



The automotive industry in India



Foreword

India has been one of the world's fastest growing economies during the last few years. However, India has still not recovered from the effects of the former inward-oriented policies it followed until the 1990s. Economic reforms started taking place in the beginning of the 1990s when India started opening up gradually. The question is whether India can implement the required policy changes effectively and develop a conducive business climate for industry to grow, and thus be able to sustain the strong rate of growth it has achieved over the past few years.

During this time there has been increasing confidence in the manufacturing sector in India and its long term potential as a manufacturing hub. Importance of the engineering industry is supreme in this regard and it also plays a crucial role in the economic growth of the country. To understand the driving forces of India better, it is essential to develop an understanding of prevailing fundamentals in the engineering industry.

In this report we provide an overview of the engineering industry in India with relevant facts regarding the structure and size, growth rates, main challenges, trends in international trade, research and development initiatives, as well as an indication of future outlook of the main segments in the engineering industry. It is a series of seven different reports that includes an overview of the engineering industry, the automotive industry, the machinery and equipment industry, the electrical machinery industry, the automotive components industry, the electronic equipment industry and the fabricated metal products industry.

This series of seven different reports has been commissioned by Teknikföretagen, the Association of Swedish Engineering Industries, to provide a detailed overview of the Indian engineering industry covering various aspects of the main segments. It is hoped that the reports will help identify areas of business interest for Swedish engineering companies and give the reader increased knowledge of the present industrial development in India.

The reports have been authored by Mr. Rahul Sanyal. He is an economist from New Delhi in India, and has been appointed by Teknikföretagen to prepare these seven reports.

Stockholm, September 2008

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The automotive industry is one of the largest industries in India and is a key driver for growth in the economy. Owing to its deep forward and backward linkages with other sectors in the economy, the automotive industry has a strong multiplier effect on the economy.

A well developed transportation system plays a vital role in the economic and industrial development of the country, where the Indian automotive industry has a crucial part to play.

The automotive industry in India

Overview of the automotive industry in India

India is emerging as a source of high value and advanced quality engineering products and services for multinational companies. India is set to emerge not only as a large domestic market for automotive manufacturers, but also as a crucial link in the global automotive chain. Among other industries, the automotive industry in India is understood to be the most dynamic. It has been experiencing strong growth rates after delicensing of the industry in 1991, when major economic reforms took place in India.

A snapshot of the Indian automotive industry

The automotive industry in India produces a wide range of vehicles like passenger cars, utility vehicles, commercial vehicles, two-wheelers, three-wheelers and tractors. Currently, there are approximately 15 manufacturers of passenger cars and utility vehicles, 9 manufacturers of commercial vehicles, 16 manufacturers of two-wheelers and three-wheelers and 14 manufacturers of tractors.

The Indian automotive industry is one of the world's fastest growing automotive industries growing at a Compounded Annual Growth Rate (CAGR) of approximately 17 per cent over the last five years. It is now the eleventh largest manufacturer of passenger cars, fourth largest manufacturer of commercial vehicles and the second largest manufacturer of two-wheelers in the world.¹

1) Reference has been made to Ministry of Heavy Industries and Public Enterprises (2008). The automotive industry comes under the purview of the Ministry of Heavy Industries and Public Enterprises. Reference has also been made to Ministry of Heavy Industries and Public Enterprises (2006b)

Largest manufacturers in the automotive 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 is also 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.

Major Indian manufacturers of commercial vehicles are Tata Motors, Ashok Leyland, Eicher Motors, Mahindra & Mahindra and Force Motors. Like the passenger car segment, this segment has also seen foreign companies such as MAN, ITEC, Mercedes-Benz, Scania and Hyundai entering the market. Two-wheeler manufacturing is dominated by Indian companies like Hero Honda, Bajaj Auto and TVS. Foreign players in this segment include Honda, Yamaha and Piaggio. Three-wheeler manufacturing is also led by Indian companies that include Bajaj Auto, Force Motors and Mahindra & Mahindra.

LARGEST MANUFACTURERS IN EACH SEGMENT WITHIN THE AUTOMOTIVE INDUSTRY

Both domestic and foreign manufacturers have been mentioned. The list may not be exhaustive.

Passenger cars	Commercial vehicles	Two-wheelers	Three-wheelers
Maruti Suzuki	Ashok Leyland	Hero Honda	Bajaj Auto
Tata Motors	Tata Motors	Bajaj Auto	Piaggio
Mahindra & Mahindra	Eicher Motors	TVS	Mahindra & Mahindra
Hindustan Motors	Swaraj Mazda	Royal Enfield Motors	TVS Motors
Honda	Volvo	Kinetic Motors	Tata Motors
Toyota	MAN	LML India	Force Motors
Volkswagen	ITEC	Suzuki Motors	–
General Motors	Scania	Yamaha Motors	–
Ford	Mercedes-Benz	–	–
Audi	Hyundai	–	–

Source: The table has been compiled based on industry research and analysis

Evolution of the automotive industry

While the automotive industry in India started developing in the 1940s, distinct growth rates started only in the 1970s. Cars were considered ultra luxury products, manufacturing was strictly licensed, expansion was limited and there was a restrictive tariff structure. The decade 1985 to 1995 saw the entry of Maruti Udyog in the passenger car segment in collaboration with Suzuki of Japan, and Japanese manufacturers in the two-wheeler and commercial vehicle segments. After economic reforms took place in India in 1991, it is only in the mid-1990s, that the automotive industry started opening up. Thus, the mid-1990s are characterized by the entry of global automotive manufacturers through joint ventures in India.

Till the 1990s, the automotive industry in India was primarily dominated by Maruti Suzuki, Tata Motors, Hindustan Motors and Premier Padmini 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 the year 2000, further policy changes were introduced and focus on exports in the industry started increasing. Following that, the Core Group on Automotive Research & Development (CAR) was set up in the year 2003 to identify priority areas for Research and Development (R&D) in India.²

Contribution of the automotive industry to GDP and employment in the 1990s

Turnover of the automotive industry in the year 1998–1999 was Rs. 360 billion and the industry provided employment to over 10 million people directly and indirectly. The contribution of the automotive industry to the GDP during the same period was 4 per cent rising from 2.77 per cent recorded in the year 1992–1993.³

Surge in road freight and passenger traffic generated demand for automobiles in 1990s

The average rate of growth of freight and passenger transport on the road was the highest compared to other means of transport such as rail, air and sea throughout the 1990s. Even in terms of absolute volume, traffic handled by roads was the maximum among the other means. This partly explains the rise in growth of the automotive industry especially since the 1990s.

