PROFITS IN PUBLIC ENTERPRISES

IN INDIA

(1961-66)

by

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ABSTRACT

The mobilization of domestic resources and channeling them into productive investment is a crucial problem facing several under-developed countries and in particular, India. One of the methods used to overcome this problem is to have direct State participation in industrial-commercial activity through public enterprises. The focus of this study is therefore on the profits of public enterprises in India during the Third Five Year Plan (1961-66). An attempt is made to assess these profits in light of the monetary and opportunity costs of capital and the targets set by the Planning Commission. However, there are several factors which influence profit such as the market structure, price policy, business fluctuations etc. Thus, any evaluation of profit-performance must necessarily consider these factors. After incorporating the influences of these factors, this study finds that on the average public enterprises have performed reasonably well. Though they fall short of the opportunity cost and

the target rate of return on capital set by the Planning Commission, they do cover the monetary cost of capital and meet the target in terms of aggregate profits.

As this is a cross section study of 26 public enterprises, it is pointed out that the general conclusions are not applicable to individual cases. There is considerable disparity in profits within the sample and it is suggested that an industry or firm study is now desirable for further results.

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by

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PREFACE

I am indebted to Mr. M.S. Ram, International Bank for Reconstruction and Development, Washington, D.C., Professor K.N. Raj, Delhi School of Economics, Delhi, India and the Economic Development Institute, Washington, D.C., and Professor J.K. Galbraith, Harvard University, Cambridge, Mass. It was my fortunate experience in 1967 to discuss with them the rudimentary ideas of this research study which was subsequently undertaken with their kind encouragement.

However, I soon discovered that writing a thesis is a metamorphic experience where new ideas are constantly emerging while old ones are being discarded. In this regard my ideas were crystalized in their present form by Professors H.R.C. Wright, C.J. Kurien and J. Handa, Department of Economics, McGill University, Montreal. Professor Wright in particular was magnanimous and spent his time freely reading and re-reading earlier drafts of this study. But for his helpful suggestions and incisive mind, this study might not have been completed at its present time. Professor Kurien on the other hand did much to weed out the irrelevant and Professor Handa assisted in the initial framework for this study.

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I would also like to acknowledge with great fondness, the assistance of my fiancee Miss Sucharitha Rao, who while studying at the Delhi School of Economics kept me supplied with a constant stream of up-to-date material on public enterprises.

In addition, I owe much of my intellectual debt to Professors A. Asimakapulos, I. Brecher, M.J. Frankman, D. Woods and M. Baqai (Joint Chief Economist, Pakistan Planning Commission and visiting Professor 1968), McGill University, Montreal. Each in his own way has added a new dimension to my outlook on economic problems.

Finally, no words can express the encouragement I have received from my parents. In particular, my mother though she lacks formal schooling herself, has always been the driving force and inspiration in my search for higher education.

Any errors, conceptual or otherwise that remain in this study are of course my responsibility.

NOTE:

Rs 1 crores = Rs 10 million

Rs 1 lakh = Rs 100,000

100 paise = Rs 1.00

Rs 4.76 = $1.00 (U.S.) until June 1966

Present Rate of Exchange is:

Rs 7.50 = $1.00 (U.S.)

Rs 6.50 = $1.00 (Cnd.)

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INTRODUCTION

This study focuses on profits in the public enterprises in India and consists of two parts: a theoretical section examining the role, profits, and price policy of public enterprises and a section measuring profits of selected enterprises during the Third Five Year Plan (1961-66).

In Part I, Chapter I, we examine the role of public enterprises in India's economic development, their justification in context of development theory and India's social-political-economic objectives. Chapter II briefly surveys profit theory whereas Chapter III examines the relationship between profits, price policy, market structure and the general underlying principles of determining prices in public enterprises.

Part II, Chapter IV discusses the conceptual problems of relating accounting and economic data and Chapter V measures profit ratios of 26 selected public enterprises using annual financial statements. In this chapter, we attempt to assess the relative profitability of public enterprises as against the interest charges for long term industrial finance and the opportunity cost of capital in similar industrial-commercial activities.

Why are economists interested in profits of public enterprises?

On one hand, public enterprises occupy an important part of the organized sector[1] in under-developed countries. In India, for instance, the share of the public sector in net national expenditure is approximately 17%.[2] During the Third Five Year Plan, 62% of the total investment was allocated to the public sector projects alone. Furthermore, if the estimates of the Fourth Five Year Plan are realised, the public sector enterprises will then comprise approximately 56% of the total organized industrial-commercial sector.[3]

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1. By organized sector we mean the industrial-commercial activities in the economy of a secondary and tertiary nature. This excludes primary activities e.g. agriculture.

2. In other selected under-developed countries in the ECAFE region, it varies from 11% to 33%. See U.N. ECAFE. "The Increasing Role of the Public Sector" Economic Survey of Asia and the Far East - 1960 (Bangkok: 1961) p. 53-56.

3. (a) V.K.R.V. Rao, "Role of Public Sector in the Indian Economy", Indian Journal of Public Administration (July-Sept. 1964) p. 413.

   (b) Government of India, India in Perspective, (1967, I)

On the other hand, profits remain the leading source of funds for enterprise. Prof. W.A. Lewis states:

> "Profits (private and public, corporate and incorporated) provide most of the savings for new investment in commerce and industry. They are also a major source of taxation. An economy will grow rapidly if profits are high, and will stagnate if profits are low."[4]

In India, the profits of public enterprises were expected to directly supply 7% of the total resources for the Third Five Year Plan.[5] Hence, increased profits of public enterprises means increased investment and output in the economy. The growth of public enterprises also means increased welfare and higher standards of living for the Indian people. The performance[6] of public enterprises is, therefore, an integral part of India's economic development. For all these reasons, economists in India and elsewhere are interested in public enterprise profits.

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4. W.A. Lewis, "Development Planning" (London: George Allen & Unwin Ltd. 1966) p. 93

5. Government of India, Third Five Year Plan (1961) p. 94

6. By performance, we mean the appraisal of how much the economic results of an industry's behaviour deviates from the best possible contribution it could make. Our question here concerns itself with the actual performance of industries (or firms) placed beside their potential in view of the given constraints under which they operate.

However, there are several problems in measuring performance in general and of public enterprises in particular. For instance, in a perfectly competitive industry, where firms are maximizing profits, higher profit rates can indicate efficiency and better allocation of resources. The public enterprises, on the other hand, are often monopolies and do not always maximize profits. Instead of maximizing the net private return on capital, they may incur losses by maximizing the net social return on capital.[7] Furthermore, profit is but one measure of performance. The other measures are changes in operating capacity, economies of scale, productivity indexes, etc.[8] In addition, there are several other dimensions of performance that cannot be readily measured. For example, how can we measure the benefits accruing out of increased employment, external economies and general welfare the public (and private) enterprises contribute to?

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7. In context of the present analysis only those public enterprises are selected which operate on business principles. See footnote 14.

8. J.S. Bain, Industrial Organization (New York: John Wiley & Sons 1967) p. 340-42.

In spite of these difficulties, several attempts have been made to measure the performance of public enterprises.[9] In India, the "Forum of Free Enterprise" surveyed profits of 16 public enterprises in 1959-61. Their findings suggest that public enterprises earn less on total capital than the private enterprises. On the other hand, they also appear to be charging higher prices as reflected in their profit-sales margins.[10] Another study made by the "Economic and Scientific Research Foundation" states that for every Rupees 100 invested in the public sector in preference to private industry, there is an avoidable loss of Rupees 22 in the national income.[11]

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9. See C.A.R. Crosland, "Prices and Costs in Nationalized Undertakings". Oxford Economic Papers (N.S. Jan. 1950) pp. 51-68 and G.S. Bhalla, Financial Administration of Nationalised Industries in U.K. and India (Merrut: Meenakshi Prakashan 1961). These are among the better studies.

10. Forum of Free Enterprise, A Survey of State Enterprises in India (Bombay: 1962) pp. 14-17.

11. Economic and Scientific Research Foundation, The Performance of Government Undertakings - 1958-65. (New Delhi) Introduction.

While these and other studies are significant, there are basic conceptual errors which are too numerous to review in this study. For example, they fail to consider the differences between accounting and economic concepts, production functions, demand and market conditions etc.[12] Whereas this study does not solve all the issues involved, it does attempt to take into account the significant economic factors and qualifies the results to some extent.

Thus, there are certain "minimum" standards which any enterprise, regardless of whether it is private or public, "profit maximizing" or "profit making", must achieve. These standards are:[13]

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12. This criticism in particular applies to the latter studies. For example, capital figures used to compute profit-ratios include investments in other enterprises, development funds used for current construction etc. On the other hand sales revenue includes income from all sources and not business activity alone. In addition the samples selected are not representative and include relatively new firms which are facing gestation problems.

13. The extent to which these standards are affected by structural imbalances are considered more fully in Chapter V.

(a) Enterprises must earn on their investment a minimum of the "monetary" cost of borrowing long term industrial finance. In other words, their profit rates on investment must be equal to the going interest rate.

(b) Enterprises must earn the minimum of the "opportunity" cost of capital in similar industrial activities with similar market conditions.

These two criteria are used in this study to assess the performance of "commercial public enterprises"[14] in India. In addition, the avowed goal of the Planning Commission which states: "productive efficiency and the pricing policies of the public sector enterprises will be such as to yield a return of 10 per cent on investment"[15] is also considered.

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14. Commercial public enterprises are Central Government Undertakings who's avowed policy is to make profits. This category normally excludes utilities e.g. electricity, power, fuel and railways.

15. Government of India, "Perspective of Development, 1960-61 to 1975-76" (New Delhi: Perspective Planning Division, Planning Commission).

Finally, the discussion contained in this study has no ideological purport. The only aim that it seeks is to examine the profits of public enterprises and the significant role they play in India's economic development.

PART I

"I am as impatient with those theologians of capitalism who preach that private capital can meet all the world's development needs as I am with those theologians of socialism who preach that only state enterprise can satisfy demands."

Eugene Black
Former President,
International Bank for
Reconstruction and
Development.[1]

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1. As reported in Time (Oct. 28, 1957) p. 60. Quoted from: D.L. Spencer, India, Mixed Enterprise and Western Business (The Hague: Martinus Nijhoff 1959) p. 3.

CHAPTER I

ROLE OF PUBLIC ENTERPRISE IN INDIA

Development implies successive additions to a country's store of capital[1] equipment, and these must be large enough to affect an increase not merely in total national income, but in national income per capita as well. The rate of capital accumulation[2] is therefore one of the principal factors which determines the rate of development[3]. However, capital accumulation depends on the level of savings in the economy and whether productive investment opportunities exist. This involves two problems of

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1. By capital we mean tangible reproducible assets destined to be used in future production. This includes: a) all construction and improvements attached to the land (buildings, dams, etc.) b) machinery and equipment in the hands of producers, private and public, c) inventories within the country in hands of business enterprises and government d) net balance of claims against foreign countries. In this study we are concerned with the first three forms of capital. While other forms of capital are important, they are not relevant in the present context. See: S. Kuznets: Six Lectures on Economic Growth. (Illinois: The Free Press, Glencoe 1959) pp. 69-70.

2. By capital accumulation we mean investment.

3. By this we do not mean to imply that capital is a sufficient factor. Several other factors must be considered in the context of development. The literature abounds with such factors and needn't be repeated here. However, Prof. W.A. Lewis in this context states: "The central problem in the theory of economic growth is to understand the process by which a community is converted from being a 5 per cent to a 12 per cent saver - with all the changes in attitudes, in institution and in techniques which accompany this conversion".

under-developed countries:

i) The problem of mobilizing resources for capital formation and,

ii) That of channeling capital resources into productive investment.

Both of these problems are closely related to the economic and institutional environment of developing countries and it is difficult to separate the two.

Savings[4] are the major source of funds for capital formation and depend to a large extent on the level of incomes and overall productivity. However, low levels of income and productivity are among the chronic problems facing many under-developed countries. The low income levels result from an economy where the majority of the population is engaged in a technologically backward subsistence sector. The industrial base is small and in many cases stagnant due to inadequate money and capital markets resulting from stunted growth in the past.[5] Furthermore, the low levels of income and a high propensity to consume have implied "a circular constellation

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4. Savings in this context refers to that portion of income generated by current production deemed not to have been spent on 'final' consumer goods and services during the production period.

5. See: U.N. Department of Economic Affairs: Structure and Growth of Selected Economies. (New York: 1958) pp. 1-5.

of forces tending to act and react upon one another in such a way as to keep a poor country in a state of poverty." This, later led Prof. Nurkse to tritely state: "A country is poor because it is poor".[6] However, the supply of capital is governed by the ability and willingness to save; the demand for capital is governed by the incentives to invest. Though the 'vicious circle of poverty' is a reality in several under-developed countries, in others it is the lack of incentives to invest and the proper institutional framework, which hinders capital accumulation. The case under discussion is that of India. A report published by the International Bank for Reconstruction and Development states: "in many under-developed countries including India, the amount of capital available for investment is often surprisingly and (sic) in explicably large --- and that very few of the many businessmen consulted by the mission on this subject appeared to be regarding financing as a serious problem".[7]

In addition, the findings of the All India Rural Credit Survey describe the extent of 'latent' savings in the economy.

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6. R. Nurkse, Problems of Capital Formation in Under-developed Countries (Oxford University Press, 1967) p. 4.

7. Current Economic Position and Prospects of India, (A.S.54 a, Washington, D.C.: 1956)

The survey discovered that approximately 40% of income expenditure was non-productive in nature of marriages, ceremonies, litigation, etc. Household consumption expenditures accounted for 45-47% and barely 13-15% of the incomes were re-invested in farms and other assets[8]. Thus the ability to save exists in the Indian economy, however, the willingness[9] depends on the incentives to invest.

Even if the incentives to invest are provided and investment does take place, economic development is not the necessary result. Colin Clark states: "While it is quite clear a certain amount of capital investment is a 'necessary' condition for economic growth, it shows a very weak logical

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8. A. Gosh Indian Economy, Its Nature and Problems (World Press (Calcutta:1963) p. 205 - 7
T.N. Sachdeva Indian Economics p. 137 - 139.

9. As early as 1936, J.M. Keynes observed: 'The history of India at all times has provided an example of a country impoverished by a preference for liquidity amounting to so strong a passion that even an enormous and chronic influx of precious metal has been insufficient to bring down one rate of interest to a level which was compatible with growth of real wealth". General Theory of Employment, Interest and Money (MacMillan & Co. Ltd. 1967) P. 337

sense to contend, as so many economists have done, that it is a 'sufficient' condition or that economic growth in any desired quantity can be obtained simply by investing more."[10]

In the process of economic growth, it is equally important to have a pre-condition stage in which "new types of enterprising men come forward - in the private economy, in government, or both - willing to mobilize savings and to take risks in pursuit of profit or modernization. Banks and other institutions for mobilizing capital appear."[11]

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10. Colin Clark. "Growthmanship: Facts and Fallacy". (Forum of Free Enterprise. Bombay: July 1965) p. 11-12.

11. W.W. Rostow. The Stages of Economic Growth. (Cambridge University Press 1967) p. 7. Prof. Rostow suggests that along with this pre-condition stage, "the proportion of net investment to national income....rises from, say 5 per cent to 10 per cent....yielding a distinct rise in real output per capita." Ibid. p. 37.

Thus it can be stated that the process of capital accumulation is a function of three variables.

i) An increase in the volume of real domestic savings so that the resources that would have been used for consumption are released for investment.

ii) The creation of adequate banking and financial institutions to mobilise the savings of the community.

iii) The emergence of an entrepreneurial class which can utilise the community's savings into channels of productive investment.

In this context, the public enterprises in India form a part of the institutional framework which has been created in order to provide a favourable economic environment for growth. The public enterprises perform both, the function of mobilizing resources and of creating new investment opportunities. In the financial sector development banks such as the Industrial Finance Corporation, National Industrial Development Corporation etc. issue debentures, stocks and accept deposits which are channelled to public and private enterprises in the industrial sector. The public enterprises cover a wide range of industrial-commercial activity and in many cases create new investment

opportunities[12] for the available capital.

Social-Political-Economic Objectives

As noted above, the process of economic development involves much more than the provision of capital equipment. It requires a social attitude receptive to new fields and new methods of production, institutional arrangements that encourage enterprise and investment, and technical and managerial skills that make new methods of production effective. And above all, it requires the development of economic infrastructure. All these requisites of industrialization require large amount of social investment which may be beyond the capacity of the private sector. Moreover, the investment in social overheads is characterized by long gestation periods and involves different time scale preferences with respect to profits. In these

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12. See a) W. Diamond, Development Banks (Baltimore: John Hopkins, 1957).
b) A.H. Hauson, "Development Corporations". Yorkshire Bulletin of Economic and Research. (Spr. 1961).
c) ----- Public Enterprise and Economic Development (London: Routlege & Kegan Paul Ltd. 1960).

circumstances, the role of government becomes vital for the creation of dynamic forces for economic development.[13]

The role of government has been extending from performing its primary functions[14] to that of direct participation in industrial development. The economic development of Japan, U.S.S.R. and several other countries has been conditioned by government policy. This in most instances has involved social-political-economic decisions. In this regard India is no exception. It aims at establishing a democratic

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13. See A.O. Hirschman, The Strategy of Economic Development (Yale Univ. Press, 1965) for an excellent treatment of social overhead costs as related to economic development.

