CHAPTER-VIII :

CONCLUSIONS

We intend to briefly recapitulate the main findings of our study with respect to problems studied in Chapters II to VII. We intend to draw together the conclusions of our analysis and assess their practical significance in this chapter. Moreover, we suggest some related fields where further research is invited.

I. MAIN FINDINGS AND THEIR IMPLICATIONS :

We have examined the following problems in Chapters II to VII with respect to profitability of Indian Manufacturing Industries viz., Concept and Measurement of Profit Rate, Trends in Rate of Profit, Structure of Profit Rates, Equalising Tendency Among Rate of Profit of Different Industries, Persistency of Rates of Profit, Estimates of Capital, Growth: Profitability Relationship and Determinants of Rates of Profit of Indian Manufacturing Industries - Following conclusions are drawn:

(A) Concept and Measurement of Profit Rate :

We have selected the two financial concepts of Profit Rate viz., Gross Profit Rate and Net Profit Rate, considering the easiness involved in their calculation and the most practical use of these in day-to-day business practice.

(B) Trends in Rates of Profit (1950-51 to 1974-75) :

(i) Majority of Indian Manufacturing Industries enjoyed higher gross (16 industries) and net profit rate (14 industries) in 1974-75 compared to 1950-51.

(ii) The industries like Grains & Pulses, Iron & Steel, Aluminium, Cement and Rubber & Rubber Products suffered a fall in gross as well as net profit rate in 1974-75 over 1950-51. In addition to these industries were Sugar and Tobacco which suffered a fall in net profit rate alone in 1974-75 over 1950-51.

(iii) The above mentioned results are further confirmed through the Time Trend Analysis of Profitability which indicates that Twelve and Seven out of Twenty One Indian Manufacturing Industries, had rising trend in gross and net profit rate respectively over time (i.e. 1950-51 to 1974-75). The Time trend Analysis further reveals that six industries belonging to Consumers Goods Sector (out of 10)

3 belonging to Capital Goods Sector (out of 4), 2 belonging to Basic Goods Sector (out of 4) and one belonging to Intermediary Goods Sector (out of 3), experienced rising trend in gross profit rate over study period. As far as net profit rate is concerned the number of industries enjoying rising trend is relatively less (i.e. 7 industries compared to 12 given above) e.g. 3 from Consumers Goods Sector, 2 from Capital Goods Sector, 1 from Basic Goods Sector and 1 from Intermediary Goods Sector.

(iv) Two out of four industries belonging to Basic Goods Sector, viz., Iron & Steel and Cement, suffered a declining trend in both gross and net profit rate over the study period. Grains & Pulses Industry experienced a declining trend in net profit rate alone.

The Time Trend Results of Linear Bivariate Model for above mentioned industries are statistically significant and therefore strongly establish the rising or declining trends for these industries over the period 1950-51 to 1974-75 and at the same time indicate the expected future trends in profitability of these industries too.

(v) It is further observed that the profitability ratios in majority of the Indian Manufacturing Industries are Moderately Fluctuating (Coefficient of variation between

.251 to .500) or Relatively Stable (C.V. upto .250). This is obvious from the arbitrary division of C.V. done by us in four groups, viz., Relatively Stable (C.V. upto .250), Moderately Fluctuating (C.V. between.251 to .500), Highly Fluctuating (C.V. between .501 to .750) and Erratically Fluctuating (C.V. above .751).

(vi) The Sectoral analysis of Time Trend analysis reveals that All the Sectors (Except Basic Goods Sector with respect to both the concepts of profit rate and Intermediary Goods Sector with respect to net profit rate) experienced rising trend in profitability over time.

The implications of our trend analysis are as follows. As far as the profitability trends are concerned, we observe that differences in the nature of industry has no influence because majority of the industries have a rising trend in profit rate irrespective of the Sector to which these belong. This implies that earning capacity of the majority of these industries has improved considerably over the 25 years period.

However, as far as Iron & Steel and Cement Industries are concerned, they have a strong declining profitability trend which reveals that the different controls exerted by government on pricing, distribution, production etc. have adversely affected the earnings position of these two

industries over time which in turn is expected to adversely affect the production in other sectors too.

