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India’s automobile industry: Growth and export potential

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Abstract
It may sound truism to understand the influence of changing policy set-up on the growth and development of automobile industry in India and to explore its export potential in context of the process of liberalization and globalization of the industry. Policy changes influence the competitive advantages through their effects on economic environment in which the industry operates. The study at hand finds that the changing policy environment during the last three decades in the country has eventually contributed to the growth and export intensity of automobile industry. The influence of changing economic environment is also visible across sub-sectors of the industry. Passenger vehicles segment seems to be the only segment which has experienced considerably high growth and improvement in export intensity as well. The share of this segment in total exports of automobile industry is reported to have doubled over the years. The paper examines the implications and also raises issues for further research.

Jel Codes: L52, L62.

Key Words: *Automobile industry; Policy regimes; Export potential; Technology capabilities; Competitiveness*

1. Introduction

The paradigm shift in India’s economic policy and specifically the industrial policy from a highly controlled regime to a de-controlled regime has appreciably changed the rules of game during last couple of decades (Ranawat and Tiwari, 2009; Kale, 2012). The advocates of neo-liberal policy regimes repeatedly argue that industrial sector in India would set on a new growth trajectory. It was believed that elimination of restrictions on capacity creation, entry of new firms, diversification and imports of capital goods and raw material would ease the supply side constraints and permit the manufacturing firms to choose an optimal production scale. Further, the competitive pressure from international market would force restructuring of industrial sector wherein existing and new investment would get directed to those areas in which India has a potential to develop competitiveness. Emergence of an internationally competitive industrial sector was expected to ease the Balance of Payments (BoP) constraint which India was facing in the late 1980s and early 1990s.

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To understand the validity of above arguments, large volume of empirical research in context of India's industrial sector has been undertaken during the last couple of decades (Nambiar and Tadas, 1994; Kathuria, 1996; Chandrasekhar, 1996; 2003; Narayanan, 1998; 2004; Nambiar, Mungekar and Tadas, 1999; Tyabji, 2000; Singh, 2007; Mani, 2011; Kale, 2012 and many more). Empirical results are quite contradictory. Some argued that the industrial sector under new policy regime experienced high growth and India's presence in external market also increased (Kathuria, 1996; Narayanan, 1998; 2004; Singh, 2007; Mani, 2012; Kale, 2012) whereas other have turned down the argument and stated that liberal trade and investment regime failed to provide new lease of life to India industrial sector. The major fall out of these studies is that empirical exercise has been undertaken either for the industrial sector or in terms of inter-industry comparison. Empirical studies of this kind could not address the issues related to sub-segments within a particular industry. Here it can be mentioned that automobile industry is comprised of various sub-segments like commercial vehicles (CVs), 2-wheelsrs, 3-wheelers and passenger vehicles and the products produced by each sub-sector within the industry not only vary in nature but also in terms of its usage. In addition, state policy for the development of each sub-segment was not homogenous till early 1990s (Narayana et al., 1992). The varying nature of regulations across sub-segments aimed to encourage development of specific industries through changing comparative advantage (Pingle, 1999).

Against this understanding, following are the specific issues that are put to empirical analysis: (i) to understand the growth and development of the automobile industry in India and (ii) to explore its export potential in the era of globalization. The empirical exercise is undertaken both at the level of automobile industry as a whole and its sub-segments as the study of industry as a whole alone does not highlight the sub-sector-wise specificities. Importance of automobile industry in India's development has drastically increased during last couple of decades. Contribution of automotive industry to gross domestic product increased from 2.77 per cent in 1992-93 to 4.14 per cent in 2008-09 (GOI, 2009-10). Automobile is one of those industries which has strong forward and backward linkages with other key industries, accordingly, government of India identified industry as a prime engine of economic growth in India (GOI, 2006; 2010).

The paper is divided into six sections including introduction. Section 2 brings discussion on the measures used by the government of India under various policy regimes to develop automobile industry. To what extent various policy measures remained successful in developing automobile industry is discussed in section 3. Data sources and methodology used are presented in section 4. The empirical analysis and results are discussed in section 5. Paper ends with concluding remarks and issues for further research (section 6).

2. State policy and automobile industry in India

The state intervention in the form of policy decisions plays an instrumental role in initializing and sustaining the process of industrialization in India (Lall, 1987; Narayana et al., 1992; Kathuria, 1996). An industrial policy shapes the economic environment which ultimately changes the comparative advantages of an industry (Porter, 1990). The economic environment can be influenced both positively as well as negatively by various state decisions. Changing policy decisions provide a more favourable treatment (in terms of fiscal and financial stimulus) to some sectors of an economy as compared to other sectors, thereby developing a few targeted industries and discouraging the development of others (Narayana, 1989; J. Singh, 2009; Ranawat and Tiwari, 2009). However, the role of the state is not same at every stage of industrial development. As industry moves from factor driven stage to innovation driven stage, the role of

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government becomes indirect, reducing its role to a facilitator rather than a decision maker (Porter, 1990).

To look at these issues, policy changes may be viewed conveniently in terms of three phases: (i) protective policy regime (1947 to 1980); (ii) internal liberalization (1981 to 1990); and (iii) the liberal policy regime (1991 onwards); each phase characterized typically by their respective priorities. The division of whole period into three sub-periods is based on the intensity of regulation under three sets of policy regimes, as shown in Table, 1.

