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Ranawat, Mahipat; Tiwari, Rajnish

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Influence of government policies on industry development: The case of India's automotive industry

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WORKING PAPER

Influence of Government Policies on Industry Development: The Case of India's Automotive Industry

Mahipat Ranawat
Rajnish Tiwari

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Hamburg University of Technology

Schwarzenbergstr. 95, D-21073 Hamburg, Germany
Tel.: +49 (0)40 42878-3777; Fax: +49 (0)40 42878-2867

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Influence of Government Policies on Industry Development: The Case of India's Automotive Industry

By Mahipat Ranawat and Rajnish Tiwari

Hamburg University of Technology
Institute of Technology and Innovation Management
Schwarzenbergstr. 95, 21073 Hamburg (Germany)
Tel. +49 – (0)40 – 428 78 – 3776, Fax: +49 – (0)40 – 428 78 – 2867
mahipat.ranawat@tuhh.de; rajnish.tiwari@tuhh.de
www.tuhh.de/tim; www.global-innovation.net

Abstract

The automotive industry in India has come a long way from its nascent state at the time of India's independence in 1947 to its present day dynamic form. As compared to the production of mere 4,000 vehicles in 1950, the production of the industry crossed the historic landmark of 10 million vehicles in 2006. Today, the industry produces a wide range of automobiles and auto-components catering to both the domestic as well as foreign markets. The development of the industry has been shaped by the demand on the one hand and the government interventions on the other; the influence of the latter being considerable.

The evolution of India's automotive industry is identified to have occurred in four phases. In the first (1947-1965) and second phase (1966-1979), the important policies identified were related to protection, indigenisation and regulation of the industry. On the one hand, these policies helped India to build an indigenous automotive industry, while on the other it led to unsatisfactory industry performance. In the third phase (1980-1990), the single most important policy identified was the one with regard to relaxation in the means of technology acquisition. The foreign competition inducted into the industry transformed its dynamics. Lastly, in the fourth phase (1991 onwards) the liberalisation with regard to foreign investment had a significant influence on the Indian automotive industry as we see it today.

This work traces the evolution of the automotive industry from its inception to present day and identifies the important policies made by the Indian government. The work also studies the influence of important policies on the development of the industry.

Keywords: Government Influence; Government Policies; Indian Automotive Industry

1. Introduction

The automotive industry in India has come a long way from its nascent state at the time of India's independence in 1947 to its present day dynamic form. As compared to the production of mere 4,000 vehicles in 1950, the production of the industry crossed the historic landmark of 10 million vehicles in 2006. Today, the industry produces a wide range of automobiles and auto-components catering to both the domestic as well as foreign markets. The development of the industry has been shaped by the demand on the one hand and the government interventions on the other; the influence of the latter being considerable.

The automotive industry in India was heavily regulated until the 1970s. The automotive firms were obliged to obtain licenses from the Indian government for various firm activities. The 1980s witnessed some relaxation in the regulations and the entry of Japanese firms. In the early 1990s, India undertook historic economic reforms under which the automotive industry was liberalised. Various government interventions in the form of policies, existing at various points of time, have influenced the development of India's automotive industry over these phases.

The evolution of India's automotive industry is identified to have occurred in four phases. In the first (1947-1965) and second phase (1966-1979), the important policies identified were related to protection, indigenisation and regulation of the industry. On the one hand, these policies helped India to build an indigenous automotive industry, while on the other it led to unsatisfactory industry performance. In the third phase (1980-1990), the single most important policy identified was the one with regard to relaxation in the means of technology acquisition. The foreign competition inducted into the industry transformed its dynamics. Lastly, in the fourth phase (1991 onwards) the liberalisation with regard to foreign investment had a significant influence on the Indian automotive industry as we see it today.

This working paper makes an attempt at identifying policies that have influenced or are influencing the industry's development and at understanding their influences on the same. It is also of interest to understand the considerations made on the part of the Indian government that underlie such policies and to explore the role played by the government in the development of the industry.

The paper is organised in the following way: Section 2 provides the current overview of India's automotive industry whereas section 3 describes the present industry structure and industry clusters. Section 4 makes a general discussion about the role ought to be played by the government in different stages of industry's competitive development. In section 5 we discuss the evolution of India's automotive industry under the influence of various government interventions providing background on considerations made. The influence of important policies on the development of the automotive industry is analysed in section 6. Here we also discuss the role played by the Indian government in each of the developmental phase of the industry. Finally, section 7 provides a summary of the work.

2. Current overview of India's automotive industry

The automotive industry in India has been witnessing an impressive growth since the country's economic liberalisation in the early 1990s. In contrast to the 1.5 million units produced in the year 1993-94, the production of vehicles in the country crossed a historic landmark of 10 million units in the year 2006-07 (refer Appendix A). Rising demand owing to the strong growth of Indian economy post liberalisation and the changing landscape in the global automotive industry have fuelled such a growth. India is currently the world's second largest market for 2-wheelers (IBEF 2008) and is considered to be one of the fastest growing passenger car markets (GOI 2006a). In the year 2007, India ranked 8th in the production of commercial vehicles and 9th in the production of passenger cars worldwide, moving up from a rank of 13th and 15th respectively in the year 2000 (OICA 2008a).[1] India is also home to the world's largest 2-wheeler manufacturer and the 11th largest commercial vehicle manufacturer (Hero Honda 2008 and OICA 2008b).

Indian automotive industry, which comprises of the automobile and the auto-component industries, is one of the largest industries in India.[2] In the year 2005-06, the turnover of the Indian automobile industry was United States Dollar (USD) 28 billion and that of the Indian auto-component industry was USD 10 billion (GOI 2006a). The automotive industry with its deep backward and forward linkages in the economy has been identified by the Government of India as an important industry with a high potential to increase the share of manufacturing in gross domestic product, exports and employment (GOI 2006b). As a result, the Indian government has paid special attention to the investment and growth within the industry. Favourable investment conditions and the changing scenario of global competition have attracted world's major auto manufacturers into India. Be it market-seeking or low-cost sourcing, India has emerged as an attractive automotive location to offer (global) automotive sector firms strategic advantages.

Increased competition on the home turf as well as the growing acceptance of their products in the foreign markets have encouraged the Indian auto manufacturers to upgrade their technological capabilities, either through in-house research and development (R&D) efforts or through other means of technology acquisition. The industrious efforts of Indian auto manufacturers are earning acclaim worldwide. For example, the world's cheapest car recently unveiled by the Indian 4-wheeler manufacturer Tata Motors received attention of auto manufacturers around the world (Time 2008). The Indian automotive industry with its large number of domestic and foreign players is operating in terms of the dynamics of an open market. The growing installed capacity of the industry reached a figure of 2.24 million 4-wheelers and 12.69 million 2-/3-wheelers in the year 2006-07 (SIAM 2008a). The competitive conditions within the industry have substantially benefited the Indian consumers, who now have access to a wide variety of vehicles with affordable price tags.

The subsequent sub-sections in this section elaborate upon some of the important aspects of the Indian automotive industry like domestic sales, exports and R&D.

[1] Ranking in terms of the number of units produced.

[2] Indian tyre industry with a turnover of USD 4.4 billion and exports of USD 0.6 billion in the year 2007-08, is also a part of the Indian automotive industry (ATMA 2008). For the purpose of this work, the discussion shall be limited to the Indian automobile and auto-component industries.

2.1. Domestic sales

Indian consumers have at their disposal a broad array of automobile models to choose from. The well-developed Indian automobile industry produces nearly all kinds of vehicles, which are broadly categorised as shown in Table 1 below. For a detailed classification of automotive vehicles in India, please refer to Appendix B.

Vehicle types		Segments
4-wheelers	Passenger Vehicles	Passenger Cars
		Utility Vehicles (UVs)
	Commercial Vehicles (CVs)	Light Commercial Vehicles (LCVs)
		Medium Commercial Vehicles (MCVs)
		Heavy Commercial Vehicles (HCVs)
3-wheelers		Passenger Carriers
		Goods Carriers
2-wheelers		Scooters/Scooterette
		Motorcycles
		Mopeds
		Electric 2-wheelers

Table 1: General classification of automotive vehicles in India[3]

The Indian automobile market provides a strong demand base for the growth of the automotive industry. Figure 1 below shows the domestic sales trend for different vehicle types from the year 2003-04 to 2007-08.

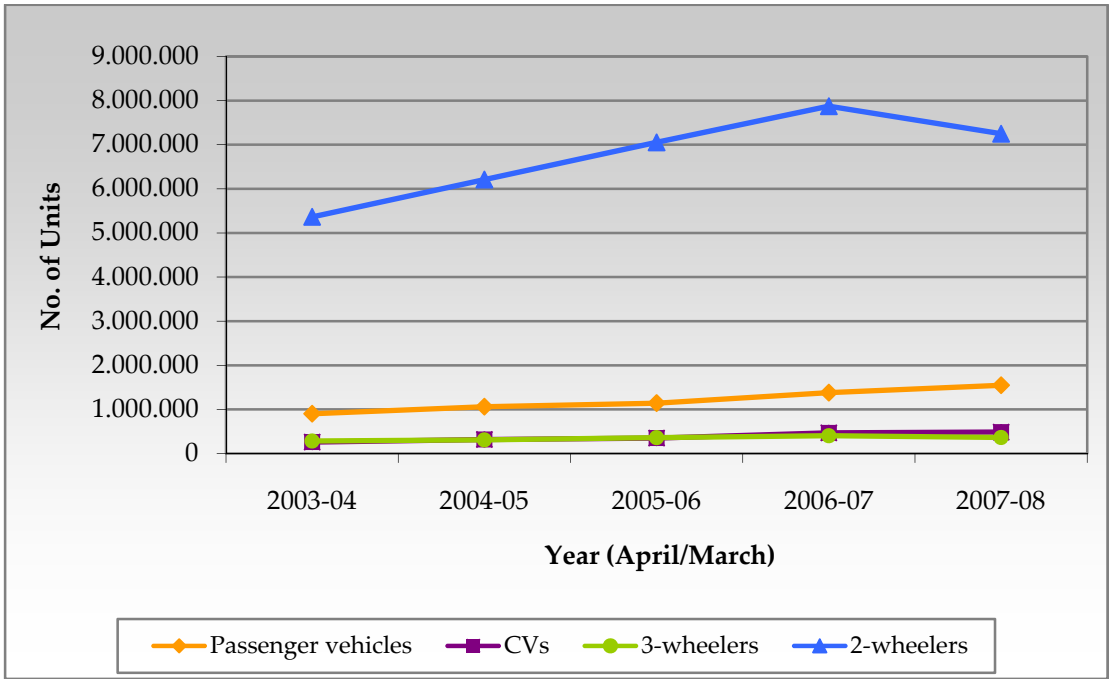

Figure 1: Domestic sales trend for different vehicle types[4]

[3] Source: Self-construction based on SIAM (2008b).
[4] Source: SIAM (2008c).

As seen in Figure 1, the sales of 2-wheelers dominate the Indian automobile market. This can be attributed to the country's poor mass transport system and the need for cheaper and efficient means of individual mobility (BajajAuto 2007).

Another striking characteristic of the market is the rapidly growing demand for passenger vehicles and CVs. These segments grew at a compound annual growth rate (CAGR) of 14% and 17% respectively in contrast to 6% for 3-wheelers and 8% for 2-wheelers for the period 2003-04 to 2007-08. In value terms, the market for passenger vehicles and CVs exceeds that of the 2-wheelers (GOI 2006a). Further, a look into the sub-segment-wise demand for each of the vehicle segments gives an idea about the preferences of Indian consumers. For instance, in the 2-wheelers category, the sales of motorcycles currently exceed that of any other sub-segment. Similarly, in the passenger vehicles category, the sales of small cars (mini & compact) dominate other sub-segments; see for instance SIAM (2008b). Such a nature of demand specific to the Indian consumers is explained by the country's demographic (e.g. highest number of people below the age of 35 years) and socio-economic (e.g. rising middle class) factors.

Further, as indicated by Figure 1, the Indian automobile market has been registering a positive growth annually. The average annual growth rate of the market calculated for the years 2004-05 to 2007-08 has been 9%. A low ownership of 8 vehicles per 1000 persons (ACMA 2008a) and the presence of strong demand drivers have identified India as an attractive automobile market. The commonly cited growth drivers of the market and their direct influence on different vehicle segments are summarised in Table 2 below.

Sr. no.	Growth drivers	Passenger vehicles	CVs	3-wheelers	2-wheelers
1.	Rising industrial and agricultural output	-	✓	✓	-
2.	Growth in road infrastructure	✓	✓	-	-
3.	Rising per capita income	✓	-	-	✓
4.	Favourable demographic distribution with rising working population and middle class	✓	-	-	✓
5.	Urbanisation	✓	-	-	✓
6.	Increasing disposable income in rural agri-sector	✓	-	-	✓
7.	Availability of variety of vehicle models meeting diverse needs and preferences	✓	-	-	✓
8.	Greater affordability of vehicles	✓	-	-	✓
9.	Easier finance schemes	✓	✓	✓	✓
10.	Favourable government policies	✓	✓	✓	✓

Table 2: Growth drivers of the Indian automobile market[5]

The import of automobiles in completely-built unit (CBU) form generally attracts high custom duties in India. Even though the import duties have been progressively reduced, they are still high enough to discourage a significant market for imported CBUs. For example, the total value of imported CBUs in the year 2005-06 was mere USD 130 million when compared to the USD 28 billion of production within the country.[6] Thus, several foreign automobile

[5] Source: Self-construction based on GOI (2006a), ACMA (2007) and IBEF (2008).
[6] Import value obtained from the Export Import Data Bank (Tariff item no.: 8703 and 8711) of the Directorate General of Foreign Trade (DGFT), Government of India. Website: www.dgft.delhi.nic.in.

manufacturers attracted by the growth prospects of the Indian market have resorted to setting up production facilities in the country. The resulting increase in industry competition and the availability of world-class technology products have further stimulated the domestic demand. The market for auto-components in India has grown along the lines of the automobile market. The domestic sales and imports of auto-components serve the rising demands of both the original equipment manufacturers (OEM) and the replacement market. Increasing number of vehicle models being introduced in the country combined with shorter product life-cycles have meant growing Indian auto-component market not only in size, but also in terms of product diversity. Figure 2 below shows the size of the Indian auto-component market over the years 2003-04 to 2007-08.

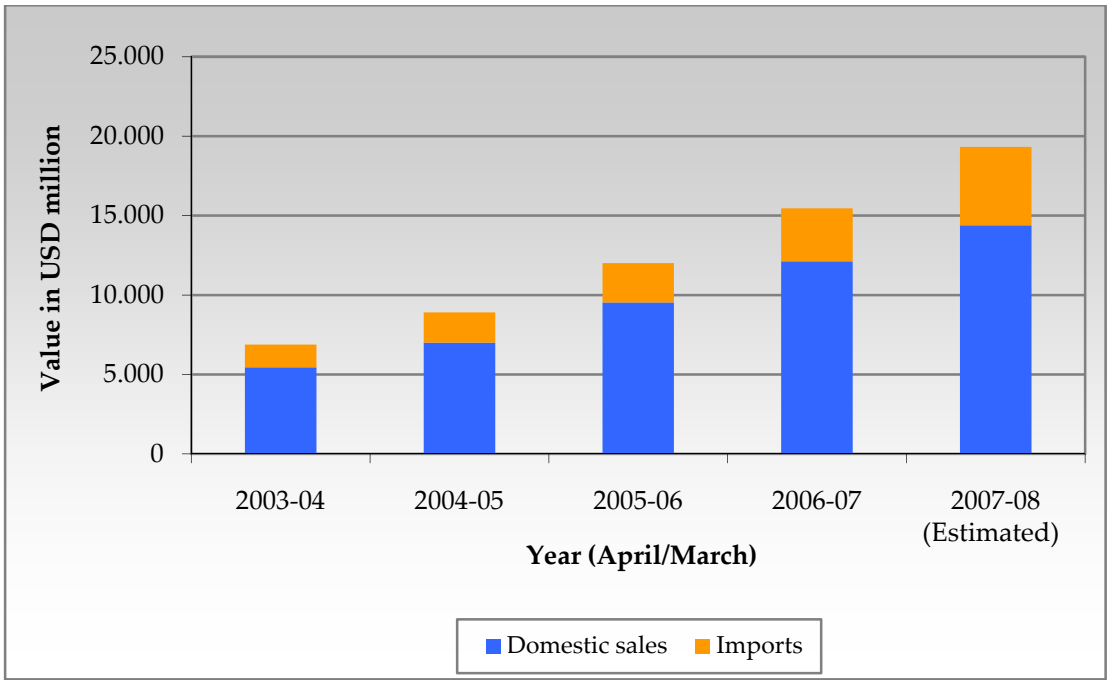

Figure 2: Size of Indian auto-component market (2003-04 to 2007-08)[7]

As could be seen in the figure above, the Indian auto-component market has witnessed a steep growth. It expanded at an impressive CAGR of 29% over the period 2003-04 to 2007-08. This growth was constituted by increase in both the domestic sales (27% CAGR) as well as the imports (36% CAGR) of auto-components. While growth in domestic sales of auto-components could be understood by the general trends in the Indian automobile industry, the growth in imports could possibly be explained by a) progressive reduction of import tariffs on auto-components and semi-knocked down (SKD)/ completely-knocked down (CKD) kits of automobiles, and b) newly established foreign automobile manufacturers commencing their operations by assembling SKD/CKD kits.

[7] Source: Calculated from ACMA (2008a).

2.2. Exports

Indian automotive industry has been registering a healthy growth in terms of its exports as well. The industry crossed an exports turnover of USD 8 billion in the year 2005-06, with the share of exports in industry turnover being around 24% (GOI 2006b). India exports both automobiles as well as auto-components to markets around the world. The key destinations include South Asian neighbours, European Union (Germany, UK, Belgium, The Netherlands and Italy), Middle East and North America (GOI 2006a). Increasing pressure in the global competition to source from low-cost countries combined with the skills and quality advantages of India, is the commonly cited explanation for the growth in India's automotive exports; see for instance Singh (2004) and GOI (2006a). Additionally, supporting policy measures of the Indian government such as export-linked fiscal incentives, establishment of export-processing zones, bilateral or multilateral trade agreements with other countries, etc. have furthered this growth.

Figure 3 below shows the export trend of different vehicle types within the Indian automobile industry over the years 2003-04 to 2007-08.