As far as profitability trends in gross profit rate are concerned, they indicate the returns on total capital employed. For speedy expansion of different industries the government should encourage those industries which are having rising trend. The increase profitability of these industries would in return enable the industries to reinvest in the same or other industries on one hand, and would increase the capacity to raise the equity capital also thereby expanding the industries further and speeding up the industrial growth in the economy.

However, as far as industries like Iron & Steel and Cement are concerned, the declining trend in the profitability of these would repel the private investment from these industries. These two industries belong to Basic Goods Sector and require huge amounts of investments. Moreover these two industries are very much under the control of the government, particularly price and distribution controls. Hence, while considering the fixation of prices etc. of the products of these industries the government should pay attention to the cost structure of these industries and other problems faced by these so that the industries start reaping profits which

can be re-invested for further expansion of these industries, thereby encouraging speedy industrialization in the economy.

As far as the individual investor is concerned, our time trend analysis of net profit rate provides some guide lines. However, here also we observe that differences in nature of industries does not matter much.

(C) Structure of Profit Rates :

(i) Equalising Tendency Among Rates of Profit :

We have detected some levelling effects in Profitability (both gross and net) of Indian Manufacturing Industries over the period of Eleven years, i.e. from 1953-54 to 1963-64. This is revealed through the fact the coefficient of variation (C.V.) of profitability of different Indian Manufacturing Industries has a "Parabolic Trend", i.e. C.V. declining from 1953-54 to 1963-64, and receiving a minimum value in 1963-64, which indicates that profitability gap between different industries has narrowed down over this period, and C.V. rising again in 1964-65 and remaining above the minimum value of 1963-64 from 1964-65 till 1974-75 which indicates that the profitability gap between different industries widened during the period 1964-65 till 1974-75. This is further confirmed from the analysis of rank correlation

coefficient which declines in the beginning(i.e. ranking of profitability undergoing change) and then becomes negative (i.e. reversing of ranking), indicating thereby that ranking of industries by their profitability also underwent drastic changes during the period under study. These findings are further confirmed through the examination of rank correlation coefficient between rates of return and the changes in these rates in succeeding year, the coefficient carrying negative sign. In short, we have detected equalising tendency among profit rates of different Indian Manufacturing Industries over the period of Eleven years (1953-54 to 1963-64), which reveals the narrowing of profitability differences (C.V. declining) among these industries. However the equalising tendency is observed to have disappeared from the year 1964-65 onwards till 1974-75 which is indicative of widening of profitability differences (C.V. rising) which is above minimum value of 1963-64 among these industries over the period 1964-65 till 1974-75. The implications of this finding are as follows :

(i) The industries earning high profitability during the initial period of study deteriorated in their earning position while those earning low profit rate raised it over the above mentioned period. This levelling effect among profit rates of different industries continued upto 1963-64 after which it vanished. However, the reversing of ranking indicated by negative rank correlation coefficient after 1963-64 also confirms to this. In short, Industries which had low earnings in the fiftees not only raised their earnings over the above-

mentioned period but maintained the same after wards. While industries which lost earning supremacy over this period, deteriorated further in the earning position. Hence the profitability gap which had narrowed down, over the period of 1953-54 to 1963-64 (indicated by declining C.V.) widened again (indicated by rising C.V.). In other words, Indian Industries experienced levelling of profit rates for a period of 11 years. However, the levelling effects started disappearing after 1963-64 and resulted into widening of profitability differences among Indian Manufacturing Industries after 1963-64.

This type of levelling effect if considered in the light of government policy becomes more clear. Speedy Industrialization has been one of the main objective of government policies. It is well reflected and more stressed through Second Plan and Industrial Policy Resolution of 1956. The basic and heavy industries have been the most encouraged industries throught government policies. Hence these industries, which had been recently established got full momentum in the initial stages only. Our time trend analysis also reveals that majority of modern industries belonging to Capital and Basic Goods Sector (viz., Engineering & Chemical ones) had rising trend. While the old and traditional ones (Jute Textiles, Grains & Pulses, Cotton, Textiles, Iron & Steel,

Cement) either had declining profitability or had negligible rise in the profit rate. Inother words the newly established industries got enough encouragement which enabled them to raise their profitability till and after 1963-64, while old industries having ones lost the earning supremacy, deteriorated further in earning position after 1963-64. Hence the profitability differences which had narrowed down upto 1963-64, widened again. This implies that the modern industries enjoyed rise in earnings rate at faster rate than the old industries over the study period.