Table 1: Changing nature of regulation

Phases	Priorities and Provisions
Protective policy regime (1947-1980)	-Emphasis on the indigenization of automobile production. -Restricted capacity expansion and number of manufacturers through product-specific licensing system. -Ban on import of complete vehicles (in 1949). -Rationalized foreign exchange. -Price regulation. -High custom duty. -Restricted entry of foreign firms.
Internal Liberalization (1981-1990)	- Relaxations in licensing system. - Broad-banding of licenses for manufacturers to make flexible use of existing production capacity. - Allowed FDI in export and technology oriented sectors. - Joint Venture between domestic manufacturers and Japanese automobile manufacturers - Relaxed import restrictions.
Liberal Policy regime (1991 onwards)	- De-licensing (in 1991) and allowed FDI upto 51 per cent through automatic route. - Relaxed import of raw material and components. - Removed conditions like foreign exchange neutrality, license for imports, local content requirement etc. - The new automobile policy (announced in 2002) allowing foreign investment upto 100 per cent through automatic route.

Source: Compiled by the author.

Table 1 highlights the priorities of different policy regimes that the automobile industry has observed since independence. The policy instruments used in the first phase provided complete control to the government enabling it to develop the industrial sector according to the national priorities(A. Singh, 2009). The automobile industry was subject to strict regulation, requiring the automobile firms to get prior permission from the licensing authority not only for raising their production capacity but also for product diversification (Saripalle, 2012). The state intervention through various policy measures indeed played a critical role in determining the initial structure, growth and performance of the automobile industry (Narayana, 1989). This period was governed strictly by product-specific licensing system.

Policy changes initiated in the early 1980s announced a number of relaxations and the restrictive licensing system observed a major overhaul for the automobile industry. It was redefined and divided into two groups of different types of vehicles: (i) on road 4-wheelers and (ii) 2-wheelers (Kathuria, 1996; Narayanan, 1998). Once manufacturers got license for the broad

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category, they were not required to get any additional clearance for diversifying within their product group, provided the diversification would not require any new investment in machinery (Tyabji, 2000; Mani, 2011; Kale, 2012; Saripalle, 2012). As compared to the product-specific licensing system experienced till the mid-1980s, this scheme ensured a flexible use of the installed capacity. Further, the policy relaxations encouraged entry of new firms and provided incentives for export promotion. The policy changes thus led to considerable flexibility in the functioning and also induced competition in the automobile industry. In line with 1980s' policy changes, a comprehensive reform package was announced in early 1990s allowing entry of foreign firms along with the removal of restrictions on the import of raw material and technology. These relaxations were aimed at developing a modern and competitive automobile industry in India.

3. Insights from literature

Various studies have assessed the policy relevance for the development of Indian automobile industry and suggested that protection and other regulatory measures facilitated to build an indigenous production capability (Hamaguchi, 1985; Agarwal, 1987; Narayana, 1989; Ranawat and Tiwari, 2009). They argued that the phased manufacturing programme and restrictions on import of final goods and components of automobiles did not provide any option to the manufacturers than to use local inputs. For this, some firms developed vertically integrated production system while others procured raw material from local ancillary units. This led to a high degree of indigenization of production activities in automobile industry (Agarwal, 1987). For instance, by mid-1970s, indigenous content of Ambassador and Fiat cars stood at 99.82 per cent and 99.64 per cent respectively. Similarly, indigenous contents of Standard Ten car, Tata Mercedes truck, Stude-baker truck, Dodge truck, Leyland Comet, and Jeep were 99.33 per cent, 98.8 per cent, 93.7 per cent, 99.85 per cent, 96.55 per cent, and 96.50 per cent, respectively. Narayana et al. (1992) too viewed that success in progressive indigenization was largely attributed to protected Indian environment which provided certain market to the products of domestic manufacturers.

It is interesting to note that policy measures could not maintain a balance between the degree of indigenization and technology development (D'Costa, 1995; Kathuria, 1996; Narayanan, 1998). Industry experienced stagnancy on technology front. It was so because entry restrictions for new firms and ban on import of final automobile products provided monopoly like situation to existing manufacturers. In the presence of entry barriers and restrictions on diversification, manufacturers had no threat of losing market to any competitor, nor any incentive either to upgrade existing technology or to introduce new products (Mohanty, Sahu and Patri, 1994). It led to inadequate development on the front of technology. As a result, the government reviewed policy status related to this industry and brought some necessary changes in the 1980s and the following years.

Policy changes initiated in the 1980s induced competition which led to a complete restructuring of the automobile industry (D'Costa, 1995). The changes in policy atmosphere indeedshifted the technology trajectory of the automobile industry through competitive pressure. Accordingly, new development related tothe process and product innovations were observed by the automobile industry (D'Costa, 1995; Kathuria, 1996; Narayanan, 1998; Kale, 2012).Using the firm level information, Narayanan (1998) made an attempt to understand the impact of de-regulation policy on the modes of technology acquisition and competitiveness of automobile industry. De-regulated policy regime allowed firms to get access to the modern technology which would not have been possible during the protective policy regime. Evidence suggested that the

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firms which balanced technology imports and in-house research and development activities performed better in technology acquisition (Narayanan, 2004). Inter-firm variation in competitiveness too considerably influenced the technology acquisition of firms in automobile industry. Pingle (1999) tried to explore development of automobile industry in the institutional context and observed that changing institutional context since the mid-1980s provided a new lease of life to the industry through competitive environment which led to its modernization. Sagar and Chandra (2004) in turn believed that technological sophistication of automobile industry was mainly attributed to growing consumer preferences, new emission norms and the global strategy of various firms.