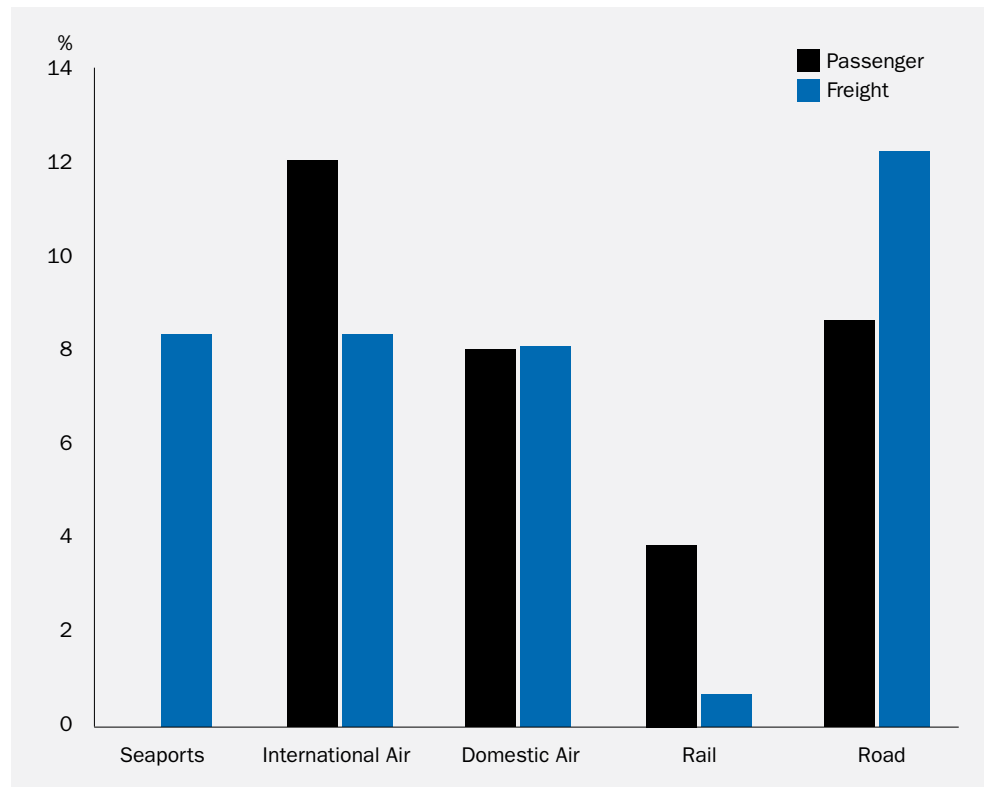
2) Reference has been made to Ministry of Heavy Industries and Public Enterprises (2006b). Reference has also been made to The Hindu Business Line (2nd January 2004)

3) Reference has been made to Ministry of Heavy Industries and Public Enterprises (2000). The figures that have been mentioned include employment and output details of the automotive components industry also

The figure below shows the trends in traffic movement among different means in the transport sector. Among the other means of transport, roads experienced the highest rate of increase in freight traffic, and the second highest rate of increase in passenger traffic in the 1990s. This figure depicts that transportation by road increased the most overall in the transport sector. Passenger transport by international air increased the maximum, but the high growth rates achieved in that regard, are over a much smaller base as compared to road transport or rail transport.

HIGHEST INCREASE IN ROAD TRANSPORT AMONG OTHER MEANS OF TRANSPORT IN THE 1990s

The figure below shows the average rate of growth of different means of transport in terms of freight and passenger traffic. All figures are in percentage.⁴



Source: India's Transport Sector: The Challenges Ahead, The World Bank Group

4) Reference has been made to World bank Group (2002a) and World bank Group (2002b)

Contribution of the automotive industry to the economy

Importance of the automotive industry in relation to the transport sector in India

The automotive industry has been contributing an increasing amount to the transport sector over the past few years and is also the largest contributor to the transport sector. The following table shows the share of the transport sector in the GDP of India.

INCREASING SHARE OF THE TRANSPORT SECTOR IN GDP

The table shows the share of the transport sector in GDP in 2003–2004 and 2004–2005.

Share is in percentage.

Year	Share of transport sector in GDP
2003–2004	6.2
2004–2005	6.4

Source: Profile of the Indian Transport Sector, Asian Development Bank

From the table shown herewith, it can be inferred that the automotive industry plays a major role in the transport sector. This is because the share of turnover of the automotive industry in the turnover of the transport sector increased from 64.5 per cent in the year 2003–2004 to 89 per cent in the year 2004–2005.⁵ This phenomenon explains the increasingly important role the automotive industry plays in the development of the transport sector in India. With development of the national highways and construction of more roads in rural and semi-urban areas, both freight and passenger traffic is expected to increase manifold. This would lead to an increase in demand for different types of vehicles produced in the automotive industry in India.⁶

5) Share of automotive industry in GDP has been obtained from Ministry of Heavy Industries and Public Enterprises (2003), Ministry of Heavy Industries and Public Enterprises (2004), Ministry of Heavy Industries and Public Enterprises (2005) and Ministry of Heavy Industries and Public Enterprises (2006a)

6) The automotive industry in this case includes the automotive components industry as well. Further, it is not clear whether the transport sector includes production of all equipment in the transport sector. The figures concerning the transport sector have been used only to indicate the importance of the automotive industry in the transport sector

SHARE OF AUTOMOTIVE INDUSTRY IN THE TRANSPORT SECTOR IS THE HIGHEST

Shares of the transport sector and automotive industry are given for the years 2003–2004 and 2004–2005. All figures on the shares are in percentage.

Year	Share of the transport sector in GDP	Share of the automotive industry in GDP	Share of the automotive industry in transport sector
2003–2004	6.2	4.0	64.5
2004–2005	6.4	5.7	89.0

Source: Ministry of Heavy Industries and Public Enterprises (2005), Ministry of Heavy Industries and Public Enterprises (2006a) and Profile of the Indian Transport Sector, Asian Development Bank

Increasing share of the automotive industry in GDP of the economy

The contribution of the automotive industry to GDP in 2006–2007 was 5 per cent. In the same year the automotive industry produced more than 11 million vehicles registering a growth of 13.56 per cent and achieving a turnover of USD 34 billion.