(ii) Persistency of Profitability :

The test of persistency of rates of profit is carried out in order to establish a causal functional relationship between past and present rates of profit. A strong positive tendency for the rates of profit to persist over the plan years 1960-61 to 1974-75 (i.e. Third Annual and Fourth Plan period) is detected through fitting a linear bivariate model. In other words, average of rates of profit during Second, Third and Annual Plan periods had a tendency to persist during the following plan periods, i.e. Third, Annual and Fourth Plan periods respectively.

However, when the same test is extended for a longer period i.e. averaging the profit rate over twelve years, we fail to detect any tendency for the profitability to persist.

Through the analysis of persistency of profitability we observed that Indian Manufacturing industries have a definite pattern of profit rates which reveals a strong tendency for profitability to persist over the periods of Third, Annual and Fourth Plans. However, when period is lengthened upto 12 years, this tendency does not seem to prevail. This implies that profitability of an industry can be treated as an indicator of future profitability, however, over a short time span of 5 years only. This would provide guidelines for the investors for short period at least. However, the prevalence of persistency of profit rate indicates the existence of good or bad management and monopoly power of some firms in the industry. However some Indian Industries are subject to restrictions, while some are favoured by government, Hence, we can not make strong deductions about monopoly power being the cause of persistency of industry profit rates. Hence, it calls for further investigation.

(D) Estimates of Capital :

One of the objectives of our study is to examine the Growth of an Industry (in real terms) and relate it to its profitability. The other objective is to assess the role of Capital-Output Ratio in the determination of profitability. This invited our attention towards the conceptual and measurement problems involved in defining capital. The value of

capital includes fixed assets and inventories.

The gross value concept of capital needed adjustments in prices of fixed assets as these are purchased and valued at different points of time, thereby making the aggregation of their values inconsistent. Hence, we attempted to adjust the price variations in fixed assets by applying appropriate price indices and prepared the series of fixed assets for each of the Twenty-one Indian Manufacturing industries at current prices for the period 1950-51 to 1974-75. Inventories being valued at current prices require no adjustment, hence these are added to fixed assets at current prices for each industry. When the capital series thus constructed is divided by gross-valued added, it gives us the Capital-Output Ratio. Similarly, when the capital series at current prices is deflated by appropriate price index and is converted into constant prices, it enables us to measure the real growth of the industry in terms of its productive capacity.

(E) Growth : Profitability Relationship :

In order to establish a causal functional relationship between real growth of the industry and its profitability over time, we have taken resort to bivariate regression analysis. We have fitted three Models to explore this relationship, viz., (i) Linear Bivariate Model without time Lag in Profit

Rate, (ii) Linear Bivariate Model with One-year Time Lag in Profit Rate (iii) Log-Log Model. The exercise is carried for both the Time Series and Cross-Section data.

We observed that after the fitting of all three Models, we could establish positive association between real growth of the industry (in terms of capital) and its profitability, for Eight Indian Manufacturing Industries, the Industries being Edible Vegetable and Hydrogenated Oils, Sugar, Medicines and Pharmaceutical Preparations (all these 3 belong to Consumers Goods Sector), Iron & Steel, Basic Industrial Chemicals, Cement (belonging to Basic Goods Sector) and Electrical Machinery, Apparatus, and Appliances, and Machinery (Other than Transport etc.) [belonging to Capital Goods Sector].

However, as far as Sugar Industry is concerned, the Model with One-year Lag in Profitability reveals positive association while Log-log Model gives strong negative association. This may probably due to dropping of negative values in latter model, which might have resulted in extreme values to extert their influence fully.

The regression results for all the above mentioned industries are statistically significant. However, the number of industries for which we have been able to establish the growth-profitability relationship is very small i.e. 8 out of

21. This diverted our attentions towards exploring inter--industry relationship between growth and profitability.

However, we observed further that net profit rate explains real growth of the industry better than the gross profit rate.

The Cross-Section Analysis is carried by dividing the whole period under study by plans.Growth Rate has been measured by continuously compounding the capital stock over plan years (i.e. Ist, IInd, IIIrd, Annual and IVth Plans and sub-period I and II and whole period).

