CHAPTER VI

SUMMARY OF FINDINGS AND CONCLUSIONS

6.1 On the Structural Parameters of the Automobile Industry

1. There has been a growth of 156.70 times in the production of total number of vehicles in India in just 46 years. The total number of vehicles produced was 69,549 in 1960 which increased to 10,898,708 in 2006. No other segment of economy has recorded such an outstanding performance within the same period. This is because of market size and other advantages in India.

2. The growth of the automobile industry is due to the increase in production across all segments. The largest increase in production has been in the two-wheeler segment followed by the passenger car segment and the commercial vehicle segment.

3. Commercial vehicles are few in India when compared with the world average. India is the second most populous country in the world but it ranks eighth in the total number of commercial vehicles, this is because of poor transport linkages across the country for carrying goods. Even countries like Spain, Thailand, and Mexico are better served than India. This is the sector which India needs to develop.

4. The auto-component sector has a much higher employment generation potential and export-intensity than the vehicle manufacturing sector. The component manufacturers are now globally competitive and are maintaining reasonable profit levels despite a tariff protection of only 7.5 percent.

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

6. The automobile industry has benefitted from clustering because of several reasons; reduced inventory costs, transportation time, production time, improved research and development, increased productivity and immediate quality control feedback.

7. Cluster formation started in the automobile industry due to proximity to suppliers, vertical and horizontal integration of firms, supply interruptions, logistic issues, and distance decay.

6.3 **On the Performance Indicators of Automobile Clusters in India**

8. In the organized sector, five jobs are created for every additional passenger car, 13 jobs are created for every commercial vehicle, 0.5 jobs created for two-wheelers and 4 jobs are created for three-wheelers.

9. The percentage share of direct employment has declined in all the clusters in all the categories except in the case of manufacturing of vehicles in Mumbai-Pune cluster. The structural shift from direct employment to contract employment in all categories is the current trend in the automobile industry. The decline in direct employment category has been compensated by manifold increase in contract employment in all the clusters and across all the categories.

10. In 1989-90 overall contribution of the direct employment in manufacturing of automobiles was remarkably high i.e., between 65-70 percent for all the three clusters and remained high until 1994-95. Nevertheless, the share under direct employment category has started declining in the post-reform period. This phenomena and characteristics can be explained by the structural shift of employment from direct to contract employment which is also acknowledged as informalisation of employment within the formal sector.

11. Number of direct employment has declined in all categories in 2005-06 in the NCR cluster. The highest percentage decline was recorded in manufacturing of motor bodies from 83.64 percent in 1999-00 to 24.55 percent in 2005-06. Decline in direct employment has been compensated by an increase in contractual employment with small increase in managerial and supervisory staff and other employee segments.
12. Per person productivity of manufacturing of motor vehicles has always been very high for all the three clusters and for all the years. This increase in productivity has been on account of higher automation in motor vehicle production.

13. The percentage share of gross sale value of manufacturing of motor vehicles for all the three clusters as a whole is greater than the all India share for almost all the selected years.

14. There have been insignificant changes in the share of gross sale value in the period 1989-90 to 1994-95 which suggests a more static condition for growth in the industry. However, the impacts of the reforms are being felt now a dynamic situation is emerging where changes have been significant and more visible. The rate of change has been accelerated to such an extent that in many instances the changes observed in a one-year period from 2004-05 to 2005-06 have been greater in magnitude and more substantial in nature than the ones noticed for a five year period between 1999-000 and 2004-05.

15. The number of firms in the NCR cluster between 1989-90 and 1999-00 were the highest with gradual yearly increase. However, the number of firms have reduced sharply in 1999-2000. However, the number of firms in the other two clusters has registered a growth over the years. Between 2004-05 and 2005-06, a declining trend was registered which points toward increasing competition and resultant non-sustainability of small firms which are bound to close.

16. The percentage share of the number of firms in the NCR cluster to total number of firms in India has witnessed a decline after 1999-00. However, the share of the other two clusters has either increased or remains constant over the years. The share of number of firms in all the three clusters taken together to total firms in India has experienced a decline since 1999-00.

17. The most noticeable change has been the steady rise in the concentration of employment in the manufacturing of parts and accessories in all the three clusters (LQ value of 1.06, 1.09 and 1.10). This is due to the fact that this sector has a large labour absorbing capacity coupled with ample scope for the expansion of the sector.