Technological development of India's automobile firms, however, posed major challenges to global automobile manufacturers. Wells' (2010) discussed a case of Tata's Nano car which was launched in 2009. Development of Nana by Indian manufacturer is not only an evidence of the technological capability of Indian firms but also of its emergence as a direct challenge to global manufacturers in the car segment. Tata Nano emerged as an alternative to motorbike and hence, became a people's car in the emerging economies. The emergence of low cost car from India motivated the global players to redesign their technology policy to find a viable alternative business model for growth in the automobile industry. Ray and Ray (2011) confirmed the view that technological capabilities developed by Tata during the protective regime and the following years helped in product innovation as well. The vision of the management and diversified nature of business played an important role behind Tata's success.

The available research inputs tends to reveal that: (a) the protective policy regime till 1980s helped indigenization of production activities; while (b) post-1980's policy changes facilitated exploration and upgradation of technological capabilities. This advancement made possible the production of technologically advanced products in India. In addition, the cheapest car launched by Tata Motors forced market leaders to revamp their strategies and also to redesign their product base.

The above issues have been addressed in literature but in the context of automobile industry as a whole which fails to throw light on the sub-sector specificities. The products produced by each sub-sector within the automobile industry varied both in nature and in terms of its usage. For instance, the CVs used for transport of goods and passenger cars used for personal transportation. In this context, the overall industry level analysis can present a misleading picture. Thus, the focus of the present study is to fill this gap in the literature.

Thus, there is a need to understand the influence of changing policy regime on the growth, development and export potential of the automobile industry as well as on different sub-sectors within this industry. In other words, the need is to probe the problem in a comprehensive and objective way to understand the growth pattern and export potentials of the Indian automobile industry as well as its strengths and weaknesses, on one hand, and opportunities and threats, on the other.

4. Data used and methodology

To address the aforesaid objectives, present study collected data from various secondary sources published by the government of India and Society of Indian Automobile Manufacturers. Subject to the availability of data, descriptive analysis is performed both for the automobile industry as a whole and for the different sub-segments.

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4.1 Data Sources

Data used primarily belongs to different secondary sources, relate to the production, sales and exports of automobile industry, collected from *Statistical Profile of Indian Automobile Industry* and *Profile of the Indian Automobile Industry*, these two annual publications of the Society of Indian Automobile Manufacturers (SIAM), supplemented by production information from *Profile of Automobile Industry* (1996) published by the Association of Indian Automobile Manufacturers that provides information related to the previous years (especially before mid-1990s). Further, annual reports as well as document on Automotive Mission Plan 2006-2016 released by Department of Heavy Industry (DHI), Ministry of Heavy Industries and Public Enterprises, Government of India was also used to collect relevant information.

4.2 Methodology

The methodology involved analysis undertaken both at aggregated and disaggregated levels. At aggregate level, the unit of analysis is automobile industry as a whole that brings out the changes experienced by the industry under different policy regimes while analysis at the disaggregated level highlights segment-specific development divided into the following sub-segments: (a) two-wheelers; (b) three-wheelers; (c) commercial vehicles; and (b) passenger vehicles.

The study as a first step, examines changes related to the structure of automobile industry. For this, production share of each segment in the total automobile production is calculated. In addition, compound annual growth rate of production of each segment is calculated. It follows analysis of export potential of automobile industry, in general, and of sub-segments, in particular. Distributional changes in automobile production for domestic market and export market are analyzed by calculating export intensity as well as domestic orientation of automobile industry. So also, sub-segment-wise export performance and export intensity is analyzed in reference to total sales (domestic + exports) of the respective sub-segment to infer which sub-sector improved export intensity and vice-versa. To understand export potential, consistency in export performance in terms of compound annual growth rate (CAGR) of exports for each sub-sector are deemed to be quite important. The analysis of distribution of total automobile industry's exports among sub-sectors and rising export share of each sub-sector in total automobile industry's exports indicate the degree of improvement in export potential.

5. Empirical analysis and discussion

Empirical analysis is broadly divided into two sub-heads. First, changes experienced by automobile industry during 1970-71 to 2009-10. This was the period when automobile industry survived three different types of policy regimes (Table, 1). Under each policy regime, intensity of regulation is seen to be changing which provided different types of policy environment for development of the industry and obviously, of its sub-sectors. Second, export orientation of automobile industry and its sub-segments is calculated for the period 1994-95 to 2009-10. The analysis related to export orientation is confined to the liberal policy regime only because of the following reasons: (a) restrictive policy regime encouraged import substitution instead of focusing on exports promotion; and (b) inadequate technology development confined the sales of automobile products to domestic market (Narayana, 1989; Mohanty, Sahu and Patri, 1994). As evident from available research, technological capabilities of the automobile firms improved under the liberal policy regimes. Increasing technological capabilities can directly stimulate the export intensity by adding to the competitiveness.