All the three fitted Models reveal that there existed a strong positive association between real growth and profitability of different industries in India over the periods of IIIrd, Annual and IVth plans and Sub-period II. In short, Indian Manufacturing Industries witnessed strong positive association between real growth and profitability over the period 1961-62 to 1974-75.

Out of the three fitted Models, the first one, i.e. Linear Bivariate Model without Time lag, proved to be the 'best fit'.

Finally, net profit rate is observed to be capable of explaning inter-industry growth variations better than gross profit rate, which is true in case of Time-Series Analysis also.

Our growth profitability regression analysis (Time series) indicates strong positive association in three industries belonging to Consumers Goods Sector, two to Basic and two to Capital Goods Sector. This implies that there is still scope for the expansion of these industries.

Five out of these eight industries belong to Basic and Capital Goods Sector. This implies that encouragement to these industries would result in increased production of these industries which would induce momentum to the industrial growth of industries belonging to other Sectors also. This would remove the bottle-necks of industrial growth and speed up industrialisation. The regression analysis for Cross-section also established a strong positive association between growth and profitability of different industries over the period 1961-62 to 1973-74.

The strong positive association in the latter period implies that industries having high profitability would foster growth better than those having low profitability. This is so because the former would be capable of raising equity capital easily and reinvesting the profits in industry in larger proportions than the latter ones. Hence, such industries need preferential treatment in a developing country like India.

F. Determinants of Profitability :

Having examined the trends in and structure of profitability of Indian Manufacturing industries, we proceed in the direction of searching the factors responsible for it. In short, we try to explore the determinants of profitability.

We have undertaken the task of exploring the factors affecting profitability through two methods. We have discussed the general factors responsible for variations in profit rate of each of the industries studied in Chapter VI. We have studied the nature and prospects of each of these industries in the light of government policies. The conclusions drawn from this exercise are briefed below :

(i) General Factors :

Private Sector Manufacturing industries in India are working under an entirely different economic environment than the industries of other countries. The Government Industrial Policies of Controls on Prices, Production distribution raw-material quota, foreign exchange quota etc., and heavy taxation have affected the profitability of certain industries adversely. This has acted as the main hindrance in the freely competitive market which has resulted in our failure of getting clear-cut equalising tendency throughout the study period.

The priority industries like engineering, chemicals

etc. got full support right from their infancy and received majority of the advantages in terms of allocation of scarce resources etc. Hence we observe speedy expansion of the industries covered in these groups through higher profitability.

On the other hand, Basic Industries like Iron & Steel, Cement, etc. and those producing essential consumers commodities (like Grains & Pulses, Sugar, Cotton, Textiles, etc.) have deteriorated in earning power and hence were unable to expand fast. Majority of these industries suffered from either of controls (price distribution production etc.) and problems caused due to raw-materials, power shortages, worn-out machinery, etc.

The agro-based industries suffered from the problem of raw-materials as it depends on natures vagaries.

Old industries like Cotton and Jute Textiles suffered greatly from problems like worn-out machinery, sick mills etc. which affected their profitability adversely through lowering production.

In short, factors like government policy, availability of raw materials, machinery (upto date), techniques of production, power-cuts, demands for final product, are some of the factors which have been responsible for variations in profitability of industries. This implies that these

general
~~unquantifiable~~ factors, explain for the unexplained variations in profitability by the quantifiable factors and throw light on the fact that how the Indian Manufacturing Industries are maintaining their earning capacity with the background of mixed economy.

(ii) Regression Analysis :

Having examined the general factors, we set on exploring specific factors. We have considered seven explanatory variables viz., Turnover Assets Ratio (x_1), Net Fixed Assets as Proportion of Total Net Assets (x_2), Capital-Output Ratio (x_3), Index of Production (x_4), Rate of Inflation (x_5), Rate of Growth of Capital (x_6) and Debt-Equity Ratio (x_7), and have tried to find out the most dominant factors, affecting profitability of different industries. This has been done through applying linear multiple regression model to both Time series and Cross-Section data (separately for each of the concepts of profit rate). Following conclusions are derived.