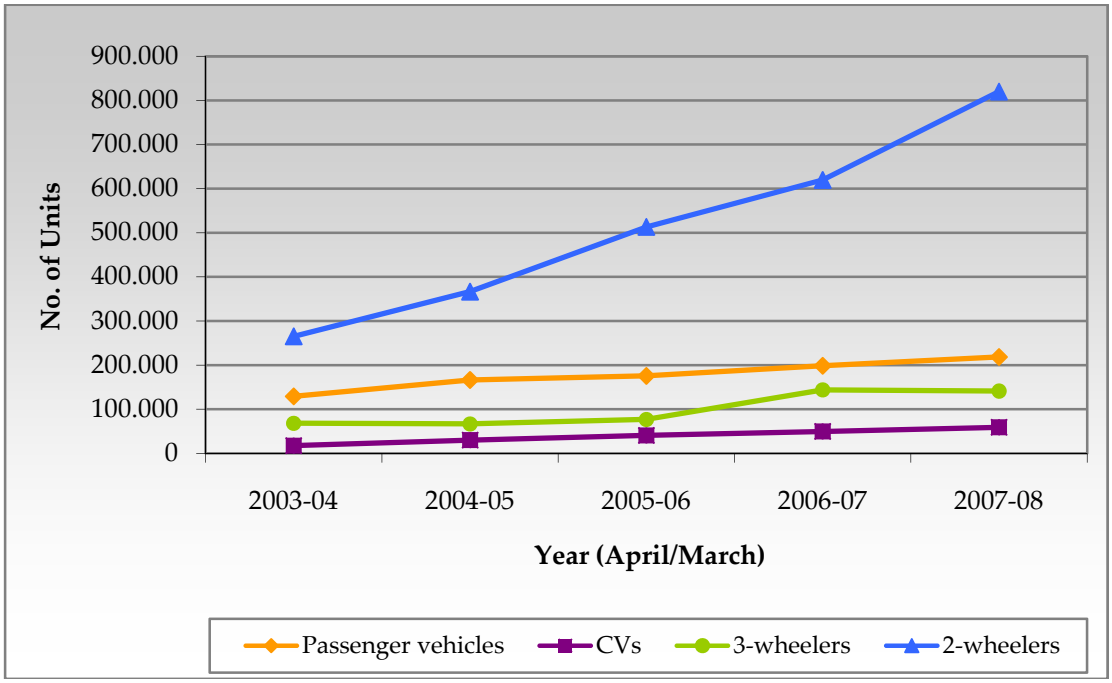

Figure 3: Export trend for different vehicle types[8]

As observed in the above figure, the Indian automobile industry is witnessing rising exports in all vehicle types. The exports grew at a CAGR of 14% for passenger vehicles, 36% for CVs, 20% for 3-wheelers and 33% for 2-wheelers for the period 2003-04 to 2007-08. Both domestic as well as foreign automobile manufacturers have been instrumental in such a growth, by making either direct or indirect exports.[9] The domestic manufacturers are forging partnerships with foreign players or are making outward foreign investments for developing and strengthening their sales overseas.

[8] Source: SIAM (2008d).

[9] Indirect exports imply that the vehicles exported by the automobile manufacturer are sold in the target market under a different brand name, probably that of the foreign collaborator.

On the other hand, several foreign manufacturers have made India the manufacturing base for some of their products meant for regional or global exports; see for instance IBEF (2005). In value terms, the exports of the Indian automobile industry crossed USD 2 billion in the year 2005-06 (GOI 2006a). All this testifies to the fact that the 'Made in India' brand is gaining increasing acceptance in the global export markets.

With regard to the Indian auto-component industry, the export performance has been even better. Figure 4 below shows the export trend of auto-components from India over the years 2003-04 to 2007-08.

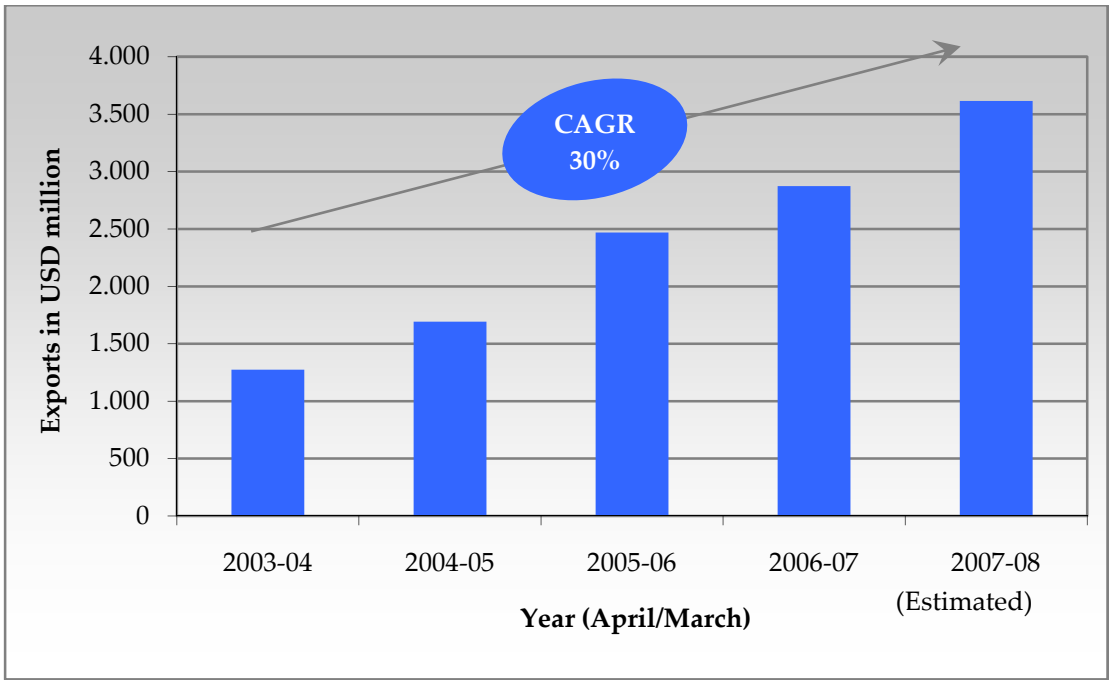

Figure 4: Export trend for auto-components[10]

As seen in the figure above, the exports of the Indian auto-component industry grew at an impressive CAGR of 30% (value-wise) over the period 2003-04 to 2007-08. The improvement in export performance is also reflected in the shift in composition of customer base for exports made by the industry. In the year 2007, India shipped 75% of its auto-component exports to global OEMs/Tier-1 suppliers and 25% to the aftermarket, in contrast to 65% to aftermarket and 35% to global OEMs/Tier-1 suppliers in 1990s (ACMA 2008a). Such a shift has manifested itself in several foreign OEMs and Tier-1 suppliers establishing their purchasing offices or subsidiaries in India for the purpose of component sourcing.[11]

Also, foreign OEMs and suppliers are increasingly integrating the Indian auto-component manufacturers into their global sourcing strategies. All this attests to the fact that the Indian auto-component industry has been able to establish a cost-competitive and quality-conscious image in the global auto industry. With the continuing trend of global outsourcing, the exports of Indian auto-component industry are estimated to reach USD 25 billion by 2015 (ACMA 2008a).

[10] Source: ACMA (2008b).
[11] Some foreign players have established exclusive export-oriented units (EOU) in India for this purpose. For example, the global Tier-1 supplier Visteon has a 100% EOU near Chennai in India.

2.3. Research and development

According to OECD (2002), the term R&D encompasses basic research, applied research and experimental development. It covers both formal R&D in R&D units and informal or occasional R&D in other units. In India's automotive industry, both domestic as well as foreign automotive firms undertake some or other form of R&D either in their formal or informal R&D units.[12] Most of the R&D efforts of the domestic automotive firms are directed towards value engineering or tweaking the designs to improve performance. The domestic automotive firms have primarily been relying upon the foreign partners for product and process technologies, with R&D efforts mainly employed to adapt the designs for in-house production and local demand conditions. However, the threats and opportunities brought about by globalisation (wherein foreign collaborator becomes competitor and exports become necessary to sustain growth) have encouraged the domestic auto firms to develop core R&D skills (Knowledge@Wharton 2005).

The domestic automobile firms are increasing their R&D spending on in-house product design and development. This is evident from the indigenous product development efforts undertaken by the domestic firms. Tata Motors launched India's first indigenously developed car 'Indica' in the year 1999, an important milestone in the history of India's automotive industry. Subsequently, commercially successful models such as Tata Indigo, Mahindra Scorpio, TVS Scooty, Bajaj Pulsar and Tata Ace have been indigenously developed and introduced by the domestic firms (ACMA 2008a). The success met with the indigenously developed products has led to higher confidence in the domestic firms with regard to the development of core R&D capabilities. Nevertheless, the domestic automotive firms still spend a relatively low amount on R&D as percentage of sales as compared to that of the global auto majors (Knowledge@Wharton 2005).

The investments made by foreign automotive firms in India have primarily been market-seeking (Singh 2004). Accordingly, the R&D efforts undertaken by foreign automotive firms in India have mainly been directed to adapt the proprietary designs to Indian market conditions. However, the foreign firms are gradually realising the attractiveness of India for carrying out their offshore R&D activities. Low-cost scientific talent, growing IT skills with sound automotive domain knowledge and strong base for prototyping, testing and validating of auto-components are some of the factors that are furthering such a trend (ACMA 2007). Moreover, the characteristic demand of Indian consumers for low-cost and fuel-efficient means of transport, especially small cars, is compelling the global auto majors to undertake product development in India for the purpose of acquiring new set of capabilities. Such a consideration is driven by the global trend in shift from big cars to small cars due to recessionary trends and rising fuel costs.

The policies and programmes of Indian government have also played an important role in stimulating the R&D efforts of the industry. Apart from providing fiscal and monetary incentives for firm-level R&D activities, the government is playing an active role in the development of common R&D infrastructure. In the year 2005, the government along with industry players launched an initiative for the establishment of world-class testing, homologation and certification facilities, along with nine R&D centres under the National Automotive Testing and R&D Infrastructure Development Project (NATRiP) (GOI 2006a).

[12] A list of domestic automotive firms with R&D units formally recognised by Department of Science and Technology (DST), Government of India could be found on its website. TIFAC (2006) provides a list of foreign automotive firms with investment in India's R&D sector.

3. Present configuration of the industry

3.1. Industry structure

The competition in India's automotive industry has become more intense with the growing number of domestic and foreign firms operating in its automobile and auto-component sectors. The liberalisation of automotive industry in early 1990s in tandem with country's favourable macroeconomic trends has contributed to such a development. The entry of foreign firms into the industry has been further encouraged by the advancements in India's foreign investment and trade policies. The rising trend of foreign direct investment (FDI) in India's automotive industry depicted in Figure 5 below testifies for this fact.[13]

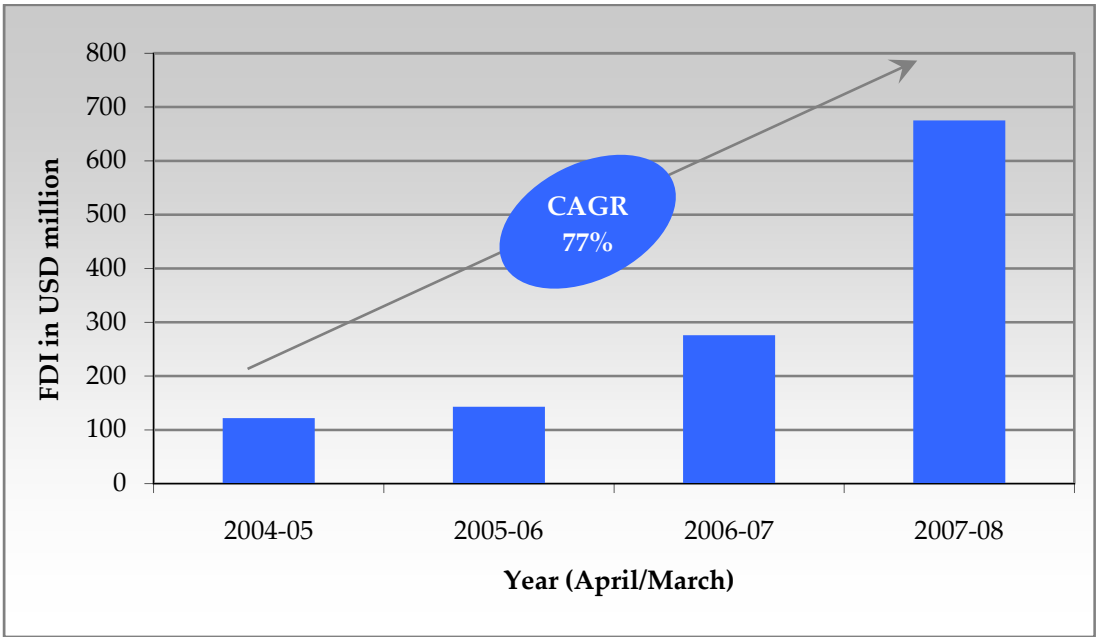

Figure 5: FDI trend in Indian automotive industry[14]

The automobile industry in India comprises a good balance of domestic as well as foreign players. Appendix C provides a list of domestic and foreign automobile manufacturers currently operating in India. As could be observed in the list, most of the domestic firms were established in the pre-liberalisation period and are currently operational in more than one vehicle segments. In case of foreign firms, the entries into the Indian market were mainly observed after the year 1993. Firms like Suzuki and Yamaha who had established joint ventures with Indian partners in the pre-liberalisation period, acquired majority stake in their ventures subsequently. Among different vehicle segments, the foreign players are predominantly concentrated in the passenger car and CV segments. Thus, a good mix of seasoned domestic players and renowned foreign players has rendered healthy competition in the Indian automobile industry. The automobile models produced by the industry fill up

[13] Foreign investment in a country can take place in the form of either portfolio or direct investment. India adopts the '10% rule' to classify foreign investment into portfolio or direct, wherein ownership of 10% or more of the ordinary shares (or equivalent for the unincorporated enterprises) by a foreign investor is recognised as FDI (OECD 1996 and RBI 2002).

[14] Source: GOI (2008a).

nearly all the price points addressing varied consumer preferences, and thereby further stimulating the industry growth.

The market shares of key players in different segments of the Indian automobile market for the year 2006-07 are presented in Figure 6 below.

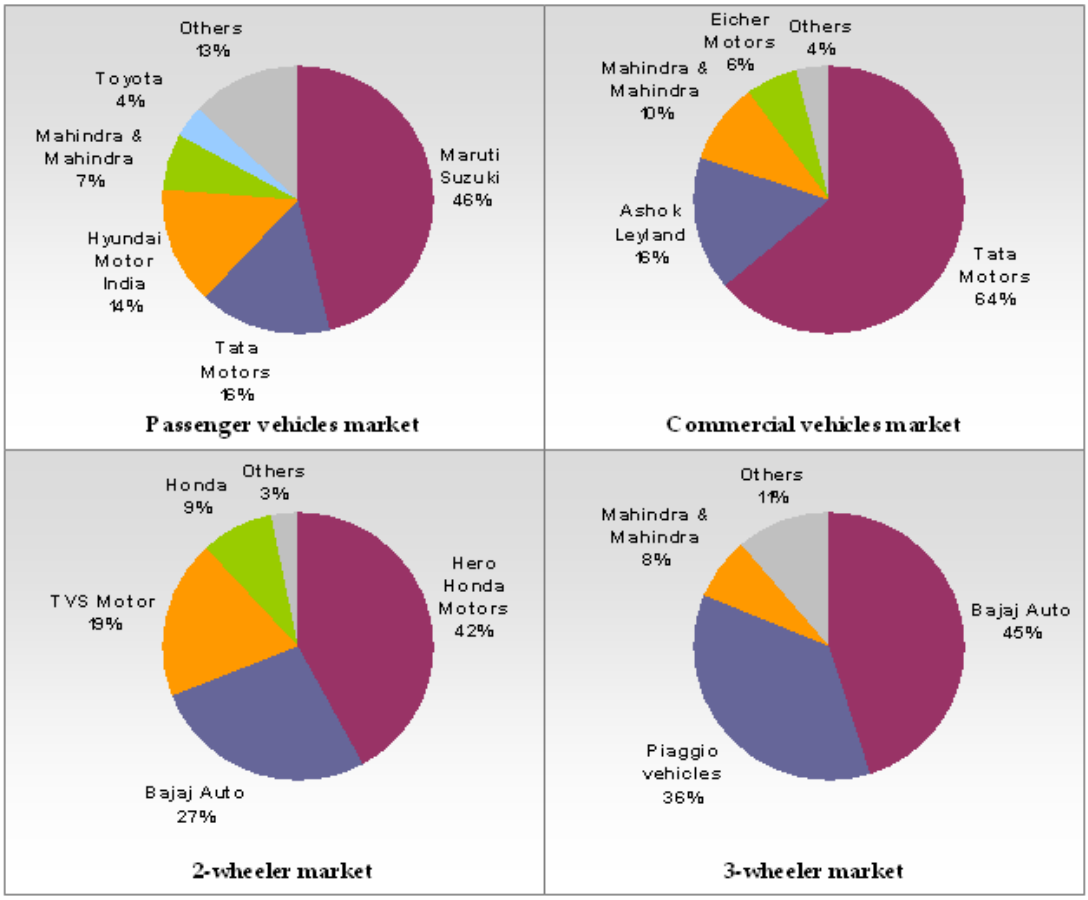

Figure 6: Market shares of key players in the Indian automobile market[15]

The Indian auto-component industry comprises of around 500 firms in the organised sector and more than 10,000 firms in the unorganised sector (GOI 2006a). The diverse firms produce a comprehensive range of auto-components, which include engine parts, drive transmission & steering parts, body & chassis parts, suspension & braking parts, equipments and electrical parts amongst others (ACMA 2008a). In line with the global trend, the auto-component industry in India has also undergone tierisation, with Tier-1 suppliers at the apex and unorganised players at the base of the supply pyramid.[16] For meeting the present day challenges of lean and responsive supply, the auto-component manufacturers in India work in close cooperation with their customers both at home and abroad. The rising level of technological and management capabilities among the Indian auto-component manufacturers have made such collaboration possible.

[15] Source: IBEF (2008).
[16] Tier-1 suppliers are understood as the ones who make direct supplies to the OEMs or in other words directly invoice the OEMs.

As in the case of automobile industry, the structure of Indian auto-component industry also exhibits a good mix of domestic and foreign players. Appendix D provides a list of some of the top domestic and foreign auto-component manufacturers in India. As could be observed in the list, the prominent domestic players in the industry exist in the form of group companies. Some of these auto-component powerhouses are promoted by Indian OEMs themselves. In general, most of the domestic players in the industry have some form of technological collaboration with the foreign counterparts. Further, the entries of foreign OEMs into India have been accompanied by the entries of their requisite suppliers, which entered into JVs with Indian partners and/or established subsidiaries. On the other hand, several foreign auto-component firms have voluntarily entered the subcontinent to cater to the growing demand of the Indian automobile industry.

The growing potential for exports is making the auto-component companies in India to increase their production capacities (ACMA 2008a). As a result, the investment in the industry has risen from USD 3.1 billion in 2003-04 to USD 7.2 billion in 2007-08, growing at a CAGR of around 23% over the period (ACMA 2008a).

3.2. Industry clusters

The Indian automotive industry has been noticed to have grown in clusters, which are evident in and around Manesar in North, Pune in West, Chennai in South, Jamshedpur-Kolkata in East and Indore in Central India (GOI 2006a). ACMA (2008a) describes such a pattern of investments in the country as 'regionally balanced'. Figure 7 below indicates the distribution of manufacturing plants of major automobile players across different states and union territories in India.