14. Such as maintaining law and order, collect taxes etc.

socialist society[15] in which the means of production are largely owned and managed by the society.[16] In order to achieve this aim, it necessitates the expansion of the public sector in a wide range of economic activities. However, it does not mean the elimination of the private sector, for,

> "the private sector has to play its part within the framework of the comprehensive plan accepted by the community. The resources available for investment are thrown up in the last analysis by social processes. Private enterprise, free pricing, private management are all devices to further what are truly social ends; they can only be justified in terms of social results."[17]

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15. Essentially, a democratic socialist society means that "the basic criterion for determining the lines of advance must not be private profit but social gain, and that the pattern of development and the structure of socio-economic relations should be so planned that they result not only in appreciable increases in national income and employment, but also in greater equality in income and wealth." Govt. of India. Second Five Year Plan (Govt. of India Press, New Delhi) 1956. p.22.

16. Society in this context is synonymous with State.

17. Ibid. p. 23.

This suggests a mixed enterprise system for the Indian economy in which the dominant role is to be eventually that of the public sector. In particular, the public sector is to provide

a) Sources of funds for economic development. In an economy where the public sector comprises of a large proportion of the organized industrial-commercial sector, the profits form an important source of development funds. The profits of public enterprises can be re-invested in the same industries or for the establishment and expansion of other industries.

b) Bases for redistribution of income and wealth. The public sector profits accrue to the government instead of the private investor. This would bring about a reduction in the inequalities of income and wealth and promote an egalitarian society. In addition, public enterprise profits are politically preferable to private enterprise profits. By greater control of development resources the government can direct the economic growth of the country.

c) Removal of regional disparities through planned public enterprise investments. This is another important extension of the public sector which helps promote balanced regional growth. The concentra-

tion of economic activity in particular regions does not benefit the society as a whole and conflicts with India's political aims of equity. In addition the public enterprises can enter new areas of economic activity where either private enterprises lack capital resources or are hesitant in view of the risks and rates of return.

d) To prevent concentration of economic power. In absence of an anti-trust policy and the tendency of monopolies to emerge in developing countries, the public enterprises in India are also aimed to prevent concentration of economic power which may be to the common detriment of the people.

Industrial Policy in India

In view of these objectives, the Industrial Policy Resolutions of 1948 and 1956[17] specify the various spheres of State and private industrial activity.

The industrial policy resolution of 1948 states:[18]

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17. Govt. of India. Industrial Policy Resolutions 1948 and 1956. (Govt. of India Press. New Delhi).

18. Ibid. para: 2.

> "Any improvement in the economic conditions of the country postulates an increase in national wealth: a mere redistribution of existing wealth would make no essential difference to the people and would merely mean the distribution of poverty. A dynamic national policy must, therefore, be directed to a continuous increase in production by all means, side by side with measures to secure its equitable distribution. In the present state of the nation's economy, when the mass of people are below the subsistence level, the emphasis should be on the expansion of production, both agricultural and industrial; and in particular on the production of capital equipment."

Put in this perspective along with the socio-political-economic aims of the government, the industrial policy resolution defined the sphere of activity of the private and public sectors by dividing industries into four broad categories.

a) The manufacture of arms, ammunitions, transport equipment, atomic energy and railways would be the exclusive monopoly of the central Government.

b) The second category covered coal, iron and steel, aircraft and shipbuilding, telecommunications and mineral oils. New undertakings in these industries could henceforth, be undertaken only by the State. Existing private enterprises had an inherent right to operate or could be nationalized with compensation.

c) The third category was made up of industries of such basic importance that the Government would feel it necessary to plan and regulate them. This

comprised of salt, automobiles, tractors, heavy machinery etc.

d) The fourth category comprising the remainder of the industrial field was left open to private enterprise, individual as well as co-operative. However, the State was to progressively participate in this field and it would not hesitate to intervene whenever the progress of an industry under private enterprise was unsatisfactory.

In 1956 another industrial policy resolution was enacted and replaced the 1948 resolution. The later resolution in essence was an expanded version of the first and consists of three industrial categories, the second of which is equivalent to b) and c) above. In addition policy recommendations were made for the provision of technical training schools for labour, encouragement of small scale industries and non-discriminatory practices towards the private sector.

The main achievement of the above resolutions was to provide a broad social-economic framework in which the economy was to operate. It laid a firm foundation of a mixed or controlled economy in which both private and public enterprises existed side by side. However, the dominant role of the public sector

and the wide powers of the government indicate the expanding role which the public enterprises are to play in India's economic development. While it is not the purpose of this thesis to question the ideological basis of this policy, Prof. A.H. Hanson suggests:

> "The Planning Commission's immediate concern was to 'get things going' by any means that lay at hand, not to philosophise about economic development or to take sides in a socialism-versus-capitalism controversy which it evidently regarded as being of little immediate relevance."[19]

Thus the economic policies of the Government of India must be considered as achieving a political aim. Whether or not these policies are conducive to economic growth leads us to issues not relevant to this study. What is proposed here is to examine one of the objectives of public enterprise in India, viz: to provide sources of funds for economic development. In this context a selected sample of public enterprises which operate on a profit basis in the industrial-commercial sector are considered in Part II.

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19. A.H. Hanson. op. cit. p. 158.

CHAPTER II

A NOTE ON PROFIT THEORY

In the preceding chapter, we concluded that the focus of this study is on public enterprise profits - insofar as they provide a criteria for judging performance. It is the purpose of this chapter, therefore, to briefly review profit theory as it describes the underlying factors which determine profits. It is hoped that this digression will help assess the public enterprise profits in light of theoretical developments.

The classical profit theory, dealt simultaneously with the determination and distribution of profits. Though it remained useful for some time, theoretical and institutional developments revealed its serious inadequacies. To meet these changed circumstances, the "dynamic theory" of profits was developed in opposition to the "risk theory". We will review these two alternatives and attempt at a synthesis.

Traditional Theory

English classical economists generally viewed entrepreneurial income as the sum of three elements: a payment equivalent to interest on invested capital, compensation for the services of management, and a pay-

ment vaguely related to the assumption of risk. On the latter element, Marshall was more explicit:

> "The work of management may be heavy because it involves great mental strain in organizing and devising new methods; or because it involves great anxiety and risk. And where the risks are not insured for, they must be compensated in the long run on a scale about as high as would be required for the premium of an insurance, if the practical difficulties of insurance against business risks could be overcome."[1]

In this purely competitive static framework of analysis, owner-entrepreneurial income was "a share of the normal expenses of production, which could not long diverge from the "normal supply price" of its components."[2] If profits in excess of interest ranged above the normal supply price, additional supplies of owner-entrepreneurs would be forthcoming, reducing these excess profits to zero.

The usefulness of this theory was severely shaken by the development of widespread ownership through joint-stock companies. With management and ownership functions effectively separated for a large segment of business activity, one of the "risk theory" justifications of owner's income was lost. Thereafter, the theory rested on an interest equivalent payment, and a

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1. Alfred Marshall, Principles of Economics (4th ed. London: MacMillan and Co. Ltd. 1898) p. 694-695.
2. R.G. Hawtrey, "The Nature of Profit" -- The Economic Journal (Sept. 1951) p. 493.

compensation for the assumption of risk. Moreover, the growth of such enterprises relative to the market, raised monopolistic considerations of assymetry of buyer and seller relationships. As a natural theoretical development, questions of the dynamic effects on profitability of the rate of growth of firm and industry, ease of entry, and rate of technological change were raised.

Thus, two lines of development took place. The first followed traditional theory, viewing long run profit in excess of interest as a determinate reward for the exercise of a production function - namely risk bearing. The second viewed excess profits as the result of institutional monopolies and "the change, uncertainty, and friction interest in a dynamic world, and which the belated operation of competitive forces tends to eliminate."[3]

Attempts at Synthesis

F.H. Knight attempts to incorporate features of both the "risk" and "dynamic" theories:

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3. R.A. Gordon, "Enterprise, Profits and the Modern Corporation" Readings in the Theory of Income Distribution ed. William Fellner and Bernard Haley (Illinois: Richard D. Irwin Inc. 1851) III p. 560.

> "Uninsurable risk is in fact associated chiefly with economic change. When a change results from conscious innovation, the risk affects in different ways both the innovator himself, and other competing enterprises."[4]

It is, says Professor Knight, "through a study of the nature of economic changes and the activity of the human mind, individually and socially, in producing and reacting to change,"[5] that improvements in our understanding of profit theory will occur.

Hawtrey's theory of profit emphasizes market power:

> "In fact, for the producers no less than for the merchant, profit is the remuneration of selling. The responsibility for selling attaches inseparably to the owner (shareholder) of the product to be sold."[6]

To the passive shareholder, the excess yield above an allowance for the risk of not selling the output of the firm's pure profit. "It accrues to him as the remuneration for making a wise selection among profit-makers to whom to tie his fortune."[7]

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4. F.H. Knight, "Profit", Readings in the Theory of Income Distribution ed. W. Fellner and B. Haley (Illinois: Richard D. Irwin 1951) III pp. 540-541.

5. Ibid

6. Hawtrey -- op. cit. p. 497

7. Ibid p. 500

Both theories appear somewhat vague with respect to the risk element. What precisely is the relationship between the amount of risk and the profitability of the enterprise? Neither theory presents, in detail, the economic justification of profit.[8] It is hypothesized that some of the deficiencies of profit theory result from a failure to perceive the essential unity of what appears to be two different approaches.

In this real world, economic change is inevitable, Government policies are modified, population changes in magnitude and composition, new firms are created while others die and so forth. Since goods are normally produced before being sold, these changing market conditions involve a risk for the firm -- the risk that it may be unable to sell its output. The firm must act to reduce this risk. In many cases, accurate information is relatively easily acquired, allowing the firm to take effective remedial action. Some types of change, such as the policy decisions of rival firms, are

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8. A recent paper delivered at the Canadian Economic Association Meeting, Calgary 1968, states that profits reflect improper computation of factor rewards. Had imputation been done correctly there would have been no entity called profits and hence no need for a theory to explain profits. See: C.J. Kurien, "Occam's Razor to the Concept of Profits" Canadian Economic Association, Annual Meeting 1968. Papers presented.

less easily predicted, and remedial action is less likely to be implemented at the most opportune time. This is especially true where many firms are active in one industry. Where there are few firms producing a similar product -- the classic oligopoly case, the actions of rivals are more easily anticipated and policy may, therefore, be planned accordingly.

In the oligopoly structure, a firm not only reacts to change, but is also a major source of change. Through advertising, and pure market dominance, among others, a firm may control the rate of change of some of the dynamic variables. Consumer preferences are created or modified, and the market controlled so that risk is reduced. Explicit or tacit price agreements, for example, reduce the likelihood of a disadvantageous price change.

It is, therefore, through the knowledge or control of economic change that risk is reduced. When firms are successful in their efforts, profit is their reward; when they are unsuccessful, a loss is suffered. Profit is, therefore, not a reward for the assumption of risk, but a reward for the successful reduction of risk.

Profit is only one way in which a firm may choose to receive its reward. Lower current profits may be used to discourage new entrants, thus maximizing the

long run profits of the firm. Alternatively, the firm may conform to a target rate of return which is acceptable to the industry as a whole. The possibilities are numerous. It is sufficient, at this point, to note that a reduction of risk does not necessarily produce large profits for the firm.

Profit, in the accounting or financial sense, is composed of a return to fixed value securities (interest), and a return to the owners of the enterprises (dividends, and a share of the increased value of the enterprise resulting from retained earnings investment). Both bondholders and shareholders, as suppliers of a factor of production, are entitled to a share in the distribution of the realized profits of the firm. In profitable firms, the return to shareholders will usually be higher than the return to bondholders.

The theoretical justification of this unequal sharing of profits is not completely clear. Profit theory generally attributes the higher yield to compensation for the uncertainty of capital value associated with common stocks -- that is, to the assumption of risk. The assumption of risk, however, is not a productive function. If it were, then it may follow that the greater the risk assumed, the greater would be the return to the

shareholder. A more likely explanation is that the amount of risk which the investor, individual or corporate, is willing to assume, depends upon the potential profit of the enterprise. However, this does not explain the unequal sharing of the realised profits. One explanation which would prove to be fruitful, is that the investor performs the function of allocating "risk capital" to its alternative uses. When an enterprise is new, and no past record of performance is available to guide his choice, the investor is handsomely rewarded for a correct decision. Should the enterprise fail, he is heavily penalized. The high return is, therefore, a reward for his superior ability in allocating capital. Subsequent purchasers of the share capital must pay the present value of the future stream of income from the share, adequately discounted for time and uncertainty. This lowers the yield on the share, a "just" procedure since the subsequent owner has the record of past performance to guide his allocation decision.

It is useful, therefore, to view profits of the firm as a reward for the successful reduction of risk through knowledge and control of the dynamic market

variables. Size of firm[9] is one characteristic which contributes to the ability to control the market. With the advantage of real or pecuniary cost superiority, and the financial strength which may accompany size, the large firm may enforce rules of behaviour which are advantageous to itself. To the extent that these advantages are exercised, the firm may claim a reward for the control of market forces.

The public enterprises in India by virtue of their composition and place in the economy are able to control some of these market forces. Through government licensing and complementarity of investments in different enterprises, the reduction of risk has enabled the enterprises to venture into new fields of economic activity. In addition the Industrial Policy Resolution defines the spheres of economic activity in which the government is to play a dominant role. This

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9. By size we mean its relative share of total sales in the market. There are other measures of size as well such as share of assets, employment, value added etc. Sales in the present context is more relevant as we are studying its residual-after expenses-profits.

proves to be a formidable barrier to entry for 'would be' competitors and as such the public enterprises are in a position to set their own profit expectations. With respect to market size the public enterprises in India are in most instances monopolies or near-monopolies in their operation. Thus the question whether or not their reward takes the form of higher short run profits is of some interest to economists and politicians alike.[10]

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10. Several other questions arise which cannot be dealt with fully in the limited context of this study. For example, are public enterprises charging higher prices (higher in relation to imported substitutes if available) and thereby reducing private enterprise profits? On the other hand, do they charge lower prices and accrue lower profits -- thereby raise private enterprise profits and tax them for developmental expenditures? Furthermore, the extent to which this is done will also affect our consideration of the opportunity costs of capital in the private sector. These and other issues are however considered in Chapters III and V.

CHAPTER III

PROFIT AND PRICE POLICY OF PUBLIC ENTERPRISES

A.

In determining the profit and price policy of public enterprises, two underlying factors must be considered:

a) The market structure in which the public enterprises operate and

b) whether a policy of pricing for profit is desirable in context of the larger role the public enterprises must play.

Assuming for the present that a profit policy is desirable, then economic theory suggests that the market structure is perhaps the most dominant factor influencing the price policy (and hence profits) of the firm. 'Ceteris paribus', the greater the number of firms producing a similar or homogenous product, the more elastic will the demand curve be and the discretionary powers of the firm in setting its own price are therefore limited. On the other hand, if the firms are few and the product is differentiated, the demand curve will be less elastic and the firm will have greater discretionary powers in setting its own price.

Since total revenue varies inversely with price changes when the demand curve is elastic and directly with price changes when the demand curve is inelastic, a firm with a given cost curve (with elasticity = ∞) will be able to make greater profits if it is pricing in the inelastic part of its demand curve. Thus, the more competitive the market structure is, the lower will be the average profit rates and the greater the output of the firm. If the firm wants to make higher profits, it has to have a differential ability in marketing its product and minimizing its cost by producing nearer to its capacity or the minimum point on the average cost curve.[1]

If there is competition and the public enterprises are not given any special privileges (such as tax remissions, low capital charges or depreciation rates), then the profits earned are held to involve no exploitation of the consumer and are as justifiable as those made by the private enterprises with whom they compete. Indeed, the profit rates in this case will provide some indication of the degree of efficiency.

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1. Though the concept of capacity is in a state of flux, this simple defination is sufficient for the present analysis.

On the other hand, when the public enterprises are exempted from competitive pressures, profits fail to indicate efficiency and the exploitation of the consumer is all too easy. In this case the profit and price policy will depend on the particular goals of public enterprise and are determined independently of the market structure.[2]

The liberal school reasons, that in a free competitive economy, national income is maximized through the price mechanism. Given a certain distribution of income, prices, first of all, enable consumers to assert their choice and thus allocate the given stock of consumers' goods (consumers' equilibrium).

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2. In a competitive market structure, the profit and price policy can also be determined independently. For example the public enterprises can price below cost and drive out profit making competitors from the market. However, the desirability of such a policy depends on the political-economic aims of the government e.g. nationalization without compensation or complete State control of strategic industries etc. In the present analysis we are assuming (regardless of time preferences) that public enterprise profits are an important source of development funds. See A.H. Hanson, "Public Enterprise and Economic Development" (London: Routlege & Kegan Paul Ltd. 1960) pp. 434-37.