(i) Capital-Output Ratio (x_3), is found to be the most powerful determinant of profitability of majority of Indian Manufacturing Industries (i.e. Time Series). It is found to be negatively associated with profitability (both concepts). The same factor is observed to be dominant in explanation of inter-industry variations in profit rate, with negative

coefficient as per our assumption (i.e. for cross-section study).

(ii) However, in all the cases where x_3 i.e. Capital-Output Ratio, has been dropped out on account of multi-collinearity, it is observed that Turnover Assets Ratio (x_1), is most effective. This is true particularly for Time series Study. However, in case of cross-section study, this variable exerts negligible influence, on profitability, as it is observed to be significant in one fitted relation only, with respect to gross profit rate of different industries.

(iii) The Index of Production, x_4 is observed to be third best explanatory variable in determination of profit rate (both types) for time series study. This variable is found to be positively associated with profit rate as per our hypothesis. This ratio, like x_1, asserts no influence on inter-industry variations in profit rates of different industries. This is obvious from the fact that its coefficient is significant and assumes positive sign in one fitted relation only (with respect to net profit rate).

(iv) Out of the remaining variables, x_2, i.e. Net Fixed Assets as Proportion of Total Net Assets, is found to be more effective in case of gross profit rate, particularly of industries belonging to Basic Goods Sector, while x_6, i.e.

Rate of Growth of Capital, is found to be more effective with respect to net profit rate.The coefficient of former i.e. x_2, assumes postulated negative sign while that of x_6 assumes positive sign as per our expectations. However, it is observed that the former is more effective in explanation of profitability over time i.e. Time Series, while the latter is observed to be influencing the cross-section study more, particularly with respect to net profit rate.

It is further observed, that the coefficients of x_2 and x_6 are significant and assume signs contrary to postulated relationship with respect to Aluminium Industry (gross profit rate). This implies that rising proportion of net fixed assets in total assets has contributed to rising gross profit rate of this industry and the industry has reached the point of saturation of its expansion. Hence, any further expansion in capital would retard the profitability of this industry. This being contrary to our assumptions, needs further investigation.

(v) As far as rate of inflation, x_5 is concerned, it is found to be influencing the profitability (gross and net both) of two industries, viz., Edible Vegetable and Hydrogenated Oils and Other Chemical Products Industries. The coefficient of x_5 for these two industries assumes positive value (and is

significant too). However, this variable is dropped for cross-section study.

(vi) Debt-Equity Ratio, x_7, an additional factor considered as determinant of net profit rate is found to be influencing only three industries, viz., Silk-Rayon and Woollen Textiles, Aluminium and Ferrous/Non-Ferrous Metal Products. However, the coefficient of x_7 assumes positive signs for first two industries and confirms to our postulated hypothesis while it assumes negative sign in case of Ferrous/Non-Ferrous Metal Product industry - which is contrary to our assumption and therefore requires further investigation. However, this variable assertsmegre influence on inter-industry variations as it is observed to be statistically significant having positive sign for one fitted relation only, (with respect to net profit rate only).

(vi) While examining the Sectoral Determinants of Profitability' we observed that Capital-Output Ratio asserted topmost influence on profitability of all the sectors, followed by Turnover Assets Ratio (the latter being more effective with respect to gross profit rate). Rate of Inflation is found to be effective with respect to gross profit rate of Consumers Goods Sector alone while Rate of Growth of Capital is observed to be affecting the net profit rate of Capital Goods

Sector alone. The coefficients of these two factors have positive sign which confirms to our postulated positive association between each of these two and respective profit rate.

(viii) The regression models are all found to be 'good fit' and the coefficients mentioned above (with respect to the industries and sectors mentioned along with) are statistically observed to be significant.

(ix) The coefficients of all the explanatory factors confirm to our postulated hypothesis, as, in majority of the fitted relations, the coefficients carry signs as per our expectations (with few exceptions mentioned above which require further investigation).

However it is observed that regression analysis provided better explanation for time series analysis i.e. Trends in Profit Rate, while it provides relatively less explanation for cross-section analysis. This is due to the fact that the industries studied here carry large differences with respect to their nature, scope, age structure etc. Different industries have different basis too, e.g. some are agro--based, some are chemical-based, some are mineral-based while others are mixture of these. All these factors make regression analysis less effective because these industries

are affected in varying degrees by a single event. Hence, we observe that the explanatory factors considered by us provide relatively less explanation for inter-industry variations in profitability.