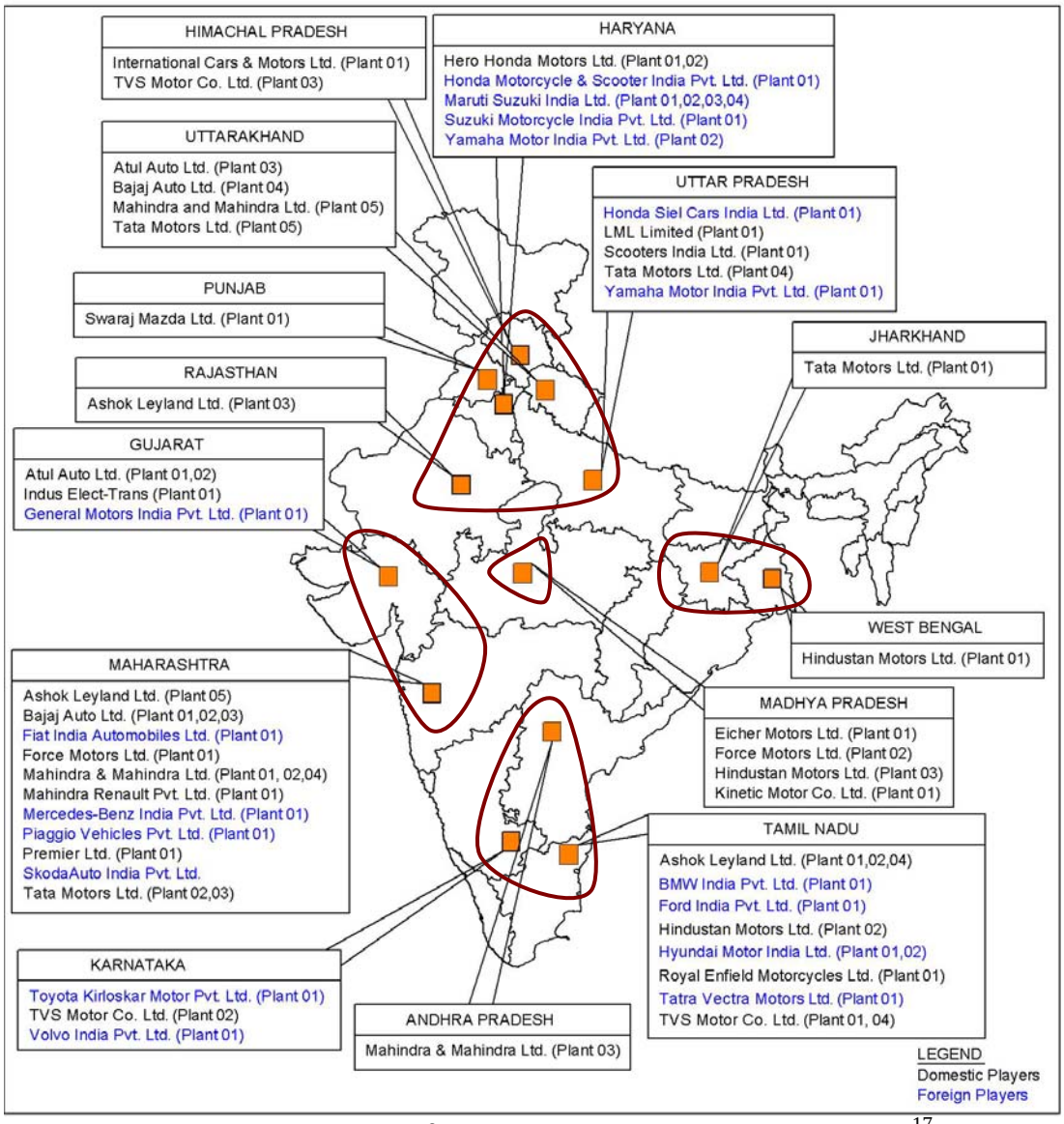

Figure 7: Distribution of automobile plants across Indian states[17]

[17] Source: Self-construction based on the authors' own study of the location of manufacturing plants of major automobile and auto-component players in India.

The manufacturing plants of auto-component players in India are usually located near their OEM customers. Figure 7 therefore also indicates the major auto clusters in India. As could be observed in the figure, the automotive clusters in India span across different states, with a certain state having the lead in attracting auto investments. Location advantages such as infrastructure, access to pool of educated workforce and supportive state government policies are some of the factors that help explain such a difference between the states within a cluster. Table 4 below provides a district-wise distribution of manufacturing plants of major automobile and auto-component players across the three leading auto states in India.[18]

Sr. no.	State	District	No. of automobile mfg. plants (SIAM members)	No. of auto-component mfg. plants (ACMA members)	Total
1.	Maharashtra	Pune	10	94	104
		Aurangabad	2	31	33
		Mumbai	1	17	18
		Nashik	3	15	18
		Total	**16**	**157**	**173**
2.	Haryana	Gurgaon	7	116	123
		Faridabad	1	40	41
		Rewari	1	13	14
		Total	**9**	**169**	**178**
3.	Tamil Nadu	Kanchipuram	5	39	44
		Tiruvallur	3	35	38
		Krishnagiri	5	21	26
		Coimbatore	0	17	17
		Chennai	2	10	12
		Total	**15**	**122**	**137**

Table 3: District-wise distribution of major auto players' plants in leading auto states[19]

[18] Major automobile and auto-component players in India are members of the Society of Indian Automobile Manufacturers (SIAM) and Automotive Components Manufacturers' Association (ACMA) respectively.

[19] Source: Self-construction based on authors' own study of the location of manufacturing plants of major automobile and auto-component players in India.

4. Industry development and the role of government

This section provides a general discussion on government influence on industry development.

4.1. Government's role in the development of an industry

The role the government should play in the development of a nation's industries has been a topic of much discussion; see for instance Porter (1990) and Lall (2003). With economic liberalisation and globalisation gaining pace in present day times, the development progress of a nation's industry is increasingly gauged by its ability to endure and excel against international competition – at the home turf as well as in the export markets. The competitiveness of an industry has become synonymous to its international competitiveness, and the mere comparison among industries within the same nation is no longer sufficient. In his comprehensive work reasoning the international competitive success of industries in certain nations, Porter (1990) identifies government as an important variable that influences the competitive advantage of an industry by influencing the national environment in which it operates. The national environment, which is explained by the country's characteristic demand, basic and advanced factors of production, industry structure and related and supporting industries, could be influenced both positively as well as negatively by various government decisions.

Based on his findings, Porter (1990) suggests a varying role for the government as an industry progresses through consecutive stages of competitive development. In early investment- and factor-driven stages, the government could play a more direct role by providing capital, subsidies or temporary protection to help stimulate the investment and create factors such as infrastructure and basic technological base. However, as the industry progresses to a more innovation-driven stage, the firms themselves must become the source of advancement. The role of government should then be just an indirect one, continuously challenging and pushing the firms to upgrade and innovate by raising demand standards. Thus, along with progressive reduction of interventions, the role of government ought to shift from actor and decision maker to that of a facilitator. While the direct role of government articulated above has been in the context of relatively advanced nations; that for the developing nations in early stages of economic development could be more intense.

The principal economic goal for any nation ought to be high and rising standard of living for its citizens (Porter 1990). Further, it has been factually accepted that there is a strong and positive relation between the standard of living of a country and the extent of its industrialisation (Chettri 2002). Thus, these premises suggest that a developing nation in its early stages of economic development should strive for rapid industrialisation. The underlying principle in the gains in economic prosperity through industrialisation is the increase in national productivity, and thereby the increase in national per capita income. In their drive for industrialisation, the governments in the developing countries are posed with the question as to whether build the economy largely by indigenous companies or by wide-spread foreign investments (Porter 1990). While the latter has obvious attractions of swift and easier economic development, the sustainability of such economic growth and national advantage over a longer period is uncertain. On the other hand, economic development based largely on indigenous companies is a slow and riskier process, but rewarding in the long-term if it succeeds. Indigenous companies consider the nation as a home base and invigorate the creation of advanced and specialised factors of production as they progress (Porter 1990). When competitive at international level, a largely indigenous industry could help the

developing nation move beyond factor driven advantage to the innovation-driven advantage involving higher productivity.

However, the path to competitive indigenous industries for a developing nation is not an easy one. To start with, the nation must decide the industries that need to be focused upon. With scarce resources available at its disposal, the developing nation needs to be highly selective with the industries that it intends to foster. Porter (1990) recommends the use of principle of clustering for setting the development priorities. He notes that the development of competitive industries in a country occurs in industry clusters and therefore recommends the government to aim for building entire clusters. According to the principle, as a starting point the government should identify industries in which the country has some competitive advantage today owing to factor conditions, and also the fertile underlying national circumstances like favourable demand conditions are present. Such industries, especially the ones with extensive backward and forward linkages to rest of the economy, should become the centres of development. Subsequently, the government should accelerate the efforts for upgrading the advantages in these industries beyond the basic factor ones. The objective then would be to develop upstream, downstream or related industries in which the advantages are less factor-sensitive. In parallel, the government should concentrate its investments in education, research and infrastructure over these clusters. Eventually, the government should encourage the indigenous firms to explore export options.

In yet another consideration, most of the developing nations in their early stages of economic development lack even a basic industrial base. The fragile and often fleeting ability to export of such nations is derived from primary industries relying on factor endowments such as abundant natural resources, cheap labour, location factors, etc. (Porter 1990). Considerable foreign currency spending on diverse and growing demands of the developing economy combined with inadequate exports maintains a continuous pressure on the foreign exchange reserves of such countries. As a remedy, some developing nations adopt the industrial strategy of import substitution during the initial phases. This involves establishment of core industries like steel, cement, communications, etc. in the country. The underlying justification is that making the country self-sufficient in goods of mass consumption could help to reduce the imports, and thereby free up substantial foreign exchange (Chettri 2002). The freed up foreign exchange could then be utilised for advanced purchases. Another belief that supports the adoption of import substitution strategy is the political ideology of self-reliance for the purpose of national sovereignty. Porter (1990) here cautions that obsession of import substitution could drive a nation into industries that are unattractive with regard to their future competitiveness and that the government must make sound decisions with its selection of the target industries. Further, while import substitution can help in saving upon the foreign exchange, the government must eventually aim at fostering advanced industries that compete in international markets and earn back home foreign currency.

Thus, the challenges involved in indigenous industry development warrant a more direct role from the governments in developing nations. Government interventions that control or influence the economy as opposed to the free market outcomes might be necessary to offset the disadvantages faced by such nations. Interventions in the form of protection, regulation or direct State support are common tools available at the disposal of government. Infant industry theory developed by Friedrich List, a leading German economist of the 19th century, has been the pervasive theoretical ideology among the developing nations around the world for

protecting and nurturing their immature industries.[20] Porter (1990) asserts that the infant industry argument, which advocates restrictions on free foreign trade and foreign investment, is legitimate only in developing nations lacking a basic industrial base. The nascent indigenous firms in such nations are at a disadvantage to the mature foreign firms possessing better technology, higher quality and lower price offerings. A time-bound protection and encouragement from the government could provide the indigenous firms with sufficient breathing space for attaining competitive capabilities.

Porter (1990) suggests that protection bestowed upon the indigenous industry works only under the following three conditions: a) presence of effective domestic rivalry that substitutes for international competitive pressure, b) presence of favourable home demand that promises international competitive position in the future and c) that the protection should be limited in duration. Apart from protection measures such as tariff barriers, import quotas or foreign investment regulation, the governments in developing countries sometimes opt for regulating the domestic rivalry. The rationale usually employed behind such a regulation of the industry structure is the perceived need to ensure sufficient demand for each indigenous firm in order for it to achieve economies of scale, and therefore maintain the prices within an acceptable level. However, an absence of strong domestic rivalry and assurance of sustained profits could make the indigenous firms to underinvest in upgrading their capabilities. Porter (1990) thus cautions that without effective domestic rivalry the protected industry shall never emerge at all to become internationally successful. Also, it is important that the duration of protection is set and communicated to the local firms in advance, so that more time is spent by them in developing competitive capabilities instead of lobbying for extending the protection.

Another important aspect of industry development is technological progress (Kathuria 2000). Therefore, despite the concern of national sovereignty, the government might need to allow adequate inflow of foreign technology into the nascent indigenous industry. Indigenous firms could be allowed to enter into licensing agreements and financial-cum-technical collaborations for technology acquisition, the latter being more enticing for the foreign collaborator. Moreover, the government could encourage independent R&D efforts as the indigenous industry progresses, since the future competitive advantage would be more technology- rather than factor-driven. Eventually, the government must reduce its interventions substantially and leave decision making to the commercial judgment of the firms. Additionally, the government might also allow investment by foreign companies to inject new vigour into the industry competition. Porter (1990) suggests that such a move by the government might be required as part of the reciprocal behaviour for gaining access to foreign markets. Nevertheless, the reduction in interventions should be gradual and not abrupt, so as to allow adequate time for the indigenous firms to adapt to the changing competitive conditions. Ultimately, the role of government during the innovation-driven stage should be to maintain an environment in which firms are and continue to be innovative and dynamic (Porter 1990).

4.2. Policies as the means for government interventions

Government intentions for intervening in industry development are usually articulated in some policy forms such as industrial policy, trade policy, fiscal policy, etc. Torjman (2005, p. 4) defines policy as "a deliberate and (usually) careful decision that provides guidance for

[20] The infant industry theory could be found described and discussed in Friedrich List's book 'The National System of Political Economy (1841)' available online at:
http://www.econlib.org/library/YPDBooks/List/lstNPECover.html.

addressing selected [..] concerns". Policy development is therefore a decision making process, which generally involves identifying the objective and determining pathway to the objective based on criteria such as effectiveness, costs, resources required for implementation and political context (Torjman 2005). The outcome of policy development is usually a policy statement that outlines the objectives of the policy and the measures to realise the same. Further, the measures for implementation of the policy may necessitate new legislation, amendment to existing legislation, modification of institutional context or design of specific programme initiatives (Torjman 2005). Additionally, depending upon the form of government in a nation (for instance, the federal form of government) the policy formulation might also take place separately at the regional or local level, apart from that at the national level.

The objectives that government seek to achieve are usually complex and therefore involve several ministerial departments. As a result, the pathway to the objective is reflected in various policies from different departments. The policies are generally interlinked and the choices made in one policy area have effects on the other. For instance, an R&D policy decision to promote in-house R&D might be reflected in fiscal policy as tax-break to firms for their expenditure on R&D. There also exists a sort of hierarchical relationship between policies that collectively address a particular concern. With regard to industry development, an industrial policy forms the core of the policy framework. Other policies such as trade policy, foreign investment policy, monetary policy, fiscal policy, education policy and infrastructure policy basically support the decisions made in industrial policy within their respective policy areas. Nevertheless, the policies interact in a complex integrated manner and a policy could both influence and be influenced by other policies. For example, shortage of foreign exchange might require a nation to liberalise its foreign investment policy, which in turn has implications on the industrial policy.

Thus, so far the section discussed the role government ought to play in the development of an industry, both for developed as well as developing nations (with more emphasis laid on the latter). Based primarily upon the authoritative work of Porter (1990) on the subject matter, the section discussed a changing role for the government through successive stages of industry development – from a more direct one in the factor-driven to an indirect or partial one in the innovation-driven stage. Further, policies as the means for orchestrating government interventions on industry development were explained. While the whole discussion made was to an extent idealistic and therefore prescriptive in nature, the role that government actually plays in the evolution of an industry might be a differing one. The difference is basically explained by the political and social pressures under which a government operates. For example, the political pressure on the government to save jobs in the short-run might result in a policy decision that extends the duration of protection given to an industry, thereby compromising on its long-term competitiveness. Moreover, a sound government policy might not be able to generate the desired outcomes, if the institutional structure like the bureaucratic apparatus is not in sync with the policy objectives.

5. Evolution of India's automotive industry under State interventions

History of automobiles in India could be traced back to the import of first motor car into the country in 1898. Subsequently, completely-built cars and commercial vehicles were being imported into the country by British officials and other prominent Indians, either directly or through dealers/agents. By the end of World War I, the number of such vehicles imported per year was around 4,000 (Narayana 1989). Envisaging a promising demand for automobiles in India, General Motors and Ford established their assembly plants in the country in late 1920s and early 1930s respectively. General Motors began its operations in the Mumbai plant in 1928 by assembling CKD kits of cars and trucks imported from abroad. This was followed by the commencement of similar assembly operations by Ford in its Chennai plant in 1930, and later also in Mumbai and Kolkata in 1931. The number of automobiles imported/assembled in India grew significantly in the 1920s and crossed 30,000 units per year by 1930 (Narayana 1989).

In 1936, Sir M. Visvesvaraya, an eminent Indian engineer and statesman, presented a detailed report to the then central government regarding formation of an indigenous automotive industry in India. The proposal, which included establishment of a factory with a production capacity of 11,000 vehicles per year and a capital outlay of Indian Rupee (INR) 22.5 million, was however turned down by the government (Ghosh 1941). Nevertheless, as a by-product of Sir Visvesvaraya's efforts, the beginning of automotive industry in India was marked in early 1940s with the establishment of automobile companies by two Indian industrial houses – Hindustan Motors Ltd. (HML) founded by the Birlas and Premier Automobiles Ltd. (PAL) by the Walchand Hirachand Group in 1942 and 1944 respectively. Both the companies were established with foreign technical collaboration and a programme for progressive manufacture of complete vehicles. However, due to their slow progress initially, the production of automobiles by these companies started only after India's independence.

The drive for India's independence had already intensified in the country since 1930s. Various deliberations that shaped India's post-independence development strategy were being carried out during this period. National Planning Committee, set up in 1938 by the then dominant political party Indian National Congress, considered nearly all the aspects of economic planning for an independent India and generated a series of studies, ultimately proposing a set of socioeconomic policies and programmes for India after independence. The committee acknowledged the long-term importance of setting up an automotive industry in the country by recognising its place in the planned economy. In a separate effort, seven leading Indian industrialists prepared a set of proposals in 1944/45 for the development of post-independence economy of India. This set of proposals, also known as the 'Bombay Plan', suggested state intervention in the development of the nation's economy after independence. Eventually, recommendations of both the National Planning Committee and the Bombay Plan resulted in the original attempt of planned development after India's independence. The development of the nascent Indian automotive industry thus took a different path of planned approach in the years following India's independence in August 1947.

Today, the Indian automotive industry has come a long way on its path of development. From a mere production of 4,077 vehicles in 1950-51 (GOI 1951), the production of the industry

reached 10,833,948 vehicles in 2007-08 (SIAM 2008e). The industry is now working in terms of the dynamics of an open market with a multitude of automobile and auto-component manufacturing firms. Various socioeconomic and political factors have shaped the development course of the industry along its way through inception to the present-day dynamic form. The evolution of India's automotive industry under the influence of these factors could be identified to have occurred in different phases.

The first phase (1947-1965) is characterised by protection from foreign competition, push for indigenisation and emergence of licensing regulations. The second phase (1966-1979) witnessed increased regulations and disparate growth among different segments of the industry. The third phase (1980-1990) saw relaxation in regulations and entry of several Japanese collaborators. Finally, the fourth phase (1991 onwards) began with the historic economic reforms in India and the ensuing liberalisation of the automotive industry. Subsequent influx of foreign players and the resulting access to global markets have begun the global integration of the industry. The historical account of these four phases along with the State interventions that shaped them is presented in the following sub-sections.[21]

5.1. Protection, indigenisation and regulation: 1947 to 1965

The realisation of the dream of an independent India had brought along with itself the challenge of nation building for its leaders. The dismal performance of country's agricultural and industrial sector under the shackles of colonial rule had led to abject levels of poverty within the population. Among other things, the leaders of the nation had to decide upon the type of economic system that would set the pace of India's economic development promoting welfare of all its citizens. In light of the socioeconomic conditions then existing within the country, the newly formed government under the prime ministerial leadership of Jawaharlal Nehru preferred a mixed economy for the nation. This implied that the decision making of 'what to produce', 'how to produce' and 'how to distribute' was to be shouldered by both the State and the market. In consideration of the vast social and economic inequalities then prevailing within the Indian society, the State decided to assume a bigger role for itself in the nation's economic development.

In line with the intentions of the State to intervene in economic development, Industrial Policy Resolution (IPR) was passed in the Indian Parliament in 1948. IPR of 1948 outlined the approach that the government proposed to pursue in the industrial growth and development. The resolution divided the nation's industries into different categories depending upon their strategic importance and specified the role of State in the development of each category of industries. Accordingly, the automotive industry was classified under the category of 'basic industries of importance'. As mentioned in IPR of 1948, these industries of basic importance, whose "location must be governed by economic factors of all-India importance, or which require a considerable investment of a high degree of technical skill" (GOI 2008b, p. 3), were subject to regulation and control by the central government.[22] Further, the initiatives within

[21] The historical account of the evolution of India's automotive industry presented in this section relies mainly on the works of GOI (1971), Narayana (1989), Sumantran et al. (1993), Kathuria (1996), Pinglé (1999), Singh (2004) and Narayanan & Vashisht (2008). Appropriate citations to the aforementioned literature as well as to additional sources have been provided where necessary. An attempt has been made to provide a broader perspective on the development of the industry under the influence of government interventions, while limiting details of individual firm-level developments.