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5.1 Automobile industry: structure and growth profile

Figure 1presents production trends in the industry for the period 1970-71 to 2009-10. Till mid-1980s, annual production was less than 1 million whereas in 2009-10 per annum production of this industry increased up to 14 million. Sharp increase in production during the last two decades coincided with policy changes that the Indian automobile industry experienced during this period. Removal of a number of restrictions related to entry of new manufacturers boosted production while the flexible policy environment provided basis for the expansion to exploit growing market demand.

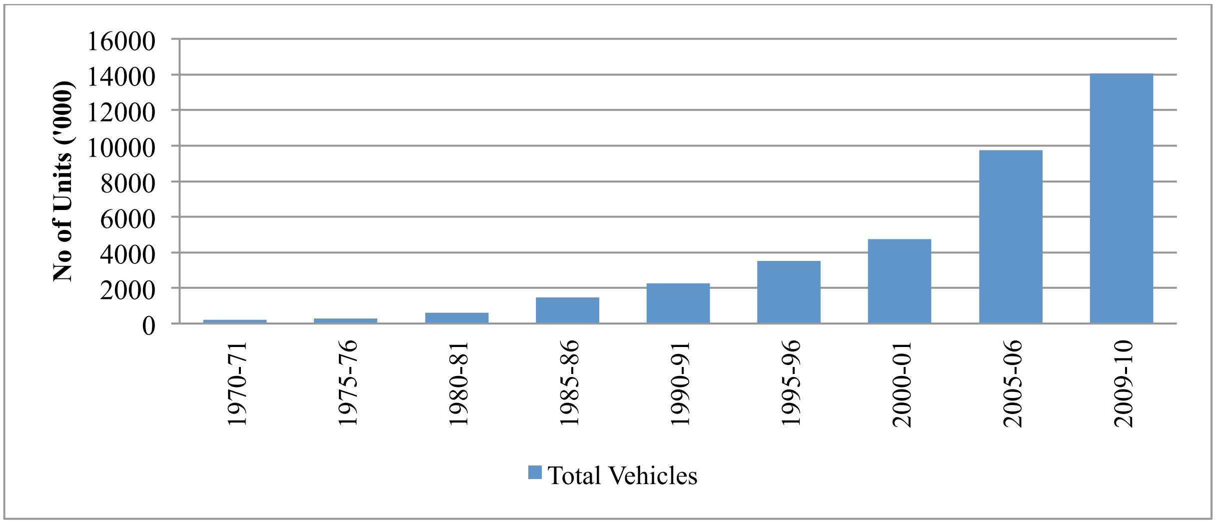

Figure 1: Production of automobiles in India (in '000)
Source: SIAM, ACMA

Sudden increase in total automobile production does not necessarily mean that increased is equally shared by all the sub-segments of this industry. To understand distributional aspects, Figure 2 shows the share of each segment in the total automobile production.

