CHAPTER - V
FINDINGS, SUGGESTIONS AND CONCLUSION

5. INTRODUCTION
The present study focuses on the impact of policy changes on growth and sources of productivity growth in Indian automobile industry. The main findings of the present study are as follows;

5.1 GROWTH OF INDIAN AUTOMOBILE INDUSTRY
✓ The growth rate of Indian commercial vehicles during the 1991-2012, observed that the growth of output (10.89 per cent) was mainly driven by capital (11.48 per cent) rather than the labour (2.97 per cent) respectively. And the commercial vehicle segment registered positive double digit growth rate of output in the post-reform period.
✓ The growth rate of Indian passenger vehicles during the post-reform period, evidenced that the growth of output (9.85 per cent), the main contributor of this output was the highest value of capital (13.66 per cent) rather than labour (3.91 per cent) respectively. And in the passenger vehicles output expected to see a moderate growth in the liberalized era.
✓ The growth rate of two and three wheelers during the post-reform period, expected to sustain the growth momentum output of 18.33 per cent and the main contributor of this output was due to the maximum value of capital at 16.65 per cent whereas 10.44 per cent in the growth rate of employment. And the growth rate of two and three wheelers are concerned the high growth path in India during the free economic environment.
✓ The growth rate of diversified automobiles during the post-reform period, observed that the growth of output (10.14 per cent) mainly contributed by capital (10.18 per cent) and (2.34 per cent) in labour respectively. Finally, the growth rate of diversified automobiles segment reported double digit growth in the post-reform period. The growth rate of Indian storage batteries during the post-reform period, observed that the growth of output
(12.53 per cent) was mainly determined by capital (12.30 per cent) rather than labour (6.75 per cent) respectively. The automobiles components of storage batteries reported positive and significant growth rate during the post-reform period.

- The growth rate of Indian tyres and tubes of automobile components during the post-reform period, evidenced that the output (4.20 per cent) was mainly contributed by capital (7.58 per cent) rather than labour (0.46 per cent) respectively. Also the economic reforms observed positive growth of Indian tyres and tubes industry.

- The growth rate of Indian other automobile ancillaries during the post-reform period, reported that the output (10.97 per cent) was mainly driven by capital (13.53 per cent) rather than labour (5.98 per cent) respectively. And the other automobile ancillaries registered positive double digit growth in the post-reform period.

- The partial factor productivity of Indian commercial vehicles during the post-reform period reported the positive growth of labour productivity (7.65 per cent) and capital intensity (8.26 per cent) whereas, de-growth of capital productivity (-0.56 per cent).

- The partial factor productivity of Indian passenger vehicles during the post-reform period highest in capital intensity (9.39 per cent) followed by labour productivity (5.72 per cent) and the de-growth (3.35 per cent) respectively.

- The partial factor productivity of Indian two and three wheelers during the post-reform period reported maximum growth in labour productivity (7.14 per cent) followed by capital intensity (5.63 per cent) and capital productivity (1.44 per cent) respectively.

- The partial factor productivity of Indian diversified automobiles during the post-reform period high in capital intensity (7.66 per cent) followed by labour productivity (7.62 per cent) and de-growth of capital productivity (0.04 per cent) in the study period.

- The partial factor productivity of Indian storage batteries of automobile ancillaries during the post-reform period examined highest in labour
productivity (5.42 per cent) followed by capital intensity (5.20 per cent) and capital productivity (0.21 per cent) respectively.

- The Indian tyres and tubes of automobiles ancillaries during the post-reform period reported maximum growth rate of 7.08 per cent in the capital intensity, followed by 3.71 per cent in the labour productivity and de-growth of 3.14 per cent in the capital productivity respectively.
- The Indian other automobile ancillaries during post-reform period examined the maximum growth rate of 7.12 per cent in the capital intensity, followed by 4.71 per cent in the labour productivity and de-growth of 2.25 per cent in the capital productivity respectively.

5.2 SOURCES OF PRODUCTIVITY GROWTH IN INDIAN AUTOMOBILE INDUSTRY

- The mean sources of productivity growth of Indian commercial vehicles during the post-reform period reported deteriorating performance of (-) 1 per cent and this fall was sole contributor of technical change at (-) 1.1 per cent whereas, positive efficiency at 0.1 per cent. The positive efficiency was due to main contributors of both pure and scale efficiency change respectively.
- The sources of productivity growth in Indian passenger vehicles during the post-reform period registered positive 0.3 per cent and this was sole contributor of technical change at 0.3 per cent where as, there is no change in technical efficiency during the study period.
- The sources of productivity growth in Indian two and three wheelers during the post-reform period reveals that the productivity improved at 2.9 per cent and this was due to positive efficiency change at 3.5 per cent whereas, the technology regressed at (-) 0.5 per cent. The positive efficiency change was mainly by both higher the scale efficiency change and no change in the pure efficiency change in the post-reform period.
- The sources of productivity in Indian diversified automobiles during the post-reform period observed productivity played a little role at 1.1 per cent and this was improvement in both efficiency and technology. The positive
efficiency was contributed by improvement in scale efficiency and no change in pure efficiency during the study period.