[22] Since independence, India has adopted a federal structure of governance, wherein the political powers are distributed primarily in two levels of government: central government at the national level and state government at the level of individual states.

the automotive industry were left to the private enterprises, with State playing only the role of a controller. However, the State reserved its right to intervene and progressively participate in the industry when deemed necessary.

In addition to outlining the role of State in promoting industrial development, IPR of 1948 hinted at the State's disposition of raising tariff barriers for preventing unfair foreign competition and for ensuring judicious use of nation's precious foreign reserves. The resolution also proposed central regulation on new foreign investments and stipulated that effective control in future foreign equity collaborations ought to rest in Indian hands. In accordance with the objectives laid by IPR of 1948, the Ministry of Industry prepared its first policy for the automotive industry in 1949. As determined in the policy, the tariff on import of fully-built vehicles was heightened the same year, virtually banning their import into the country. The foreign assemblers assembling CKD vehicles were allowed to continue to operate nevertheless. Meanwhile, PAL and HML had already commenced their operations in 1947 and 1948 respectively. PAL started assembling Dodge-Fargo trucks, whereas HML assembled Studebaker trucks. The number of vehicles assembled/produced in the country reached a figure of 21,577 in 1951 (Narayana 1989). The large number of on-road vehicles in the country by this time had led to the development of a sizeable repair and replacement sector.

In pursuance of IPR of 1948, the Industries (Development and Regulation) Act (IDRA) was promulgated in 1951.[23] The Act provided the government with means to implement its industrial policy. While IPR of 1948 articulated the intentions of the government, IDRA orchestrated the complex implementation of rules and regulations for the planned development. According to the Act, "an industrial license was required for a unit with 50 or more workers (100 or more without power) in order to establish a new unit, expand output by more than 5% annually, change location, manufacture a new product, and to conduct business if a change was introduced in policies" (Kathuria 1996, p. 88). The bureaucratic process for obtaining the licenses was also stated in the Act. Thus, IPR of 1948 along with IDRA 1951 created an elaborate licensing system surrounding the Indian industries, including the automotive industry. IDRA 1951 with subsequent amendments owing to policy changes continued to apply to the Indian industry till early 1990s.

In the mean time, the Constitution of India came into force in January 1950. Subsequently, the Planning Commission was set up in March 1950 to oversee the formulation and implementation of India's Five-Year Plans (FYP).[24] The commission had the responsibility of assessing all the resources of the country, augmenting deficient resources and making plans for the deployment of the resources in the most effective and balanced manner in consideration to the nation's priorities. With respect to the automotive industry, the commission planned the total number of vehicles (per vehicle type) that were to be produced in the given plan period depending upon country's needs and the resources at disposal. For instance, the First FYP covering the period 1951-1956 and introduced in April 1951, targeted to raise the production of vehicles in the country from 4,077 in 1951 to 30,000 in 1956 (GOI 1951). Accordingly, the Ministry of Industry administered the capacity licenses to the automobile firms.

[23] Accessible online at: http://www.indiacode.nic.in/rspaging.asp?tfnm=195165.

[24] Like many other developing countries, India also borrowed its concept of the Five-Year Plan for economic planning from USSR.

In March 1952, the government decided to replace its hitherto 'gut-reaction' policy for the automotive industry with a more studied and comprehensive approach to the industry (Kathuria 1996). It referred to Tariff Commission the question of providing protection/assistance for the encouragement of automotive industry.[25] The Tariff Commission submitted its report in 1953 recommending that only units with a plan for progressive manufacture of components and complete vehicles may be allowed to operate. It also recommended against any price controls and advised the government to maintain a watch on the prices. Subsequently, the recommendations of the commission were adopted by the government. Foreign assemblers like General Motors and Ford who considered the domestic demand too low to warrant a local manufacturing programme were obliged to close down their operations within three years. Thus, the exit of foreign assemblers by 1956 and the ban on import of fully-built vehicles since 1949 effectively protected the Indian automotive industry from foreign competition.

The push for indigenisation by imposing a progressive manufacturing programme on the automobile firms was in alignment with the overarching goal of 'self-reliance' emphasised by the leaders of the nation.[26] As per Tariff Commission's recommendation, a minimum 50% indigenous content requirement was introduced. The commission endorsed the already existing manufacturing plan of HML and PAL who had established units for manufacturing some of the components. With the exit of foreign competition, both HML and PAL who had so far restricted themselves to CVs entered into the production of cars. HML had technical collaboration with Morris (UK) for cars, whereas PAL with Fiat (Italy) for the same. In addition to these two firms, the manufacturing programme of Automobile Products of India, Ashok Motors and Standard Motor Products for cars and CVs was also approved by the commission. Ashok Motors established in 1948, renamed itself as Ashok Leyland based on its equity collaboration with British Leyland (UK). Standard Motor Products was in collaboration with Standard Motors (UK) for the production of cars and CVs. Subsequently, manufacturing programme of one more firm Mahindra & Mahindra (M&M) was approved for the manufacturing of UVs Willys Jeeps.

After adoption of the Constitution and the integrated socioeconomic goals, the industrial policy was revised and adopted in May 1956. Known as the Industrial Policy Resolution of 1956, the revised industrial policy described 'socialist pattern of society' as the objective of Parliament's social and economic policy (GOI 2008b). Accordingly, the IPR of 1956 signalled higher level of State participation for accelerating industrial development. The resolution grouped the industries into Schedule-A, Schedule-B and the remaining. Schedule-A industries were either exclusive monopolies of the central government or were industries in which any new undertaking was solely reserved for the State.[27] Schedule-B included industries in which the State would establish new undertakings for accelerating the future development, and in which the private enterprises had equal opportunity for the same. The remaining industry list, which included the automotive industry, was left to the initiatives and enterprise of the private sector. However, the State reserved its right to participate in the

[25] Set up in 1951, the Tariff Commission had the functions of: adjusting duties of customs or any other duties in relation to any industry; actions relating to the dumping of goods for imports or otherwise; granting protection for the encouragement of industry and action in cases where industry has been taking undue advantage of tariff protection (GOI 2008c).

[26] It is understandable that a country recently freed from foreign domination would give importance to the goal of 'self-reliance' to avoid any foreign interference in the nation's sovereign matters.

[27] State herein is considered to be constituted of the central, provincial and state governments as well as public authorities such as municipal corporations.

future. Thus, the automotive industry under IPR of 1956 had been provided with necessary autonomy for functioning.

The IPR of 1956 was followed by the introduction of Second FYP (1956-1961). In contrast to its predecessor, which focused on the development of agrarian sector, the Second FYP had ambitious programmes for rapid development of the industrial sector. Massive investments were planned for the public sector and the amount of deficit financing was around INR 1,600 million per year (GOI 1993). The plan targeted a production capacity of 40,000 trucks, 12,000 cars and 5,000 jeeps for the automotive industry by end of the year 1960-61 (GOI 1956). As evident, more emphasis was laid on the production of trucks with regard to the nation's priorities. Also, the plan aimed at stepping up the indigenous content of the automobiles to 80% by end of the year 1960-61. Meanwhile by 1956, Tata Engineering & Locomotive Company (TELCO) and Bajaj Tempo with programmes of CVs entered the industry. TELCO was in collaboration with Daimler-Benz of Germany and Bajaj Tempo initially produced 3-wheelers under the license of Vidal & Sohn Tempo Werke of Germany. Additionally, Enfield India with a programme of manufacturing motorcycles also entered the industry.

In order to encourage the domestic production and to keep the automobile prices low, the government in early 1950s had maintained lower import duties on the components still being imported. However, a steep rise in the prices made the government to approach the Tariff Commission for the second time in August 1955. The commission was asked to enquire into and recommend a price policy for the automobiles. In its report submitted in October 1956, the commission maintained its initial recommendation against the price controls, as they might undermine the development of the industry. It also suggested reviewing the whole question of protection granted to the automotive industry after a period of ten years.

The situation however changed very soon with the balance-of-payments crisis that sprang up in 1956-57. The ambitious Second FYP with massive outlays on industrial development had strained the nation's foreign reserves. Immediate measures required to counter the economic crisis included cuts on foreign exchange allocated to the automobile manufacturers. Moreover, these firms were permitted to produce only one model each. The ensuing reduction in import of vital components compelled the firms to reduce the production. As a result, severe backlogs were generated for the production orders. The decrease in supply of automobiles resulted in steep price increases owing to supply-demand economics. At this juncture, the government decided to impose 'informal price control' on automobiles, which was accepted by the manufacturers. The informal price control mechanism required the customer to place the order with the dealer and submit a partial payment to the Indian Postal Service. The manufacturer then had to deliver the automobiles in the sequence of the orders registered with the Indian Postal Service. The government also fixed the dealer commission to a maximum of 10% and asked the manufacturers to intimate any decision of raising ex-works prices in advance.

The government by its mechanism of informal price control countered the negative effects of providing protection to the automotive industry to some extent. However, the performance of the automotive industry (especially passenger cars) throughout the 1950s had been unsatisfactory. The growing criticism about the quality and price of the automobiles made the government to appoint L. K. Jha Committee to look into these issues. The committee was asked to review the progress of the industry and recommend measures in the matters of reduction of costs, etc. In its report submitted in January 1960, the L. K. Jha Committee observed that the high costs of automobiles were attributable to the neglect and inefficiencies in production owing to the lack of domestic competition. It was also noted that the in-house

manufacture of components had resulted in an industrial structure devoid of supplier bargaining power, which further reduced the competition. As a result, in order to reduce costs and improve quality, the committee recommended the encouragement of an indigenous ancillaries sector. The subsequent adoption of these recommendations by the government marked the evolution of a separate auto-component industry in India.

The auto-components so far had mainly been produced by the in-house manufacturing units of the automobile manufacturers. The requirement of a progressive manufacturing programme coupled with the foreign exchange allocation incentives of in-house manufacture resulted in a primarily vertically-integrated industry structure. Some large/medium-size auto-component manufacturers like L. G. Balakrishnan & Bros. Ltd. and Motor Industries Company Ltd. appeared during this period with appropriate foreign collaborations. The participation of small-scale sector, however, was limited to the replacement market and to the small-scale jobs from automobile and bigger auto-component manufacturers. This was in part attributable to the lack of required skills in the small-scale sector and in part to the provisions in foreign collaboration agreements. The latter prevented the larger firms from locally procuring the components, either by explicit clauses or by giving too small concessions on content not procured from the foreign collaborators.

The government with its socialistic ideals gave importance to the development of small-scale sector from the very beginning. Apart from special credit and fiscal concessions, the government provided protection rates of tariff on a number of ancillary items used in the replacement market since 1956. Further, both small-scale units (fixed assets upto INR 2 million) and ancillary units (fixed assets up to INR 2.5 million) were exempt from licensing requirements under IDRA 1951 (GOI 2008b). Additional encouragement for the small-scale sector came in 1965, with some 60 to 80 components being exclusively reserved for manufacture by the small-scale units following the recommendations of the L. K. Jha committee. In general, the auto-component industry saw good development during this phase due to the emphasis laid on indigenisation within each of the three FYPs.

In order to achieve the increased automobile production targets of the plan period without putting strain on country's foreign exchange reserves, the Third FYP (1961-1966) had stressed on the efforts of indigenisation. The plan noted that "investment designed to increase the indigenous content has to take precedence over investment for establishing new units or expanding existing" (GOI 1961, p. 15). The indigenisation content to be achieved by 1965-66 was set at 85% as compared to 50% and 60% in First and Second FYP respectively. The target production for automobiles by end of 1965-66 was 60,000 CVs, 60,000 2-/3-wheelers, 30,000 passenger cars and 10,000 UVs (GOI 1961). As evident, priority was given to the production of CVs and 2-wheelers.

In summary, the Indian automotive industry in the years 1947 to 1965 was the one wherein the foreign competition was highly restricted by means of protective rates of tariff and foreign investment licensing requirements. Foreign collaborations were permitted only after diligent considerations and were subject to effective control by Indian entities. The domestic competition was also regulated by means of industrial licensing, foreign exchange allocations and other governmental decrees. The nation's overarching goal of self-reliance was reflected in the indigenisation requirements imposed on the domestic automotive firms. Intentions of protecting and nurturing the nascent automotive industry were accompanied by side-effects of high prices and low quality levels. Even though the consumer interests were safeguarded to some extent by informal price controls, the overall performance of the industry in terms of quality, consumer choices and the ready availability of vehicles was unsatisfactory. Further,

this phase witnessed increasing bias of the developmental efforts towards CV and 2-wheeler segment as opposed to that of passenger cars. With regard to the auto-component segment, the industry structure was largely characterised by in-house manufacturing units and large/medium-size firms. Efforts to encourage small-scale sector were being attempted by the government during this phase. Auto-related institutions like Development Council for Automobiles, ACMA, SIAM and Vehicles Research & Development Establishment also got established during this period.

5.2. Increased regulation and disparate segmental growths: 1966 to 1979

India's war with China in 1962 and with Pakistan in 1965, along with poor agricultural production due to successive severe droughts had led to financial crisis in the country by mid-1960s. The financial situation improved to some extent with the help of a loan from International Monetary Fund (IMF) in 1966. However, the formulation and implementation of Fourth FYP was put down and instead three annual plans were drawn up for the period 1967 to 1969. On the political front, the void created by sudden death of India's fourth Prime Minister in 1966 was filled by Mrs. Indira Gandhi. In the general elections of 1967, Mrs. Gandhi was re-elected as India's fifth Prime Minister and this to an extent deflected the development path of India's automotive industry.

During her rule till 1977, the populist stance taken by the government perceptibly altered the automotive policy. The first change was initiated in May 1966 with government directing the Tariff Commission to look into the whole question of continuance of grant of protection to the automotive industry. The government also asked the Tariff Commission to enquire into the cost structure and fair selling price of different type of automobiles. Although the review was already due as mentioned in Tariff Commission's earlier report in 1956, Pinglé (1999, p. 96) however suggests that "the increasingly dominant populist ideology with its anti-big industry emphasis within the political leadership" had actually led to the third-enquiry. Based on its report submitted in the same year, the Tariff Commission recommended the government: a) to help industry attain minimum efficient scale by limiting the number of models to an absolute minimum b) to impose price controls on passenger cars. Subsequently, the government imposed statutory price controls on passenger cars in September 1969.

Meanwhile, India's first competition law known as the 'Monopolies & Restrictive Trade Practices Act' (MRTP) was passed in 1969.[28] The law was prepared to keep a check on the concentration of economic power in private hands by preventing monopolistic and restrictive trade practices in important economic activities. The MRTP Act classified companies with more than INR 200 million in fixed assets and/or having a dominant market share of one-fourth or more as 'MRTP companies'. Such companies were required to obtain additional clearances (apart from those specified by the IDRA) in order to enter, expand, relocate, merge or acquire. The cumbersome process of obtaining MRTP clearances, which involved public notification of investment plans and semi-public hearings, acted as a deterrent for the companies. Subsequently, MRTP Commission was set up in 1970 for monitoring monopolistic practices in the industrial sector. Thus, many automotive firms owing to their high levels of investment came under the purview of MRTP Commission. TELCO was one of the first companies to come under the scrutiny of the commission when it applied for increasing its licensed capacity from 24,000 to 36,000 units in December 1970 (Kathuria 1996).

[28] Accessible online at: http://www.indiacode.nic.in/rspaging.asp?tfnm=196954.

Government policies related to foreign collaboration and foreign investment also underwent changes during Mrs. Gandhi's regime. In the wake of growing criticisms regarding influx of foreign equity collaborations and the dependence on foreign technology, the government appointed Mudaliar Committee in 1968 to look into the whole question of foreign collaborations. The stricter approach to foreign equity collaboration recommended by the committee was adopted by the government. Subsequently, Foreign Investment Board was established in 1968 to critically review the acquisition of foreign technology by allowing foreign equity participation. In line with its stricter approach, the government enacted Foreign Exchange Regulation Act (FERA) in September 1973 consolidating and amending the then existing laws on foreign exchange transactions.[29]

With its objective of conserving country's foreign exchange reserves and ensuring judicious use of the same as per nation's priorities, the FERA regulated the import of foreign supplies and the functioning of foreign collaborations. The provisions of the Act created additional constraints on the import of technology, raw materials and components for the industrial sector in general and the automotive industry in particular. The maximum foreign equity participation was brought down to 40% under FERA, with exceptions permitted only at State's discretion. Also, FERA classified the companies with more than 40% foreign equity as 'FERA companies'. These companies were subject to greater scrutiny in their operations. Thus, the enactment of MRTP and FERA in the early-half of this phase strengthened the regulations surrounding the Indian automotive industry.

The fourth FYP (1969-1974) was introduced in 1969. The financial crunch combined with populist ideology of the ruling party manifested itself into reduced plan outlays for the industrial sector. With regard to its policy for automobiles, the government was very clear in its preference for means of affordable personal and public transport as against to luxurious passenger cars. From an actual production of 35,300 CVs and 84,600 2-/3-wheelers in 1968-69, the fourth FYP targeted to reach an annual production of 85,000 CVs and 210,000 2-/3-wheelers by the end of 1973-74 (GOI 1969). On the other hand, no additional capacity was planned for the passenger cars. Between 1970 and 1975, Kinetic Engineering and state-owned Scooters India made their entry into the 2-wheeler segment. Kinetic Engineering began producing mopeds, whereas Scooters India commenced production of scooters.

A further setback to the automotive industry came during this phase with the beginning of the Oil Crisis in October 1973. The substantial rise in the import bill of crude oil led to the balance-of-payments crisis. As a result, India approached IMF for a monetary loan to dampen the oil shock effects. The financial woes of the country made the bureaucrats of the Ministry of Finance and the Ministry of Industry to take a closer look at the development of the automobile industry, especially the low fuel-efficiency of the Indian automobiles. This study led to the division of automobile industry into luxury (passenger cars) and non-luxury (rest of the industry) segments. The ministries decided to provide encouragement for the growth and technological development of non-luxury segment, leaving out the luxury segment. Accordingly, CVs were added to the 'Appendix-I' list in 1973, which meant that the applications for capacity licenses, foreign collaborations, etc. from the CV manufacturers (including MRTP/FERA companies) were to be treated more favourably.[30] Furthermore, significant capacities were being licensed for the 2-wheeler segment.

[29] Accessible online at: http://www.indiacode.nic.in/rspaging.asp?tfnm=197346.
[30] In 1970, the govt. came out with a list of 9 core industries including tractors that were designated as national priorities. This list revised in 1973 with the addition of CVs was colloquially referred to as 'Appendix-I'.

The aftermath of Oil Crisis led to a steep rise in prices of the common goods, thereby affecting economic well-being of the country. As a result, the growth of most of the automobile segments slowed down over the next few years. The accompanying rise in fuel prices resulted in a noticeable decline in the demand for already troubled passenger car segment. Some relief came for the segment in 1975 with the court's judgement against the statutory price controls on passenger cars. Subsequently, the informal price controls on 2-/3-wheelers were also removed. Meanwhile, the Fifth FYP (1974-1979) was introduced in 1974. The plan outlays were kept at modest levels and no new projects in the industrial sector were planned. With regard to the automotive industry, the plan targeted an annual production of 60,000 CVs, 320,000 2-wheelers and 32,000 passenger cars by end of 1978-79 as against the actual production of 42,900 CVs, 150,700 2-wheelers and 44,200 passenger cars in the year 1973-74 (GOI 1974).

As is evident from the Fifth FYP, the government concentrated on the policy of encouraging the growth of 2-wheeler segment from mid-1970s. This was done to provide mobility to the country's growing middle-class without incurring higher petroleum consumption on cars. As a result, the period between 1976 and 1980 saw new entries as well as diversification by the existing firms in the 2-wheeler segment. Maharashtra Scooters entered into the production of scooters. Sundaram Clayton and Majestic Auto commenced the production of mopeds. Bajaj Auto diversified into the production of motorcycles with its indigenously developed models. Scooters India also diversified into the production of 3-wheelers. As an exception, Sipani Automobiles entered into the passenger car segment with a small car model.