18. The value of Herfindahl index is higher than the all India average for most of the years and for all the three clusters. High HHI value indicates increase in cluster power.
and decrease in competition. This index also explains that clustering is essential for cost competitiveness and better performance. High HHI index represents monopoly of that automobile cluster.

19. Cross-sectional analysis of HHI index shows that Bangalore-Chennai cluster has overtaken the NCR cluster in 2004-05. This can be attributed to an uninterrupted power supply and better infrastructural support.

6.4 On the Backward and Forward Linkages of the Automobile Industry

20. Clusters are a product of linkages. The strongest linkage of motor vehicles production is seen to be with motor vehicles themselves because the industry is highly dependent on motor vehicles for transporting its most important inputs viz., iron, steel and ferro alloys.

21. The second most important input, which is required to produce one unit of automobile is iron, steel and ferro alloys. It is rightly argued that iron and steel are basic inputs of the automobile industry. This was the reason why the automobile industry was initially established in close proximity to iron and steel producing areas.

22. It has been realized that banking facilities are greatly required for expansion of capacities and modernization of the automobile units. Data analysis also confirms that banking was the third important input in production process of automobiles. Banking is not only an important input but also an important output needed for creating multiplier effects.

23. Demand for inputs of motor vehicles was more or the less similar to the final demand of inputs for motor cycles and scooters. Within the final demand of inputs of motor vehicles, banking precedes other commercial, social and personal services, proving that banking is a more important determinant in generating demand for final inputs. There is little variation in the demand of inputs for motor cycles and scooters and the demand of inputs for motor vehicles. The correlation between demand of inputs and supply of outputs suggests that a thing is highly correlated with the object itself.

24. Unlike the demand of inputs, the supply of outputs contributed little to the strength of the forward linkages in the automobile industry. Supply of first two outputs; motor
vehicles and land transport including supply pipelines, approximately covered 70 percent of the forward linkages because extension services are more profitable only for few segments. Next in order were motor cycles and scooters (which covered 17 percent of the forward linkages) while other forward linkages were very poor because of lower or insignificant values of outputs.

25. Demand of inputs for direct backward linkages nowhere exceeded more than 22 percent (even for first input); while supply of outputs went up to 87 percent. Therefore, the scope of diversification and extension of services are much more in outputs as compared to inputs. This has important policy implications.

26. The indirect linkages tables show that for every increase of motor vehicle segment, the total indirect backward linkage would be to the extent of 2.59 units which would include 1.11 within the motor vehicle segment. Second most important sector to the motor vehicle segment is iron, steel and ferro alloys segment followed by banking segment and electricity. Likewise the segment least affected in the table is supporting and auxiliary transportation activities.

27. Comparison of the total indirect effect of motor cycles and scooters on the motor vehicles segment indicates that the latter has greater importance. It shows the higher multiplier effect of the latter segment. Here, it can also be noted that the number of segments having indirect backward linkages are more in case of the motor vehicle segment than that in the motor cycle and scooter segment.

28. Forward linkage means that the output produced by a sector of the economy is used by another sector of the economy as its input for final production. Therefore, an increase of a unit value in the production of motor vehicles generates indirect forward effect of 1.11 values in the motor vehicles segment itself. The second most connected sector is motor cycles and scooters followed by other transport equipments. On the whole, every unit increase in the production of motor vehicles has an indirect forward linkage value of 1.722. There are as many as 27 sectors, which have indirect forward linkage with the motor vehicle segment.

29. Indirect backward linkages were large in number and uniform in their percentage shares as compared to direct backward linkages. In fact, indirect linkages help in strengthening the infrastructure and widening the services within an industrial
category. The final demand of inputs cannot be calculated in the case of indirect backward and indirect forward linkages while it is possible in the case of direct backward and direct forward linkages.

The three clusters account for over sixty percent of total employment in the automobile industry in India and approximately sixty percent of the total number of automobile firms in India (56.70 percent). The average per person productivity of all the three clusters is greater than the national average. The H.H.I. values based on total number of employment and gross sale value indicates that the market power as well as dominance of the three clusters in the automobile industry (Table 4.24). It would not be overstatement that the three clusters have developed themselves as the most progressive, vibrant and competitive automobile clusters in India. Their success story portrays the ingredients of a successful automobile cluster.