Secondly, prices are expected to ensure the optimum allocation of the given stock of equipment, land and labour for production in accordance with the consumers' choice (producers' equilibrium). Thirdly, prices and profits are relied upon to furnish a criterion for future investment on the assumption of a given stock of factors of production (investment equilibrium). Finally, the price mechanism is supposed to bring about an equilibrium of aggregate demand and supply (monetary equilibrium).

However, Prof. Rosenstein Rodan gives five reasons why even under the restrictive assumption of perfect competition, the price mechanism cannot bring about investment and monetary equilibrium.[3] (i) The individual investment decisions depend not only on present and anticipated prices of products of inputs and outputs, but also on real or assumed investment decisions of other investors. (ii) The investor maximizes the private not the social net marginal product.

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3. Rosenstein-Rodan, "Planning within the nation" Annals of Public and Co-operative Economy (Liege: Jan.-Mar., 1963) p. 53-54.

External economies are not sufficiently exploited. Complementarity of industries is so great that simultaneous inducement rather than hope for autonomous coincidence of investment is called for. (iii) The lifetime of equipment is long (say 10 years) so that the investor's foresight is likely to be more imperfect than that of the buyer and seller of the product. The individual investor's risk may be higher than that confronting an overall investment programme. (iv) Because of the indivisibility (lumpiness) of capital, large rather than small changes are involved, yet the price mechanism works perfectly only under the assumption of small changes. (v) Capital markets though often well organized are notoriously imperfect markets, governed not only by prices but also by institutional and traditional rationing quotas. Furthermore, it is recognised now that dynamic monetary equilibrium cannot itself be ensured by the price mechanism and without this equilibrium, prices cease to be reliable parameters of choice.

In an under-developed economy, these problems are further enhanced by the overall structural and institutional obstacles to development and equilibrium.

The role of the State as an entrepreneur and catalyst for mobilizing resources under these circumstances was reviewed in Chapter I. In an under-developed 'mixed' economy such as that of India, the price policy of public enterprises is therefore, not only influenced by the market structure, but has far reaching consequences. It has a role in not only allocating resources for optimum utilization, but also to form the basis of future development and expansion of public undertakings in the larger context of an economic plan. Hence, the price policy is moulded by economic and extra-economic factors depending on the social-political-economic objectives of the government. This necessitates a deliberate decision on whether to price for profit or not. Prof. V.K.R.V. Rao therefore states:

> "The cardinal difference between pricing policy in the private sector and the public sector is that whereas the former concerns itself only with the net value added on its private account, the latter should concern itself not only with net value added on its private account but also with the net value added on the account of the rest of the economy. In fact, the criterion for pricing policy in public enterprises should be the net value it adds to the national economy as a whole, both in terms of national income and in terms of national savings and the funds available to the national exchequer for social development programmes.

Sometimes, this criterion may lead to the maximisation of the profits of the individual public enterprise, sometimes it may lead to the deliberate building up of losses on the part of the individual public enterprise; it all depends on the nature of the commodity, the stage of economic development, the extent to which social guidance is effective over private investment and the degree of response of proceeds to growth in national income."[4]

Another economist states:

"The interests of Government are inevitably broader than those of private enterprise. The consequence to cost calculation of broader public interest is that almost every government-produced good is more than one good - it is a good providing individual utility to the buyer, while at the same time providing utility to the community in terms of more general welfare. The second is normally regarded as a by-product of the first, and although there can be no exact science of allocating joint costs among multiple products, it is logical that the by-product should bear some share. It is upon this type of analysis that operation of some public industries at less than cost (the balance to be made up from the general fund) can be justified."[5]

However, the validity of pricing below cost or on a 'no profit no loss' basis has been strongly

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4. V.K.R.V. Rao, "Problems of Public Enterprises". Commerce (Bombay: March 4th, 1961).

5. Philip E. Taylor, The Economics of Public Finance (New York: The MacMillan Co. 1962) pp. 278-279.

challenged. Prof. W.A. Lewis, who wishes to extend the area of publicly owned as opposed to privately owned property in under-developed economies believes it is folly to keep prices down in nationalised industries, thereby raise "private sector profits - and then to have to borrow these profits to finance investment in the nationalised industries."[6] Prof. V.K.R.V. Rao also emphasizes that the:

> "Public enterprise must be carried on a profit-making basis, not only in the sense that public enterprise must yield an economic price in the terms described. . . . but must also get for the community sufficient resources for financing a part of the investment and maintenance expenditure of Government. Increasingly, the share of the profits of public enterprises in financing the investment and maintenance expenditure of Government must keep on increasing. It is not only the expenditure on the public sector as such that will indicate the march of the economy towards its socialist goal. Even more important is the increasing role that the public sector must play for finding the resources needed for meeting both the maintenance and investment expenditure of Government. This involves a price and profit policy in regard to public enterprise which goes against accepted opinion so far in regard to public enterprise. The theory of 'no profit, no loss' in public enterprises is particularly inconsistent with a socialist economy, and if pursued in a mixed

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6. W.A. Lewis, "Public vs. Private Saving". Socialist Commentary (Sept. 1956).

> economy it will hamper the evolution of the mixed economy into a socialist society. The sooner, therefore, this theory of 'no profit, no loss' in public enterprise is given up and the policy accepted of having a price and profit policy for public enterprise such as will make the State increasingly relient on its own resources (as distinguished from taxing the personal incomes of its citizens), the quicker will be the evolution of a socialist society."[7]

On the other hand it can be argued that rapid economic development is accompanied by low prices of producer goods and services. From Alfred Marshall on, it has been recognised that when the proportion of fixed costs to total costs is high, as in the case of most public enterprises, it is rational to charge low prices (in order to achieve any economies of scale) and provide externalities and incentives for industrial development.[8] However, the crucial problem facing

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7. V.K.R.V. Rao, "Prices, Incomes, Wages and Profits in a Socialist Society". All India Congress Committee Planning Sub-Committee. Ooty Seminar May 30 - June 5, 1959 (Papers Discussed). (New Delhi: 1959) p. 176.

8. Such a policy has been followed in several countries including the U.S. See Philip B.Taylor, op. cit. p. 265n. Yet Gunnar Myrdal in 'Asian Drama: An inquiry into the Poverty of Nations'(New York: Pantheon 1968) p. 2105 quotes from a World Bank Report: "The policy of low tariffs, and particularly for industrial users, . . . does make difficult the accumulation of funds for the further expansion of generating capacity" and is therefore, "not a stimulus to growing investment and larger production". Though this argument is in reference to the price of electric power, an analogous argument applies to other cases as well.

under-developed countries is not only that of providing incentives for mobilizing resources, but also that of accumulation of resources itself. In this context public enterprise profits form an important source of development funds.

Thus it can be concluded that a 'no profit no loss policy' cannot be applied widely in under-developed countries where the public enterprises comprise a large portion of the organized industrial-commercial sector. While not all public enterprises are 'profit maximizers' or 'profit makers', it is precisely these types of enterprises that are of interest to us in this study. As such, any study of public enterprise profits must be considered in light of not only the market structure, but also the stated aims and objectives of the enterprises.

In India, a clear decision has been made in favour of substantial surplus accumulation in public sector undertakings. Thus, the Industrial Policy Resolution (1956) states:

> "It is to be expected that public enterprises will augment the revenues of the state and provide resources for further development in fresh fields."[9]

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9. Government of India, Industrial Policy Resolution 1956. Paragraph 18.

The Second Five Year Plan also states:

> "It is recognised that the gap (in resources) has ultimately to be filled by raising additional domestic resources, and....the only possible source that can be drawn upon for meeting this gap is taxation and, to the extent possible, profits of public enterprises."[10]

The extent this gap was to be met by public enterprise profits is mentioned in the Third Five Year Plan and set at Rupees 300 crores.

B.

Marginal Cost Pricing

Despite the above mentioned qualifications, some economists have applied principles of economic theory to pricing in public enterprises. While this theoretical discussion is not in direct context of the Indian situation, the economists have attempted to formulate a general solution to public enterprise pricing. It is therefore, the purpose of this section to briefly review the literature on public enterprise pricing.

The Hotelling-Lerner Rule in principle states that assuming prices of factors and of products are such

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10. Government of India, "The Second Five Year Plan" (Govt. of India Planning Commission 1956) p. 91.

as to bring demand and supply into equilibrium, an optimal position will result from each enterprise such that any changes of input and/or output will cause the value of additional outputs less the value of subtractional outputs to exceed the value of additional inputs less the value of subtractional inputs. Similarly, the welfare economists postulate:

> "When the output of each product is of such a size that the price fetched just covers the marginal costs, then there will be no further possibility of increasing consumers' benefit by switching factors from one use to another. The optimum distribution of resources will be reached if each line of output is adjusted to the size at which price equals marginal cost."[12]

However, marginal costs have not been clearly defined and present serious difficulties in practical application to public enterprise pricing. Hence, if the time period is taken to be as long as the lowest common multiple of the lives of all the assets employed by the enterprise, then marginal costs will be equal to average costs. On the other hand, if the time period selected is very short, the price will equal instantaneous marginal cost and will have to change continuously.[13]

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12. E.H. Phelps Brown, A Course in Applied Economics. (London: 1951) p. 158.

13. See. G.S. Bhalla, "Economic Theory and Public Enterprise Pricing". Indian Economic Journal. (Oct.-Dec. 1964) p. 158.

Another difficulty lies in the fact that price based on marginal cost may or may not leaves indivisible expenses uncovered. If these indivisible expenses are to be covered by revenue, marginal cost must be higher than average cost to yield profits when price equates marginal cost. Such is the case in increasing cost enterprises as illustrated in Figure I. Marginal cost pricing will result in output ON units of x at Rupees S.N. per unit. This price implies a profit of Rupees S.K. per unit of x. However, indivisible costs are being financed from consumers' and producers' surplus and result in huge profits. The pricing policy of the National Coal Board in England is a case in example.[14]

In actuality, most public enterprises function under decreasing cost conditions due to large indivisibilities, economies of scale and the large portion of fixed costs to total costs. The application of short run marginal cost pricing would fail to cover supplementary costs and the enterprises would incur

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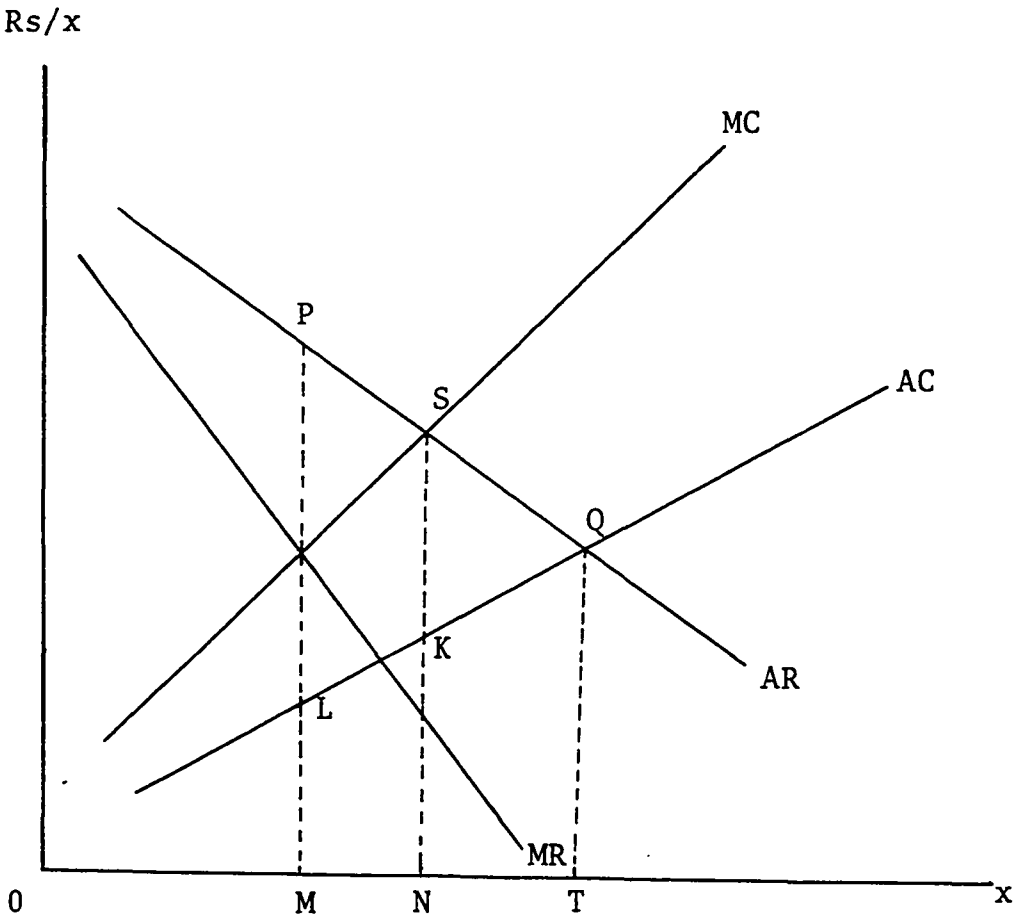
14. See H.M.S.O. CMND.8647, Ridley Commission, (1952) Chapter IV.

Figure I



Pricing Under Increasing Cost Conditions

heavy losses. Hotelling has suggested that these losses could be recovered through additional taxes and government subsidies. He states that fixed costs should be treated as bygones as they were incurred in the past and have no other than historical relevance in the present.[15] Hence, in a decreasing cost enterprise as illustrated in Figure II, marginal cost pricing would lead to a loss of Rupees S.K. per unit of x. To cover this loss by government subsidy or taxes (as a widespread policy) conflicts with the aims of under-developed countries in mobilizing their domestic resources for development.[16]

In addition, there are also severe theoretical criticisms against the marginal cost principle in decreasing cost industries.[17] First, as decreasing

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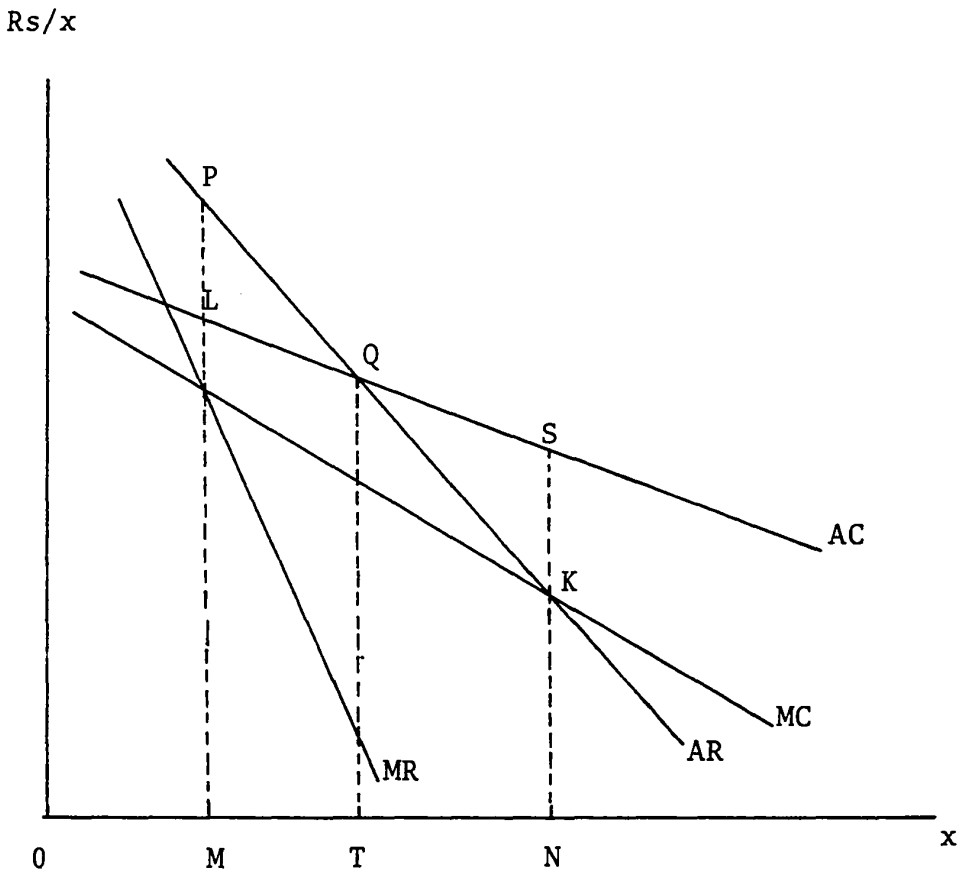
15. H. Hotelling, op. cit.

16. This policy would also be inflationary unless offset in another manner.

17. See R.H. Coase, "The Marginal Cost Controversy", Economica (August 1946) p. 169.

Figure II



Pricing Under Decreasing Cost Conditions

cost public enterprises will not cover full costs through marginal cost pricing, the factors used will earn less than their alternative uses. This will lead to an excessive use of the factors and result in a maldistribution of resources. Secondly, any tax imposed to meet the losses would distort the optimum distribution of income and wealth, thereby destroying one of the essential conditions for Paretian optimum. Furthermore, subsidies would redistribute income in favour of consumers and may also lead to inefficiency in the enterprises. Finally, marginal cost pricing in a decreasing cost enterprise fails to provide a rational investment criterion. This criterion would be that new investment should be undertaken if the sum of expected consumers' and producers' surpluses exceeds the expected costs of the project. The consumers' and producers' surpluses however elude objective measurement and "in theory, one must then fall back on consumers' and producers' surplus and engage in the pleasant diversion of measuring areas in a series of curves."[18]

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18. T. Wilson, "Price and Output Policy of State Enterprise". Economic Journal (Dec. 1948) p. 458.