From 1975 onwards, minor relaxations were being made to the licensing regulations. For instance, since 1975 'automatic growth rule' was applicable to CVs, ancillaries and tractors. According to this rule, an automatic capacity expansion of 5% per year (25% in total for 5 years) was permitted over and above the 5% automatic growth permitted under IDRA 1951. Another relaxation that was made for non-MRTP and non-FERA automotive firms producing CVs, tractors, ancillaries and scooters was the one that allowed expansion without limit. However, these relaxations were subject to certain conditions. The product in consideration could not be the one reserved for the small-scale sector. Moreover, the requirements of imported machinery and raw-materials/components arising out of the undertaken expansion required additional clearances. Further, in 1978 the government also dismantled some of its stricter controls on foreign equity collaborations.

Thus, this phase of the development of Indian automotive industry witnessed tightening of regulations with the introduction of MRTP and FERA. The macroeconomic setbacks along with populist policies undermined the development of passenger car segment. The average annual growth rate of this segment over the period 1966 to 1979 was quite low at 2.8%.[31] On the other hand, government policies to encourage the development of non-luxury segment helped it to sustain growth through otherwise difficult times. The CVs and the UVs segment saw moderate average annual growth rates of 3.3% and 3.8% respectively over this phase. The average annual growth rates over the same period for 2-wheeler and 3-wheeler segment were relatively high at 13.5% and 26.2% respectively. Nevertheless, all the segments within the industry experienced noticeable year-to-year fluctuations in demand within this phase. The Indian automotive industry produced 275,624 2-wheelers, 59,700 CVs, 29,235 cars, 16,947 3-wheelers and 12,340 UVs in the year 1979 (refer Appendix A).

[31] All calculations in section 5.2 are based on the production statistics; refer Appendix A.

The government policy towards the auto-component industry remained more or less the same. With minor amendments to the list, the auto-components reserved for the exclusive manufacture by small-scale sector continued to persist. The protective rates of tariff on components were preserved. By early 1970s substantial progress had been made in the indigenisation of components and the domestic content of almost all automobiles was above 90% (Narayana 1989). Lastly, the automotive industry in co-operation with the Ministry of Industry established the Automotive Research Association India in 1966 for supporting R&D efforts within the industry.

5.3. Limited liberalisation and foreign collaborations: 1980 to 1990

The beginning of this phase was marked with the re-election of Mrs. Indira Gandhi as the eighth Prime Minister of India in January 1980. The poor performance of Indian industries exacerbated by the demand problems arising out of unexpected oil shocks of the 1970s had created resentment about the regulatory policies of the government. As a result, the government thought it necessary to review its existing policies and undertake measures for making the industries more competitive. It therefore decided to ease licensing controls and other restrictive/protective rules administering the industrial sector. It also decided to allow adequate import of technology required for modernisation. The Industrial Policy Statement presented in July 1980 gave an expression to this shift in government policy.[32] Additionally, the statement emphasised the optimum utilisation of installed capacities, promotion of exports and regionally-balanced economic development. The Sixth FYP (1980-1985) introduced in early 1981 reflected these changes to the industrial policy. One striking feature of this plan as compared to its predecessors was the strong emphasis on exports.

The overall policy shift in the industrial sector brought about important changes within the automotive industry. Various relaxations were made to the regulations pertaining to capacity licensing and foreign collaborations. Imports of capital goods, technology and raw-materials/components required for the modernisation were also treated more liberally. The encouragement for the development of CV segment continued in this phase as well. In 1981, the government gave Letter of Intent to four Indian firms for the manufacture of LCVs. All of the four firms were in technical-cum-financial collaboration with Japanese players and were licensed a production capacity of 12,500 vehicles per year (Pinglé 1999). The four firms: Swaraj Mazda, DCM-Toyota, Allwyn-Nissan and Eicher Mitsubishi commenced their production in 1985.

The passenger car segment also witnessed a major change during this phase. The policy shift of 1980 intended to favour consumers by providing them with free choice regarding all types of consumer products including luxuries. Accordingly, despite of being classified in 1970s as a luxury segment, the passenger car segment was added to the Appendix-I list in 1982 along with UVs and 2-/3-wheelers.

Thus, the segment came to be classified as a core industry of national economic importance, whose development was to be favoured by the upcoming government policies. Reviewing the development that the passenger car segment had made so far under the existent firms, the government deemed it necessary to increase the competitiveness of the segment by actively

[32] Intermediate to IPR of 1956 and Industrial Policy Statement of 1980, an industrial policy statement was also introduced by the Janata Party government in 1977. The statement, inter alia, emphasized upon relaxation of import controls and efforts to increase industrial exports.

participating in it.[33] Consequently, state-owned enterprise Maruti Udyog Ltd. (MUL) entered into collaboration with Suzuki (Japan) in 1982. The Japanese collaborator offered the best deal with three latest car models, 26% equity stake and indigenisation content level agreement of 95% by 1988-89. The first car rolled out of MUL's factory in 1984 and with this changed the face of India's automotive industry.

Meanwhile, the government also relaxed the import regulations to encourage the existing firms to upgrade their technology. Fiscal incentives were provided to the passenger car manufacturers in 1984 to enable them to import technology and improve the fuel efficiency of their vehicles. The domestic firms took advantage of these opportunities and upgraded their technology base, either by direct imports of technology or by foreign equity collaborations. PAL bought a license from Fiat (Italy) for the manufacture of its Fiat 124 model and reengineered it to receive a fuel-efficient Nissan engine produced under license from Nissan (Japan). Similarly, HML purchased the rights to manufacture phased-out Vauxhall Victor model of Vauxhall Motors (UK) and modified it to receive a fuel-efficient Isuzu engine licensed from Isuzu (Japan). Sipani Automobiles obtained a license to manufacture the British Reliant Kitten. On the other hand, Standard Motors which had shelved its passenger car production in late 1970s made a bid to re-enter the market with a new car model based on the Rover 3500 (UK) and its own engine.

Under the competition from MUL's newly launched UV model, M&M which had enjoyed monopoly in the UV segment so far was also compelled to upgrade its model with a new Peugeot engine licensed from Peugeot (France). The 2-wheeler segment also saw the entry of new players: Kinetic Honda and Hero Honda in collaboration with Honda Motors (Japan) and LML in collaboration with Vespa (Italy). The existing players entered into collaborations with Japanese automotive firms: Bajaj Auto with Kawasaki, TVS Motors with Suzuki and Escorts with Yamaha. In the face of competition from new Japanese motorcycles, Enfield India introduced new models based on the designs bought from Zundapp (Germany). With regard to the CV segment, Ashok Leyland collaborated with Hino (Japan) for new engines. TELCO on the other hand made greater investments in its internal R&D capability. Thus, the entry of new players accompanied by import relaxations in early 1980s brought about fundamental changes to the structure of Indian automotive industry.

Indian consumers who had hitherto been restricted to a few models with outdated technology, were made available a variety of choices of better-technology and fuel-efficient vehicles in 1980s. In order to make sure that the new automobiles are affordable and therefore having sufficient demand, the government continued its 'automatic growth' and 'regularisation of excess capacity' schemes of the late 1970s. With the addition of all the automotive segments to Appendix-I list by 1982, the usage of automatic growth rule became easier for MRTP/FERA companies. Further, the government in 1980 allowed non-MRTP and non-FERA companies in CV and 2-/3-wheeler segment to automatically expand up to their installed capacities so as to achieve efficient scale. This was renewed in 1982 as re-endorsement of capacity up to 133% of the best production of the previous five years, given that the capacity utilisation had reached 94% (reduced to 84% in 1986) and was available to

[33] The historical account provided in this section does not intend to discuss the political and personal interests of stakeholders influencing the government decisions at that time. For instance, Pinglé (1999) asserts that the policy shift of 1980 and the offering of licenses to LCV manufacturers were the outcome of Mrs. Gandhi's political calculations of getting aid from IMF in 1981 and her political obligations to the industrial houses for their support during elections. Moreover, the decision of government to nationalize MUL and collaborate with Suzuki was strongly influenced by Mrs. Gandhi's personal interest of salvaging the reputation tainted by her son's failed endeavor – MUL.

Appendix-I MRTP/FERA companies as well. For an initial period, the government also lowered the custom duty on import of components for fuel-efficient vehicles.

However, in 1984 all automotive segments were brought under 'Schedule IV', i.e. "industries requiring special regulation, on the grounds of raw material shortage, likelihood of high pollution, or infrastructure constraints" (Kathuria 1996, p. 89). This meant that the aforementioned relaxations were to an extent nullified with the requirement of an additional clearance under Schedule IV for substantial expansion. New entry of firms and JVs with foreign collaborators that was witnessed in the period 1982-84 was virtually banned for the rest of the phase, except in the auto-components segment. Few more relaxations for the automotive industry made their way through the appointment of Mr. Rajiv Gandhi as the ninth Prime Minister of India in October 1984.[34]

The fresh economic ideology and political perspective of the new Prime Minister was reflected in the Seventh FYP (1985-1990), with its focus on exports and liberalisation in the industrial production. Subsequently, in January 1985 the government announced a policy of 'broad-banding' encompassing the entire industrial sector that allows manufacturers to use the installed machinery flexibly. Under broad-banding scheme, the production licenses were issued for a broader product group as opposed to the single-product licenses issued previously. The manufacturers were not required to take any additional clearances for diversifying within their product groups as long as the diversification did not necessitate any new investment in machinery. The scheme was conceived to liberalise production by providing the manufacturers with freedom to select the right product mix to be produced, and thereby make optimal use of their capital investments.

In 1985, the broad-banding grouped passenger cars, CVs and UVs into one product group named 'on-road four-wheelers'. This entailed that any firm operational in the aforementioned segments, within its overall capacity, had the opportunity to diversify into any other segment within the group or vary the product mix over the segments based on the demand conditions. TELCO seized this opportunity by diversifying into the LCV segment with an indigenously developed model in 1986. It also entered into the UV segment with its pick-up truck in 1988. Similarly, broad-banding grouped all the 2-wheelers up to 350cc engine capacity into one group, which was later expanded in 1986 to include 3-wheelers. A similar broad-banding group was announced for automobile ancillaries as well. In addition to broad-banding policy, Mr. Rajiv Gandhi's regime also brought some other relaxations. From May 1985, all the automobile and component manufacturers were exempted from sections 21 and 22 of the MRTP act, which meant that the large industrial houses were no longer required to take MRTP approvals.[35] In 1986, 'minimum economic scale' scheme was announced under which the government promised to actively encourage firms to achieve economic scale of operations.

By the end of this phase, the limited de-regulation drive for industrial production came to a halt due to the growing opposition from within the ruling party. In fact, Mr. Rajiv Gandhi was compelled to undo some of the newly introduced modifications. Nevertheless, the limited liberalisation that took place during this phase had a considerable impact on the development of India's automotive industry. The modernisation programme of early 1980s intensified competition in the industry and upgraded its technological base. The relaxations in the form of new entries, foreign collaborations, automatic growth, re-endorsement of capacity, liberal

[34] Rajiv Gandhi was elected as the Prime Minister following Mrs. Gandhi's assassination on 31st October 1984.
[35] FERA continued to be applied where required.

MRTP/FERA implementations and broad-banding facilitated in driving the change. The drive for indigenisation continued during this phase with all the vehicle and component JVs required under the phased manufacturing programme to achieve 95% indigenisation within five years of start of production. Indian consumers were given a free choice to select among a higher variety of better-technology and fuel-efficient vehicles, including luxuries. Passenger cars, a non-priority sector in 1970s, came to be identified as a core industry of national importance. The production of cars in the year 1989-90 at 179,278 exceeded that of CVs at 125,051 (refer Appendix A). The production of 2-wheelers, 3-wheelers and UVs in the same year was 1,731,686, 83,752 and 44,309 respectively (refer Appendix A).

The auto-components segment also underwent considerable changes during the second-half of this phase. The influx of foreign collaborations in the vehicles segment, and thereby ingress of diverse product designs necessitated technological upgrade from the side of auto-component manufacturers as well. As a result, many domestic manufacturers entered into collaborations with foreign players. Moreover, the foreign collaborators in the vehicles segment were followed by their local suppliers who also entered the Indian market forging collaborations with the domestic players. Thus, this was the time wherein the Japanese best practices made their way into the Indian automotive industry. Consequently, the insistence for higher quality components and timely deliveries, coupled with the heterogeneous demand created unrest within the segment. Additionally, the Motor Vehicles Act passed in 1988 mandated the components used in the Indian vehicles to be certified under the standards laid by Bureau of Indian Standards.

The components segment was given due attention since its development was considered critical for the modernisation drive. The relaxations pertaining to relatively liberal entry, growth and imports of foreign supplies were also available to the auto-components segment. The broad-banding product categories for auto-components were quite large, enabling sufficient diversification by the existent players. In March 1985, the auto-component segment was delicensed under IDRA for non-MRTP and non-FERA companies with the condition that the firm was not located within urban or municipal limits. Further, for MRTP/FERA companies the delicensing was applicable for investment in backward areas. Encouragement to the small-scale sector was also continued during this phase with the government raising the investment limit INR 1 million to INR 2 million for small scale units and INR 1.5 million to INR 2.5 million for ancillary units (GOI 2008b).

The export performance of the automotive industry between the years 1951 and 1980 had been mediocre. Being a net user of foreign exchange, the automotive industry was given much attention during the sixth plan period for improving its export performance. Accordingly, various export promotion measures were implemented by the government. As a consequence, the export of Indian automotive industry nearly doubled from INR 1561 million in 1984-85 to INR 3041 million in 1988-89 (ACMA 1991-92 cited after Chugan 1995).

5.4. Liberalisation and ensuing globalisation: 1991 onwards

The economic crisis of 1990-91 followed by a major shift in the country's overall economic policy framework marked the beginning of this phase. Increased governmental expenditure combined with poor performance of the public undertakings had led to growing budget deficits throughout the 1980s. The financial woes of the country were exacerbated by the commencement of the Gulf War in August 1990. The steep hike in import bill of crude oil coupled with decreasing remittances from Indian expatriates in the Gulf led to a sharp decline

in country's foreign exchange reserves. By the end of 1990, the reserves dropped to levels that were not sufficient for even a fortnight and there was a serious possibility of default. In January 1991, the government accepted a loan from IMF's Compensatory and Contingency Financing Facility. Subsequently in July 1991, the new government headed by Prime Minister P. V. Narasimha Rao approached IMF for another loan. The availed loan was accompanied by conditionalities regarding control measures for budget deficit as well as the implementation of economic structural reforms.

In line with its agreement to the conditionalities laid by the international financial institutions, the government adopted a new economic policy in July 1991. The new policy proposed wide ranging economic reforms in an attempt to liberalise and open up the economy. Structural reforms encompassing deregulation of industrial sector, trade and investment policy reforms, financial sector reforms, tax reforms and foreign exchange reforms were envisaged for this purpose. Accordingly, a new Industrial Policy Statement was introduced by the government in July 1991. The thrust of the new industrial policy was towards creating a more competitive environment in the sector and removing the barriers to entry and growth of firms. Some important policy decisions made by the government in this regard were as follows (GOI 2008b):

- Abolishment of the industrial licensing system for all except a few industries related to strategic and security concerns.
- Automatic approval of FDI upto 51% equity in high-priority industries.[36]
- Automatic clearance for imported capital goods with the condition that the foreign exchange required is available through foreign equity.
- Automatic permission for foreign technology agreements in high-priority industries subject to the prescribed royalty rates or a lump-sum payment not exceeding INR 10 million.
- Amendment of MRTP Act to remove the threshold limit of assets for MRTP companies and large dominant undertakings, which effectively eliminated the need for such companies to obtain MRTP clearances any further.
- Review of the existing portfolio of public investments with greater realism and progressive disinvestment in public enterprises where private sector had developed sufficient expertise and resources.

The sweeping changes in overall industrial policy had a significant impact on the development course of India's automotive industry. Though a few liberalisation measures had already been introduced in 1980s, the policy reforms initiated in 1991 were much more comprehensive. All the vehicles segment (except passenger cars) and the auto-component segment were delicensed in July 1991. The passenger car segment was delicensed in May 1993. Along with abolition of the need for MRTP clearances, this meant that the automotive firms were free to enter, expand, diversify, merge or acquire based on their commercial judgements. The liberalisation concerning foreign investment encouraged several global players to enter into the Indian market establishing JVs with domestic players. While FDI upto 51% was allowed on an automatic basis, the same for more than 51% required governmental clearances which were approved on a case-to-case basis depending upon the projected exports, sophistication of technology brought in, etc. The phased manufacturing programme requiring time-bound indigenisation was dropped in 1991 for the new units and in 1994 for the existing units.

[36] High priority industries, requiring large investments and advanced technology, have generally been known as the 'Appendix-I industries'. Since 1982, all segments of the automotive industry had been on the Appendix-I list.

While the aforementioned structural reforms benefited the automotive industry over a longer term, the short-term stabilisation measures adopted by the government to counter the crisis adversely affected the industry's growth. As an immediate measure to improve the country's balance-of-payments situation, the government discouraged the consumption of oil by imposing a surcharge of 25% on petroleum products. It also imposed a heavy excise duty on selling price of all the automobiles. For instance, the excise duty on passenger cars was increased from 42% to 53% in August 1990, and further raised to 66% in July 1991 (Sumantran et al. 1993). Additionally, in order to reduce the trade deficit the rupee was devalued and the auxiliary customs duty was increased. The escalation of the yen-rupee exchange rate combined with the increased costs of production of the newer import-dependent components undermined the performance of firms with recent Japanese collaborations. On the demand side, the overall hike in fuel prices and the credit squeeze to curb the inflation stifled the demand for automobiles in the country. The change in allowed rate of depreciation from 33% to 20% was an additional discouragement for the market (Sumantran et al. 1993).

The automotive industry, which saw a negative annual growth rate of 10.1% in the vehicles segment in the year 1991-92, recovered in the subsequent years of the post-reforms period.[37] The excise duty on passenger cars was reduced from 66% to 55% and that on LCVs from 15% to 10% in June 1992 (Sumantran et al. 1993). The excise duties on other vehicle segments were also rationalised. The tariff structure for auto-related imports also underwent changes with the peak tariff rate reduced from 150% in 1991 to 110% in 1992, 85% in 1993, 65% in 1994 and 50% in 1995 (Kathuria 1996). The tariff rate for capital goods also underwent similar reductions. Additionally, the rupee was moved to full convertibility in March 1993, and the imports and exports were to be made at market-determined exchange rate. Thus, the lowering of trade barriers, the possibility of making direct investments and the promising growth potential of the domestic market, brought India onto the radar of international automotive players.

The passenger car segment with the highest untapped growth potential saw the most hectic activities from the foreign automotive firms. By mid-1990s, several foreign players had entered into the Indian passenger car market by mainly setting up JVs with the local firms – Mercedes-Benz with TELCO (1994), General Motors with HML (1994), Peugeot with PAL (1994), Daewoo with acquisition of DCM-Toyota (1995), Honda Motors with Siel Ltd. (1995), Ford with M&M (1996), Hyundai with a 100%-owned subsidiary (1996), Fiat with Tata Motors (1997) and Toyota with Kirloskar Group (1997). In the CV segment, Tatra in collaboration with Vectra Motors (1997) and Volvo with its 100%-owned subsidiary (1997) made their foray into the Indian market. Most of these new ventures proposed to initially only assemble SKD/CKD kits. As a result, for balance-of-payments reasons the government in 1995 asked these companies to individually commit an equivalent amount of exports.