The conclusions derived from the analysis of determinants of profitability bear following implications.

While exploring the factors dominant in determination of profitability, we observed that Capital-Output Ratio plays the most significant role. It is negatively associated with profitability and hence implies that industries having high capital intensive techniques reap low profitability while those having low capital intensive techniques reap high profit rates. In a labour abundant country like India, the implication of this findings carries important bearing. This implies that in order to raise profitability, to have speedy growth of industries through raising profits (as there is detected a strong positive association between growth and profitability), and to have speedy industrial growth, those industries which are less capital intensive be encouraged most. This would at the same time cause less social resentment on the grounds of not being responsible for aggrevating the problem of unemployment. Hence such industries require more encouragement.

However, as far as Basic and Capital Goods Industries are concerned, they are the pillars of industrial growth but require heavy capital intensive techniques. Our findings suggests that such industries should try to raise the productivity of capital, which would in turn speed up expansion of industries in other sectors and hence would speed up industrialization.

The industries for which Capital-Output Ratio is dropped out on account of multicollinearity, are found to be affected positively by Turnover Assets Ratio, implying thereby that rising sales per unit of amount invested would raise the profitability. Hence these industries should try to increase the sales per unit invested.

Index of Production, i.e. growing output of industries also contributes positively to the profitability of industries. If, industrial production of Basic and Capital Goods Industries is increased, it would not only raise their own profitability but would contribute to the requirements of other sectors also, thereby resulting into overall growth of the economy. Hence, this factor should be raised through increased and assured demand for the products produced by these industries. Major portion of demand for the products of these industries comes from government, which requires regularity and surety.

As far as Basic and Capital Goods Industries are concerned, we further observe that proportion of fixed assets in total causes a technological barrier making adaptability to changing demands difficult. Hence it adversely affects the profitability of industries. However, in order to have speedy industrialization with modern technology, the proportion of this factor is bound to rise over time. However, if the productivity of capital also is raised along with this, it would not adversely affect the profitability, but would help in increasing production.

Rate of Inflation positively influences profitability of two industries only. However, for majority of the industries this variable is dropped out on account of multicollinearity.

Debt-Equity Ratio has also been very weak variable and positively affects the profitability of two industries only. However it indicates that debt-financing is a cheaper source of finance and enables to raise the net profit rate. However, there is a limit to the debt financing undertaken as very large proportions of debts would shake confidence in the business and would result in break down of the business. Hence, one should be aware while choosing this factor for raising net profit rate.

Rate of Growth of Capital has been observed to be

exerting more influence on net profit rate than on gross profit rate. Its positive association with profitability implies that Indian Manufacturing Industries have not yet reached the point of saturation and still have scope for expansion. Hence it does not confirm to the hypothesis of converse functional relationship (negative) between growth and profitability as suggested by Marris, R. and Penrose, E.T.

Similar type of results are derived from cross-section study also. However, differences in nature, basis and age-structures of industries and the differences in the treatment of the government to different industries make the cross-section study less explanatory than the time series study.

II. AREAS FOR FURTHER RESEARCH:

We conclude this thesis by indicating broadly some areas of further research in the related fields.

Industry-wise study of Growth-Profitability relationship can further be improved by introducing larger time lag in rate of profit, according to the nature of the industry studied.

Secondly, economic theory asserts a close relationship

between the profitability of industry and the monopoly powers enjoyed by large firms. Hence, an important field that needs further exploration is to relate profitability to monopoly i.e. concentration of economic power, through estimating the concentration ratio. This would enable to see whether the asserted economic theory is true empirically or not.

We have already examined the impact of price and production controls on some of the industries. An introduction of these forces as dummy variables in linear multivariate model may enable us to see their influence on profitability separately.

Further, from the point of view of having price policies it would be interesting to arrive at the desired profit differentials between priority and non-priority industries and within priority industries.

Finally, how does the risk differential affect the profitability and what weightage should be given to it so (in a mixed economy like India can be) as to arrive at appropriate profit differentials can also be explored.

Further research work in above mentioned areas would be of great practical significance.