With regard to international trade, exports earnings were USD 2.76 billion in the year 2006–2007 and have been growing at a CAGR of approximately 30 per cent for the last five years. However, even though automotive exports were USD 2.28 billion in 2005–2006, they constituted only 0.3 per cent of global automotive trade in the same year. Thus it can be inferred that exports of automotive products do not form a major part of the total output in the automotive industry currently.⁷

Employment scenario – the multiplier effect

The automotive industry provided direct and indirect employment to more than 13 million people in 2006–2007. However, there is a large unorganized sector also that contributes 30 per cent to total employment, 13 per cent to capital, and only 1.5 per cent to total output in the automotive industry in India. Thus it can be inferred that productivity in the unorganized sector is significantly lower than productivity in the organized sector.⁸

In the organized sector, for every additional passenger car, 5 jobs are created, for every commercial vehicle, 13 jobs are created, and for two-wheelers and three-wheelers, 0.5 and 4 jobs are created respectively.⁹ According to the Automotive Mission

7) Reference has been made to Ministry of Heavy Industries and Public Enterprises (2007) and Ministry of Heavy Industries and Public Enterprises (2008). Ministry of Heavy Industries and Public Enterprises (2006b) has also been referred. The figures include contribution of the automotive components industry.

8) Reference has been made to Narayanan, B, P Vashisht (2008) for this information. Reference has also been made to Ministry of Heavy Industries and Public Enterprises (2008)

9) The Economic Times (10th April 2008) has been referred

Plan 2006–2016 (AMP), the automotive industry is expected to provide additional employment to nearly 25 million by 2016. Due to the automotive industry's forward and backward linkages with other key segments in the economy, growth in the industry is expected to increase the overall level of employment in the manufacturing sector also.¹⁰

Growth of the automotive industry

The high GDP growth rate of India of 8–9 per cent over the last five years, 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 has attracted several major global automotive manufacturers to India. Higher growth rate of the Indian automotive industry vis-à-vis the stagnant growth rate of the automotive industry in United States of America (USA), European Union (EU) and Japan has led to large scale shifting of capacity creation to India. This is facilitated by the easy availability of trained manpower at low cost and increasing productivity in the industry. According to the AMP, increasing competition between manufacturing companies has led to improvement in productivity by 20 per cent each year in the automotive industry which is one of the highest in the manufacturing sector.¹¹

Low share in world production despite high growth

Despite rapid growth in productivity and expansion of the automotive industry, its contribution in global terms is still quite low. This is evident from the fact that even though the total production of automobiles was more than 11 million in 2006–2007, India's share in world production was very low. In the year 2005–2006, India's share in world production of passenger cars and commercial vehicles was only 2.37 per cent.¹²

Growth targets set in the Automotive Mission Plan

The AMP aims at increasing the growth rate of the automotive industry and doubling the contribution of the industry to 10 per cent of GDP by 2016. However, there are challenges to achieve this target. There is growing concern about whether India can sustain the cost advantage it enjoys, challenges of retaining engineering talent and the slow pace of consolidation in the industry.

10) Ministry of Heavy Industries and Public Enterprises (2006b) has been referred

11) Ministry of Heavy Industries and Public Enterprises (2008) has been referred

12) Reference has been made to Ministry of Heavy Industries and Public Enterprises (2006b)

On the other hand, some industry experts foresee Indian automotive companies of being able to replicate the success of the Information Technology (IT) industry in the 1990s. It is believed that India will become a strong export base for automotive manufacturers in the near future. Of course, India will get stiff competition from other BRIC countries, namely Brazil, Russia and China and the East European countries in this regard.

Growth of the industry is taking place in clusters

The automotive industry is developing in clusters. There are four major clusters in the automotive industry in India. They are in and around New Delhi, Gurgaon and Manesar in North India, Pune, Nasik, Halol and Aurangabad in West India, Chennai, Bangalore and Hosur in South India and Jamshedpur and Kolkata in East India. Of course there are several manufacturing units in many other parts of India but these four clusters are expected to become the main hubs for manufacturing in the automotive industry.

The Government of India (GOI) is taking initiatives to develop the automotive clusters. For example, the GOI, in its 11th Five Year Plan (2007–2012), is planning to create the Specialized Education and Training Institute for the automotive industry. It is also taking measures to enhance transportation, communication, and infrastructure facilities in these clusters.¹³

Given below is a brief profile of these clusters in states where major automotive manufacturers are present and where more automotive companies are expected to setup manufacturing facilities.

Maharashtra – This state is in the western part of India and has a well developed automotive industry that employs more than 40 per cent of the total manpower employed in the automotive industry in India. In fact the state of Maharashtra was once called the Detroit of India. The cluster in the state is located in and around the cities of Nasik, Pune, Aurangabad and Nagpur. The state is attracting both domestic and foreign manufacturers. Some of the major companies present in the state are Skoda, Tata Motors, Mahindra & Mahindra, Bajaj Auto and Mercedes-Benz among others.¹⁴

13) Reference has been made to Ministry of Heavy Industries and Public Enterprises (2006b)

14) Reference has been made to Business Knowledge Resource Online (22nd June 2008). Reference has also been made to Shah M N (2006)

Tamilnadu – The state is located in the south-eastern part of India along the coast-line. It is home to many large automotive companies and the automotive cluster is located around the capital city of the state, Chennai. After Maharashtra, industry experts now refer to Tamilnadu as the new Detroit of India. The state government intends to transform the area into one of the top three automotive hubs in Asia. The state is seeing big investments from companies like Ford, Nissan, Renault, Ashok Leyland and Hyundai among others.

Haryana – This state is located in the northern part of India. The automotive industry is probably the biggest industry in the state and Haryana ranks first in India in the production of passenger cars, motorcycles and tractors. Haryana accounts for 50 per cent of total passenger cars and two-wheelers production in India. Market leader Maruti Suzuki is based out of Gurgaon and Manesar in Haryana. The largest two-wheeler manufacturer in India, Hero Honda along with the other large two-wheeler manufacturers, Yamaha and Escorts are also present in the state.¹⁵

Karnataka – Karnataka is located in the southern part of India. According to the Confederation of Indian Industry (CII), the automotive industry is one of the key industries in Karnataka.¹⁶ The automotive manufacturers in the state are present mainly around the capital city of the state Bangalore, Hosur and Dharwar. Big automotive manufacturing companies like Toyota, Volvo and Tata Motors have established themselves in the state.¹⁷

The figure on the next page shows the geographical distribution of some of the largest automotive manufacturers in India. It can be observed that the eastern cluster is the smallest of the four clusters. However, there may be several financial reforms that are expected to lead to the development of a big automotive hub there as well. For instance, Tata Motors, one of India's largest automotive manufacturers has set up a plant near Kolkata in the state of West Bengal, from where it will produce the Tata Nano, which is expected to be a large volume and highly successful car. The success of the car alone is expected to lead to the development of the area as a cluster for automotive manufacturing.