In 1997, the Ministry of Industry in its policy for automotive industry placed import of capital goods and auto-components under Open General License (OGL), but regulated the import of automotive vehicles in CBU form or in SKD/CKD condition. The vehicle manufacturing units were allowed to import vehicles only in SKD/CKD condition and were required to obtain a license for the same. The availability of license was subject to execution of Memorandum of Understanding (MoU) signed with the DGFT. As described in GOI 2002 (pp. 2, 3), such a MoU required the companies to:

[37] Annual growth rate calculated based on production statistics. Refer Appendix A.

i. Have a plan for actual production and not just merely assemble SKD/CKD kits.
ii. Bring in at least USD 50 million for having operations as a subsidiary.
iii. Reach an indigenisation content level of 50% in the third and 70% in the fifth year from the date of clearance of the first lot of imports.
iv. Neutralise foreign exchange outgo on imports by equivalent exports. Such an obligation commences from the third year of the start of operations.

Eleven companies had signed such MoUs with the DGFT (GOI 2002) by April 2001. Meanwhile, the passenger car segment saw the entry of Skoda in 1999. In the 2-/3-wheeler segment, the trend was for the earlier foreign collaborators of 1980s to either acquire majority stake in the JVs or establish independent subsidiaries into the country. Accordingly, Yamaha (1995), Piaggio (1998) and Honda (1999) made their independent foray into the Indian market. With the need for being more investor-friendly, subsequent improvements have been introduced into the automotive policy from time to time. For instance, in Jan. 2000 the requirement of foreign exchange neutrality was done away with for the new investors. Since April 2001, the SKD/CKD and even CBU imports were put on the OGL list, thereby eliminating the need for obtaining license under MoU with DGFT for the new investors. The quantitative restrictions on imports were therefore effectively removed. The export commitments for the already-existing foreign investors were abolished in August 2002.

With a vision of establishing a globally competitive automotive industry in India and doubling its contribution to the economy by 2010, the Ministry of Industry presented for the first time a separate auto policy document in March 2002. Known as 'Auto Policy 2002', the document supersedes the auto policy adopted in 1997 by addressing emerging problems, being more investor friendly and ensuring compatibility with World Trade Organisation (WTO) commitments. Auto Policy 2002 sets itself for making the Indian automotive industry globally competitive. It aims at promoting modernisation and indigenous design and development within the country as well as establishing domestic safety and environmental standards at par with the international ones. Furthermore, it targets at making India as an international hub for manufacturing of small cars as well as a key centre in the world for 2-wheelers and tractors. Accordingly, the policy proposed various initiatives relating to investment, tariffs, duties and imports in order to achieve these objectives.

Auto Policy 2002 allowed automatic approval of foreign equity investment upto 100% for the manufacture of automobiles and auto-components. With regard to the tariff structure, the policy proposed to fix the import tariffs in a way that the actual production within the country was facilitated over mere assembly, without providing undue protection at the same time. This was mainly applicable to the WTO-unbound segments (passenger cars, UVs and 2-/3-wheelers).[38] For WTO-bound segments (CVs and auto-components), the policy proposed to encourage the domestic players by providing adequate accommodation for attaining global standards. The thrust for automotive R&D continued in this policy, but with renewed vigour. Suitable fiscal and financial incentives were planned for promoting industry R&D efforts. For instance, a weighted tax deduction of more than 125% was decided for R&D activities of vehicle and component manufacturers (GOI 2002). The policy also planned to increase the allocations to the automotive cess fund created for R&D of automotive industry and to expand the scope of activities covered under it. Auto Policy 2002 also stressed upon strengthening the environmental and safety standards.

[38] Unlike WTO-bound goods, WTO-unbound goods do not have a WTO-committed ceiling on the custom duty rates.

The policies laid by Auto Policy 2002 have continued to apply till date with minor modifications. Within a decade of introducing structural reforms into the country, the production of India's automotive industry had increased from 1,603,736 2-wheelers, 165,309 cars, 144,248 CVs, 76,750 3-wheelers and 31,530 UVs in 1991-92 to 4,271,327 2-wheelers, 564,052 cars, 162,508 CVs, 212,748 3-wheelers and 105,667 UVs in 2001-02 (refer Appendix A). Along with reductions in the overall tariff level to open up India for international trade, the government has also progressively rationalised its domestic taxation structure to provide a fair competition ground for its domestic manufacturers against the international competition. For instance, the excise duty on passenger cars has been brought down from its peak rate of 66% in 1991-92 to 24% in 2008-09.[39] With regard to the import tariffs in the year 2008-09, the custom duty on WTO-bound segments (CVs and auto-components) has been reduced to 10%, whereas that for the WTO-unbound segments (passenger cars, MUVs and 2-/3-wheelers) has been 10% for CKD units and 60% for SKD/CBU form (SIAM 2008g).

Thus, during this phase, the increasingly investor friendly as well as liberal trade measures adopted by the government led to a momentous increase in the number of foreign players active in the country. The dismantling of licensing controls also encouraged the domestic players to undertake entrepreneurial endeavours. This furthered competition within all the segments of the automotive industry. The market for automotive vehicles in India, which had earlier been virtually a seller's market, was transformed into a buyer's market. The Indian consumer benefited the most from the intensified competition, which brought his requirements of a cost-effective, technologically-competent, fuel-efficient and reliable means of transport into perspective. Strong macroeconomic base of demand growth drivers along with convenient credit facilities have ensured rising demand for vehicles in the country. Hence, the bold attempt of the government in making a major shift in its economic policy framework in early 1990s, along with its continued support to the automotive industry has put the industry on a fast track of development.[40]

Also, environmental and safety standards as an integral and important part of modern automotive industry received due attention during this phase. First state emission norms came into force for petrol vehicles in 1991 and for diesel ones in 1992. Euro I, Euro II and Euro III norms have subsequently been introduced in India in 1996, 2000 and 2005 respectively. Efforts are being made to align Indian safety standards with the global ones. With its accession to United Nations Working Party-29 in 2005, India has been making efforts towards the harmonisation of auto standards world-wide and therefore integrating its auto industry into the global automotive industry. On the technology front, the liberalisation concerning foreign technology agreements and foreign collaborations infused world-class technology into the industry. The government has encouraged efforts for latest foreign technology assimilation and indigenised design and development. Fiscal incentives as well as institutional support have been provided for encouraging industry R&D efforts. The domestic R&D efforts came to fruition with the launch of India's first indigenously developed car 'Indica' by Tata Motors in 1999. Over years, many domestic as well as foreign firms have set up R&D facilities in the country.

[39] The excise duty on automotive vehicles and auto-components in the year 2008-09 ranges between 14% and 24% in general (SIAM 2008f).

[40] With the liberalisation of economy and accompanying de-emphasis of public sector, the role of Planning Commission had become less pronounced and mainly of indicative nature. The role of government for the automotive industry has therefore been that of a facilitator.

With regard to the auto-component segment, the phase witnessed the entry of several foreign auto-component firms mainly following their global OEM customers into the Indian market. By the end of year 2000, all major global Tier-1 suppliers had their presence in India. The spurred competition on the home turf as well as the expanding domestic and international market for their products, made the domestic auto-component producers to upgrade their technology and management practices. Further, the cost-effective and quality auto-components produced in India are increasingly gaining acceptance in international markets. There is an increasing trend in the number of Indian auto-component firms getting integrated into the global supply chains of automobile and auto-component majors worldwide. On the other side, the automobiles produced in India are increasingly making their way to the foreign markets through either direct or indirect exports. Also, the domestic automobile manufacturers are teaming up with foreign auto-component firms for bringing out new vehicle models. Hence, such increased interaction and interdependence between the Indian automotive firms and their foreign counterparts is leading to globalisation of India's automotive industry.

6. Influence of government policies on the development of India's automotive industry

This section aims at discussing the influences various government policies had on the development of India's automotive industry, from its inception to the present-day form. Such a discussion, in its true semantic sense, would necessitate identification of all the policies that have influenced the development of India's automotive industry and an understanding of their impact on the industry's development. Having mentioned that, it is important to realise the complexities involved in such an attempt, and thereby the need for rationalising the scope of the discussion.

With regard to the identification of relevant policies, one experiences complexity with the vast array of government policies that potentially influence the development of the automotive industry. A list of such policies may include industrial policy, foreign investment policy, trade policy, fiscal policy, monetary policy, science & technology policy, environmental policy, labour policy, education policy, transport policy, small-scale sector policy and so on. The reason behind generation of such an overwhelming list of policies is the complex functioning of the automotive industry influenced by several policy areas. For a country like India, another consideration that expands such a list of policies (and thereby the complexity) is the formulation of additional policies at the regional level by the state governments. Additionally, the complexity is compounded by the fact that policies change over time owing to changing government agendas, and that an understanding of the impact of a certain policy over the development period of India's automotive industry would necessitate an understanding of each version of that policy. Hence, in order to be within the scope and nature of this work, it is inevitable to focus the discussion on only those policies that had the most influence on the development of India's automotive industry.

Further, with regard to understanding the impact of relevant policies, it is ideally required to ascertain the influences of relevant policies on the development of the automotive industry using quantitative and/or qualitative means. However, this poses certain challenges for the effort possible within the scope and nature of the present work. Firstly, in order to comment upon the development of an industry, one needs to consider several aspects of industry development – size, structure, investment, growth, performance, competition, product variety, product quality, technology base, R&D, environmental & safety standards, imports, exports, international competitiveness and so on. Therefore, a study of the influence of a particular policy on the development of the industry would ideally require a consideration of its impact on several above-mentioned aspects. However, it is beyond the scope of this work to academically establish influence of all the relevant policies for multiple aspects of industry development. Secondly, within the policy space surrounding the automotive industry, some policies (like industrial and trade policies) are more direct in their influence on industry development than others (like education and labour policy). For the latter ones, while it might be easier to identify the parts of policies that bear influence on the automotive industry, it is difficult to ascertain their impact on the industry's development. For example, an education policy decision of increasing seats in engineering colleges is of relevance to the automotive industry, but how it impacts the exports of the industry cannot be easily ascertained. Thus, in order to manage the complexity highlighted above within the realm of this work, it is needed to focus the investigation of the impact of policies to limited aspects of industry development and to focus the discussion more on policies with direct influence than the others.

In consideration to the complexities expressed so far, this section shall discuss the influence of government policies while maintaining the scope of discussion within modest levels. For this purpose, the section focuses only on the key policies discussed within Section 5, with the importance of these policies over others judged based upon the literature reviewed on the subject matter.[41] It has to be made clear here that the term 'policy' in its academic usage does not necessarily implies a 'policy document', and that it basically refers to a 'decision' that is made by the government to provide guidance for addressing selected concerns.[42] Such an understanding of the term 'policy' helps to explain its varied usage as referring to individual government decisions (e.g. informal price control policy), decisions within a policy document (e.g. licensing policy), the policy document itself (e.g. industrial policy) and decisions spanning several policy documents (e.g. liberalisation policy). Based on the literature reviewed for compiling the list of policies that shaped the development of India's automotive industry, it was observed that the policies described were usually individual government decisions or decisions within policy documents as opposed to complete policy documents themselves. Following the same, this section also restricts its focus on key individual government decisions and the decisions within policy documents (referred together as 'policy decisions') instead of considering each policy document separately. Furthermore, only policy decisions made at national level are taken into consideration, while leaving out those at the state level.

The influences of key policy decisions on the development of India's automotive industry are explained using the findings of veteran researchers on the subject matter, supplemented by the authors' own analysis. Quantitative means are used to the extent of exhibiting the impact of policy decisions and cannot be compared to the complex econometric analysis with policy-impact lag adjustment usually employed by policy researchers; see for instance Panda (2002). Also, the impact of a particular policy decision is studied only on selective aspects of industry development. Further, since the impact of a policy decision varies for different vehicle segments of the industry as well as for different firms within the same vehicle segment, the section attempts at providing a limited discussion of the important segment-wise and firm-level influences.

Accordingly, subsequent sub-sections in this section discuss the impact of major policy decisions made within different phases of the development of India's automotive industry. Finally, for each sub-section, the role played by the Indian government is reviewed on lines of the discussion made in Section 4.

6.1. Influence of key policy decisions in the regulatory phases

The key policy decisions made by the Indian government towards the development of the automotive industry during the regulatory phases (1947-1965 and 1966-1979) are presented in Figure 8 below. The figure also shows the important events in the history of India's automotive industry that in a way shaped the context of the aforementioned policy decisions. The influence of these policy decisions on the development of India's automotive industry shall be discussed in the present sub-section.

[41] Narayana (1989), Kathuria (1996), Pinglé (1999), and Singh (2004) amongst others

[42] Based on the definition of policy by Torjman (2005) and the general observation regarding the usage of the term among various literature sources

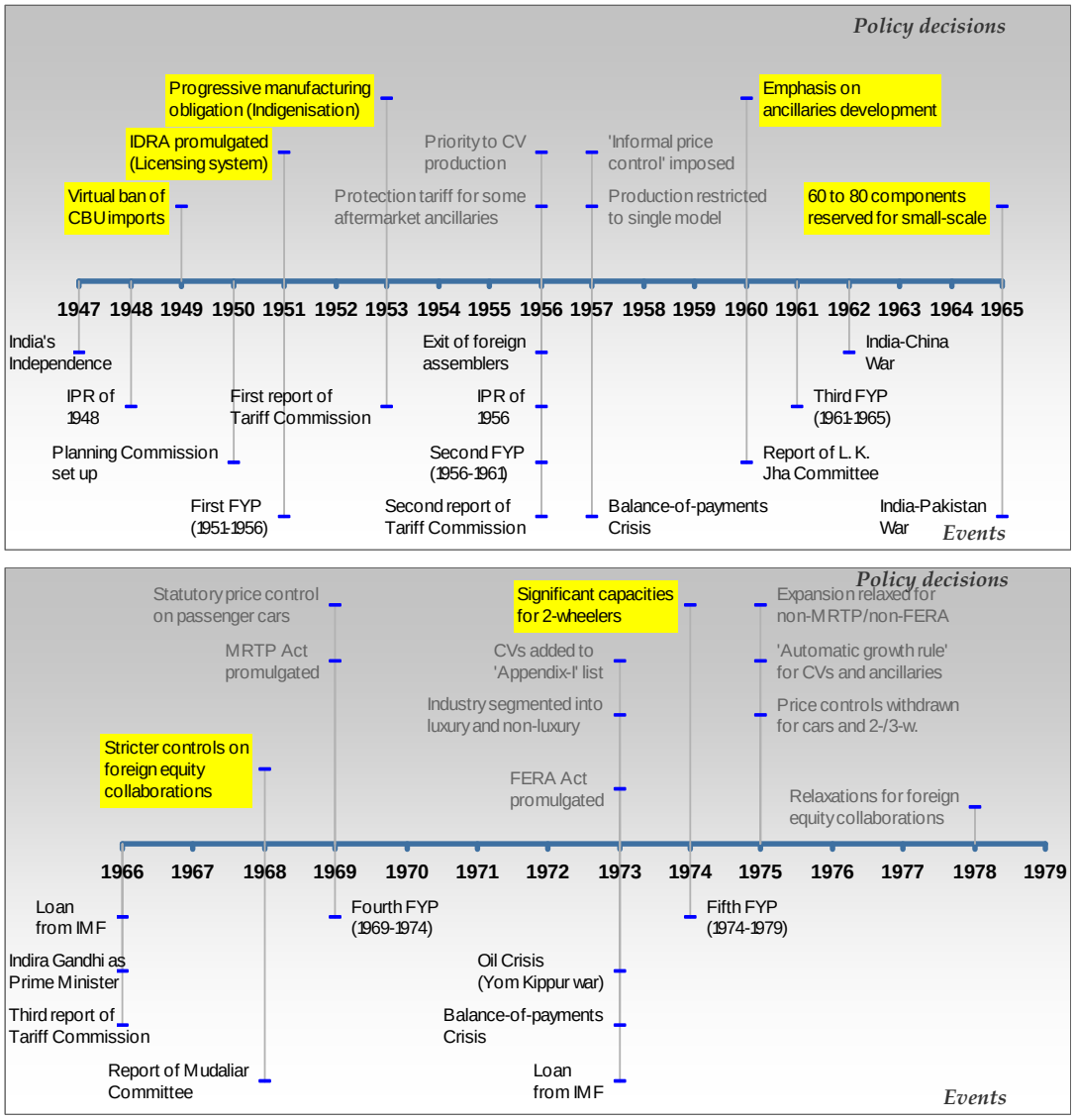

Figure 8: Timeline of key policy decisions and events in the regulatory phases[43]

Virtual ban of CBU imports

In order to conserve foreign exchange and incentivise assembly over mere imports, the government in 1948 raised the tariff barriers on vehicles imported in the CBU form. This virtually eliminated the CBU imports, and thereby protected the final product i.e. the complete vehicle from external competition. Such a policy decision, if it did not directly help the domestic firms HML and PAL with their recently commenced assembly operations, it clearly did not hurt. Even today in India, the tariffs on CBU imports are maintained high enough to discourage any significant market for them.

IDRA promulgated (Licensing system)

In its IPR of 1948, the government recognised the strategic importance of automotive industry and brought it under the purview of State regulation. Subsequently, IDRA of 1951 defined the manner in which the industrial sector was to be regulated, including the automotive industry. Under the Act, the automotive firms were obliged to obtain licenses from the government for

[43] Source: Self-construction based on the findings in sub-section 5.1 and 5.2. Created using 'Excel Timeline Template' tool available at http://www.vertex42.com/ExcelArticles/create-a-timeline.html.

the purpose of entry, diversification, capacity expansion, foreign collaborations, imports of machinery and components. The licenses were issued in accordance to the developmental objectives laid in the FYPs, which in turn were based on political agendas and projected demands. By means of the licensing system, the government restricted the industry competition (by regulating entry and diversification) to fewer firms in order to avoid fragmentation of the industry, and thereby the uneconomic scales of production.[44] The absence of strong internal competition provided the then existing firms with a protected market, and thereby little incentives for undertaking R&D efforts. This manifested itself in the obsolete designs and inadequate quality of the vehicles produced at that time.

Further, the industry's output was controlled by capacity and product licensing. The IDRA of 1951 with minor modifications continued to apply to the automotive industry till early 1990s. While the brunt of the licensing system was not felt in the initial years of industry's development, the resentment among the automobile manufacturers was becoming more evident in the second-half of 1960s and the 1970s (Pinglé 1999). Narayana (1989) argues that even though the capacity licensing policy was rigid in its form, it was not such an inflexible policy as made out to be. Based on his analysis, he found that the installed capacities of the automobile firms have been significantly lower than their licensed capacities. Whenever the production of a firm neared its licensed capacity, it was licensed additional capacities. If the capacity licensing affected any firms, then it was the market leaders Bajaj Auto and Escorts that could have grown much more, had the regulatory policy been more relaxed. Nevertheless, it has to be noted that the growth of licensed capacities of Bajaj Auto and Escorts were among the highest in the industry in 1960s and 1970s (Narayana 1989).

Progressive manufacturing obligation (Indigenisation)

Following the recommendation of the Tariff Commission, the government in 1953 imposed the requirement of progressive manufacturing on the automobile assemblers. The measure used to implement the decision was restricted allocation of foreign exchange. The policy decision with its intention of indigenising the production of vehicles in the country had a significant impact on the development of India's automotive industry. The immediate result was the exit of foreign assemblers from the country. The domestic assemblers entered into collaborations with foreign players for manufacturing vehicles in the country. Since the auto-component segment was not well-developed at that time, the automobile firms undertook in-house manufacture of components. This resulted in a vertically-integrated structure of the industry. The government progressively increased the indigenisation content from 50% in 1950s to 80% in 1960s. Since the extent of indigenisation is subject to increasing costs (Singh 2004), this increased the price of automobiles. Low GDP per capita combined with high price of automobiles had a negative influence on the demand development. The learning by doing involved in local manufacturing of vehicle sub-assemblies certainly helped to improve the manufacturing capabilities of the industry (Narayana 1989).