- The sources of productivity growth in Indian storage batteries during the post-reform period observed that the productivity improvement at 0.2 per cent and this was mainly by technical change and no change in the efficiency level. The no change in efficiency was due to no changes in the pure and scale efficiency during the study period.

- The Indian tyres and tubes during the post-reform period is concern that the productivity improved at 1 per cent and this was technology also progressed at 1 per cent and there is no change in the efficiency. The no change in efficiency was due to no change in the pure and scale efficiency of the post-reform period.

- The source of productivity growth of Indian automobile ancillaries during the post-reform period, the productivity growth deteriorated at (-) 1.2 per cent and this was due to negative contribution of efficiency at 1.2 per cent whereas, there is no change in the technology. The declining efficiency was mainly by the scale efficiency while no change in the pure efficiency change during the period under review.

- The technology pressed at 0.4 per cent while the efficiency contributes negatively at 0.4 per cent in the Indian automobile ancillaries. The negative sign of efficiency turn positive expected to improvement in the productivity during the study period. There is also need to improve the scale efficiency for further increasing of technical efficiency in this sector.

5.3 INference drawn

H₁: There is no significant difference in the overall growth rates between Indian automobile and automobile ancillaries industry during post-reform period.

Therefore the null hypothesis is accepted.

H₂: There is no significant difference in the overall growth rates of partial factor productivity between Indian automobile and automobile ancillaries industry during post-reform period.

Therefore the null hypothesis is rejected.
H₃: Technical efficiency is expected to be better during post-reform period.

Therefore the null hypothesis is accepted in the Indian automobile industry, but the Indian automobile ancillaries industry rejected the null hypothesis.

H₄: Sources of productivity growth in Indian Automobile Industry is expected to be better during post-reform period.

Therefore the null hypothesis is accepted in the Indian automobile industry whereas the Indian automobile ancillaries reveal null hypothesis are neither supportive nor rejectable.

5.4 SUGGESTIONS AND RECOMMENDATIONS

- The auto policy 2002 and approval of 100 per cent foreign direct investment positively influenced to increase the growth rate of output in the Indian automobile industry.

- The two and three wheelers are to continue their joy ride backed by a strong rural demand for motor cycles and increasing popularity of automatic scooters. In case of commercial vehicles admitted that biggest concern for this sector is the challenging macro-economic environment in the country.

- In the passenger vehicles segment have comparatively low demand environment on account of prolonged high inflation, pricey fuel and high interest rates deterred customers from buying cares, particularly first time buyers. In the diversified automobiles also contributes double digit growth to Indian automobile industry during post-reform period.

- The Indian automobile ancillaries is concern the output mainly driven by high capital rather than labour. It means the automobile industry realized capital intensive industry and it also create appreciable rate of jobs in India.

- The Indian automobile industry reported that the decreasing growth rate of capital productivity with the increasing capital intensity in the sector (three out of four sub-sectors) is a matter of serious concern, as it is not consistent with the resource endowments of the economy. If these trends were not reversed or checked, they would put a great strain on the economy in the form of lesser demand for manpower and greater demand for capital in future. It also reveals that capital intensity had increased in all the sub-sectors.
implying that more and more capital could be required for the generating employment in the Indian automobile industry. The similar pattern emerged in the automobile ancillaries industry during the post-reform period.

✓ The commercial vehicles and two and three wheelers that rely on human capital, effort should be made to enhance the technological adaptation to further augmenting in the productivity growth.

✓ The policy directed towards implementation of best technologies would prove to be beneficial for sustainability of the automobile industry.

✓ The declining in the technical change of Indian automobile industry need a separate research and development wing encouraged through effective policy framework by the Government, to evaluate the adoptability of the intensive techniques to develop indigenous techniques and strategies for technologies progress with emphasis on innovation, could be more effectively for further increasing the productivity growth.

5.5 DIRECTIONS FOR FURTHER RESEARCH

1. We have not examined the determinants of Technical Efficiency in this study and it could be an area for further research.

2. Identifying and Estimating Sources of Total Factor Productivity Growth in Indian automobile industry and it could be an area for further research.

3. A Stochastic Approach to Measure Performance of the Indian Automobile Industry after Liberalization is a further area of research.

4. The Productivity Growth in relation to Firm Size and Ownership can also be area for further research.

5. Productivity Spillovers from Technology Transfer to Indian Automobile firms as an area for further research.