Irrespective of the cost conditions, the underlying assumptions of marginal cost pricing are also restrictive. By dropping the assumption of perfect knowledge and incorporating uncertainty and risk, marginal cost pricing falls short of ideal output. Similarly, external economies and diseconomies in production and consumption render the policy useless as a tool for maximization. When the unrealistic assumption of perfect competition is discarded as well, Paretian optimum is not achieved under conditions of monopolistic competition.

However, many economists believe that ideal output can be achieved under conditions of imperfect competition as well.[19] It is suggested that to achieve Paretian optimum in imperfect markets, prices, instead of being made equal to marginal costs in every direction, should be made proportional to marginal costs everywhere. J.E. Meade in applying this principle to

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19. a) R.F. Kahn, "Some Notes on Ideal Output". Economic Journal (Mar. 1935) pp. 1-35.
    b) J.E. Meade, op. cit.

public enterprises states:

> "In so far as the reward paid to any factor is the same in every occupation this rule means that the value of the marginal product of a factor should in every occupation, bear a constant ratio to the price of that factor."[20]

In practice this policy assumes that prices have the same ratio to marginal costs in each firm and in each industry in the market. This implies a uniform degree of imperfection and free entry in each industry. While these assumptions are unrealistic, the very problem of determining marginal costs (and the treatment of fixed costs) still remains ambiguous.

The 'theory of the second best' as put forward by Lipsey and Lancaster,[21] however, emphasises that once the assumption of perfect competition is dropped, Paretian optimum cannot be achieved even assuming proportionality of price and marginal costs.

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20. Ibid. p. 321.

21. R.G. Lipsey, and R.K. Lancaster, "The General Theory of Second Best", The Review of Economic Studies. (1956-57).

> "It is well known that the attainment of a Paretian Optimum requires the simultaneous fulfilment of all the optimum conditions. The general theorem for the Second Best Optimum states that if there is introduced into the system a single constraint which prevents the fulfilment of one of the Paretian conditions, the other Paretian conditions although still attainable, are, in general, no more desirable."[22]

Consequently, under imperfect competition, even if prices are proportional to marginal costs everywhere and an average degree of imperfection is achieved, a Paretian optimum[23] is impossible. Furthermore, to apply marginal cost pricing or proportional prices in limited sectors of the economy is also futile.

> "It should be obvious.....that the principles of the general theory of Second Best show the futility of 'piecemeal welfare economics'. To apply to only a small part of the economy welfare rules, which would lead to a Paretian Optimum if they were applied everywhere, may move the economy away from, not toward, a second best optimum position. A nationalised industry conducting its price-output policy according to the Lerner-Lange 'Rule' in an imperfectly competitive economy may well diminish both the general

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22. Ibid. p. 11.

23. It is the optimum itself that is impossible. Other Paretian conditions may still be attained.

productive efficiency of the economy and the welfare of its members."[24]

Two-Part Tariff

An ideal pricing policy should be such that total receipts are equal to total costs. As marginal cost pricing fails to cover total costs when average costs are falling, a two part tariff is suggested by R.H. Coase.[25] In a two-part tariff, there's a fixed sum (determined on some formula) which covers fixed costs while marginal prices cover operational costs. This method of pricing it is claimed, provides a check against excessive investment and leads to ideal consumption. It also avoids losses and optimizes resource allocation.

In practice, however, it is difficult to separate fixed and operational costs and allocate them among various services - specially when the products

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24. Ibid. p. 17.

25. a) R.H. Coase, op. cit. p. 112.
    b) See also W.H. Lewis, Overhead Costs (London: George Allen & Unwin, 1949) pp. 49-51.

have more than one use. Furthermore, there is an inherent discrimination which would lead to inter-service subsidy and redistribution of income.[26] In addition, consumers who cannot pay the fixed charge are excluded and those are generally the poorer sections of the community.

Though a two-part tariff is a convincing method of recovering fixed costs, it remains to decide about the basis of charging the two-part tariff and its possible effect on the consumers. The cyclical fluctuations of demand create peak and off-peak consumption. If price is charged to the marginal cost incurred in the peak period, it is too high whereas it is far less during the off-peak period. "In quoting a price therefore," observes W.H. Lewis, "the under-taking must have its eye on future possibilities, and not just on present circumstances, and must try to find a means between a price so high that the load remains altogether undeveloped, and a price so low that a peak emerges at any rate until such time as the next change

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26. I.M.D. Little, "A Critique of Welfare Economics", (Oxford: Clarendon Press, 1957). Chapter XI, p. 194.

in prices becomes feasible."[27] However, the two-part tariff does not resolve the problems of determining marginal costs that were mentioned above. Moreover, the principle entails value judgments in determining who pays what and lacks scientific reasoning.

Hence, it can be concluded that marginal cost pricing fails to provide a general optimum solution that leads to ideal output. The underlying assumptions are too restrictive and in decreasing cost industries, the principle leads away from, not towards an optimum resource allocation. However, the principle is not completely inapplicable. Marginal cost pricing has been applied in several public utilities,[28] while a

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27. W. Lewis, op. cit. p. 50.

28. See for example a) I.M.D. Little, The Price of Fuel, (London) 1953.
b) J.R. Nelson, Marginal Cost Pricing in Practice. (Prentice Hall, 1964).
c) R.L. Meek, "An application of Marginal Cost Pricing - The Green Tariff in Theory and Practice". Journal of Industrial Economics. (July 1963 and November 1963) p. 63.

two-part (or multi-part) tariff is commonly applied by telephone, electricity and fuel companies. But these are isolated cases and as a general principle serious problems still persist.

Average Cost Pricing

Economic theory at best describes the tendencies at work under different market conditions rather than the precise method of determining prices. The theoretical procedures in setting prices as noted above cannot be followed because the required data on supply and demand schedules, average and marginal costs, diminishing returns, utility, elasticity of demand and supply are not always available. Most public (as well as private) enterprises, therefore, have administered prices. These are based on their average costs and fixed from time to time.

Average cost pricing is based on including a certain 'margin' or 'mark up' on sales or costs. This can be fixed or a flexible margin (or mark up) depending on the demand conditions. The merits of this pricing method is that it enables the enterprise to cover its full costs and spares the community the burden of additional taxation that would be necessary

to make up any losses caused by charging the marginal cost price in decreasing cost industries. This method also avoids exploitation of consumers in increasing cost industries which are charging marginal cost prices. Thus in Figure I, and II, if average cost prices are charged, OT units of x would be produced at Rupees QT per unit.

However, there are two main dangers of average cost pricing. First, it may hide the inefficiency of an enterprise and force the consumers to pay the full costs of an obsolete or high cost plant, by removing the incentive for innovation. In addition, the managers are likely to become lax if they are allowed to cover all costs by manipulating prices. Secondly, average cost pricing fails to achieve optimum allocation of resources. It also faces practical problems in precisely defining costs. On the other hand, if the margin or mark up on sales or costs is too high, the accrued profits result from the consumer's surplus.

Nevertheless, average cost pricing is a widespread policy in public enterprises in India,[29] and

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29. See a) G.S. Bhalla, "Financial Administration of Nationalised Industries in U.K. and India" (Meenakshi Prakashan. Merrut: 1968) p. 176n.
b) T.R. Sharma, "The Working of State Enterprises in India" (Bombay: 1961) p. 158n.

in other countries[30] as well. Despite its drawbacks, it is easier to administer and implement versus the other solutions reviewed above. It also provides a rough criterion for investment policy.[31]

C.

In the preceding sections it is implied that there can be no uniform price policy for all public enterprises. The price policy is conditioned by internal and external circumstances. Though average cost pricing is a widespread policy, the size of the 'margin' or 'mark up' would depend on several factors

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30. C.A.R. Crosland, 'Prices and Costs in Nationalised Undertakings'. Oxford Economic Papers. (N.S. Jan. 1950).
Average cost pricing is also widespread in private enterprises. For example:
a) G.C. Means. "Industrial Prices and Their Relative Inflexibility". Senate Document No: 13 (1935) p. 1.
b) R. Heflebower, "Full Costs", Business Concentration and Price Policy (New York: NBER, 1954) pp. 361-396.

31. For a full treatment of the advantages of A.C. pricing see: David G. Tyndall, "The Relative Merits of Average Cost Pricing, Marginal Cost Pricing, and Price Discrimination". Quarterly Journal of Economics (Aug. 1951) pp. 342-372.

e.g. whether the enterprise has increasing or decreasing costs, or whether lower prices would stimulate economic growth etc.

Nevertheless, there are certain general features of the price policies which are pre-dominant in public enterprises in India. Some of these are relevant to the sample selected in Part II while others are not.

i) Profit as the basis of price policy. Public enterprises in India generally follow a price policy of profitability. Profits of a public enterprise indicate its efficiency (apart from its monopoly character) and as mentioned above serve an important source of funds for self financing.

ii) No-profit basis. Some Government enterprises have been required by law or by the Memorandum and Articles of Association[32] to follow a 'no profit no loss' price policy.

iii) Policy of losses. Some Government enterprises are expected to incur losses because of

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32. See R. Datt and K.P.M. Sundharam, Indian Economy (New Delhi: Niraj Prakashan, 1967) p. 241.

development, social, political and other considerations. A public enterprise may adopt a price policy which may bring in profits on the whole but it may follow a deliberate policy of loss in certain directions.

iv) Price flexibility. The Government enterprises are expected to increase or decrease prices to reflect their cost conditions.

v) Import parity price. Government enterprises in direct competition with imports adhere to an import-parity price.

vi) Price discrimination and volume discounts. The Government enterprises price discriminate in different markets, partly as a result of a profit policy and partly to stimulate economic growth in depressed regions. In addition volume discounts are given for long term contracts or bulk orders.

In Part II we will consider a selected sample of public enterprises which operate on a profit basis in the industrial-commercial sector. These enterprises follow an average cost pricing method and profits are measured during the Third Five Year Plan period.

PART II

"The problem of earnings and investment in the public sector is especially urgent. Until now the most difficult problems in Indian Planning has been where to get resources for investment. . . . everything turns or seems to turn on what can be mobilized in taxes and voluntary savings at home and what can be obtained in loans and grants from abroad. Obviously a prime aim of India must be to plan its way out of reliance on such uncertain and exogenous sources of savings."

J.K. Galbraith[1]

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1. Some notes on the rationale of Indian Economic Organization in "Economic Strategy and the Third Plan" by Indian Institute of Statistics (London: Asia Pub. House. 1963.) p. 2.

CHAPTER IV

CONCEPTUAL PROBLEMS ON RELATING ECONOMIC AND ACCOUNTING DATA

Profit ratios, as measures of profitability, have been widely used to test different hypotheses in economic theory.[1] Yet, almost all of these past studies have encountered difficulties in relating accounting data to economic principles. Any measure of corporate profits must necessarily use accounting data as a starting point. It

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1. (a) Joe S. Bain, "Relation of Profit Rate Industry Concentration: American Manufacturing 1936-1940" Quarterly Journal of Economics (August 1951) pp. 293-324.

   (b) ----- "The Profit Rate as a Measure of Monopoly Power, "Quarterly Journal of Economics (February 1941) pp. 271-293.

   (c) W.L. Orum, Corporate Earning Power (Stanford University, 1929).

   (d) R.C. Eptstein, "Profits and Size of Firms in the Automobile Industry, 1919-1927" American Economic Review (December 1931) pp. 636-647.

   (e) R.C. Osborn, "Efficiency and Profitability to Size" Harvard Business Review (March 1951) pp. 82-94.

   (f) H.O. Stekler, Profitability and Size of Firm (IBER University of California, Berkeley, 1963.)

   (g) G. Stigler, Capital and Rates of Return in Manufacturing Industries (NBER Princeton University, 1963.)

   (h) W.A. Paton, Corporate Profits as Shown by Audit Reports, (New York: NBER, 1935.)

is suspected, however, that accounting profits may not accurately represent economic profits.

The nature and extent of this misrepresentation is not always agreed upon. Joe S. Bain raises three objections to the accounting measure. First, accounting profits are merely instantaneous "snap shots" of a dynamic situation. They assume identical price-level reference and time reference, creating an economic error of unknown proportions in such items as inventory valuation and depreciation. Secondly, accounting profits assume that costs and revenues of the firm are accurately recorded; however, many costs must be estimated, and the method of estimation may not accurately represent the economic costs involved. Thirdly, these accounting valuations are not always calculated by the same method in firms of the same or different industries.[2]

More than any other component of profit, depreciation has been subject to close examination in the literature. The debate revolves around two issues: the theoretical justification of depreciation as a cost, and the question of the correspondence between the theoretical ideal and the practical application of it.

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2. J.S. Bain, (a) op. cit

Paton presents the theoretical case quite clearly. When an asset is installed, there may be considerable uncertainty as to how long it will be used from period to period.

> "In other words, it is necessary to estimate the service life of the installation and develop a reasonable plan for spreading the total cost over such life.[3]
>
> It cannot be pointed out too often, or too emphatically, that the basic purpose of accruing depreciation is to include in operating expenses, in determining earnings, a reasonable estimate of the amount of plant capacity consumed or exhausted during each accounting period. The object is not to provide or 'set aside' funds to replace the depreciation asset, and only in a round about way is the process of expense accounting related to problems of fund accumulation and financing."[4]

Paton is not in error as far as he goes. He does, however, ignore two important features in a modern economy, persistent inflation and technological progress. The latter virtually ensures that many firms will not employ machines for their full physical life.[5] It also puts

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3. W.A. Paton, Corporate Profits: Measurement, Reporting, Distribution, Taxation (Illinois: Richard D. Irwin Inc. 1905) p. 23.

4. Ibid pp. 26-27

5. In context of the present analysis, technology in Indian public enterprises can be reasonably assumed to have remained constant. The enterprises have been recently established using scarce capital. Should technology make them inferior means of production, the capital scarcity will ensure that they are used to their full physical life.

downward pressure on the re-sale price of this technologically inferior means of production. Since depreciation is, in part, an ~~inverse~~ direct function of the expected rate of technological change, consistency requires that the consequences of unexpected changes be treated in the same manner. It follows that the capital loss suffered on assets employed when the unexpected change occurs is properly allocated to production completed in the current or previous periods. The capital loss requires a revision of the estimate of depreciation made when the asset was first installed. Price inflation works in the opposite direction, increasing the current-rupee re-sale price of an asset through time.

Thus, two opposing forces affect the current-rupee cost of depreciation. Technological advance tends to increase the cost of past production by reducing re-sale values. Inflation tends to reduce the cost of past production by increasing the re-sale value of the remaining useful asset life.

Clearly, what is considered a "reasonable" estimate of the plant capacity consumed during an accounting period is a matter of opinion, subject to great uncertainty; therefore, the theoretically proper rate of depreciation cannot be accurately determined.

Most economists would grant the fuzziness of depreciation cost. The real dispute centres on the practical application of determining the accounting entry.

Hart contends that depreciation "is frequently treated as an allocation of income and as a source of funds from which capital expenditures may be financed."[6] Without a method of determining current market value of capital goods, it is impossible to establish the validity of this claim; however, the contention does seem warranted. The relatively low cost of retained as opposed to borrowed funds makes this evasion a profitable one.[7] Furthermore, it is preferable to err on the liberal side than to find the firm faced with a large capital loss when assets are sold.

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6. P.E. Hart and James Bates, Studies in Profit, Business Savings and Investment in the United Kingdom 1920-1962 -- (London: George, Allen and Unwin Ltd., 1965) p. 201.

7. This poses an additional problem when computing profit ratios for public and private enterprises. The latter it is expected would overstate their depreciation charges and understate profits to that extent. The public enterprises on the other hand are closely regulated and would try to show higher profits to indicate their performance.

It seems, therefore, quite probable that accounting depreciation overstates the economic cost with a consequent understatement of actual profits. The degree to which this occurs is indeterminate.

A second source of debate concerns the use of pre- or post-tax profits. While it is probably quite true that the investor is concerned with that part of the firm's income which remains after meeting all expenses, he must also be concerned with the accuracy of the profit measure in the inter-firm or inter-industry comparisons.

Provisions of tax law make after-tax profit an inappropriate measure of performance in any one year or in any time series. A few examples will suffice to make the point. Losses incurred in one year may be carried forward for a tax credit, or carried back for a tax refund, distorting profits to the extent that this provision is exercised. Geographic distortion is provided by such devices as accelerated depreciation for designated areas. Since industry classifications are not homogeneous, tax subsidies may affect one firm in an industry and not others, especially in industries engaged in the exploitation of natural resources. Since lower tax rates are applicable to firms with low profits, an after tax profit rate cannot be employed in a

profitability study. Finally, for time series data, changing tax rates may be important. Taken together, these pitfalls indicate a pre-tax measure of profit is preferable.[8]

The third and final point of interest is raised by Stekler. He maintains that the relative ability of firms to earn profits can only be measured by the pre-tax profitability of profitable corporations.[9] Unprofitable corporations are specifically excluded from consideration. This opinion, however, is presented without supporting arguments. Upon closer examination, and in light of the theory of profits,[10] it appears that a more meaningful methodology would include both profitable and unprofitable firms.

