total number of vehicles produced was 69549 in 1960 which increased to 10898708 in 2006 (Appendix 1). No other segment of economy has recorded such an outstanding performance within the same period. This is because of market size and other advantages in India. Within the automobile industry, highest growth rate in production has been recorded by the two-wheelers followed by private vehicles. This can be linked to the increasing income levels in the country.
2. The growth of the automobile industry is due to the increase in production across all segments. The largest increase in production has been in the two-wheeler segment followed by the passenger car segment and the commercial vehicle segment.
3. Production of two wheelers i.e., motor cycles, scooters and mopeds taken together have the largest share in the total vehicle production. Agriculture revolution and package technology of the late 1960's led to a spectacular growth in the production of total number of tractors and this phenomenon continues until now.
4. Commercial vehicles are few in India when compared with world average. India is the second most populous country in the world but it ranks eighth in the total number of commercial vehicles, this is because of poor transport linkages across the country for carrying goods. Even countries like Spain, Thailand, and Mexico are better served than India. This is the sector where India needs to introspect and act sincerely.
5. The auto-component sector has a much higher employment-generation potential and export-intensity than the automobile vehicle sector. The component manufacturers are now globally competitive and are maintaining reasonable profitability levels despite a tariff protection of only 7.5 percent. The reduction in import duties on assembled
units may be undertaken in a phased manner and after ensuring that Indian automobile companies get comparable access to ASEAN and Chinese markets. The anti-dumping mechanism should also be strengthened to prevent the dumping of vehicles in the Indian market.

6. Significant scaling up is required at all levels in the Indian auto-component sector so that economies of scale are gained and cost of production can be reduced. One of the major constraints for the smaller auto-component manufacturers in increasing their scales of production is lack of credit availability at interest rates comparable to other countries.

7. The variation in cost of raw materials is not as much as that in cost of labour. Further, labour costs constitute a much higher share of the total cost in the automobile industry in American and West European countries as compared to India. Moreover, the tax structure also plays an important role in determining the cost of the automobile industry. India has higher indirect taxes compared to some of the other countries in Asia. This reduces the cost advantages India has. A cost comparison study between Indian and Chinese automobile manufacturing companies revealed that the cost to manufacture for a passenger vehicle in China is 23 percent lower than it is in India with the main difference being higher taxes and their cascading effects in India, rather than cost of raw materials or labour.

8. Specialized port infrastructure for handling vehicle exports is being developed to minimize losses especially near the main automobile clusters near Mumbai - Pune in Western India, Chennai in the South, and Kolkata in Eastern India. The average manufacturer in India loses 8.4 percent in sales due to power cuts as opposed to less than 2 percent in China and Brazil. It is estimated that the power shortage alone costs India 1 percent of GDP. Several companies are willing to pay more for power in return for consistent and good quality of power. Even Research and Development (R&D) expenditure as a proportion of turnover is low in India. In the automobile industry, spending on R&D ranges between 0.5 and 3 percent.