Emphasis on ancillaries development

The indigenisation policy had resulted into a vertically-integrated industry structure. Protected market combined with the lack of supplier power had led to the concentration of bargaining power with the automobile manufacturers. Furthermore, considerable amount of foreign exchange was being spent on importing critical components. In order to address these concerns, the government in 1960 adopted policies for encouraging the development of ancillaries. This marked the beginning for the development of a separate auto-component sector in India.

[44] The exceptions were the scooters and mopeds segments where numerous entries were permitted.

60 to 80 components reserved for small-scale

In 1965, the government reserved between 60 and 80 components exclusively for the small-scale units. This decision was in alignment with the government's continuing policy of supporting the small-scale units. Earlier, in 1956, the government implemented protection rates of tariff on aftermarket ancillaries produced by the small-scale units. Pinglé (1999) argues that such a strategy of the government based on socialistic principles, led to a fragmented structure of the auto-component industry with inefficient units – a problem that persists even today.

Stricter controls on foreign equity collaborations

Until the early 1960s, a number of foreign equity collaborations had made their way into the Indian industry. The growing criticism towards the reliance on foreign technology made the government to adopt stricter controls on foreign equity collaborations in 1968. Foreign Investment Board was established to discourage the acquisition of technology through foreign equity participation. The number of foreign collaboration approvals decreased strikingly, to be restored only in early 1980s with the relaxation of controls. Narayana (1989) argues that such a hiatus in the approval of foreign collaborations actually helped the automotive industry to build limited design capabilities. In the absence of the possibility of introduction of any new foreign designs, the domestic firms like Bajaj Auto and TELCO were incentivised to introduce indigenously designed vehicles and capture market share of the competitors relying on foreign designs. Accordingly, Bajaj Auto introduced an indigenously designed 50 cc motorcycle.

Significant capacities for 2-wheelers

Fifth FYP onwards (1974), the government decided to give significant thrust to the production of 2-wheelers in the country. The performance of the public transport system had been dismal. In order to serve the rising transport needs of the growing population and to save on the consumption of expensive petroleum at the same time, the government targeted the growth of the 2-wheeler segment. Accordingly, the period 1976-80 saw entry of new players into different segments of the 2-wheeler industry – Maharashtra Scooters and Scooters India in scooter segment, Sundaram-Clayton and Majestic Auto in moped segment and Bajaj Auto in motorcycle segment (based on Narayana 1989). Today, India is the world's second-largest market for 2-wheelers and this policy decision has certainly been an important milestone in this journey.

Thus, several important policy decisions were made over the years 1947 to 1965. The thrust was on protection, indigenisation and regulation of the automotive industry. The policy decisions played a significant role in determining the initial structure, growth and performance of the industry (Narayana 1989). The results however were mixed. On one hand, the policy decisions led to a largely indigenous industry with strong manufacturing and limited design capabilities, but on the other, they resulted in a mediocre industry performance. Most of the automotive firms enjoyed monopolistic/oligopolistic benefits under the regulatory regime and were little incentivised to make indigenous efforts for upgrading their technological capabilities, an indispensable factor for building international competitiveness. The exclusion of passenger car segment, the one considered most important in the world automotive industry, from the developmental agenda of policies negatively impacted its growth and demand conditions.

With regard to the role played by the Indian government over this period, it was more direct and regulative in nature. In light of the dismal performance of industrial sector under the colonial rule, the statist ideology adopted by the government post-independence was seemingly reasonable. The importance of automotive industry in the nation's economic development was rightfully identified by the government from the very beginning. Even though the public sector was expanded under IPR of 1948/1956, the automotive industry had been given sufficient autonomy for its operations. Although the protection policy for automotive industry seems justified in today's context, it lacked a time constraint and failed to generate sufficient domestic rivalry in most of the automotive segments. Moreover, the poor development of important upstream industries like steel under the state ownership constrains the local availability of critical raw materials to the automotive industry even today.

6.2. Influence of key policy decisions in the limited-liberalisation phase

Figure 9 below shows the timeline of key policy decisions and events in the limited-liberalisation phase (also known as the deregulation phase). The influence of important policy decisions made during this phase on the development of India's automotive industry is taken up for further discussion.

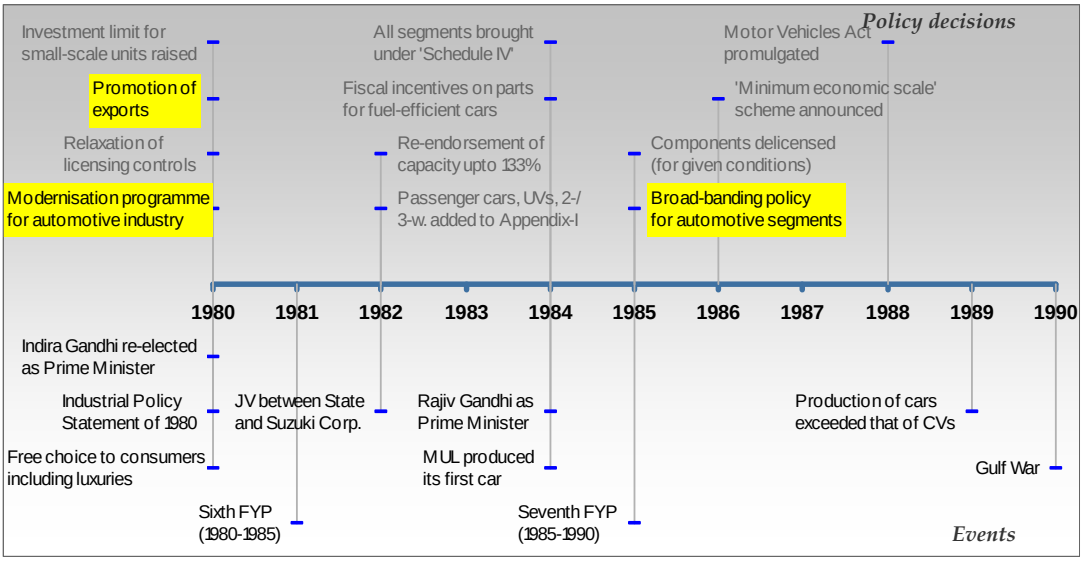

Figure 9: Timeline of key policy decisions and events in the deregulation phase[45]

Modernisation programme for automotive industry

In early 1980s, the Indian government made policy decisions for infusing fuel-efficient technologies and competition into the automotive industry. These policy decisions, collectively referred to as the 'modernisation programme', included relaxations in new entries, foreign equity collaborations and imports of technology and machinery (Narayana 1989). The timing of relaxations coincided with the desire of Japanese firms to find new markets (D'Costa 1995). As a result, several JVs were established between the Japanese and Indian entities for technology transfer and equity participation. Other domestic firms formed technology collaborations with western and Japanese manufacturers for introducing new fuel-efficient vehicle models. The modernisation programme had a significant impact on the development of India's automotive industry. The programme transformed the industry with

[45] Source: Self-construction based on the findings in sub-section 5.3.

mixed outcomes. The number of vehicle models available to the Indian consumer increased. Both product technology and quality saw improvements. In order to reduce weight of the vehicle for increased fuel efficiency, the product designs changed considerably to include components made of aluminium, fibres and plastics (Narayanan 1998). This brought changes to the manufacturing technologies of auto-components.

Further, the Japanese collaborators brought world-class manufacturing practices into the country. The Japanese practice of subcontracting that involves establishment of vendor parks in the geographical vicinity of automobile plants led to the creation of two new industrial sites in the country – Gurgaon in Haryana and Pithampur in Madhya Pradesh (D'Costa 1995). Many Japanese auto-component firms followed their customers into India and collaborated with the Indian businesses. This resulted in an increase in the capabilities of the auto-component segment. The programme changed the structure of the industry considerably, especially the passenger car segment. The entries of new firms into the automotive segments led to a significant change in the competitive position of the old players (Narayanan 1998). The two big car manufacturers, HML and PAL, lost their market leadership to MUL, which was able to capture more than 60% of the market in only a few years. On the negative side, the industry experienced problems of higher concentration and greater fragmentation (D'Costa 1995). A near-monopoly situation was created in the car segment, whereas the LCV segment experienced low-economic volumes owing to the fragmentation of demand among several manufacturers.

Promotion of automotive exports

The automotive industry had been a net user of foreign exchange. Moreover, the industry was experiencing uneconomic production due to low domestic demand. Therefore, in 1980, the government made a decision to promote exports of automotive products in order to attain a favourable balance of trade and to support a higher utilisation of production capacities. The promotion measures included simplified procedures for exports, easier availability of licenses for 100% export-oriented units and easier expansion of existing units for the purpose of exports, amongst others (GOI 2008b). The modernisation programme also helped indirectly to increase the exports of the industry. For instance, the technical collaboration made with Iveco under the programme, helped Ashok Leyland to make exports of its new line of CVs to Mexico. Moreover, MUL started making indirect exports of the Japanese collaborator's 800cc car model to the European countries. The export of the automotive industry thus doubled over the period 1984-85 to 1988-89. Even though the share of India's automotive exports in the global export market was much small (around 0.1%) in 1980s (D'Costa 1995), the government's policy decision to promote exports during this phase was an important initiative in the development of India's automotive industry.

Broad-banding policy for automotive segments

The 'broad-banding' policy introduced in 1985 was a continuation of the government's previous efforts to facilitate the fullest utilisation of installed capacities and the expansion of Indian industries. The overarching objective behind this could be understood as the initiation of a self-reinforcing interaction between low-cost production and demand stimulation. Under the broad-banding policy, the government decided to issue licenses to the automotive firms for broader product groups instead of licenses for just specific products. Within the broader product group, the automotive firms were free to decide the product mix to be produced and therefore, make optimum utilisation of their installed capacities. Also, the automotive firms were allowed to diversify within their broader product groups. Narayana (1989) suggests that,

while the impact of broad-banding policy on the automobile segment was not much, it created a potential for severe competition within the auto-component segment. The product groups for auto-component segment defined under the policy were too broad to force the market leaders of different sub-segments to compete with each other sooner or later. In case of the automobile segment, the only firms that benefited from the policy were TELCO for diversifying into LCVs and Lohia Machines for switching from 100 cc scooters to 150 cc scooters (Narayana 1989).

The significance of policy decisions made during this phase is reflected in the growth of automobile production witnessed in the country during the second-half of 1980s (see Appendix A). Under the constraints of saving on imports of oil, improving the performance of the industry and satisfying the growing demand of vehicles in the country, the government decided to upgrade the technology base and competitiveness of the industry. This is in effect the sum and substance of important policy decisions made during this phase. Narayana (1989) argues that among all other policy decisions made during the limited-liberalisation phase, the most important policy decision was the relaxations with regard to foreign collaborations. The spate of technology agreements and foreign investment that followed, transformed the industry considerably. The attainment of the government's objective to induce competition in the industry could be verified in the results of Narayanan (1998)'s econometric exercise, which reveals a significant change in the relative position of the old and pioneering firms since deregulation.

With regard to the role played by the Indian government during this phase, one could observe the transition from statist ideology to pro-market orthodoxy. While there could possibly be several reasons based on socioeconomic and political factors that help explain such a shift, the one provided by D'Costa (1995) is interesting. He argues that the statist policies of the government contributed to the rise of middle class in India. The past policies of curtailing production of consumer durables like the automobiles, demanded by the rising middle class, was no longer sustainable and that the shift became inevitable (D'Costa 1995). Therefore, despite of the growing oil prices, the government had to facilitate the growth of vehicle production in the country. Further, the transition effected by the government from a heavily regulated industrial environment to the one in this phase was not abrupt. A full-blown industrial restructuring was avoided under the political considerations of the established producers and their employees (D'Costa 1995). Finally, the only contradiction to the State's facilitative role was its permission for only one new entry in the high growth car segment as compared to four new entries in the LCV segment.

6.3. Influence of key policy decisions in the liberalisation phase

In 1991, substantial changes were made to the economic policy of India. The government did away with most of the controls and regulations. It assigned central role to the market forces for organising economic activities and also adopted a more liberal stance towards foreign trade and investment. These policy changes, collectively known as 'liberalisation of the Indian economy', had far reaching implications. Accordingly, the functioning of the automotive industry also got liberalised, which significantly altered its development trajectory. The important policy decisions made during this phase and their influence on the development of the automotive industry becomes a subject matter of discussion in this sub-section.

Figure 10 highlights the key policy decisions and events in the liberalisation phase. The key policy decisions highlighted on the left are grouped together as 'liberalisation policy' and the ones on right as 'Auto Policy 2002'.

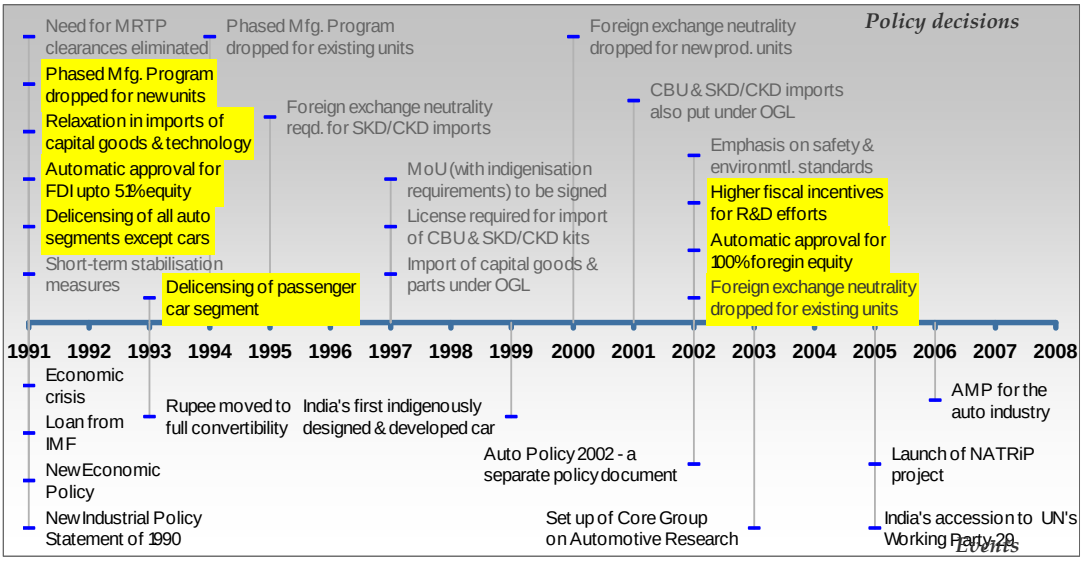

Figure 10: Timeline of key policy decisions and events in the liberalisation phase[46]

Liberalisation policy

The important policy decisions of the liberalisation package were delicensing, 51% FDI via automatic route, relaxations for critical imports and suspension of local content requirements. The impact of these policy decisions over the developmental aspects of the industry was visible by the mid-1990s. The policy decisions led to a second wave of restructuring of the industry and resulted in a fiercely competitive domestic market, both in terms of price and quality (Singh 2004). The policy decisions also altered the behaviour of the established firms with respect to technology acquisition and performance (Narayanan 2001). Under the delicensing policy, the firms were free to enter, expand, diversify and relocate based on their commercial judgements. The delicensing of entry and diversification, combined with automatic approval upto 51% FDI led to a spate of entries by the foreign players, establishing JVs with the domestic players. GOI (2002) notes that after delicensing of cars in 1993, 17 new ventures had come up out of which 16 were for manufacture of cars. This transformed the previously oligopolistic car segment into one of the most competitive sector in the industry.

The delicensing of expansion was of no immediate help for the automotive industry in general. As pointed out by Narayana (1989), the freer capacity licensing policies of 1980s itself were of no help to the industry since the actual production of automotive firms was usually below their installed capacities. The fragmentation of the market with the entry of new players and the general recessionary conditions in the country simply exacerbated the situation in early 1990s. The industry suffered from the problem of overcapacity and the sales-capacity ratio of automobile manufacturers improved only after 1998 (Singh 2004). Another important policy decision was the relaxations on imports of capital goods and technology. The relaxations were in the form of simplification of bureaucratic procedures and rationalisation of tariff duties, a trend which has continued till today. Compared to the 1980s,

[46] Source: Self-construction based on the findings in sub-section 5.4.

the technology acquisition in the liberalisation phase was apparently better due to the mechanism of technology transfer from the foreign entity to its Indian subsidiary as opposed to a less than 40%-owned JV in the 1980s.

The Phased Manufacturing Programme introduced in 1980s, which required the automotive firms to attain an indigenisation level of 95%, was dropped under the liberalisation regime. While this was of not much help for the established automotive firms in India who had already attained high levels of indigenisation, it certainly was an attractive proposition for the foreign firms who could commence their operations in India by assembling SKD/CKD kits. However, 1995 onwards, the foreign firms were obliged to maintain foreign exchange neutrality. Further, from 1997, the new foreign firms were required to sign MoU with the DGFT for importing SKD/CKD kits. The MoU necessitated export commitments and a plan for production activities in the country. The FDI in India has primarily been market seeking and not cost reducing (Singh 2004), and it is argued that such obligations made the foreign firms to explore the potential of the country as an export base for automobiles and/or components; see for instance UNCTAD (2003).

In general, liberalisation and the accompanying entry of foreign firms have raised the technological competence level of India's automotive industry. The international players brought along with them world-class design and manufacturing practices that have percolated into the domestic industry and is reflected in its quality offerings and increasing export performance.

Auto Policy 2002

Auto Policy 2002 comprises several policy decisions that aim at making the Indian automotive industry globally competitive and for raising its contribution to the economy. Discontinuation of foreign exchange neutrality requirement and approval of 100% FDI via automatic route are the policy decisions aimed at creating a more conducive environment for the foreign investors. The influence of the policy decisions is strikingly visible in the exponential growth in FDI received by the automotive sector over the period 2004-05 to 2007-08 (refer Figure 5). Premium car manufacturers like BMW and Volkswagen, who previously could not have complied with the localisation commitments owing to their high quality standards, have established their assembly facilities in India after the year 2002. Further, incentives for R&D efforts planned by the government have incentivised car manufacturers like Suzuki and Hyundai to undertake R&D in India. Finally, based on the policy changes, Singh (2004) estimates some increase in the import intensity (total imports to sales ratio) of foreign-owned vehicle manufacturers in the near future, and also an increase in the export-output ratio of the auto-component industry.

With regard to the role played by the Indian government during this phase, it is the one of a facilitator encouraging the firms to achieve higher capabilities and performance. By undertaking liberalisation, the government did away with most of its direct influences (controls and regulations) on the automotive industry. Higher foreign competition was introduced in the industry. However, the induction was not sudden and allowed the indigenous firms to adjust. The benefits from the foreign investment were reaped with the imposition of export obligations and localisation commitments. Efforts are being made to move beyond the factor-driven advantages by encouraging R&D efforts within the industry. International competitiveness is eyed upon by encouraging small car production and design in the country. The demand standards of the industry are being raised by adopting higher environmental and safety standards.

7. Conclusion

This work attempted at identifying policies relevant to the development of India's automotive industry and at studying their impact on the industry's development. The definition of policy adopted for the work referred it as a decision made by the government to provide guidance for addressing selected concerns. Such a usage was also observed in the literature discussing government policies on the Indian automotive industry. In order to identify the relevant policies, the evolution of India's automotive industry under the influence of the government interventions, was traced from its inception to the present day form. A detailed historical account was made to provide the context and considerations under which the policies were formulated by the Indian government.

The evolution of India's automotive industry is identified to have occurred in four phases. In the first (1947-1965) and second phase (1966-1979), the important policies identified were related to protection, indigenisation and regulation of the industry. On the one hand, these policies helped India to build an indigenous automotive industry, while on the other it led to unsatisfactory industry performance. In the third phase (1980-1990), the single most important policy identified was the one with regard to relaxation in the means of technology acquisition. The foreign competition inducted into the industry transformed its dynamics. Lastly, in the fourth phase (1991 onwards) the liberalisation with regard to foreign investment had a significant influence on the Indian automotive industry as we see it today.