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8. As the purpose of this thesis is to study not only the performance of public enterprises, but also the extent they are capable of self-financed expansion, post-tax profits are also measured.

9. H.O. Stekler, op. cit. p. 19.

10. See Chapter II.

In addition to the conditional nature of the performance of profitable firms, one must consider the significance of that which is being measured. The ability of a capital commitment to earn profits is an important consideration to the supplier of capital. His decision to invest or not to invest is made under conditions of uncertainty. An astute investor will, of course, attempt to minimize the chance of losing his capital by an unsuccessful venture, but this is all he can do. The risk of loss can never be completely eliminated. This being so, his assessment of the ability of his capital to earn profits in a particular venture must consider the possibility that losses may be encountered.

Whether this should be done by giving equal weight to all possible results (as indicated by past performance of the sector, for example, by an average profit ratio of both profitable and unprofitable firms), or by assigning a probability of loss to the average profit ratio of profitable firms, is not a question which is relevant to this study. The important point is that the unprofitable firms must be considered in any analysis of ability to earn profits. Since past performance is reflected in the data, and the probability of firms sliding below the zero profit line is not, the logical

procedure is to adopt an average of both profitable and unprofitable firms.

With profitability being measured by a ratio, the choice of a denominator is as important as the measurement of profits. Two bases have been used in studies: total assets, and net worth or shareholder's equity.

Net worth is less suitable during an inflationary period since profit is in current dollars and net worth is a historical figure and thus insensitive to price changes. If firms issued stock during different periods, a newer company might show lower returns, not because it was less profitable, but merely because it had to obtain more capital to buy the same plant and equipment that others had previously bought at lower prices.

Secondly, the size of a firm's net worth is dependent upon its choice of financing methods. The larger the proportion of assets that have been obtained through borrowing, the smaller will be net worth and the larger will be the rate of return calculated from a given level of profits. Let us illustrate this latter point by examining two hypothetical companies which

charge identical prices for their goods and are equally efficient but which finance their operation differently.[11]

	Company A	Company B
Balance Sheet		
Net Assets	Rs. 10,000,000	Rs. 10,000,000
6% Debentures		Rs. 6,000,000
Shareholder's Equity	Rs. 10,000,000	Rs. 4,000,000
	Rs. 10,000,000	Rs. 10,000,000
Income Statement		
Profits Before Interest and Taxes	Rs. 2,000,000	Rs. 2,000,000
Interest	-	- 360,000
Profits Before Taxes	Rs. 2,000,000	Rs. 1,640,000
Taxes (Say 50%)	Rs. 1,000,000	Rs. 820,000
Net Profit	Rs. 1,000,000	Rs. 820,000
Profit as a percent of shareholder's equity	10%	20.5%

11. Example cited from: Clarkson, Gordon and Co, "Profitability Study: Five Major Canadian Retail Food Chains." (Special Joint Committee of the Senate and House of Commons on Consumer Credit (Prices) March 1967, Appendix B,) p. 8.

An asset base, on the other hand, eliminates the second objection and reduces the first, since asset dollars are, on average, more current than net worth dollars. This results from the inclusion of current assets and from the averaging of successive additions to assets through time.

Furthermore, this ratio is in accordance with the business practice of using the ratio of estimated or actual profits to existing or prospective assets as a guide to investment decisions.[12] Whether the potential investor is a private citizen or the board of directors of a firm,

> "it is the rate of return realised on all the capital committed to the undertaking, as opposed to the earning power of the stockholder's equity, that indicates the degree of success attending the activity of the concern as an operating unit."[13]

To the potential investor, the broadest guarantee of a suitable return is a management which "produces the goods" on the capital employed in the enterprise. In this study, therefore, we shall use total assets as a base.

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12. See: Russel B. Read, "Return to Investment: A Guide to Management Decision" -- Journal of the National Association of Cost Accountants No. 1 (June 1954) p. 1231.

13. Paton op cit p. 18

Economists hold that one of the things the businessman should do, is to compute the interest on the sum invested or about to be invested in a business at the rate that could be earned by an investment in "safe" securities. They explain that when such a calculation is made in advance of investment in a business, it is for the purpose of comparing this interest with the estimate of what the business will yield in order to determine whether it would be preferable to make an investment in "safe" securities or in business. Economists also hold that in the case of a business already in operation, the owner should calculate the "safe" interest on his capital and consider it one of the costs of doing business since he has sacrificed this sum by not having made the investment in the "safe" securities.[14]

Accountants, however, hold that the calculation of interest on capital is not acceptable because accounting records only what has actually occurred or is expected to occur. Since no money was received or will be received in such a form that it may be regarded in the nature of interest on capital, such interest should not be given consideration.

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14. This procedure has been adopted in calculating the profit ratios. See Appendix

But the fact remains that the prudent businessman does need to take interest on capital into consideration in order to plan his economic behaviour: whether to continue the operation of his business or to invest his money in other channels. It is logically sound as a matter of business reasoning although not satisfactory for accounting purposes.

The problem of historical vs. current values of assets and depreciation rates was briefly mentioned in the preceding pages. Changes in price levels, however, have effects on other variables in accounting as well. Sales and operating expense figures of different years are not directly comparable. If during these years, the price level has risen, it is most likely that part of its increase will affect the sales and operating expense figures. It would be possible to get a better interpretation of the operating results if the distortion caused by price level changes could be removed. While it is generally recognised that this problem can be solved through the application of the index number technique, a further problem arises as to the choice of the index. Shall it be a general index of prices or a specific index that measures prices in the industry in which the enterprise under consideration is engaged?

It is not to be expected that any one index number of general prices would be suitable in all cases, for it is known that price level changes do not affect all industries in a uniform manner; there are different "leads" and "lags". This would indicate the need for specific indexes, at least for such industries as do not follow the general pattern of prices. It will also be necessary to examine whether all branches of what might be called an "industry" are similarly affected by the movement of prices.

Then, too, there is the question whether the same index is suitable for adjustment of all items in the statements. It often happens that changes in production costs and in selling, general and administrative costs are quite different from those in selling prices. There is also the problem of the changes in the prices of construction of facilities and acquisition of equipment.

While accountants recognise the effects of price level changes on various accounting values, they continue to use undeflated figures in interpreting their results. This may be partly due to the fact that an acceptable index has yet to be computed.

In the present analysis, two methods of computing profit ratios have been used. One using current values and the other using deflated values.[15] While the latter method does not claim to have overcome the problems mentioned above, it is felt to be a fairly accurate ratio representing the "real" rates of return.

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15. The Appendix describes the methods used in this analysis.

CHAPTER V

PROFITS AND PROFIT RATIOS IN SELECTED ENTERPRISES

In this chapter we consider the various uses of profit ratios and compute them for 26 selected public enterprises. Details of the computations are however restricted to the Appendix and only the major findings are discussed here. In addition to assessing our results, we also discuss the other factors influencing profits and how they impair our findings to some extent.

A.

Profit Ratios as Indicators of Price Policy

Though prices are based on average costs, they are not determined in a vacuum. The enterprises are not free to set the price (and the size of the 'margin' or 'mark up' on sales or cost) at any level that they may capriciously determine. Despite the limitations of competitive price theory, the pressures of demand and supply do limit the freedom of price makers - and the possibility of substitution and minimizing variable costs. If, for example, prices are established at levels that are too high, the penalty is loss of sales. On the hand, if the prices are set too low,[1] the penalty is

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1. By too high or too low prices we mean in relation to what the market will bear.

reduced profits or assured losses. In either case, the price policy will be reflected in sales and the residual after expenses, profits.

As prices are based on a certain 'margin' or 'mark up' over sales or costs, two ratios are primarily used to indicate the price policy of an enterprise.
i) Profits as a percentage of sales (or gross margin) and ii) profits as a percentage of costs (or gross mark up).

Profits as a percentage of sales is the ratio most commonly used by the members of the industry itself to appraise their own operating performance and profitability. A figure of 10% means that for every Rs. 1.00 of sales made by the enterprise, 90 paise are paid for goods, services and other expenses and 10 paise remain for owners or management to re-invest, meet taxes and interest payments or declare dividends etc.

Profits as a percent of costs is a ratio used by the members of the industry to appraise how much above costs is required to meet other expenses and yet make profits for re-investment or declare dividends.

While profit ratios are broad indicators of the price policy of an enterprise, the ratios are not directly comparable among different enterprises due to the difference in production functions and market conditions. Nor are the profit ratio's indicators of the

absolute 'level' of prices charged by the enterprises. This can be illustrated by the following hypothetical[2] example where firms A, B and C produce the same type of products and charge the same prices.

	Company A	Company B	Company C
Sales	Rs 1.00	Rs 1.00	Rs 1.00
Costs of goods.	.75	.74	.75
All other expenses.	.25	.26	.25
	.15	.20	.19
Net Profit	.10	.06	.06
Profit/Sales ratio.	10%	6%	6%
Profit/Cost ratio.	13%	8.1%	8%

Thus, greater profit margins do not necessarily mean the firms are administering higher prices. The profit margins can also reflect more efficient buying or large scale operations etc.[3] Profit ratios are, therefore, at best an approximation of the price policy of an enterprise.

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2. Adapted from: Clarkson, Gordon and Co., op. cit. p. 8

3. Another factor is the rate of turnover on sales. This bears an inverse relation to the profit rate on sales.

However, Prof. J.S. Bain develops through conventional price theory the hypothesis that "the average profit rate of firms in oligopolistic industries of a high concentration will tend to be significantly larger than that of firms in less concentrated oligopolies or in industries of atomistic structure."[4] As the public enterprises in India are monopolies or oligopolies, their administered prices (and therefore profits) may not reflect the market pressures. Hence, the "excess rate of profit on sales"[5] as defined by Prof. Bain is also computed. This is:

$$E = \frac{S - C - D - i.v.}{S}$$ where

E = excess profit rate

S = sales revenue

C = costs of operation/business

D = depreciation

i = interest at 6% p.a.

v = equity capital

'i' represents the net interest rate (net of 'risk' returns)

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4. J.S. Bain, (a) op. cit. p. 294

5. "Industrial Organization" (New York: John Wiley & Sons Inc., 1967) p. 365-66 and p. 411 n. The term excess rate of profits is used to refer to a return in excess of all costs, including imputed interest costs on equity capital, and not as the concept is used in tax laws.

which funds can currently earn if invested in government securities.

This excess rate of profits is compared with the rate in similar[6] groups of industries in the private sector. This sector would represent a more competitive market structure.

Comparison of Normal Profits and Profit Markups

Prof. A.R. Oxenfeldt[7] has compared the profit mark ups with 'normal' profits in relation to costs of production and excess capacity. He states:

> "The higher the margin that becomes customary in a trade, the greater the probable difference between marginal costs and price,[8] and therefore, the more likely the product is to be 'under-produced'."[9]

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6. Similar but not homogenous.

7. A.R. Oxenfeldt, "Industrial Pricing and Market Practices" (New York: Prentice Hall Inc., 1951) pp. 165-169.

8. A.P. Lerner in "The Concept of Monopoly and Measurement of Monopoly Power" Review of Economic Studies (June 1934) pp. 157-75, advocates this difference as a ratio of price $\frac{P-MC}{P}$ measures monopoly power. As the number of firms increase, this ratio declines. A similar effect is considered on profit markups by Prof. Oxenfeldt. Ibid. pp. 167-69.

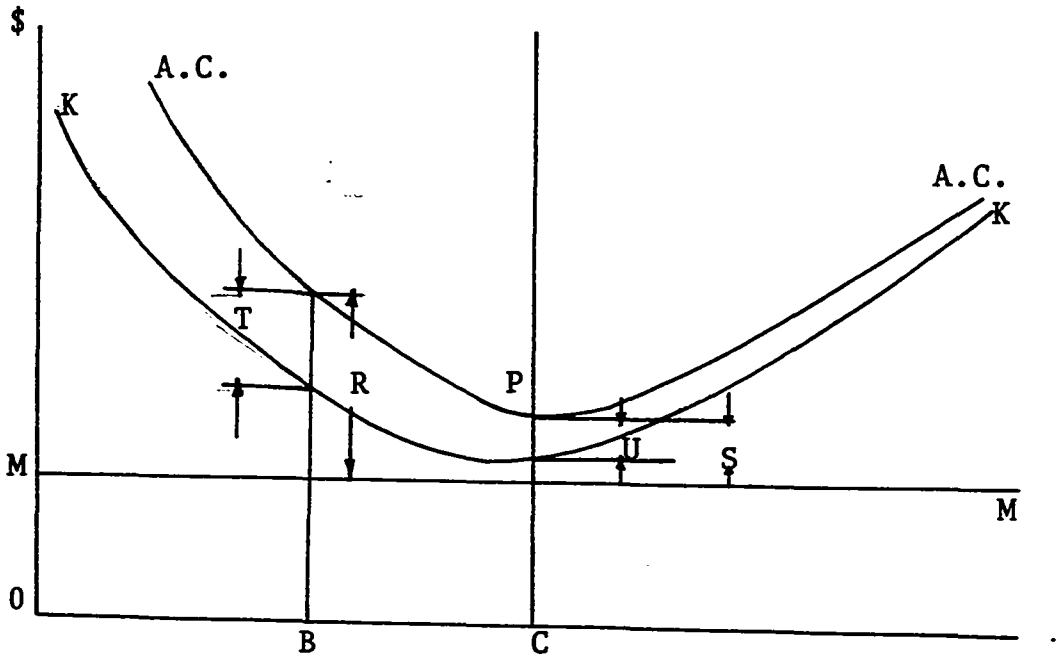
9. Ibid. p. 165.

A markup that would cover operating costs at capacity and provide a 'normal' profit is termed as the 'ideal' markup. However, present markups also reflect the financial goals towards which past sellers have aspired towards rather than the minimum income the sellers are willing to accept. The profit per unit at capacity, may therefore, include more than would be necessary to induce firms to operate. The exact magnitude of this difference is not always known.

In Figure III we illustrate the relationship between profit per unit included in the markup and the normal profit per unit at capacity. 'R' represents the markup added whereas unit profits are represented by 'T'. At capacity, (minimum point on the A.C. curve), profit per unit is only 'U' whereas 'S' is the profit markup.

When barriers to the industry are low and the number of firms increases, or when product substitutes are available in the market, the competitive forces reduce the markup per unit of output. If the commodity is a normal good, output would be nearer to the capacity level as prices decline due to market pressures. Thus, when firms are producing the same commodities and have similar production and cost functions; different profit markups

Figure III.



QUANTITY OF GOODS

'Profit' Margin Compared with 'Normal Profits'.

Source: A. Oxenfeldt, op. cit. p. 166

MM = Invoice cost of merchandise.

OC = "Capacity" output; that is, the output at which average unit costs are at a minimum.

KK = All costs other than invoice costs and normal profits; the distributor usually describes these costs as his "overhead", though they include some variable costs - i.e., labour (KK has been added to MM).

A.C. = Average costs, including normal profits (equal to KK plus normal profits, which are assumed to be a fixed total amount, unaffected by output), plus invoice cost of the merchandise.

OB = Average level at which the firm has operated in recent past and not very different from the level of sales expected during the immediate period ahead.

S = Overheads and normal profits per unit at capacity.

R = Overheads and normal profits per unit at level of operations the firm takes to be more or less normal (if the firm did not obtain a price equal to MM plus R, it would not reinvest in the business).

CP = Price that would prevail in the long-run if this firm operated in a purely competitive industry.

BT = Price that the firm asks (price would provide supernormal profits if OC were sold; BT is substantially higher than CP.

result from higher prices and or more favourable demand conditions.[10]

Profit Ratio's as Indicators of Efficiency

The distribution of profit ratio's has been also used to measure the efficiency of firms.[11] However, the term 'efficiency' is not precisely defined. Efficiency may either be considered from a broad social point of view which takes into account the degree to which an enterprise contributes to the highest possible level of consumption and standard of living, or it may be approached from the more conventional business and economic point of view. As the discussion of varying degrees of efficiency revolves around costs,[12] the implication is that profits

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10. The foregoing analysis has been for the short run. For a detailed exposition of the long run situation, see A.R. Oxenfeldt, op. cit. pp. 171-174. In the long run the demand curve shifts until its tangent to the A.C. curve and all firms have the same profit markups. The analysis is similar to that of Chamberlain's 'Monopolistic Competition'.

11. a) G. Stigler, "The Economies of Scale" Journal of Law & Economics (Oct. 1958). Page 55 advocates the profit ratios as perhaps one of the several possible measures of scale.
    b) See also. R.C. Osborn, op. cit. pp. 82-94.

12. In this context we refer to relative costs. Ibid. p. 83.

as a percent of total capital refers to economies of scale. Total capital in this context is defined as including total net assets and working capital.[13]

However, the differences in product mixes, varying sizes of firms and demand conditions yield different costs and different revenues. The profit ratio's will therefore, not indicate the level of costs independent of the level of revenues. In addition, in the short run, firms may not be operating at the level they were designed for. Hence, we could not obtain a measure of economies of scale which is associated with long run costs. Cnly under exceptional conditions in which selling prices are equal and products sold are practically identical could a return on capital investment be considered as a moderately valid measure of operating efficiency or differential level of costs.