15) Reference has been made to Haryana Online (12th June 2006)

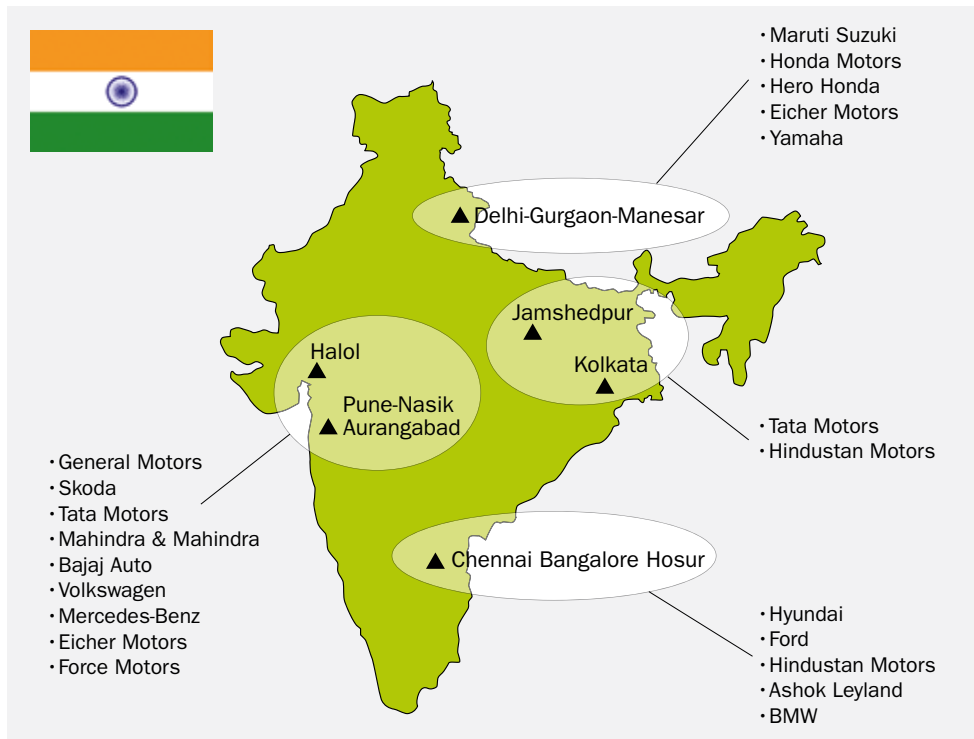
16) Confederation of Indian Industry is the largest industry association in India and has many of the largest engineering and manufacturing companies as its members

17) Reference has been made to The Hindu Business Line (25th March 2005) and The Hindu (22nd April 2008)

LOCATIONS OF BOTH DOMESTIC AND FOREIGN MANUFACTURING COMPANIES IN INDIA

Major manufacturing companies have been plotted in the four main clusters.

The list of companies may not be completely exhaustive.



Source: Industry research and analysis

The automotive industry is set to grow more than four times by 2016

The future of the Indian automotive industry will be shaped by a rise in domestic demand and exports growth. As per the AMP, the automotive industry's turnover is expected to reach USD 145 billion by 2016 including USD 35 billion in exports, contributing 10 per cent to GDP. By 2016, India is expected to enjoy the position of being the world's seventh largest passenger car manufacturer (from eleventh largest currently), remain the fourth largest manufacturer of commercial vehicles, retain the position of being the world's second largest two-wheeler manufacturer, the world's largest three-wheeler manufacturer and become the largest tractor manufacturer in the world (from second largest currently).¹⁸

¹⁸ Reference has been made to Ministry of Heavy Industries and Public Enterprises (2008)

Size and structure of the automotive industry

The automotive industry is one of the largest industries in India and is of high strategic importance to the Indian manufacturing sector overall. The industry has been growing at a fast and steady pace over the past five years registering a CAGR of 17 per cent. According to the Indian Brand Equity Foundation (IBEF), India is envisaged to be the third largest automobile market in the world by 2030 only behind USA and China.¹⁹ According to the UNIDO International Yearbook of Industrial Statistics 2008, India ranks 12th among the world's top 15 automotive nations.

Given below are some of the key features of the automotive industry in India that indicate the size of the Indian automotive industry:²⁰

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

Production trends across industry segments

The growth of the automotive industry has been due to increase in production across segments. The most notable increases in growth have been seen in the passenger cars segment, commercial vehicles segment and the three-wheelers segment. The largest volume in production is in the two-wheelers segment, followed by the passenger cars segment and the commercial vehicles segment in that order.

During the last few years, certain macroeconomic conditions have helped the automotive industry to grow. The GOI has undertaken supportive policies for the automotive industry, there is easier availability of finance as compared to the 1990s and the real income of the Indian consumer is increasing. This is leading to increased 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 (passenger and freight) owing to the construction of more national highways and better roads.

The table on the next page shows the production trends across segments in the industry from the year 2002–2003 till 2006–2007.

19) Reference has been made to Indian Brand Equity Foundation (2008). IBEF is the research arm of the Confederation of Indian Industry

20) Ministry of Heavy Industries and Public Enterprises (2008) has been referred

PRODUCTION FIGURES FOR EACH SEGMENT SHOW STEADY GROWTH RATES

The details of production are for the years 2002–2003 till 2006–2007.