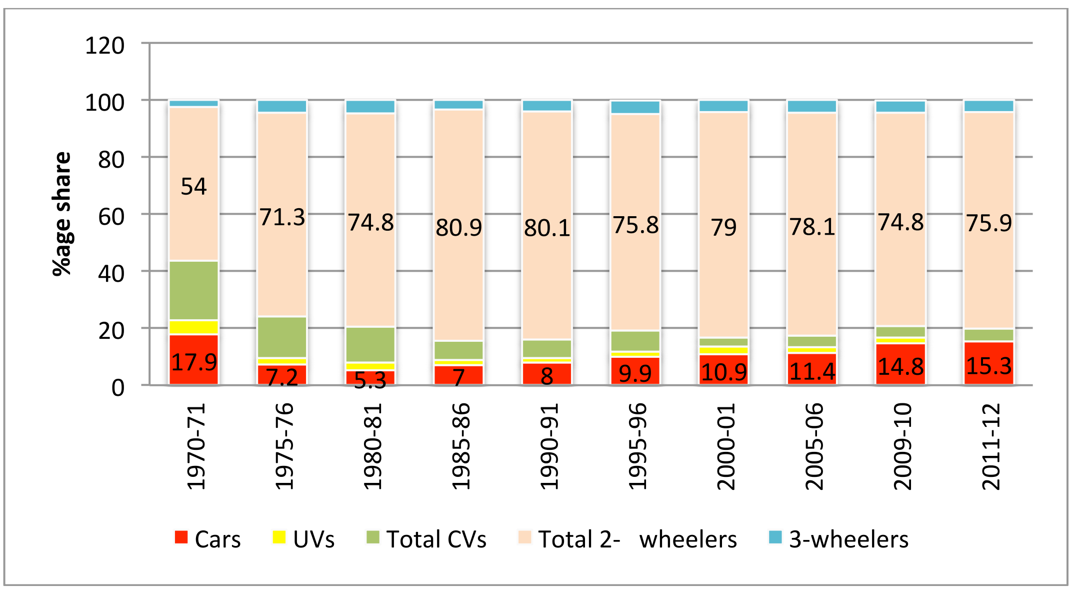

Figure 2: Segment-wise share in production (in %)
Source: DHI, AIAM and SIAM

The distribution of total output is not found to be uniform across different segments of the industry. Irrespective of any policy regime, two-wheelers segment has continuously dominated the automobile industry. Its share increased from 54 per cent in 1970-71 to 80 per cent in 1990-91 and later, it remained fluctuating at around 76 per cent. In a country like India size of lower middle class population being very large, demand for 2-wheelers remained high because it is the cheapest and fastest source of personal transportation. The share of CVs and passenger car segment also changed in response to policy changes. Till 1980-81, the CVs segment was the second largest segment but after mid-1980s passenger car segment replaced CVs and emerged as the second dominant segment in the industry. Its share increased from 7 per cent in 1985-86 to around 15 per cent in 2011-12. These changes do indicate and confirm that the relative position of sub-sectors in industry changed under liberal policy regime. The sluggish performance of passenger car industry till the early 1980s was mainly on account of discriminatory treatment of state policies to different segments of this industry (Narayana, 1989; D'Costa, 1995; Kathuria, 1996). For instance, policy environment till 1980s regulated passenger car segment in quite a different manner as compared to other three segments of the automobile industry namely 2-wheelers, 3-wheelers, and CVs.

India's import bill of crude oil grew sharply causing BoP problem (Ranawat and Tiwari, 2009) owing to global oil crisis of 1973 which led to sharp rise in oil prices. In order to reduce oil consumption and BoP deficit, automobile industry was divided into two parts, namely luxury (passenger car); and the rest, non-luxury (Pingle, 1999; GOI, 2010). Policy makers decided to discourage the development of passenger car segment and targeted the development of non-luxury segment of the industry. With a view to encourage non-luxury segment, in general, and CVs, in particular, the CVs segment was brought under Appendix-I list in 1973 (Agarwal, 1987; Kale, 2012) meaning thereby that applications for capacity licenses, foreign collaborations etc. from the manufacturersof CVs were to be considered on a priority basis. In response to these policy changes, production targets of fifth five year plan were kept biased towards CVs and 2-wheelers segments. The favourable treatment for CVs and 2-wheelers segments reflected in terms of sudden jump in production during 1970s (Table, 2). On the other hand, unfavourable treatment given to passenger car segment not only adversely affected the growth but also added to unutilized capacity of this segment.

Table 2: Segment-wise CAGR of production, 1960 to 2009-10

	Cars	UVs	CVs	2-Wheelers	3-Wheelers
1960 to 1969	7	4	3	21	29
1970-71 to 1979-80	-1	3	4	13	16
1971-72 to 1980-81	-3	4	7	15	16
1980-81 to 1989-90	21	12	6	16	13
1990-91 to 1999-00	14	14	2	8	10
2000-01 to 2009-10	17	9	16	12	13

Source: DHI, AIAM and SIAM

Policy changes initiated since early-1980s brought passenger car segment at par with other segments of automobile industry (Narayana, 1989). Subsequently, the composition of automobile industry started changing. Contrary to the experience of passenger car industry under protective policy regime, since early 1980s this segment not only improved its growth rate but also witnessed the highest growth among all the segments of automobile industry (Table 2). High

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growth of this segment strengthened its position in automobile industry which is getting reflected in terms of its mounting output share (Figure 2).

In nutshell, changes in policy regime seem to have played a decisive role in the growth and development of automobile industryin general and sub-sectors of automobile industry in particular. Under liberal policy regime, development of the industry is not onlyinfluenced by the internal conditions of the economy but external factors are equally critical in shaping the sustainable growth of industrial sector. Thus, the following section is an attempt to understand the importance of internal and external markets in development of this industry.

5.2 Export trends in automobile industry

The focus of this section is to understand the export potential of automobile industry and its sub-sectors; it is interesting to note thatthe fundamental objective of the 1991 reforms was to promote exports of industrial sector. Given the BOP situation of India in 1990s and following years, it was critical for India to bring more foreign exchange to offset the mismatch between earnings and spending of foreign exchange. This was possible through export promotion. It is worth to point out that the export promotion is not a function of liberalization; it is determined by competitiveness of an industry or firms (Narayanan, 2004; Kumar and Joseph, 2007). A competitive firm can grow consistently by exporting products to international market. The competitiveness of a firm is rooted in its technological capabilities. Under protective policy regime, achievements of the industrial sector in general and automobile industry in particular,were not remarkable on technology front (Narayana et al., 1992; D'Costa, 1995; Kathuria, 1996; Singh, 2007). Poor technological capabilities of automobile industry and the resultant low international competitiveness limited the market of automobile products to domestic arena only.

Contrary to protective policy regimes, liberal trade and investment regime provided much opportunities to automobile firms to improve their technology base. Automobile firms succeeded in acquiring technological capabilities by adopting a mixture of both technology imports and in-house research and development activities (Kathuria, 1996; Narayanan, 1998; Mani, 2011; Kale, 2012). The emergence of technological capabilities is evident from the fact that automobile products manufactured in India are equipped with world's best technology (Chandra and Sagar, 2004). Mani (2011) and Kale (2012) examined the role of internal and external sources of technology in building technological capabilities and argued that external sources of technology played a critical role in developing technological capabilities of automobile firms in India. The emerging technological capabilities can positively contribute to the growth of automobile exports from India. It is the technological capabilities which determine long run competitiveness of the firms (Kumar and Joseph, 2007). In a globalized world, a competitive firm can grow endlessly by selling their products in the international market.