And yet, to some degree, the profitability of a business does measure the efficiency of that business, particularly from the point of view of the stock holders. It indicates the degree to which the firm is able to compete successfully under whatever competition exist in the industry. Though this approach gives to efficiency

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13. See Appendix for a detailed definition.

a considerably different meaning from that which is used above, it is valid to compare the relative rates of return for similar groups of industries or with the current interest rate. The current interest rate would set the 'minimum' return on capital that a firm must earn if it's to continue operating. On the other hand, the rates of return in similar groups of industries would establish the average opportunity cost of capital. If the firm earns less or more than this rate, it will reflect its relative inefficiency or efficient allocation of resources. This may arise from either internal or exogenous factors the effects of which are reflected on the rates of return. The extent of these effects are not always ascertainable and can at best be given subjective qualifications.

Profit Ratio's as Indicators of the Relative Ability of Firms to Expand

Profitability can be used as an index of the ability of firms to grow because retained earnings in most instances are the important source of funds from which firms can expand.[14] In addition to an aversion to

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14. a) J.R. Meyer and E. Kuh, "The Investment Decision" (Cambridge, Mass.: Harvard Univ. Press, 1957) pp. 137-142, 175-177.
    b) W.J. Baumol. "On Theory of Oligopoly" Economica, (Aug. 1958) p. 188.
    c) R.B. Heflebower, "The Firm in Oligopoly Analysis". Weltwirtschafthiches Archiv. No. 2, 1960, p. 158.

outside financing, there is the possibility that external sources of funds may not be available to all firms. Furthermore, profitability might be the variable that determines whether the external funds are available to each particular firm or not.

The distribution of post-tax profit ratios has therefore been used to indicate which firms are more capable of self financed expansion. The analysis however does not inquire for what reasons certain firms are making higher profits than others.[15] What is required in this context is a description of the observed profit rates and if considered over a number of years, their relative changes.

Post-tax profits are used in computing this ratio because of the effects taxes have on retained earnings. Pre-tax profits would understate the incidence of taxes on the relative ability of firms to expand in the lower profit groups. On the other hand they may also overstate the effects in the higher profit groups. In addition, taxation rates vary with the

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15. Such as monopoly power, economies or diseconomies of scale etc.

factors such as the age of the firms,[16] commodities it produces,[17] geographic locations etc.[18] These variations may either contribute or be detrimental to the ability of firms to expand from internal resources. The extent they are so is of interest to us.

B.

Profits of 26 Selected Public Enterprises

The bureau of public enterprises publishes the "Annual Report on the Working of Industrial and Commercial Undertakings of the Central Government",[19] which gives the detailed financial analysis of all public enterprises, both under construction and running concerns. This source is supplemented by the individual annual reports of the enterprises which were directly sent upon request.

Our sample is then selected on the basis of those enterprises which are classified as 'running concerns' in 1961 by the bureau of Public Enterprises

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16. New firms may be on a tax 'holiday'.

17. The government may try to stimulate the consumption of commodities considered as essential to growth.

18. Depressed areas may be given tax incentives.

19. Government of India, (Bureau of Public Enterprises, Dept. of Cabinet Affairs, Cabinet Secretariat.)

and continued operating till at least 1966.[20] This results in 26 out of a total of 37 public enterprises in the industrial commercial sector. These 26 enterprises comprise 86% of the total fixed assets as book valued in 1961. The largest enterprise (Hindustan Steel Ltd.) has 70% of the total assets in the sample whereas the smallest enterprise (National Buildings Construction Corporation) has less than 0.2%. Thus, our sample is a fairly representative one. The only bias it incorporates is that it excludes the very new or the very old enterprises which came into or ceased operations in the intervening period. This may lead to an upward evaluation in the average profit rates of the sector as a whole. However, the extent it does so is felt to be negligible and in no way impairs our findings.

The sample is divided into seven sub-industrial-commercial classes and a total of ten profit-ratios are computed for analysis. These ratios can be briefly defined as:[21]

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20. This criteria ensures a complete set of data for inter-year comparisons.

21. Detailed definitions of the various components of the profit ratios are given in the Appendix.

i) $P_1 = Y_g/K$ ii) $P_2 = Y_g/S$

iii) $Pd_1 = Y_{dg}/Kd$ iv) $Pd_2 = Y_{dg}/Sd$

v) $P_3 = Y_g/C$ vi) $E = \frac{S - C - D - i.v}{S}$

vii) $P_4 = Y_n/K$ viii) $P_5 = Y_n/S$

ix) $P_6 = Y_{na}/K$ x) $P_7 = Y_{na}/S$

P_{1-7} = profit ratios in current rupees.

Pd_{1-2} = profit ratios in deflated rupees.

E = excess rate of profit on sales.

K, Kd = current and deflated total capital.

S, Sd = current and deflated sales revenue.

Y_g, Y_{dg} = current and deflated gross profits.

Y_n = net profits.

Y_{na} = net adjusted profits.

The criteria used for assessing the 'minimum' performance of selected public enterprises was mentioned in the Introduction. The criteria are:

a) The enterprises should at least cover the 'monetary' cost of borrowing capital for long term industrial finance i.e. 6% p.a.

b) The enterprises should be able to earn the 'opportunity' cost of capital in similar industrial activities with similar market conditions. After surveying the Reserve Bank of India sample of 1333 joint stock companies (1961-1966), the opportunity cost of

capital is considered to be 10%.[22]

However, in context of developing countries the use of such criteria poses several problems. Do the market rates of interest bear any close relationship with the marginal productivity of investment over time? Is the capital market functioning perfectly or do the interest rates reflect capital scarcity? If so to what extent are the opportunity costs and rates of return understated? On the other hand, is the government following a policy of depressing interest rates so as to stimulate investment? If this is the case then to what extent are opportunity costs and rates of return overstated? In other words, does the cost of capital and its alternatives provide an 'objective criteria'?[23]

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22. Reserve Bank of India: "Reserve Bank of India Bulletin", (Bombay) various issues, 1962-67.

23. For an excellent review on market imbalances and use of accounting prices see. G. Myrdal, Asian Drama (New York: Pantheon, Vol. III) Appendix

The answers to these questions are extremely difficult. However, despite imperfections in the capital market structure which fails to indicate the 'intrinsic cost' or value of capital, the choice of an interest rate remains a value judgment[24] which must bear these imperfections in mind. Moreover, the interest rates at any time reflect the entire range of expected values of all maturities in the future, it is an index of the value of capital resources in alternative investments. In principle therefore, the rate of interest used in an economic study ought to be the return obtainable from the opportunity forgone.

The usual procedure in selecting an interest rate or rates is on the basis of observed rates ruling at that time or the yield on long term government bonds. In India this comes to 6% for the period under consideration.

The opportunity cost of capital as stated was based on the Reserve Bank of India sample. This sample covers a wide range of industrial-commercial activities and is a fairly representative one. Not only are the

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24. See: Otto Eckstein, Water Resource Development (Cambridge, Mass.: Harvard Univ. Press 1964) p. 460.

joint stock companies of a similar size group in relation to public enterprises, but they also operate in similar though not homogenous industrial activities. In addition, the rate of 10% has been suggested in previous studies which appear to be reasonable.[25] Finally, in this study we are using gross profit ratios which include interest payments. A distortion in the interest rate structure will therefore affect the enterprises equally and will not impair our evaluations. With respect to net profit ratios, the procedure for taking into account differences in interest rate charges is described in the Appendix.

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25. a) I.M.D. Little, "Atomic Bombay: A Comment on the Need for Atomic Energy in Under-Developed Countries". The Economic Weekly (no.'s 46 and 47, Nov. 29th, 1958) p. 1485.
    b) Arnold C. Harberger "Cost - Benefit Analysis and Economic Growth". The Economic Weekly (Annual number, Feb. 1962) pp. 215-217.
    c) Jan Tinbergen also recommends the use of a 10% rate in countries where disequilibrium in the capital market is specially pronounced. See The Design for Development, (Baltimore: John Hopkins Press. 1958) p. 39.

As profits and the ability to meet the above criteria is also affected by the market structure in which the enterprises operate, the excess rate of profits on sales defined in the preceding pages is also considered. In addition the assessment is made in light of the targets set by the Planning Commission which is also 10%.

Table I indicates that there is a wide disparity in the profits earned in various industrial activities of the public enterprises. In construction for example, the public enterprises yield a minus .12% on total capital in 1963-64. On the other hand, the miscellaneous sector yields 16.31%, while industrial chemicals yields 15.27% for the same year. However, on the average, public enterprises cover at least the 'monetary' cost of capital. Their minimum total average profits on capital is 6.82% in 1961-62 whereas in 1963-64 they reach a high of 9.94%. During the period under study, the average profit rate on capital is 8.63%. These averages are slightly higher if we exclude Hindustan Steel Ltd. from the sample.[26]

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26. See also Appendix. Table A-2.

TABLE - I
PUBLIC ENTERPRISES

Gross Profits as a Percentage of Total Capital ($P_1 = Y_g/K$)
in current rupees (lakhs)

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Ind. Engineering	4.85%	9.40%	11.12%	11.28%	7.68%	8.86%
Ind. Chemicals	11.80%	14.08%	15.27%	13.06%	9.69%	12.78%
Shipping	6.97%	8.50%	9.48%	7.23%	9.82%	8.40%
Aviation	1.77%	5.96%	7.76%	8.60%	2.13%	5.24%
Minerals & Oil	-2.31%	7.35%	4.60%	3.10%	3.58%	3.26%
Construction	8.96%	-0.21%	-0.12%	3.52%	6.54%	3.73%
Miscellaneous	11.89%	13.74%	16.31%	17.07%	12.09%	14.21%
* Average (total 26 enterprises)	6.82%	8.93%	9.94%	9.56%	7.94%	8.63%
* Average (excld. Hind. Steel Ltd.)	7.22%	9.32%	10.26%	9.83%	8.16%	8.96%

Source: Appendix. Table A-2

Hindustan Steel Ltd. is currently undergoing an expansion programme and has severe gestation problems.

The average profits earned on total capital on the other hand, fall short of the 'opportunity' cost of capital in similar activities in the private sector. They also fall short of the projected target of 10% as proposed by the Planning Commission. (See Table II). However, of the total 26 enterprises, 9 yield at least 10%, 8 yield between 6-10% and the remaining 9 enterprises fall short of the monetary cost of capital.[27]

When compared by sub-industrial-commercial classes, the public enterprises perform better in Shipping, Chemicals and Miscellaneous groups. They also appear to perform favourably in Industrial Engineering.

The average profits on sales on the other hand, are higher in the public enterprises than the total average of the Reserve Bank sample of 1333 enterprises. However, if only the selected sub-industrial-commercial groups of the Reserve Bank sample are considered, there is a marginal difference in the average profit-sales ratio.

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27. Ibid.

TABLE - II
PRIVATE ENTERPRISES

Gross Profits as a Percentage of Total Capital (P_1 = Yg/K) in Current Rupees (lakhs)

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Coal Mining	8.30%	9.60%	8.30%	5.70%	6.00%	7.58%
Iron & Steel	8.30%	10.10%	12.50%	11.70%	10.90%	10.70%
Elec. Machinery	11.50%	13.90%	15.50%	15.00%	14.50%	14.08%
Machinery (other)	10.50%	10.90%	12.10%	11.70%	11.10%	11.26%
Foundaries & Eng. Workshops	9.40%	10.50%	10.90%	11.10%	9.40%	10.26%
Minerals & Oil	14.10%	14.30%	14.50%	12.10%	11.10%	13.22%
Paper & Paper Products	8.40%	8.40%	7.90%	6.60%	7.70%	7.80%
Shipping	.80%	3.70%	3.90%	4.20%	3.70%	3.26%
Basic Ind. Chemicals	12.40%	10.50%	10.30%	11.70%	12.40%	11.46%
Other Chemicals	11.30%	13.60%	12.30%	10.10%	13.70%	12.20%
Construction	5.56%	8.11%	7.13%	8.41%	9.61%	7.70%
Hotels	6.28%	4.65%	5.77%	4.55%	3.44%	4.43%
Average	8.90%	9.80%	10.09%	9.40%	9.46%	9.54%
Average (1333 enterprises)	10.10%	10.20%	10.60%	10.30%	9.90%	10.22%

[Planning Commission objective: 10%]

Source: Computed from: Reserve Bank of India Bulletin, (Bombay) Dec. 1967.

TABLE - III
PUBLIC ENTERPRISES

Gross Profits as a Percentage of Sales ($P_2 = Y_g/S$) in current rupees (lakhs)

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Ind. Engineering	5.33%	13.34%	16.49%	18.14%	12.71%	13.20%
Ind. Chemicals	19.17%	21.37%	22.05%	20.24%	13.14%	19.19%
Shipping	9.16%	10.06%	10.03%	8.03%	11.59%	9.77%
Aviation	2.61%	7.83%	10.41%	10.79%	2.91%	6.91%
Minerals & Oil	.35%	7.75%	4.12%	-10%	4.14%	3.25%
Construction	6.81%	3.30%	2.12%	3.44%	5.17%	4.17%
Miscellaneous	24.71%	26.26%	28.10%	28.10%	21.68%	25.87%
Average (total 26 enterprises)	9.80%	13.26%	14.14%	13.70%	10.98%	12.37%
Average (excld. Hind. Steel Ltd.)	11.25%	13.99%	14.42%	13.84%	11.08%	12.91%

Source: Appendix. Table A-3.

TABLE - IV
PRIVATE ENTERPRISES

Profits as a Percentage of Sales (P_2 = Yg/S) in Current Rupees (lakhs)

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Coal Mining	8.90%	9.70%	9.00%	6.30%	6.20%	8.02%
Iron & Steel	14.40%	15.80%	18.40%	16.50%	16.60%	16.34%
Elec. Machinery	11.70%	12.90%	13.90%	13.20%	12.70%	12.88%
Machinery (other)	12.70%	13.20%	13.70%	12.90%	12.40%	12.98%
Foundaries & Eng. Workshops	9.90%	10.30%	10.90%	11.30%	10.10%	10.50%
Mineral and Oil	21.40%	22.30%	20.00%	18.00%	14.40%	19.22%
Paper & Paper Products	11.30%	11.70%	11.30%	10.20%	11.50%	11.20%
Shipping	2.10%	8.60%	9.30%	9.60%	9.50%	7.82%
Basic Ind. Chemical	20.40%	19.20%	18.80%	18.60%	17.70%	18.94%
Other Chemicals	9.20%	10.30%	10.10%	8.80%	11.20%	9.92%
Construction	7.72%	9.65%	9.04%	10.75%	12.51%	9.93%
Hotels	6.87%	5.01%	6.88%	6.95%	4.81%	6.10%
Average	11.38%	12.38%	12.61%	11.92%	11.63%	11.98%
Average (1333 enterprises)	10.20%	10.20%	10.30%	10.00%	9.40%	10.02%

Source: Computed from: Reserve Bank of India Bulletin. op. cit.

This close association between the profit-sales ratio of the two sectors also exists for the individual sub-industrial-commercial classes except for Shipping, Miscellaneous and Minerals and Oil. Among the public enterprises, the former two classes yield considerably higher profits per unit of sales whereas the reverse is the case in Minerals and Oil.

The relationship of profits-costs ratios on the other hand shows a wide disparity (Tables V and VI). The total average profit-cost ratio for the public enterprises is higher than the average of the Reserve Bank sample. This difference is marked when individual sub-industrial-commercial classes are examined. As a matter of fact all the public enterprise groups except for Minerals, Oil and Construction have a higher profit-cost ratio than the Reserve Bank sample. This would tempt us to say that either the prices are higher in public sector or they are more efficient and have favourable demand conditions (or possibly both).[28] However, if the excess profit rate on sales is considered, (Tables VII and VIII) the Reserve Bank sample indicates that the private enterprises are able to earn

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28. See Section A.

TABLE - V
PUBLIC ENTERPRISES

Profits as a Percent of Total Costs (P_3 = Yg/C) in current rupees (lakhs)

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Ind. Engineering	8.52%	17.31%	20.99%	22.67%	15.39%	16.97%
Ind. Chemicals	27.48%	28.76%	29.51%	25.91%	17.94%	25.92%
Shipping	11.69%	14.64%	13.26%	11.80%	16.61%	13.60%
Aviation	2.72%	8.71%	11.90%	12.18%	3.03%	7.70%
Minerals & Oil	.43%	8.62%	4.32%	3.97%	4.36%	4.34%
Construction	7.85%	4.04%	2.69%	3.80%	5.99%	4.87%
Miscellaneous	33.94%	37.52%	39.91%	40.07%	27.83%	35.85%
Average (total 26 enterprises)	13.58%	17.69%	18.50%	18.12%	14.19%	16.41%
Average (excld. Hind. Steel Ltd.)	14.97%	18.58%	18.93%	18.39%	14.38%	17.05%

Source: Appendix. Table A-4.