All numbers are in '000 units while growth rate is in percentage.²¹

Vehicle category	2002–2003	2003–2004	2004–2005	2005–2006	2006–2007
Passenger cars	609	843	128	1 113	1 323
Utility vehicles	114	146	182	197	222
Commercial vehicles	204	275	354	391	520
Two-wheelers	5 076	5 623	5 530	7 609	8 442
Three-wheelers	277	356	374	434	556
Grand total	6 280	7 244	8 468	9 744	11 065
Growth rate	18.13	15.34	16.90	15.06	13.56

Source: Ministry of Heavy Industries and Public Enterprises

Passenger cars and utility vehicles

The passenger cars and utility vehicles segments grew by 18 per cent in 2006–2007, and have been growing at 12 per cent CAGR over the last decade. The passenger cars segment grew by 18.35 per cent, utility vehicles segment grew by 13.26 per cent and the Multi-Purpose Vehicles (MPVs) segment grew by 27 per cent in 2006–2007.²²

PRODUCTION FIGURES OF PASSENGER CARS AND UTILITY VEHICLES SEGMENTS

The figures are for the years 2005–2006 till 2006–2007.

Figures are in '000 units and growth rate is in percentage.

Category	2005–2006	2006–2007
Passenger cars	1 046	1 238
Utility vehicles	196	222
Multi-purpose vehicles	66	84
Total passenger vehicles	1 308	1 544
Growth rate	–	18.04

Source: The ITP Division, Ministry of External Affairs

21) These figures have been obtained from the most authentic source i.e. Ministry of Heavy Industries and Public Enterprises. It may be observed that the production figure for passenger cars in 2004–2005 does not seem accurate. However the gross total for the year is accurate

22) Ministry of Heavy Industries and Public Enterprises (2006b) has been used for reference

Leading small car market

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 hotly contested by several car makers. India is the third largest producer of small cars in the world after Brazil and Japan. Small cars account for 71 per cent of the domestic market of passenger cars.

Global automotive majors 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.²³

Tata Motors is launching a car called Nano by end 2008, priced at USD 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. India's second largest motorcycle manufacturer, Bajaj Auto is also bringing out a small car by 2010–2012 in collaboration with Renault and Nissan in the same price range.²⁴

PICTURE OF THE TATA NANO

The Tata Nano is set to revolutionize the small car market



23) Reference has also been made to The Machinist (11th April 2008)

24) Information on the small car market has been obtained from a newspaper article published in the leading business newspaper of India, The Economic Times. See Chenoy et. al. (22nd January 2008).

Growing luxury car market

However, this does not mean that the luxury car market is not growing. Car manufacturers such as Audi, BMW, Volvo, Bentley and Mercedes-Benz have a big portfolio of luxury cars in India that are growing in popularity. As an indication, Mercedes Benz recorded a growth of 59 per cent in sales in the first quarter of 2008.

This segment is expected to witness several launches of luxury cars and Sports Utility Vehicles (SUVs).²⁵ In fact Paul de Voijs, Managing Director of Volvo India said, “India is a very exciting market and the luxury car market is growing exponentially.” He added, “We see the luxury car market here more than doubling by 2009 on organic growth, upgraders, new launches, and because this segment grows faster in emerging markets”.²⁶

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 per cent 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 impact the commercial vehicles market positively.

PRODUCTION FIGURES OF THE COMMERCIAL VEHICLES SEGMENT

The figures are for the years 2005–2006 till 2006–2007.
Figures are in '000 units and growth rate is in percentage.

Category	2005–2006	2006–2007
Medium and heavy vehicles	219	294
Light vehicles	172	226
Total commercial vehicles	391	520
Growth rate	–	33.0

Source: The ITP Division, Ministry of External Affairs

25) Reference has been made to Doval P (21st April 2008)

26) Reference has been made to The Hindu (7th September 2007)

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 may have a range of two to twelve axles and they mostly run on diesel. Manufacturing in this sub-segment is dominated by Indian companies, Ashok Leyland, Eicher Motors and Tata Motors. 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 beat 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.²⁷

The two largest manufacturers of buses in India are Tata Motors and Ashok Leyland. Due to an increasing focus on environmental issues and emission norms, buses in some cities run on Compressed Natural Gas (CNG). In the capital city of New Delhi for example, it is mandatory for public transport buses to run on CNG.

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 strong rate. Increasing competition in the commercial vehicle segment is expected to boost its growth further, the same way increasing competition had a positive impact on the passenger car segment. The fastest growth though is expected in the heavy trucks sub-segment.²⁸

27) Regulations regarding movement of commercial vehicles exist in different parts of India that take effect in different ways. Websites of the traffic police can be visited for more information

28) Reference has been made to Ministry of Heavy Industries and Public Enterprises (2008)

Light commercial vehicles

In India, apart from the medium and heavy trucks, there is growing popularity of light commercial vehicles as well. The light commercial vehicles are popular in rural areas (which form the majority part of India) where due to infrastructural constraints like bad and narrow roads, only small trucks can operate. For example, Tata Motors produces India's first mini truck called Tata Ace. Tata Ace is a big hit both in the city as well as in the rural areas where it can travel easily carrying light weight products effectively, thus providing more penetration.

INDIA'S FIRST MINI TRUCK - THE TATA ACE

Tata Ace is a big hit in rural and semi-urban areas as a mode for goods transport



Two-wheelers

The two-wheeler is the most common mode of transport in India where the two-wheeler market mainly consists of scooters, motorcycles and mopeds. In terms of number of units produced, the two-wheeler segment is the largest. The market for luxury two-wheelers i.e. super bikes and other high performance motorcycles does not exist in India. BMW imported its sports motorcycles in the 1990s and failed miserably. There were talks of Harley Davidson entering the Indian market but those plans have been put on hold.

Promising growth of the two-wheeler segment in India

Two-wheeler sales have grown at a CAGR of 11 per cent over the last decade and are expected to maintain strong growth rates as more and more people rise from poverty in India. Most of the population lives in rural and semi-urban areas where most people use cycles as a mode of transport. So 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 new innovations in manufacturing of two-wheelers is resulting in a large number of new models being introduced each year, which will facilitate growth in this segment.²⁹

Production trends show maximum growth in the motorcycles sub-segment

Between the years 2005–2006 and 2006–2007, production of scooters has decreased whereas production of motorcycles has increased. In fact, motorcycles make up 84 per cent of two-wheeler production and have displayed the highest increase in growth rates. There have been no changes in the production figures of mopeds and production of electric two-wheelers has begun recently in India.³⁰

29) This information has been obtained from Ministry of Heavy Industries and Public Enterprises (2006b)

30) Ministry of Heavy Industries and Public Enterprises (2008) has been referred. Reference has also been made to Ministry of External Affairs (11th April 2008)

PRODUCTION FIGURES OF THE TWO-WHEELERS SEGMENT

The figures are for the years 2005–2006 till 2006–2007.
Figures are in '000 units and growth rate is in percentage.

