

6. Summary and Conclusions

The role of productivity as a source of growth and competitive performance of nations hardly needs elaboration. In fact, efforts to explain the growth process have led to the emergence of a new area in development economics, viz., endogenous growth theory. In this study, we have reported the levels and growth rates of labour productivity, capital productivity and also capital intensities. In view of the controversy about the 'separability of material inputs', we have estimated the total productivity (TP) and the total factor productivity (TFP) indices within the growth accounting framework. We have used the translog index for this purpose, whose superiority over the rival productivity indices has been amply demonstrated in the literature. Computation of productivity indices entailed the data on real output and real value-added as alternative proxies for production levels. We have, therefore, estimated the real value added and the TFP indices by both single and double deflation methods. These productivity indices have been calculated using the two alternative series of capital stock, viz., K1 and K2. We preferred the use of capital stock series (K1) derived by using investment deflator rather than K2 series obtained by using WPI for machine and tools, as the former price index is stated to be a more comprehensive measure than the latter. We also consider TP indices as superior to TFP indices in measuring the overall efficiency in production process. Since TFP indices have additional information content, such as, movement of input-output prices, implications for welfare, etc., we have also calculated these indices.

The main findings of the study, some of which are based on capital stock series K1, are summarised below.

- Labour productivity for the selected manufacturing industries, as a group, has been higher than that for the manufacturing sector as a whole. Whatever be the measure of labour productivity, an increasing trend in labour productivity has been witnessed in the case of most of the industry groups across the five sub-periods of the study. The leading performers were chemical, machinery and transport equipment and textile industries, if both the levels and the growth rates of labour productivity are considered. Labour productivity has risen at a higher rate than capital productivity.
- The international comparisons of labour productivity indicate that Indian industry has witnessed higher growth rates of labour productivity as compared with some of the industrialised countries. However, the level of labour productivity in India is abysmally low and its convergence to the international standards seems to be a difficult proposition in the near future. This indicates the extent of the productivity gap.
- The rates of growth of TP, TFP (single deflation method) and TFP (double deflation method) in manufacturing sector were 1.0 per cent, 2.6 per cent and 4.4 per cent per annum, respectively, during the period 1973-74 to 1997-98. The rates of growth of multifactor productivity were higher for the selected manufacturing sector as compared with the manufacturing sector as a whole. Textile, machinery and transport equipment and chemical industries were the better performers, whereas, metal and leather industries were the worst performers. It is worthwhile to note that most of the studies conducted on the Indian experience corroborate the empirical findings of this study i.e., the Indian manufacturing

sector has recorded positive rates of growth of productivity, particularly in the post -1985 period. Furthermore, in terms of total factor productivity, the manufacturing sector in India compares favourably with those of the East Asian economies.

- Industry level analysis of the behaviour of productivity reveals diverse implications for their prospective performance. Although the textile industry is viewed as a sunset industry, its performance has been resilient *vis-à-vis* other industries, despite the problems of industrial unrest. The decline in the labour force facing this industry could operate as a drag on the growth of output. For the metal industry, optimising the use of labour force in changing demand conditions is difficult due to the stringent labour laws governing the public sector undertakings. If labour costs become fixed costs for a long period of time, then adapting to the changing demand conditions is bound to adversely affect the productivity performance. In spite of these constraints, productivity in the metal industry has responded favourably in the nineties to the structural changes in the industrial climate. As regards chemicals and machinery and transport equipment industries, they seem to have been adversely affected by the import liberalisation process, which has resulted in the input prices rising faster than the output prices. Leather industry presents a peculiar picture. Growth in output of this industry can be attributed solely to 'perspiration' rather than 'inspiration'. However, this industry has performed rather well in terms of its contribution to exports. Stricter environmental standards in competitor countries provide a competitive edge to the Indian leather industry.

For the Indian manufacturing sector, many challenges lie ahead. Increase in productivity is imperative in order to raise standards of living and also to make the Indian exports globally competitive. In the metal industry, labour unions have been quite active. In such a situation, optimising the level of labour input in accordance with the changing demand conditions is rather difficult. This could be one of the many reasons of low productivity in this industry. This is particularly true of public sector undertakings. We have already noted that the private sector was allowed to enter many areas of industry in the recent years and this accompanied by market related pricing has resulted in an increase in productivity.

We have also noticed that in all the industries, barring the metal industry, input prices have risen faster than output prices. Stabilisation of input prices, in a situation where output prices are getting stabilised due to import liberalisation, is necessary. With the pressure mounting on India to adhere to labour and environmental standards, Indian industries will have to prepare strategies for economising the use of inputs and curtailing costs so as to remain competitive in the global trading environment.