TABLE -VI
PRIVATE ENTERPRISES

Profits as a Percent of Total Costs (P_3 = Yg/C)
in current rupees (lakhs)

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Coal Mining	11.77%	11.02%	9.37%	6.85%	7.02%	9.20%
Iron & Steel	16.44%	18.15%	21.63%	19.13%	16.32%	18.33%
Elec. Machinery	12.35%	13.96%	15.16%	14.05%	14.04%	13.91%
Machinery (other)	13.90%	14.24%	15.28%	14.24%	13.65%	14.26%
Foundaries & Eng. Workshops	10.39%	10.88%	11.52%	12.54%	11.41%	11.34%
Minerals & Oil	26.04%	27.83%	24.03%	21.22%	16.35%	23.16%
Paper & Paper Products	12.57%	12.96%	12.54%	11.08%	12.55%	12.34%
Shipping	2.10%	9.20%	10.07%	10.53%	10.14%	8.40%
Basic Ind. Chemicals	23.49%	22.14%	21.26%	22.04%	21.07%	22.00%
Other Chemicals	10.09%	11.68%	11.29%	9.88%	12.25%	11.03%
Construction	8.24%	10.51%	9.80%	11.88%	14.08%	10.90%
Hotels	6.11%	4.42%	6.22%	6.15%	4.26%	5.43%
Average	12.79%	13.91%	14.01%	13.29%	12.76%	13.35%
Average (1333 enterprises)	11.01%	11.02%	11.35%	10.68%	10.03%	10.81%

Source: Computed from: Reserve Bank of India Bulletin. op. cit.

TABLE - VII
PUBLIC ENTERPRISES

Rate of Excess Profits on Sales ($E = \frac{S-C-D-i.v}{S}$) in Current Rupees (1akhs)

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Ind. Engineering	-5.74%	4.89%	9.76%	11.78%	5.86%	5.31%
Ind. Chemicals	10.11%	13.82%	15.73%	12.65%	-2.12%	10.03%
Shipping	2.77%	5.40%	5.09%	4.97%	9.16%	5.48%
Aviation	-1.07%	4.29%	7.21%	7.86%	1.60%	3.98%
Minerals & Oil	-7.68%	1.13%	-2.91%	-8.25%	3.73%	-2.79%
Construction	4.32%	.71%	.52%	1.60%	3.25%	2.08%
Miscellaneous	14.68%	17.04%	19.64%	19.66%	12.78%	16.76%
Average (total 26 enterprises)	1.88%	6.82%	8.53%	8.23%	4.70%	6.03%
Average (excld. Hind. Steel Ltd.)	4.06%	8.00%	9.17%	8.77%	5.07%	7.01%

Source: Appendix. Table A-5.

TABLE - VIII
PRIVATE ENTERPRISES

Rate of Excess Profits on Sales ($E = \frac{S - C - D - i.v}{S}$)

in current rupees (lakhs)

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Coal Mining	6.61%	7.93%	6.71%	4.65%	5.03%	6.18%
Iron & Steel	11.33%	12.80%	15.18%	13.67%	11.89%	12.97%
Elec. Machinery	8.78%	7.59%	11.13%	10.65%	10.23%	10.07%
Machinery (other)	9.37%	9.74%	10.47%	9.98%	9.62%	9.83%
Foundaries & Eng. Workshops	6.85%	7.43%	7.87%	8.22%	7.49%	7.57%
Minerals & Oil	18.11%	19.02%	17.00%	15.02%	13.60%	16.55%
Paper & Paper Products	9.26%	9.50%	9.30%	8.16%	9.37%	9.11%
Shipping	-0.85%	5.73%	8.99%	6.53%	6.53%	5.38%
Basic Ind. Chemicals	14.58%	13.66%	13.28%	13.92%	13.77%	13.84%
Other Chemicals	7.11%	8.46%	8.35%	7.11%	9.19%	8.04%
Construction	7.01%	8.94%	8.39%	10.18%	11.99%	9.30%
Hotels	4.53%	3.03%	4.73%	4.75%	2.97%	4.00%
Average	8.55%	9.65%	10.11%	9.40%	9.30%	9.40%
Average (1333 enterprises)	7.58%	7.65%	7.28%	7.80%	7.29%	7.52%

Source: Computed from: Reserve Bank of India Bulletin. op. cit.

on an average higher profits. The Bain hypothesis is that over a long period (five years or so) this results from higher prices. Based on these conclusions it can be stated that the public enterprises as a whole do not appear to be charging higher prices in relation to costs of production. The differences in the profit-costs mark ups could have arisen from extraneous factors which are considered in Section C.

In Tables IX and X we find that the public and private enterprises on an average earn similar net profits with respect to total capital. The five year average of the public enterprises is 4.35% while that of the private (selected sub-industrial-commercial classes) enterprises is 4.92%. On the other hand, the total average of the Reserve Bank sample of 1333 enterprises is 4.00%.

If the sub-industrial-commercial classes are compared we find that the results vary considerably. Industrial Chemicals in the public sector enterprises have similar profit ratios with the Basic Industrial Chemical Enterprises in the private sector. However, these ratios are higher when compared with other Chemical Industries. Similar is the case of Iron and Steel, Minerals and Oil and Paper and Paper Products.

TABLE - IX
PUBLIC ENTERPRISES

Net Profit as a Percent of Total Capital (P_4 = Yn/K) in Current Rupees (lakhs)

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Ind. Engineering	2.73%	4.55%	5.58%	5.43%	2.35%	4.12%
Ind. Chemicals	7.10%	8.02%	8.82%	6.62%	4.46%	7.00%
Shipping	3.83%	5.09%	6.54%	3.89%	4.79%	4.82%
Aviation	1.25%	5.50%	6.46%	6.86%	1.24%	4.26%
Minerals & Oil	-3.07%	5.25%	2.17%	-.91%	1.07%	1.18%
Construction	3.04%	-2.81%	-4.78%	.43%	.71%	-.85%
Miscellaneous	10.71%	8.22%	8.93%	8.03%	6.46%	8.47%
Average (total 26 enterprises)	3.87%	4.88%	5.26%	4.51%	3.17%	4.35%
Average (excld. Hind. Steel Ltd.)	4.15%	5.22%	5.49%	4.67%	3.28%	4.58%

Source: Appendix. Table A-6.

TABLE - X
PRIVATE ENTERPRISES

Net Profit as a Percent of Total Capital (P_4 = Yn/K)
in current rupees (lakhs)

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Coal Mining	2.58%	3.54%	3.40%	2.03%	2.30%	2.77%
Iron & Steel	4.75%	6.51%	7.60%	5.70%	5.11%	5.93%
Elec. Machinery	5.28%	4.44%	5.93%	5.21%	5.29%	5.23%
Machinery (other)	5.01%	3.84%	4.63%	4.41%	4.43%	4.46%
Foundaries & Eng. Workshops	3.27%	3.31%	3.89%	4.33%	4.91%	5.37%
Basic Ind. Chemicals	6.83%	5.29%	4.62%	5.23%	4.91%	5.37%
Other Chemicals	23.70%	22.04%	11.75%	8.52%	23.35%	17.87%
Minerals & Oils	6.86%	4.27%	4.46%	5.06%	4.92%	5.11%
Paper & Paper Products	4.10%	3.51%	3.92%	2.51%	3.92%	3.59%
Shipping	-0.72%	1.20%	1.71%	2.35%	2.08%	1.32%
Hotels	2.51%	1.22%	2.09%	1.54%	-0.65%	1.34%
Construction	2.19%	2.91%	2.08%	2.36%	3.20%	2.54%
Average	5.53%	5.17%	4.67%	4.10%	5.15%	4.92%
Total Average (1333 enterprises)	4.56%	3.82%	4.09%	3.98%	3.58%	4.00%

Source: Computed from: "Reserve Bank of India Bulletin", op. cit.

By comparing the net profit-sales ratio (Tables XI and XII) we find a still greater variation in the results between the two types of enterprises. The average profit ratio is higher in the public sector enterprises versus that of the private sector. The disparity within sub-industrial-commercial classes is also further marked.

Are the public enterprises capable of self-financed expansion? The answer to this question is difficult on the basis of comparing net profit-capital-sales ratios between the private and public sectors. While the private sector relies on internal resources for expansion, and the public enterprises on an average compare favourably with them, there are differences that can arise in the net profit figures due to taxes and interest charges. As a matter of fact, it has been stated that the public enterprises appear to have lower interest charges as against the private enterprises.[29] This partly arises due to preferential treatment by the government and can be considered in the form of an indirect subsidy.

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29. Forum of Free Enterprise. op. cit. p. 11.

TABLE - XI
PUBLIC ENTERPRISES

Net Profit as a Percent of Total Sales (P_5 = Yn/S)
in current rupees (lakhs)

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Ind. Engineering	2.09%	5.14%	7.98%	8.75%	4.07%	5.60%
Ind. Chemicals	11.63%	12.63%	13.04%	10.32%	5.00%	10.52%
Shipping	5.69%	7.26%	8.13%	6.08%	6.99%	6.83%
Aviation	1.80%	7.16%	8.62%	8.72%	1.71%	5.59%
Minerals & Oil	-2.35%	4.21%	1.19%	-3.61%	1.25%	.15%
Construction	2.36%	.75%	-.94%	.05%	.35%	.52%
Miscellaneous	22.20%	16.10%	15.50%	13.28%	11.45%	15.79%
Average (total 26 enterprises)	5.83%	7.41%	8.06%	6.93%	4.55%	6.55%
Average (excld. Hind. Steel Ltd.)	7.10%	8.47%	8.48%	7.15%	4.69%	7.18%

Source: Appendix. Table A-7.

TABLE - XII
PRIVATE ENTERPRISES

Net Profit as a Percent of Total Sales
in current rupees (lakhs)

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Coal Mining	2.73%	3.69%	3.65%	2.23%	2.40%	2.94%
Iron & Steel	7.31%	9.08%	9.98%	7.22%	6.06%	7.93%
Elec. Machinery	4.46%	3.49%	4.52%	3.86%	4.02%	4.07%
Machinery (other)	5.03%	3.81%	4.34%	4.15%	4.25%	4.31%
Foundries & Eng. Workshops	2.73%	2.62%	3.10%	3.58%	2.69%	2.94%
Basic Ind. Chemicals	9.63%	8.28%	7.10%	7.23%	6.21%	7.69%
Other Chemicals	3.40%	3.58%	2.63%	2.28%	3.38%	3.05%
Minerals & Oil	9.97%	6.36%	5.85%	7.14%	6.13%	7.09%
Paper & Paper Products	5.27%	4.69%	5.34%	3.64%	5.41%	4.87%
Shipping	-1.74%	2.72%	3.96%	5.24%	5.19%	3.07%
Hotels	2.30%	1.11%	2.12%	1.96%	-0.77%	1.34%
Construction	2.99%	3.41%	2.60%	2.98%	4.11%	3.21%
Average	4.50%	4.40%	4.59%	4.29%	4.09%	4.37%
Total Average (1333 enterprises)	4.00%	3.33%	3.50%	3.36%	2.98%	3.43%

Source: Computed from: "Reserve Bank of India Bulletin", op. cit.

TABLE - XIII
PUBLIC ENTERPRISES

Net Adjusted Profit as a Percent of Total Capital (P_6 = Yna/K)
in current rupees (lakhs)

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Ind. Engineering	-2.42%	.22%	1.36%	1.98%	- .82%	.06%
Ind. Chemicals	1.45%	2.42%	3.18%	.81%	-1.23%	1.32%
Shipping	-1.11%	.21%	1.67%	- .87%	.39%	- .05%
Aviation	-4.21%	.03%	1.76%	2.60%	-3.86%	- .75%
Minerals & Oil	-8.42%	1.14%	-1.93%	-2.90%	-2.40%	-2.90%
Construction	-1.94%	-6.94%	-7.62%	-3.61%	-2.21%	-4.46%
Miscellaneous	5.52%	2.72%	3.24%	3.56%	1.32%	3.27%
Average (total 26 enterprises)	-1.68%	.06%	.65%	.30%	-1.01%	-0.26%
Average (excld. Hind. Steel Ltd.)	-1.38%	.34%	.84%	.44%	- .92%	- .05%

Source: Appendix. Table A-8.

TABLE - XIV
PRIVATE ENTERPRISES

Net Adjusted Profit as a Percent of Total Capital (P_6 = Yna/K) in current rupees (lakhs)

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Coal Mining	2.52%	3.48%	3.34%	1.97%	2.24%	2.71%
Iron & Steel	4.69%	6.45%	7.54%	5.64%	5.05%	5.87%
Elec. Machinery	5.22%	4.38%	5.87%	5.15%	5.23%	5.17%
Machinery (other)	4.95%	3.78%	4.57%	4.35%	4.37%	4.40%
Foundries & Engineering Workshops	3.21%	3.25%	3.83%	4.27%	2.92%	3.49%
Basic Ind. Chemicals	6.77%	5.23%	4.56%	5.17%	4.85%	5.31%
Other Chemicals	23.64%	21.98%	11.69%	8.46%	23.29%	17.81%
Minerals & Oil	6.80%	4.21%	4.40%	5.00%	4.86%	5.05%
Paper & Paper Products	4.04%	3.45%	3.86%	2.45%	3.86%	3.53%
Shipping	-0.66%	1.14%	1.65%	2.29%	2.02%	1.28%
Hotels	2.45%	1.16%	2.03%	1.48%	-0.59%	1.30%
Construction	2.13%	2.85%	2.02%	2.30%	3.14%	2.48%
Average	5.48%	5.11%	4.61%	4.04%	5.10%	4.86%
Total Average (1333 enterprises)	4.50%	3.76%	4.03%	3.92%	3.52%	3.94%

Source: Computed from: "Reserve Bank of India Bulletin", op. cit.

TABLE - XV
PUBLIC ENTERPRISES

Net Adjusted Profits as a Percent of Total Sales (P7 = Yna/S)
in current rupees (lakhs)

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Ind. Engineering	-13.89%	-3.68%	.54%	2.23%	-2.90%	-3.54%
Ind. Chemicals	.32%	2.93%	4.31%	.47%	-11.79%	-.75%
Shipping	-2.22%	.39%	.82%	-1.00%	.65%	-.27%
Aviation	-5.15%	.46%	2.56%	3.19%	-4.88%	-.76%
Minerals & Oil	-13.25%	-5.46%	-10.61%	-8.95%	-4.19%	-8.49%
Construction	-.88%	-3.49%	-3.00%	-2.74%	-2.07%	-2.44%
Miscellaneous	11.56%	5.36%	5.63%	5.70%	2.36%	6.12%
Average (total 26 enterprises)	-4.73%	-0.72%	0.60%	0.17%	-3.68%	-1.67%
Average (excld. Hind. Steel Ltd.)	-1.75%	0.68%	1.22%	0.69%	-3.34%	-0.50%

Source: Appendix. Table A-9.

TABLE - XVI
PRIVATE ENTERPRISES

Net Adjusted Profit as a Percent of Total Sales (P7 = Yna/S) in current rupees (lakhs)

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Coal Mining	2.67%	3.62%	3.58%	2.17%	2.34%	2.87%
Iron & Steel	7.22%	9.00%	9.91%	7.14%	5.99%	7.85%
Elec. Machinery	4.41%	3.44%	4.47%	3.82%	3.98%	4.02%
Machinery (other)	4.97%	3.75%	4.28%	4.09%	4.19%	4.25%
Foundries & Eng. Workshops	2.68%	2.57%	3.05%	3.53%	2.64%	2.89%
Basic Ind. Chemicals	9.54%	8.19%	7.00%	7.15%	6.13%	7.60%
Other Chemicals	3.39%	3.57%	2.62%	2.26%	3.38%	3.04%
Minerals & Oil	9.89%	6.27%	5.77%	7.06%	6.05%	7.00%
Paper & Paper Products	5.20%	4.61%	5.26%	3.56%	5.33%	4.79%
Shipping	-1.60%	2.59%	3.82%	5.11%	5.04%	2.99%
Hotels	2.25%	1.06%	2.06%	1.88%	-0.70%	1.31%
Construction	2.91%	3.34%	2.52%	2.91%	4.03%	3.14%
Average	4.46%	4.33%	4.52%	4.22%	4.03%	4.31%
Total Average (1333 enterprises)	3.94%	3.27%	3.45%	3.31%	2.93%	3.38%

Source: Computed from: "Reserve Bank of India Bulletin", op. cit.

In view of these claims a net-adjusted profit is calculated[30] which ignores all interest payments made by the private and public enterprises and imputes a 6% interest based on total capital. Tables XIII to XVI show the result of these computations.

Based on the conclusions drawn from these tables, the public enterprises do not appear to be capable of self-financed expansion. While the performance of these enterprises with respect to gross and net profits is satisfactory, net adjusted profits suggest that resources are mobilized through preferential treatment. If the public enterprises could borrow at lower interest charges due to reduced risk and profit expectations, it would indicate their competitive position in the capital market. However, to what extent the interest charges form a part of an indirect subsidy from the government and a genuine ability to borrow funds at lower charges is difficult to ascertain.

C.
Character and Limitations of Profit Ratios

The discussion in the preceding sections has implied that there are several factors which influence profit and profit ratios. In this section we briefly review some of these factors and the extent to which they qualify our results.