Category	2005–2006	2006–2007
Scooters	1 021	943
Motorcycles	6 207	7 112
Mopeds	379	379
Electric two-wheelers	–	8
Total two-wheelers	7 607	8 442
Growth rate	–	10.98

Source: The ITP Division, Ministry of External Affairs

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

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. They are driven by two stroke or four stroke engines 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 per cent CAGR over the past decade and a growth rate of 28 per cent in the year 2006–2007. A total of 434 000 three-wheelers were produced in the year 2005–2006, and 556 000 three-wheelers were produced in the year 2006–2007.³¹

Shown herewith is a picture of the autorickshaw. Autorickshaws are very useful modes of transport given the road conditions and infrastructure in India. They are very popular in the form of small taxis in urban areas also. The autorickshaw is also used across India in the form of a goods carrier for delivering small consignments.

³¹) Ministry of Heavy Industries and Public Enterprises (2008) has been referred

PICTURE OF A THREE-WHEELER USED AS A TAXI

Three-wheelers are used as taxis (as shown below) and as goods carriers also



Tractors

India is the second largest tractor manufacturer in the world. In terms of market size, India is the largest, followed by USA and China. Growth in the tractor producing segment is directly related to growth in agricultural output and exports to neighboring countries. Production of tractors was 352 827 in the year 2006–2007 growing by more than 20 per cent. Indian tractors are gaining acceptance in international markets. In the past three years, exports of Indian tractors have grown by a CAGR of 55 per cent. The USA is the main market for exports but exports to other Asian countries and African countries is also increasing. In the year 2006–2007, 33 813 tractors were exported in all.

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 GOI 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.³²

³² Ministry of Heavy Industries and Public Enterprises (2008) has been used for reference. Ministry of Heavy Industries and Public Enterprises (2006b) has also been referred

International trade scenario

Most of the growth in the automotive industry is domestically driven. India's share in world trade is quite small. International sales of vehicles have been increasing gradually. India has ambitious plans to achieve USD 35 billion in exports by 2016. The GOI is taking measures to facilitate growth in the industry through development of automotive clusters that will serve as a base for automotive 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.

Exports

The Indian automotive industry is gaining worldwide recognition with a steady increase in the rate of growth of exports. Automotive exports crossed the USD 1 billion mark in the year 2003–2004, and increased to USD 2.76 billion in the year 2006–2007. The industry exported 15 per cent of its passenger car production, 10 per cent of commercial vehicles production, 26 per cent of three-wheelers production and 7 per cent of two-wheelers production in 2006–2007.³³ 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.

SUBSTANTIAL GROWTH IN EXPORTS OF PASSENGER CARS AND TWO-WHEELERS

The figures are for the years 2002–2003 till 2006–2007.
Figures are in '000 units and growth rate is in percentage.

Vehicle category	2002–2003	2003–2004	2004–2005	2005–2006	2006–2007
Passenger cars	71	126	162	171	194
Utility vehicles	1	3	5	4	4
Commercial vehicles	12	17	30	41	50
Two-wheelers	180	265	366	513	619
Three-wheelers	43	68	67	77	144
Grand Total	307	480	630	806	1 011
Growth rate	66.49	56.17	31.18	28.05	25.43

Source: Ministry of Heavy Industries and Public Enterprises

33) Ministry of Heavy Industries and Public Enterprises (2008) has been referred

Imports

Imports have decreased substantially over the past decade. The most notable decline in imports can be seen 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.

Imports of passenger cars declined between 1996–1997 and 2000–2001. This was due to the expansion of manufacturing facilities of cars in India during the period. However, imports of passenger cars have increased in recent years. Growth in passenger car imports took place between 2001–2002 and 2005–2006 due to increase in demand for premium and luxury cars.

DECLINING IMPORTS ACROSS MOST SEGMENTS

The figures are for two periods, 1996–1997 to 2000–2001 and 2001–2002 to 2005–2006. Figures are in percentage, based on constant prices for 1993–1994.

Category	1996–1997 to 2000–2001	2001–2002 to 2005–2006
Passenger cars	(8.51)	6.55
Commercial vehicles	73.96	(10.08)
Two-wheelers	13.95	(8.61)
Tractors	13.71	(9.35)

Source: Determinants of Competitiveness of Automotive Industry in India, ICRIER

Challenges in the Indian automotive industry

Costs, infrastructure and human resource development are the underlying concerns in the automotive industry and manufacturers are being challenged on these counts. Labour costs are rising and economies of infrastructural improvements are not being realized efficiently. Companies are searching for technological advancements that can help contain costs of production and help in using resources efficiently to increase overall productivity.

Composition of costs and productivity

Raw material costs are by far the single largest costs where steel and rubber constitute the two main materials used by manufacturers. However, the variation in cost of raw materials is not as much as that in cost of labour. Further, labour costs con-

stitute a much higher share of the total cost in the automotive industry in American and West European countries compared to India.

In addition to the absolute costs involved in the automotive industry, the tax structure also plays an important role. India has higher indirect taxes compared to some of the other countries in Asia, which reduces the cost advantages it has. A cost comparison study between Indian and Chinese automotive manufacturing companies revealed that the cost to manufacture a passenger vehicle in China is 23 per cent lower than it is in India with the main difference being higher taxes and their cascading impact in India, rather than cost of raw materials or labour costs.³⁴

Advantage of low labour costs in India

Low labour costs and easy availability of management and engineering skills is one of the prime advantages of manufacturing in India. Among the costs incurred to manufacture automotive products, it is the cost of labour that foreign companies can cut most easily by manufacturing in India. The cost per hour in India is only between 7 and 10 per cent of the cost of labour in the developed countries. However it needs to be assessed if India can maintain the cost advantage.³⁵

Low employee welfare leading to reduction in labour productivity

There is a significant increase in the number of contract workers being used in the automotive industry which helps to keep labour costs low, but this practice of hiring labour under contract also leads to exploitation in many cases. Thus, there is need for labour reforms aimed at increasing the welfare of workers. Manufacturing companies are being encouraged to retain and employ more permanent workers which will lead to higher levels of productivity.