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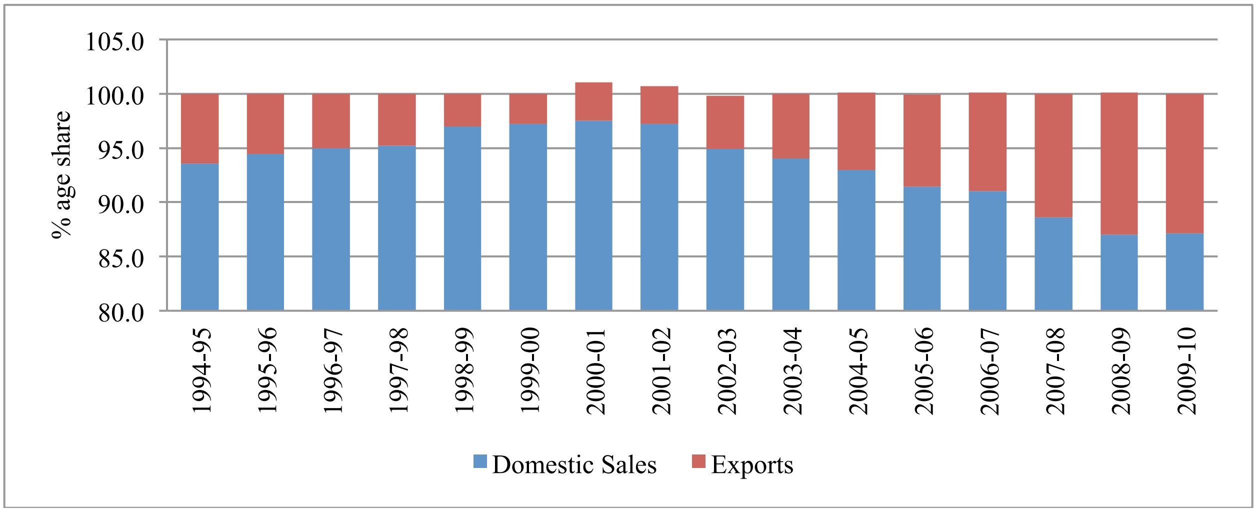

Figure 3: Changing market of automobile products
Source: DHI, AIAM and SIAM

Figure 3 denotes the changing composition of demand of total automobile vehicles between domestic and international market. Export intensity of the industry seems to have improved during the reference period. In 1995-96, share of exports in total sales was just 5.5 per cent which increased to 13 per cent in 2009-10. However, it is observed that export intensity was not found to be consistently rising specifically before 2000. Downfall in export intensity during late 1990s can be attributed both to internal and external conditions. Late 1990s was the period when India's internal demand grew very rapidly in response to availability of easy credit for consumer durables, rising income of middle class households and increasing variety of automobiles products. To exploit rapid demand, existing as well as new entrants in the industry shifted focus towards domestic market. On the external conditions, rapidly growing economies namely East Asian economies experienced economic crisis which adversely affected the external demand for industrial products in the late 1990s. However, after 2000-01, the export intensity of automobile industryincreased consistently from 3.5 per cent in 1999-2000 to 13 per cent in 2009-10. Though the technological capabilities contributed towards export intensity, sustainability of automobile industry still depended upon domestic demand which provided market to 87 per cent of total automobile production till recently.

To understand export performance at disaggregated level, Table 3 shows the share of each segment in total sales, that is, domestic plus external. Export intensity of some segments improved while it remained fluctuating in case of other segments. 2-wheelers segment continuously dominated domestic as well as external market in terms of market share. Export intensity of this segment initially decreased from 3.3 per cent in 1995-96 to 1.9 per cent in 2000-01 and then increased to 8.1 per cent in 2009-10. At the same time, export performance of CVs and 3-wheelers segments did not experience any improvement. Export intensity of these two segments remained fluctuating at around the figure of initial time period (1995-96). Passenger vehiclesare the only segment of automobile industry which observed consistent improvement in export intensity during the reference period. It was 0.9 per cent in 1995-96 and increased to 3.2 per cent in 2009-10. The observed increase was 3.56 times of 1995-96 exports whereas in case of 2-wheelers segment the increase was 2.5 times of the 1995-96 exports. It suggests that passenger vehicles segment experienced increase in exports at a much faster pace as compared to the other three segments of automobile industry.

Table 3: Importance of domestic and international market (% share)

Year		Passenger Vehicles	Commercial Vehicles	Three Wheelers	Two Wheelers
1995-96	Exports	0.9	0.4	0.9	3.3
	Domestic sales	11.9	5.7	4.1	72.7
	Total	12.8	6.2	5.1	75.9
2000-01	Exports	1.0	0.3	0.3	1.9
	Domestic sales	12.5	2.7	3.7	77.7
	Total	13.5	3.0	4.0	79.6
2005-06	Exports	1.8	0.4	1.3	5.6
	Domestic sales	12.4	4.2	3.6	70.7
	Total	14.2	4.6	4.9	76.2
2008-09	Exports	3.0	0.5	1.3	8.9
	Domestic sales	13.8	3.4	3.1	66.1
	Total	16.8	3.9	4.4	75.0
2009-10	Exports	3.2	0.3	1.2	8.1
	Domestic sales	13.8	3.8	3.1	66.5
	Total	17.0	4.1	4.4	74.6

Source: DHI, AIAM and SIAM

The changing export performance is also measured in terms of CAGR of exports of each segment (Table 4). The analysis based on CAGR also supported the previous findings that passenger car segment experienced highest growth among all segments of the industry throughout the reference period. Consistent growth of exports of passenger vehicles is an indicator of export potential of this segment in near future.