With every major shift in policies made by the Indian government, the automotive industry has come out stronger and better. While the shift in policies seems to have mostly been brought by chance events, the Indian government has at least to be credited for making the right decisions and implementing them correctly. It is paradoxical that the Indian middle class, the most attractive feature for foreign investment in the liberalisation phase, was an outcome of the statist ideologies in the regulatory phase. The product innovations of domestic firms like Tata Motors and Bajaj Auto today are the fruits of indigenisation and protection policies of the regulatory phases.

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Appendix A: Production of vehicles in India (1951 to 2007-08)

Year	Cars	UVs	LCVs	M&HCVs	Total CVs	Scooters	Motorcycles	Mopeds	Total 2-wheelers	3-wheelers	Total Vehicles
1951-55	4,611*	1,300*	3,541*	1,146	4,687	106*	84*	-	190	-	10,788
1956-60	12,949*	3,925*	4,890*	15,759	20,649	4,969*	2,548*	1,525*	9,042	599	47,164
1961	21,662	7,502		23,968	29,544	12,817	8,636	2,634	24,087	1,267	84,062
1962	23,326	7,597		25,364	30,940	14,318	8,828	513	23,659	1,426	86,948
1963	15,711	8,104	5,576*	27,285	32,861	15,419	9,456	5	24,880	1,701	83,257
1964	23,227	10,391		31,783	37,359	20,043	13,858	1,445	35,346	2,493	108,816
1965	24,790	10,488		35,649	41,225	20,316	21,364	7,444	49,124	1,884	127,511
1966	27,597	9,777		31,632	37,464	20,917	25,040	5,591	51,548	1,255	127,641
1967	33,395	5,561		28,367	34,199	30,302	23,338	9,108	62,748	3,995	139,898
1968	37,308	7,298	5,832*	30,338	36,170	35,942	29,411	9,553	74,906	4,317	159,999
1969	35,183	7,838		29,783	35,615	49,740	34,477	11,043	95,260	5,072	178,968
											*Five-year annual average; Source: ACMA (1986) cited after Narayana (1989)
Apr/Mar											
1970-71	36,032	9,846	7,837	34,009	41,846	58,117	38,855	11,604	108,576	4,743	201,043
1971-72	39,607	11,227	7,579	33,076	40,655	68,651	44,104	15,752	128,507	7,337	227,333
1972-73	36,990	12,998	9,127	30,561	39,688	68,657	47,983	24,063	140,703	10,710	241,089
1973-74	42,271	12,356	10,782	34,424	45,206	77,116	46,951	26,664	150,731	11,208	261,772
1974-75	30,903	9,628	5,609	35,448	41,057	88,400	61,243	32,536	182,179	12,210	275,977
1975-76	21,658	7,133	6,666	37,135	43,801	106,757	70,108	36,354	213,219	13,378	299,189
1976-77	36,331	8,365	8,249	38,644	46,893	155,008	72,369	36,432	263,809	20,037	375,435
1977-78	34,262	9,187	8,405	32,937	41,342	155,475	68,382	39,682	263,539	18,556	366,886
1978-79	33,330	11,501	12,662	46,617	59,279	165,139	87,427	48,756	301,322	19,621	425,053
1979-80	33,002	12,774	15,854	43,154	59,008	156,107	91,115	72,207	319,429	17,398	441,611
1980-81	31,275	15,667	20,338	53,836	74,174	212,039	104,223	124,048	440,310	26,930	588,356
1981-82	42,475	17,867	26,981	66,384	93,365	223,550	115,304	207,222	546,076	25,801	725,584
1982-83	43,558	20,234	26,989	60,769	87,758	264,540	135,810	232,115	632,465	31,881	815,896
1983-84	46,901	21,681	28,970	61,099	90,069	276,433	163,290	339,881	779,604	38,575	976,830
1984-85	76,090	23,208	33,378	62,626	96,004	314,748	187,147	396,053	897,948	43,508	1,136,758
1985-86	102,804	27,961	36,725	63,727	100,452	461,860	267,107	461,950	1,190,917	49,947	1,472,081
1986-87	125,866	28,784	38,992	60,161	99,153	642,038	302,520	449,688	1,394,246	54,566	1,702,615
1987-88	151,875	32,036	45,167	64,933	110,100	589,734	335,679	511,699	1,437,112	61,112	1,792,235
1988-89	165,798	35,754	46,274	70,173	116,447	725,305	429,017	482,001	1,636,323	79,361	2,033,683

Year	Cars	UVs	LCVs	M&HCVs	Total CVs	Scooters	Motorcycles	Mopeds	Total 2-wheelers	3-wheelers	Total Vehicles
1989-90	179,278	44,309	48,457	76,594	125,051	874,992	417,401	439,293	1,731,686	83,752	2,164,076
1990-91	181,818	37,369	57,763	86,831	144,594	910,315	470,359	440,092	1,820,766	89,162	2,273,709
1991-92	165,309	31,530	54,739	89,509	144,248	766,566	430,366	406,804	1,603,736	76,750	2,021,573
											Source: ACMA (1991-92) cited after Chugan (1995)
1992-93	186,484	40,683	65,117	77,745	142,862	799,825	446,161	433,628	1,679,614	84,137	2,133,780
											Source: Average of 1991-92 and 1993-94 production
1993-94	207,658	49,836	75,495	65,981	141,476	833,083	461,955	460,451	1,755,489	91,524	2,245,983
											Source: ACMA (2004)
1994-95	264,468	49,675	92,805	101,994	194,799	1,030,803	647,521	516,936	2,195,260	128,895	2,833,097
1995-96	348,146	67,643	129,417	129,731	259,148	1,225,895	809,097	623,114	2,658,106	173,412	3,506,455
1996-97	407,539	134,594	85,069	152,185	237,254	1,322,928	988,709	668,666	2,980,303	221,679	3,981,369
1997-98	401,002	134,613	65,069	95,895	160,964	1,279,549	1,125,958	667,242	3,072,749	234,867	4,004,195
1998-99	390,355	113,440	55,371	80,452	135,823	1,315,055	1,387,276	671,699	3,374,030	209,033	4,222,681
1999-00	574,369	124,310	61,213	114,068	175,281	1,259,408	1,794,093	724,510	3,778,011	205,543	4,857,514
2000-01	517,907	125,938	63,869	88,185	152,054	879,759	2,183,430	694,974	3,758,163	203,234	4,757,296
2001-02	564,052	105,667	65,756	96,752	162,508	937,506	2,906,323	427,498	4,271,327	212,748	5,316,302
2002-03	608,851	114,479	83,195	120,502	203,697	848,434	3,876,175	351,612	5,076,221	276,719	6,279,967
2003-04	843,235	146,325	108,917	166,123	275,040	935,279	4,355,168	332,294	5,622,741	356,223	7,243,564
2004-05	1,027,858	182,018	138,896	214,807	353,703	987,498	5,193,894	348,437	6,529,829	374,445	8,467,853
2005-06	1,112,542	196,371	171,781	219,297	391,078	1,020,013	6,201,214	379,574	7,600,801	434,424	9,735,216
2006-07	1,238,021	222,495	225,724	294,258	519,982	943,944	7,112,281	379,987	8,436,212	556,126	10,972,836
2007-08	1,416,480	244,648	254,062	291,114	545,176	1,074,933	6,503,532	430,827	8,009,292	500,592	10,716,188
											Source: ACMA (2008c)

Appendix B: Automotive vehicle classification in India

Automotive vehicles in India

Passenger Cars (No. of seats not over 6)
- A1: Mini (Upto 3400 mm)
- A2: Compact (3401 – 4000 mm)
- A3: Mid-Size (4001 – 4500 mm)
- A4: Executive (4501 – 4700 mm)
- A5: Premium (4701 – 5000 mm)
- A6: Luxury (5001 mm & above)

Utility Vehicles
- B1: Max. mass upto 3.5 ton
  - B1(a): No. of seats not over 7
  - B1(b): No. of seats including driver exceeding 7 but not exceeding 9 (7+1 & 8+1) (M1(B2))
- B2: Max. mass upto 5 ton
  - B2(a): No. of seats including driver not exceeding 13 (M2(A1))
- C: Multi-Purpose Vehicles – Van type vehicles & mass not exceeding 3.5 ton (M1(C))

Commercial Vehicles

Medium & Heavy Commercial Vehicles

A: Passenger Carriers
- A1: Max. mass not over 12 ton
  - A1(a): No. of seats including driver exceeding 9 but not exceeding 13 (M3(C1))
  - A1(b): No. of seats over 13
- A2: Max. mass not exceeding over 16.2 ton
  - A2(b): No. of seats over 13

B: Goods Carriers
- B1: Max. mass over 7.5 ton and less than 12 ton
- B2: Max. mass not over 16.2 ton
  - B2(a): Max. mass 12 – 16.2 ton
- B3: Max. mass over 16.2 ton
  - B3(a): Rigid vehicles
    - (i): Max. mass 16.2 – 25 ton
  - B3(b): Max. mass over 25 ton
- B4: Max. mass over 16.2 ton – Haulage tractor
  - B4(a): Max. mass exceeding 16.2 ton but not exceeding 26.4 ton
  - B4(b): Max. mass exceeding 26.4 ton but not exceeding 35.2 ton
  - B4(c): Max. mass over 35.2 ton

Light Commercial Vehicles

A: Passenger Carriers
- A1: Max. mass upto 5 ton (M2(A2))
  - A1(a): No. of seats over 13
- A2: Max. mass 5 – 7.5 ton
  - A2(b): No. of seats upto & over 13

B: Goods Carriers
- B1: Max. mass not over 3.5 ton
- B2: Max. mass 3.5 – 5 ton
- B3: Max. mass 5 – 7.5 ton

Two Wheelers
- A: Scooter/Scooterette (wheel size not over 12")
  - A1: Engine capacity less than 75 cc
  - A2: Engine capacity 75 - 125 cc

A3: Engine capacity 125 - 250 cc
B: Motorcycle/Step-through (wheel size more than 12")
B2: Engine capacity 75 - 125 cc
B3: Engine capacity 125 – 250 cc
B4: Engine capacity over 250 cc
C: Mopeds (engine capacity < 75 cc, wheels over 12")
D: Electric 2-wheelers

Three Wheelers
A: Passenger Carriers
A1: No. of seats including driver not exceeding 4 & max. mass not exceeding 1 ton
A2: No. of seats including driver exceeding 4 but not exceeding 7 & max. mass exceeding 1.5 t
B: Goods Carriers
B1: Max. mass not exceeding 1 ton
B2: Others

Source: Self-construction based on SIAM (2008b)

Appendix C: List of automobile manufacturers in India

Sr. no.	Automobile manufacturer	Vehicle segments									Estd. in	Turnover 2007-08 (in INR mi.)
		Cars	UVs	M&HCVs	LCVs	Scooters	Motorcycles	Mopeds	Electric 2-wheelers	3-wheelers		
Domestic OEMs*												
1.	Ashok Leyland Ltd.			●	●						1948	83,047.17
2.	Asia Motor Works Ltd.			●							2002	NA
3.	Atul Auto Ltd.									●	1986	1,407.02
4.	Bajaj Auto Ltd.					●	●			●	1945	113,899.10
5.	Eicher Motors Ltd.			●	●						1982	18,844.40
6.	Electrotherm (India) Ltd.								●		2006	7,372.21
7.	Force Motors Ltd.		●		●					●	1985	12,313.00
8.	Hero Honda Motors Ltd.					●	●				1984	115,420.40
9.	Hindustan Motors Ltd.	●	●		●						1942	8,064.00
10.	International Cars & Motors Ltd.		●								2003	219.68
11.	Kinetic Engineering Ltd.						●	●			1970	832.20
12.	Kinetic Motor Company Ltd.					●					1984	2,542.82
13.	LML Ltd.					●	●				1972	1,244.10
14.	Mahindra & Mahindra Ltd.	●	●		●					●	1945	144,395.19
15.	Majestic Auto Ltd.							●			1973	1,103.30
16.	Premier Ltd.		●		●						1944	891.66
17.	Royal Enfield Motorcycles Ltd.						●				1955	2,278.56
18.	Scooters India Ltd.									●	1972	1,901.99
19.	Swaraj Mazda Ltd.			●	●						1984	6,902.00
20.	Tata Motors Ltd.	●	●	●	●						1945	321,298.80

Sr. no.	Automobile manufacturer	Vehicle segments									Estd. in	Turnover 2007-08 (in INR mi.)
		Cars	UVs	M&HCVs	LCVs	Scooters	Motorcycles	Mopeds	Electric 2-wheelers	3-wheelers		
21.	TVS Motor Company Ltd.					●	●	●			1982	44,734.40
Foreign OEMs*												
1.	BMW India Pvt. Ltd.	●	●								2006	NA
2.	Fiat India Automobiles Pvt. Ltd.	●									1997	NA
3.	Ford India Pvt. Ltd.	●	●								1999	27,223.00
4.	General Motors India Pvt. Ltd.	●	●								1994	22,815.40
5.	Honda Motorcycle & Scooter (India) Pvt. Ltd.					●	●				1999	23,577.26
6.	Honda Siel Cars India Ltd.	●	●								1995	48,289.00
7.	Hyundai Motor India Ltd.	●	●								1996	99,159.00
8.	India Yamaha Motor Pvt. Ltd.						●				1985	8,982.70
9.	Mahindra Renault Pvt. Ltd.	●									2007	NA
10.	Maruti Suzuki India Ltd.	●	●								1981	151,823.00
11.	Mercedes-Benz India Pvt. Ltd.	●		●							1994	7,999.00
12.	Piaggio Vehicles Pvt. Ltd				●					●	1998	14,495.80
13.	Skoda Auto India Pvt. Ltd.	●									2001	NA
14.	Suzuki Motorcycle India Pvt. Ltd.					●	●				1997	NA
15.	Tatra Vectra Motors Ltd.			●							1998	471.17
16.	Toyota Kirloskar Motor Pvt. Ltd.	●	●								1997	45,540.91
17.	Volkswagen India Pvt. Ltd.	●									2007	NA
18.	Volvo India Pvt Ltd.			●							1998	NA

* Classification of OEMs into 'domestic' or 'foreign' is done based upon current shareholding pattern of the company. If more than 50% of shares are owned by an Indian company then it is classified as a 'Domestic OEM', and if owned by a foreign company then as a 'Foreign OEM'. For a 50:50 JV and other uncertain cases, the classification is done based upon the perceived control.

Source: Based on SIAM (2008b), SIAM (2008h), company websites of respective automobile manufacturers and the website of Bombay Stock Exchange

Appendix D: Some of the top auto-component manufacturers in India

Sr. no.	Auto-component manufacturer	Description
Domestic auto-component manufacturers*		
1.	Amalgamations Group	Amalgamations Group is one of the reputed business groups in the Indian automotive industry. With its 43 companies, the group serves diverse demands of the industry by supplying auto-components, diesel engines, batteries, forgings, copper alloy powders and engineering plastics. Some of the well-known auto-component companies of the group are: Simpson & Co. Ltd., AMCO Batteries Ltd., Bimetal Bearings Ltd. and India Pistons Ltd.
2.	Amtek Group	Amtek Group consists of forging, iron casting, aluminium casting, automotive machining and ring gear divisions. The group has 34 manufacturing facilities across North America, Europe & Asia. The flagship company of the group, Amtek Auto Ltd., made a net sales of INR 12,823 million in the year 2007-08.
3.	Anand Group	Anand Group consists of several foreign-JV companies: Behr India Ltd., Federal-Mogul Bearings India Ltd., Gabriel India Ltd., Mahle Filter Systems India, Mando India Ltd., Spicer India Ltd. and Valeo Friction Materials India Ltd. to name a few. The flagship company of the group, Gabriel India Ltd., made a net sales of INR 4,674 million in 2007-08.
4.	Endurance Group	The Endurance Group with its die casting and component divisions has a turnover of around INR 12,650 million from domestic operations and INR 7,770 million from overseas operations. The group has 9 plants in India and 5 plants overseas. The flagship company of the group is Endurance Technologies Pvt. Ltd.
5.	Kalyani Group	Kalyani Group is one of the leading industrial houses in India. It is much known for its flagship company Bharat Forge Ltd., which is the world's second largest forging company and also happens to be the largest domestic auto-component player. The company achieved a net sales of INR 46,522 million in 2007-08.
6.	Rane Group	Rane Group consists of 7 manufacturing companies serving market needs for power steering systems, manual steering & suspension systems, valve train components and friction material products. The group achieved sales of INR 14,021 million in 2007-08. Rane (Madras) Ltd. is the flagship company of the group.
7.	Sona Group	Sona Group consists of 9 auto-components manufacturing companies and 3 service companies in the areas of engineering design and mobility. The group has revenues a little in excess of INR 34,200 million. The flagship company of the group is Sona Koyo Steering Systems Ltd.
8.	TACO Group	Tata AutoComp Systems Ltd., which is promoted by the Tata Group, is the holding company of the TACO Group. The company has 15 JVs in partnership with leading companies from the global auto-component industry. The group provides products and services to both Indian as well as global customers.
9.	TVS Group	TVS Group comprises around 30 companies, which operate in diverse fields that range from 2-wheeler (TVS Motors Ltd.) and auto-components manufacturing to automotive dealerships, finance and electronics. The group has a number of JVs in partnership with foreign auto-component majors. The combined turnover of the group is more than INR 180,000 million.

Sr. no.	Auto-component manufacturer	Description
10.	Varroc Group	Varroc Group comprises of Varroc Engineering Pvt. Ltd. (having electrical and metallic divisions) and Varroc Polymers Pvt. Ltd. The group companies supply auto-components to both Indian as well as foreign customers. The total sales of the group is around INR 20,250 million.
Foreign auto-component manufacturers*		
1.	Bosch Chassis Systems Ltd.	Formerly known as Kalyani Brakes, the company was recently acquired by the Germany-based Bosch Group. It manufactures hydraulic brake systems for automotive applications. Its turnover in the year 2007-08 was INR 5,403 million.
2.	Delphi Automotive Systems Ltd.	Delphi Automotive Systems Ltd. is the Indian subsidiary of US-based Delphi Corporation. The company manufactures heat exchangers, catalytic converters, HVAC systems, steering columns, etc. Its annual turnover is around INR 6,000 million.
3.	Denso India Ltd.	Denso India Ltd. is the Indian subsidiary of Japan-based Denso Corporation. The company manufactures alternators, wiper motors, engine cooling fans, washer pumps, ventilators, etc. Its net sales for 2007-08 were INR 4,657 million.
4.	Federal-Mogul Goetze (India) Ltd.	Federal-Mogul Goetze (India) Ltd. is majorly owned by the US-based Federal-Mogul Corporation. It manufactures piston, piston rings, cylinder liners, light metal castings and sintered metal products. Its net sales were INR 6,228 million in 2007-08.
5.	Motor Industries Company Ltd. (MICO)	MICO is majorly owned by the Germany-based Bosch Group. The company was established in 1951 and currently supplies common rail injectors, diesel fuel injection equipment, auto-electrical, etc. to the Indian as well as global automotive industry. It achieved a net sale of around INR 40,000 million in 2007-08.

* Classification of auto-component manufacturers into 'domestic' or 'foreign' is done based upon the current shareholding pattern of the company. If more than 50% of shares are owned by an Indian company then it is classified as a 'Domestic auto-component manufacturer', and if owned by a foreign company then as a 'Foreign auto-component manufacturer'. For a 50:50 JV and other uncertain cases, the classification is done based upon the perceived control.

Source: Based on company websites of respective auto-component manufacturers and the website of Bombay Stock Exchange