A survey conducted by Indian Council for Research on International Economic Relations (ICRIER) found that the much needed labour reforms would increase the level of productivity as reforms induce workers to work more efficiently. The survey found that between 10 and 30 per cent of the total production workers in the automotive industry are employed on contract basis. Further, wages paid to temporary workers, are on an average only 25 to 50 per cent of wages paid to permanent workers.³⁶

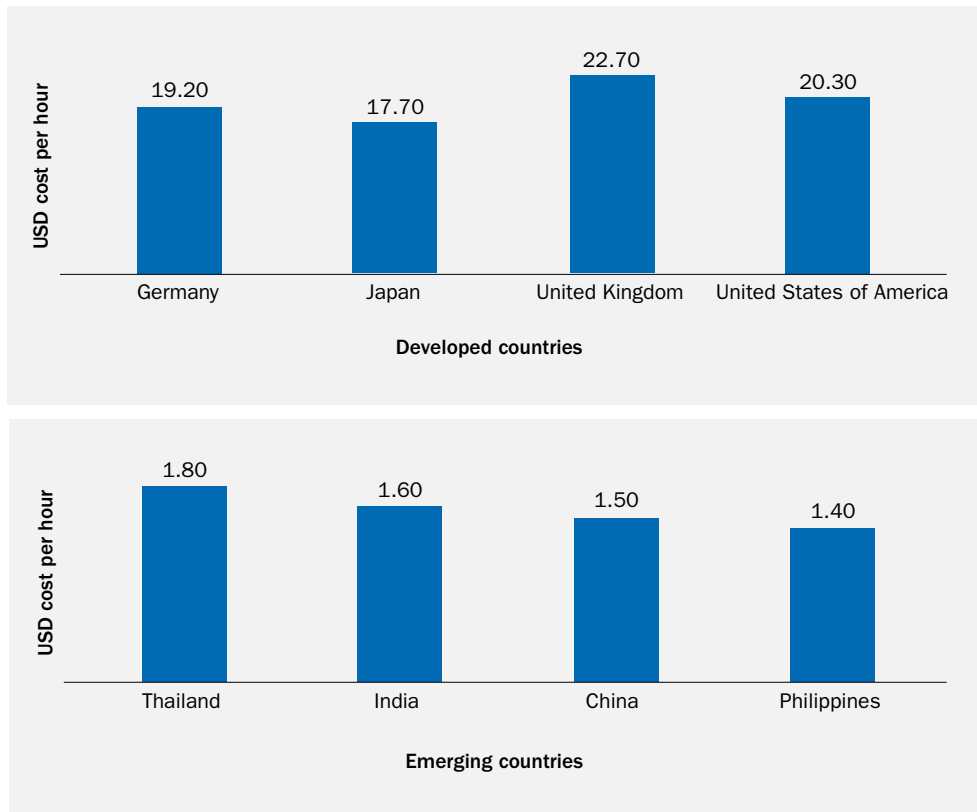
34) Ministry of Heavy Industries and Public Enterprises (2006b) has been used for reference

35) This information has been obtained from KPMG International (2007)

36) This information has been obtained from Narayanan and Vashisht (2008)

COST OF LABOUR – A COMPARATIVE ANALYSIS

Cost of labour in USD per hour in developed and emerging economies is shown



Source: India Automotive Study 2007, KPMG

Technological advancements leading to cost reductions

Manufacturers are looking for ways to contain costs. With decreasing cost of technology, manufacturers are exploring ways to develop low cost automation and use it to reduce labour costs. Regarding efficiency in production, according to an econometric analysis conducted by ICRIER, it has been found that increase in foreign participation is directly correlated with higher technical efficiency. Thus, the government is inducing more foreign participation, so that technologically advanced products can be developed at lower costs overall.

Infrastructure

Continued investment in infrastructure is essential for India to be able to realize the targets set in the AMP. There are inadequate ports, insufficient feeder rail lines to the ports, and bad roads. Despite the bottlenecks in this regard there are companies that have made the most out of the existing infrastructure. For instance, Hyundai has setup its factory very strategically near the port in Chennai and has built a supply chain hub around surrounding areas. It has now become the second largest passenger car manufacturer in India after entering the Indian market in 1998.

Roads

With respect to roads, the Golden Quadrilateral, a corridor connecting the four metro cities of India, New Delhi in the North, Mumbai in the West, Chennai in the South and Kolkata in the East spanning 6 500 kilometers is being built. The GOI has also launched a program for the construction of 66 500 kilometers of national highways of which 50 000 kilometers is expected to be completed by 2015. With better road infrastructure, significant growth is expected in the automotive industry. For instance, better roads are leading to greater demand for multi-axle vehicles.³⁷

Railways

The Ministry of Railways is in the process of developing freight corridors in Railways. Drawn on similar lines of highway projects linking east with west and north with south, the ministry is planning for an east-west corridor and a north-south corridor. Connectivity between rails and ports (both dry and sea ports) is essential and a blueprint for railway development is being prepared.³⁸

Ports

For India to develop into a global automotive hub, port development is imperative. Specialized port infrastructure for handling vehicle exports is being developed especially near the main automotive clusters near Mumbai and Pune in the West, Chennai in the South, and Kolkata in the East. Two new deep ports are being developed that have special emphasis on the automotive industry. One is in Dhamra in the state of Orissa (East India) which will be completed by 2010, and the second is in Sutrapada in the state of Gujarat (West India).³⁹

37) Reference has been made to The Economic Times (5th January 2008)

38) Reference has been made to The Economic Times (12th May 2008)

39) Reference has been made to Automotive Component Manufacturers Association (2007). Reference has also been made to The Dhamra Port Company Limited (19th June 2008) and Mercator Media Limited (19th June 2008)

Power

The high cost and relatively lower quality of power in many parts of India is also an issue highlighted by many manufacturers. Many companies face fluctuations in supply of power and power outages that in turn affect the quality of production. The average manufacturer in India loses 8.4 per cent in sales due to power cuts as opposed to less than 2 per cent in China and Brazil. It is estimated that the power outages alone cost India 1 per cent of GDP.⁴⁰ Several companies are willing to pay more for power in return for consistent and good quality of power. The Eleventh Five Year Plan of India 2007–2012, issued by the Planning Commission of India, has set ambitious targets to generate and distribute more and better quality power.

Human resource development

Skill shortages and skill mismatches may emerge as a constraint to achieve the growth targets set in the AMP. Thus one of the main areas of focus cited by the Ministry of Heavy Industries and Public Enterprises is to develop advanced capabilities in the workforce. A large workforce consisting of both skilled and unskilled workers will be required to sustain the increased level of production. The challenge is to ensure that the demand–supply gap does not arise either in quantitative or in qualitative terms.