Table 4: CAGR of domestic sales and exports

Category	Domestic sales			Exports		
	1995-96 to 2001-02	2001-02 to 05-06	2006-07 to 10-11	1995-96 to 2001-02	2001-02 to 05-06	2006-07 to 10-11
Passenger cars	12.4	14.7	12.4	9.3	36.3	31.8
Utility Vehicles	10.6	14.1	16.3	8.9	34.8	22.9
Commercial Vehicles	-7.4	24.4	9.7	-4.4	36.0	11.4
Three Wheelers	4.7	15.8	6.8	-11.5	49.3	17.0
Two Wheelers	7.4	16.1	10.7	-1.5	49.0	25.5
Grand Total	7.0	14.3	11.3	-0.8	44.5	23.3

Source: DHI, ACMA, AIAM and SIAM

5.3 Segment-wise export contribution

Export performance of automobile industry improved during 2000-01 to 2009-10, but it is not uniformly picked-up by all the sub-sectors of this industry. Analysis in the previous section revealed that only passenger car segment had shown high export potential as compared to other three segments. But this analysis does not inform about growing importance of this segment in total automobile industry’s exports.

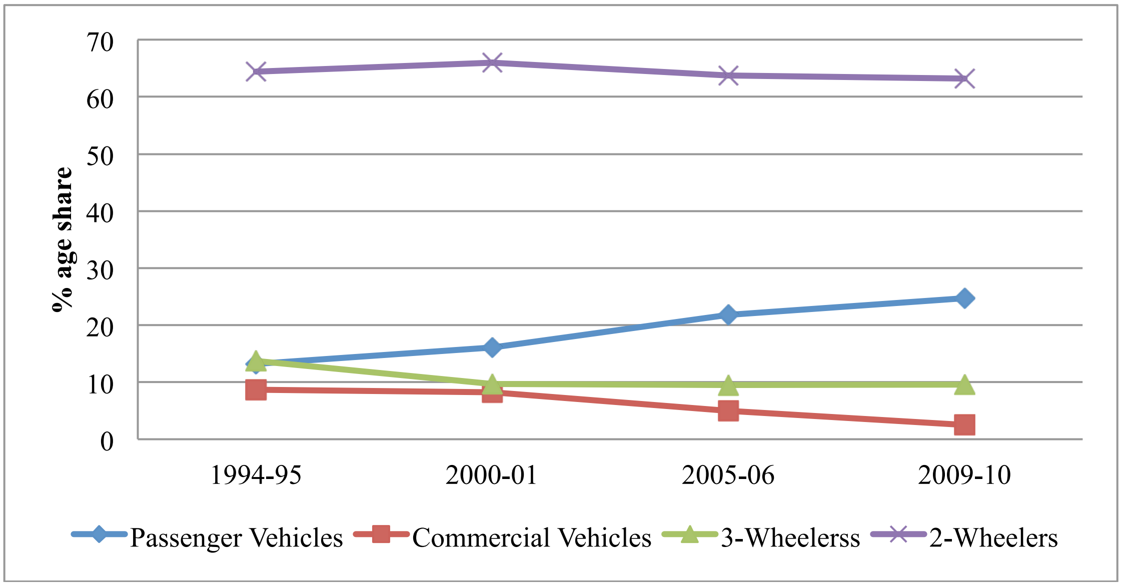

Figure 4: Segment-wise share in exports (in %)
Source: DHI, AIAM and SIAM

Figue 4presents information on changing export contribution of each sub-sector to total exports of automobile industry. Substantial changes have been observed during the reference period. The trends are quite stiking in case of commercial vehicles, 3-wheelers and passenger vehicles segments. In 1994-95, export contribution of these three sub-sectorswas more or less the same (Figure, 4). But in the subsequent period, contribution of 3-wheelers and CVs segments declined, the decline being much sharper in case of commercial vehicles. These results tend to reiterate that importance of CVs segment in total automobile production deteriorated under the liberal policy regime. Contribution of passenger vehicles segment to the total exports of automobile industry not only improved but doubled during the period 1994-95 to 2009-10. In 1994-95, export contribution of this segment was just 13.2 per cent which increased to 24.7 per cent in 2009-10. Interestingly, 2-wheelers is the only segment which did not observe much change. It remained a dominant sector in terms of its export contribution to total industry’s exports (Figure, 4).

On the whole, empirical analysis reveals that importance of passenger vehicles segment in automobile industry increased as reflected both in terms of rising production share and export contribution of this segment. The consistently rising export contribution is an indication of long-term export potential of this segment. It is worth to point out that the current growth of automobile industry in general and passenger vehicles segment in particular is subsained due to rapid growth of domestic market rather than the growth of external market. Only 13 per cent of total automobile production was exported in 2009-10, rest was sold in domestic market.