The employment generated can be divided into direct and indirect employment. While direct employment is employment by way of workers being engaged in the production of automobiles and automotive components, indirect employment is generated in feeder and supplier industries in the areas of finance, insurance, mechanics and after-sales personnel for semi-skilled and unskilled workers in rural and semi-urban areas.

According to the AMP, it is estimated that the automotive industry would require the following:

- Management and General: 28 per cent or 7 million
- Skilled workers: 62 per cent or 15.5 million
- Unskilled workers: 10 per cent or 2.5 million

The need for top level engineering and managerial manpower is being met by the Indian Institutes of Technology and Indian Institutes of Management. However more such institutes are required to impart high quality technical education to the

⁴⁰) This information has been obtained from National Manufacturing Competitiveness Council (2006)

workforce. Although there are several engineering institutes all over India, there is a growing need for more engineering institutes.

The GOI has begun to take some initiatives in this regard. The National Automotive Institute is being set up that will serve as a knowledge bank for the automotive industry, conduct market research and analysis and develop training modules. The plan is to establish the institute in all the major clusters in India, so that the institute can benefit from active participation from automotive companies in those clusters.

Sentiments of the Indian vehicle buyer

Rising incomes and favorable demographic trends

Per capita incomes in India are rising and the demographic changes taking place are expected to fuel further growth in the Indian economy through increase in demand for products. India has one sixth of the world's total population. The median age in India was 24.8 in 2007.⁴¹ According to an analysis done by the Population Research Centre, Institute for Economic Growth in India, 67 per cent of the Indian population will be aged between 15 and 64 in 2025. Thus increasing incomes combined with a very large young population will drive growth of the automotive industry as an automobile is a symbol of increasing prosperity for the young Indian consumer.

Prices and fuel efficiency

The Indian automotive market has been characterized as a small car market. Prices of cars form a larger percentage of the disposable income in India compared to persons in the same income group in western countries. Indians are very conscious about the fuel efficiency of their cars. A safe and therefore heavy small car being sold at a competitive price giving low mileage will not sell. One example of this is the Fiat Palio. On the other hand, a light weight car like the Hyundai Santro that gave good mileage became the second largest selling car after it was launched. Safety therefore is still not one of the main concerns of the Indian car buyer and price and fuel efficiency remain the most important considerations.

⁴¹) Information on this statistic can be obtained from Kaiser Family Foundation (21st June 2008)

Alternative fuels

Most of the vehicles in India run on Petrol and Diesel where Diesel is increasing in popularity as a fuel for personal cars because of the element of subsidy in diesel prices. The Economist Intelligence Unit (EIU) forecasts that demand for fossil fuels in India is expected to grow at a relatively high rate of 7.2 per cent annually. Given the global energy crisis, development of techniques for using alternative fuels is now high on the agenda.

Bio-fuels are not used on a large scale at all in India and efforts have recently started to introduce these fuels. India is behind many other big markets in Europe and the Americas in terms of emission controls. However in order to address the emission norms being followed worldwide, India is considering the price and availability of these fuels and enforcement of new emission controls. The GOI is also promoting R&D in this area to develop low emission technologies and energy saving devices.

Research and development

Research & Development (R&D) expenditure as a proportion of turnover is low in India. In the automotive industry, spend on R&D ranges between 0.5 and 3 per cent. R&D hubs are expected to develop in three of the four main automotive clusters in the country, in the South near Chennai, in the North at Manesar, and in Pune and Ahmednagar in West India. To provide support to companies in this regard, the GOI is promoting R&D in the automotive industry by providing financial incentives. Other measures are also being taken such as relaxing tariffs for plant and equipment imports, and setting up of automotive design firms. Thus allocation towards R&D of automotive industry is being increased and the scope of activities is being widened. Facilities for carrying out R&D are also being developed.

For instance, the National Automotive Testing and R&D Infrastructure Project (NATRIP) was setup in July 2005 to create testing, validation and R&D infrastructure in India. Core facilities for NATRIP will be in Indore city in Central India. Testing and validation facilities including field tracks for tractors, trailers, construction equipment and various other vehicles will be done at Rae Bareilly in Northern India. In fact, global majors such as Toyota, BMW, Honda and Volkswagen get their vehicles tested in India and get international certification. More and more companies now prefer India over China in this regard due to a stronger Intellectual Property Rights (IPR) system in India.⁴²

42) This information has been obtained from National Automotive Testing and R&D Infrastructure Project (June 2007)

India is increasingly being perceived to become a key source of R&D services in the near future. 125 Fortune 500 companies have already setup their R&D bases in India and more automotive manufacturers are expected to do the same. Earlier, manufacturers used to depend on imported designs whereas now, Tata Motors and Mahindra & Mahindra are able to develop new models entirely locally. Global Advisory firm KPMG conducted a survey in 2007 with leading industry experts and senior management of automotive companies. The study revealed that low wages were the primary driver of growth of R&D, combined with superior quality of manpower.

In a survey conducted by ICRIER it was found that there is a direct correlation between turnover and the number of workers in R&D. The results of this survey indicate that as a company's turnover increases, the proportion of R&D workers out of total workers increases.

Future Outlook

“To emerge as the destination of choice in the world for design and manufacture of automobiles and auto components with output reaching a level of USD 145 billion accounting for more than 10 per cent of GDP and providing additional employment to 25 million people by 2016” is the vision put forward by the Ministry of Heavy Industries and Public Enterprises. Going forward it is evident that the automotive industry in India offers immense potential in terms of sales and employment opportunities.

Growth in the economy is expected to continue which is also going to help the automotive industry to expand. Rising disposable incomes and the new wave of consumerism arising out of it are going to be key drivers. Foreign direct investments are pouring into India in large numbers and manufacturing companies including global majors are going to setup manufacturing facilities first and then develop R&D services, both on a large scale.

Companies are confident that productivity can be increased through low cost automation and management efficiency. After productivity, the major concern among manufacturers is the relatively poor infrastructure in the country. The slow pace of development of roads, railways and ports is a disadvantage, but continuous improvements are being made in this regard also.

The automotive industry in India has been crossing record milestones and is one of the world's fastest growing markets. The strengths of the Indian economy – large pool of skilled human resources, high quality engineering skills, strategic position combined with the strong growth trends in the economy and vast investments by global companies, are expected to drive the automotive industry to great heights.

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