5.4 Discussion

Automobile industry in India has been subjected to significant restructuring since the initiation of neo-liberal policies. Empirical analysis states that the volume of production considerably increased and the relative position of sub-sectors in the industry has also changed, wherein passenger vehicles segment gained in terms of production share. The growing

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dominance of passenger vehicles segment in automobile industry is also visible in terms of consistent high growth experienced by this segment since 1980s. Existing studies mainly attributed this high growth to liberal policy. According to the literature, dismantling of supply side constraints in terms of capacity creation, diversification and entry of new firms in the industry remained the dominant contributor to the growth of industry under new policy regime. However, these studies could not recognize the importance of demand side factors which are equally important for the rapid growth of this industry in recent past. Along with other contributing factors, rising income of middle class and easy credit policy significantly contributed to the rapid growth of automobile industry in general and passenger car segment in particular. According to NCAER (National Council of Applied Economic Research) estimates, the size of middle class (middle + upper middle income group) in total population expanded from 8.48 per cent in 1985-86 to 18.35 per cent in 1996-97 and further to 31.56 in 2009-10. Income of middle income households is as high as 10 lakh per annum which allowed them to afford small size cars. Similarly, Easy credit policy for consumer durables significantly contributed to rapid growth of this sector. According to IBEF (India Brand Equity Foundation) around 75 per cent of the value of car is financed by banking system in India in recent years. Thus, it is critical to understand the role of demand side factors in the growth of automobile industry under liberal policy regime.

Empirical analysis on export performance of this industry did not strongly support the perception of advocates of economic reforms who frequently argued that the new policy regime would improve the international competitiveness of India's industrial sector. Empirical analysis viewed that the export intensity of this industry has improved during the last one and a half decade but it is still very low. Only 13 per cent of total automobile products produced in India were exported in 2009-10. Alternatively, 87 per cent of automobile products are finding market in India in recent years. The low export intensity further turned down the argument of those who had claimed positive association between foreign presence and host country exports. This is the industry which succeeded in attracting large volume of foreign direct investment (FDI). FDI received by Indian automobile industry in 2004 was Rs. 6342.5 million and it increased to Rs. 59797.7 million in 2012 (Singh, 2010; GOI, 2013). Out of the total FDI inflow in automobile industry, passenger car segment received a large chunk of FDI i.e. about 48 percent in 2000-2011. But lower export intensity of this sector mainly points to the fact that the large inflow of FDI in this industry only exploited India's growing market rather than using India as a base for export-led production. In such a situation, it is not expected that India's trade deficit would come down in near future. In order to tackle such a situation, systematic policy intervention is warranted which involves specific policy measures to encourage manufacturers to use India as a production base for world market.

6. Concluding Remarks

A paradigm shift in India'sdevelopment strategy from aninward looking import-substitution policy regime to a market oriented development strategy regime has brought a significant change in the institutional set-up supporting the automobile industry. The changing institutional set-up is likely to influence long-term growth and development of this industry. The policymakers tended to believe that liberal trade and investment regime would help in developing a competitive industrial base which in turn might correct the country's BoP through increased export earnings. The present paper makes an attempt to understand the influence of changing policy regime on growth and development of automobile industry on the one hand and export potential of this industry, on the other hand, conducting the probe at two levels- for the industry as a whole and for its sub-segments.

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Analysis reveals that output of automobile industry increased at an unprecedented rate especially since 1990s, even though, this rise in production does not seem to be equally contributed by all sub-sectors of the industry. 2-wheelers segment remained the dominant segment with the largest share in total output but its share in total production really declined. Further, CVs segment of the industry remained the second dominant sub-sector till early 1980s. Under protective regime, state policies provided special treatment to this segment by bringing it under the Appendix-I list in 1973. Changes in policy environment initiated since mid-1980s provided a level playing field to other segments especially passenger vehicles segment. Accordingly, production share of CVs segment in total industry's output declined over time. In case of passenger car segment, it witnessed a low and even negative growth in output during 1970s. However, this segment grew rapidly under new policy regime which manifested itself in increased output share of this segment in total output of the industry. It increased from 7 per cent in 1985-86 to 10.9 per cent in 2000-01 and then to 15.3 per cent in 2011-12. It indicates that changing policy regime provided environment supportive to the growth of passenger vehicles segment. Changing shares of sub-sectors in total output suggests that the structure of automobile industry changed under the new policy environment. Rapid growth of this segment could be attributed to rising income of the middle class whichsignificantly substituted 2-wheelers with 4-wheelers (affordable cars). In addition, the financial sector reforms have facilitated easy availability of credit. Many car manufacturers have formed tie-ups with financial institutions to finance their products especially the passenger car.

Analysis also reveals that export intensity of automobile industry increased during the reference period. This trend has been found to be more consistent and visible only since 2001. But, the gains of increasing export intensity are not shared equally among the industry's sub-sectors. With minor variation, export intensity of the CVs and 3-wheerlers segment remained almost constant whereas it improved in case of 2-wheelers and passenger vehicles segment. Within automobile industry, passenger vehicle is the only segment which has continuously experienced positive and high growth in exports and also contributed to export intensity of the industry during the reference period. Growing importance of passenger vehicle segment in automobile industry is visible both in domestic and external market. Export contribution of this segment in total automobile exports almost doubled during the last two decades. Lastly, it can be mentioned that as there is lot of product-heterogeneity within passenger car segment Indian passenger vehicle industry may not be equally competent in all kinds of passenger vehicles. For this, further research is required to specify the competitiveness within this segment of automobile industry.

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