One of the dominant factors which influence

30. See Appendix.

profit ratios is the fluctuations[31] in the economy. These fluctuations not only affect the prices of commodities sold, but also cause shifts in demand - both of which cause changes in the rate of capacity utilization[32] and profit. Thor Hultgren with regards to these factors states:

> "Upswings and downswings in business activity mean, for most industries, upswings and downswings in the quantity of goods or services they sell. These fluctuations are accompanied by changes in the prices they receive and in their profits."

The extent to which these fluctuations can affect profit margins can be illustrated by a few examples.

If the price received for a product and its cost both increase, but the price rises by a greater amount than the cost, profit per unit of product increases. If the price rises by a greater percentage than the cost, profit per rupee of sales increases.

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31. By fluctuations we do not necessarily mean business cycles. Exogenous factors such as war, foreign exchange shortages of a non-cyclical nature etc., are also included.

32. Capacity utilization rate = output/capacity.

33. --- Costs, Prices and Profits: Their Cyclical Relations. (New York: NBER. 1965) p. 3.

Aggregate profits are also affected by the quantity sold. If profit per unit falls less than in proportion the increase in the quantity sold, aggregate profit will rise. Similarly, if the profit per rupee of sales falls less than the rise in aggregate rupee sales, profit will rise.

Aggregate sales is equal to average price multiplied by the quantity sold. However, it is difficult to separate price and quantity from aggregate sales alone. Changes in profit margins can therefore also reflect the combined inter-actions of the components of aggregate sales. A rise in prices tends to widen margins if costs have not risen by the same amount and the quantity sold is not affected. Similarly, a fall in costs also widen margins if prices and quantity sold are relatively unaffected. These and other relationships are summarized in Table XVII.

TABLE - XVII

Possible Combinations of Change in Price and Unit Cost and Their Effect on Cost Ratios and Profit Margin

Change in Price	Changes in Cost Per Unit	Change in Cost Ratio	Change in Profit Margin
Rise	Greater percentage rise	Rise	Fall
Rise	Same percentage rise	No change	No change
Rise	Smaller percentage rise	Fall	Rise
Rise	No change	Fall	Rise
Rise	Fall	Fall	Rise
No change	Rise	Rise	Fall
No change	No change	No change	No change
No change	Fall	Fall	Rise
Fall	Rise	Rise	Fall
Fall	No change	Rise	Fall
Fall	Smaller percentage fall	Rise	Fall
Fall	Same percentage fall	No change	No change
Fall	Greater percentage fall	Fall	Rise

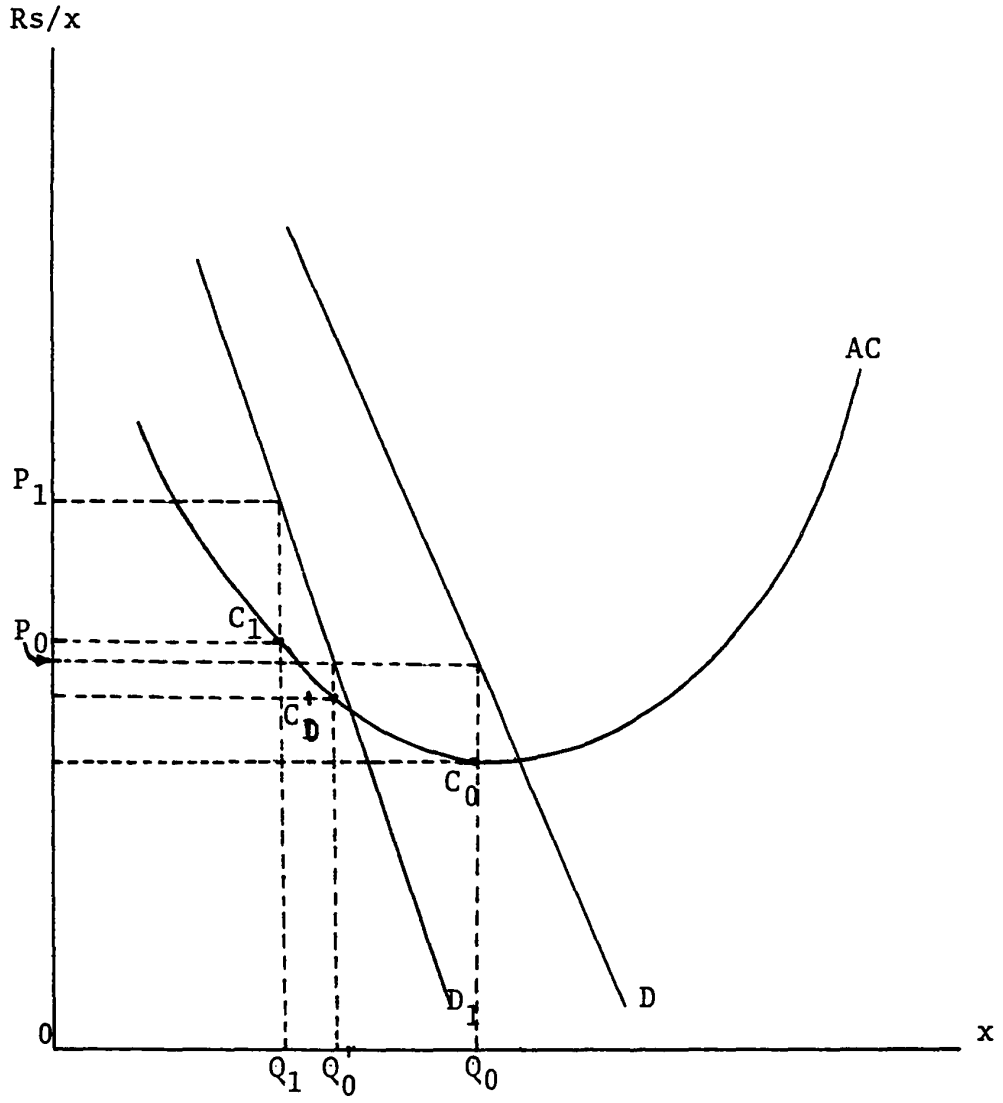
Source: Thor Hultgren, . . . op. cit. p. 5.

Profit and profit margins can also be affected by changes in the capacity utilization rate. The capacity utilization rate is affected by the interactions of price, cost and demand resulting from fluctuations in the economy. This can be illustrated in Figures IV and V. Capacity in this context means moving along the A.C. curve.

In Figure IV we assume that the fluctuations do not affect input costs and hence the A.C. curve remains the same. If the firm is faced with demand curve D, at price OP_0 it will produce OQ_0 units of x and operate at C_0 capacity. At this level it will have rectangle C_0P_0 profits. If however, fluctuations cause the demand curve to shift to D_1, at OP_0 price it will produce OQ_0' units of x and operate at C_0' capacity. At this level its profits fall to rectangle $C_0'P_0$.

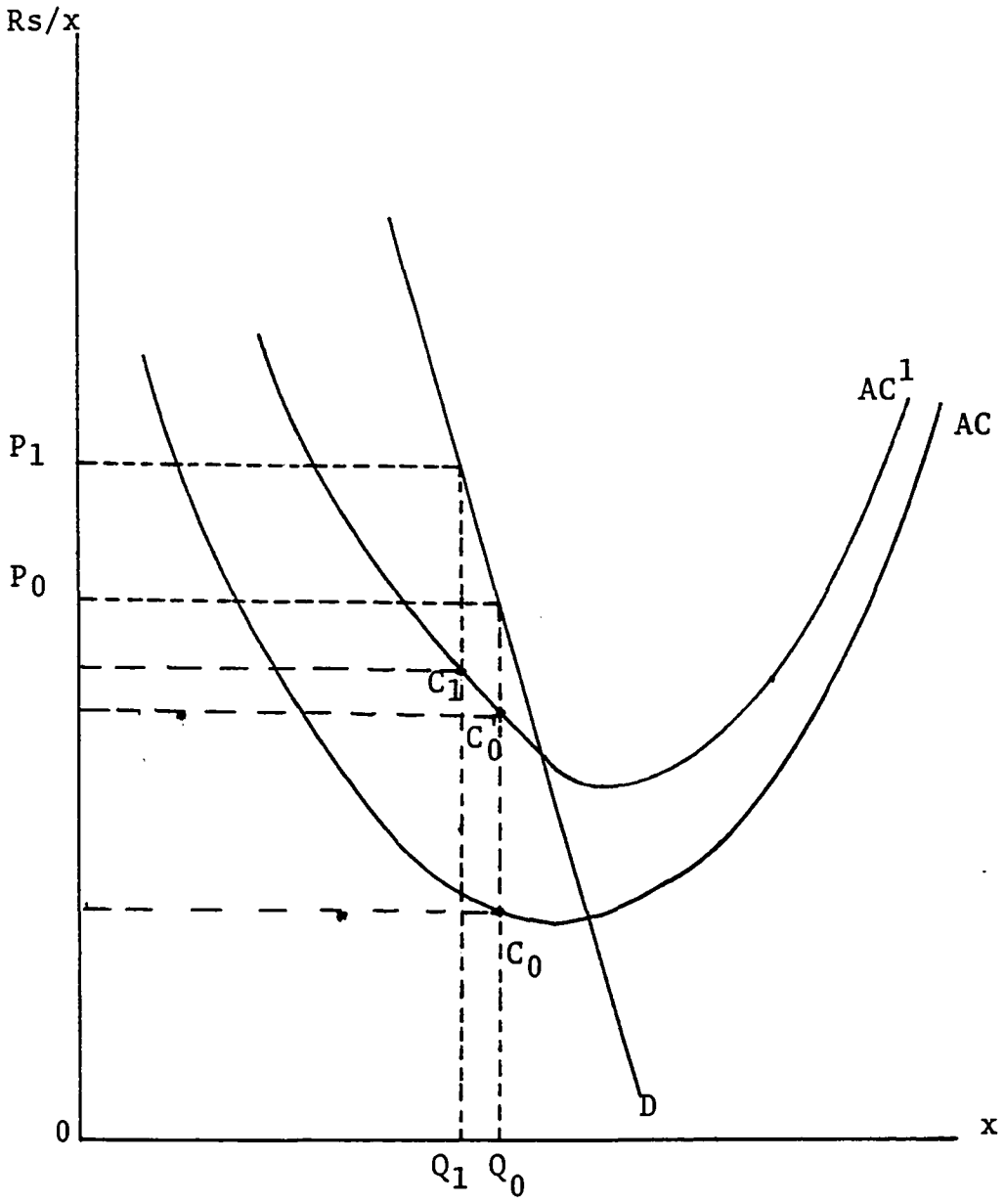
On the other hand, if the shift in demand is accompanied by a price increase to OP_1, the firm will operate at C_1 capacity and produce OQ_1 units of x. At this level its profits will be rectangle C_1P_1 which are greater than $C_0'P_0$.

Figure IV



Demand Shifts and Capacity Utilization

Figure V



Cost Changes and Capacity Utilization

In Figure V we assume that the fluctuations in the economy affect input costs only and that the demand curve D remains the same. Thus, if the increase in input costs cause the A.C. curve to shift to AC^1, at price OP_0 the firm will produce OQ_0 units of x and operate at C_0' capacity instead of C_0. Profits will fall from rectangle C_0P_0 to $C_0'P_0$. However, if the shift in AC curve also leads to a price increase to OP_1, the firm will produce OQ_1 units of x and operate at C_1 capacity. In this case its profits will be rectangle C_1P_1.

Intuitively then, a relationship between capacity utilization rates and profits makes sense. A composite of demand and cost factors determines profits. Those factors also enter into the determination of the capacity utilization rate or flow implied from it. A change in demand reflects itself in a change in the level of production which in turn alters the capacity utilization rate. This development affects costs which feeds back to a change in the rate of return. Likewise, the change in the capacity utilization rate influences the price level which also affects profit rates.

To what extent are the changes in capacity utilization rate and the rate of return due to price fluctuations versus demand shifts? The answer to this question is extremely difficult in view of the present state of our knowledge. J.S. Bain[34] states: "Any profit performance must be read in the light of the rate of technological progress, trend of demand and so forth. We cannot find the 'net result' of monopoly profits or the 'net result' of efficiency on profits." Nor as a matter of fact can we find the 'net result' of any of the other factors which influence profits.

Nevertheless, we did find in section B that the public enterprises do not appear to be accruing monopoly profits as a whole. Therefore, if a satisfactory method of deflating profits[35] and its components which form a ratio is found, changes in the values of deflated profit ratios would reflect the 'differential' changes[36] arising from increased or decreased capacity utilization or efficiency. Figure VI illustrates graphically the relationship of current and deflated profit ratios of the public enterprises.

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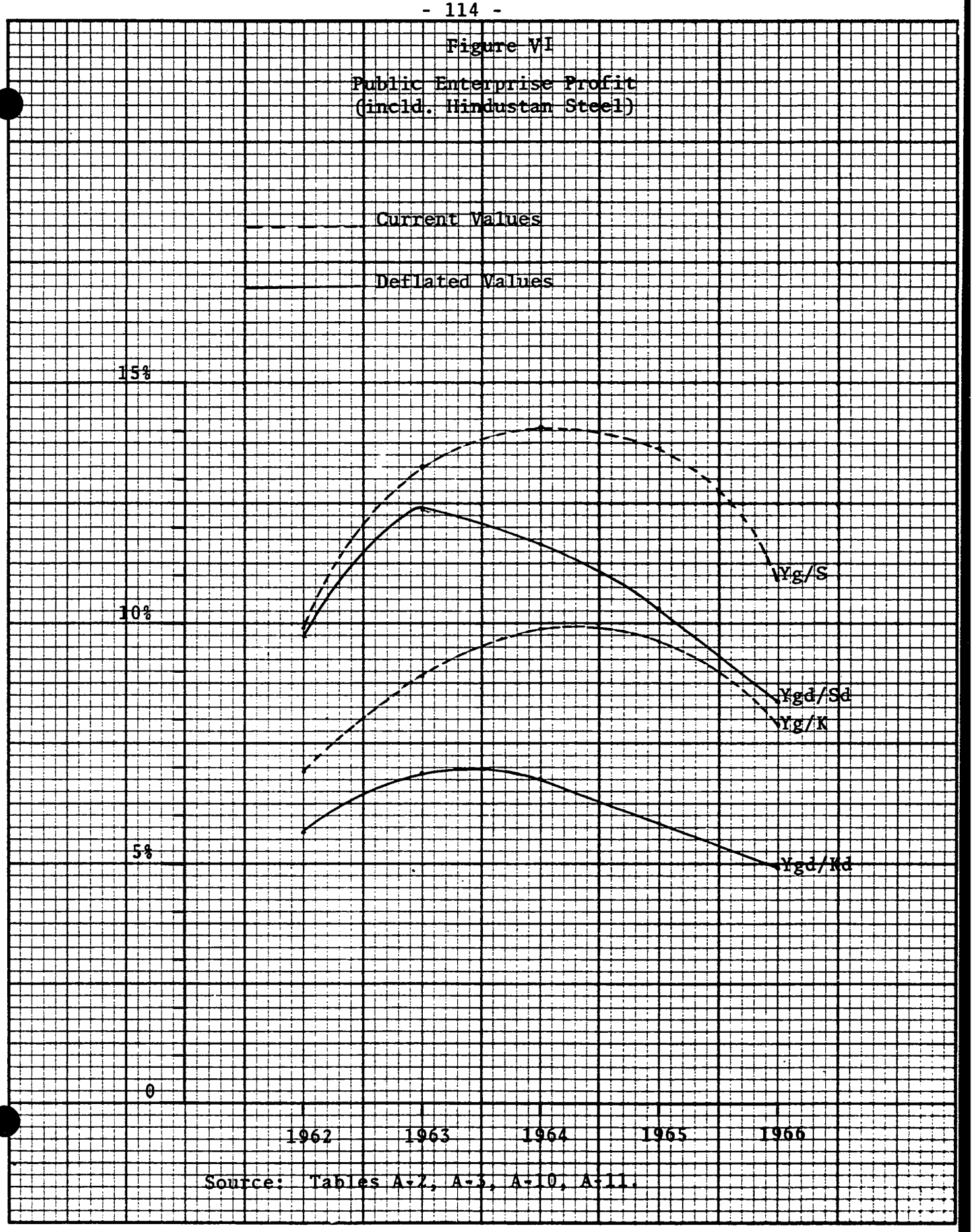
34. --- a) op. cit. p. 294.

35. See Appendix for the method used in this study.

36. G. Stigler, op. cit. pp. 118-31. By deflating public enterprise profits, we are implicitly assuming price flexibility and that public enterprise prices are moving in the same direction as those of the economy. This however may not be the case.

Figure VI

Public Enterprise Profit
(incld. Hindustan Steel)



Source: Tables A-2, A-3, A-10, A-11.

Deflated profit-capital ratios indicate a general decline from mid 1963 onwards. This decline appears to be steeper than its value in current rupees which signifies that the period experienced sharp price increases.[37] Insofar as the profit ratios indicate capacity utilization, it appears that the public enterprises in late 1963 period and after have a greater amount of excess capacity.

A similar relationship appears in the current and deflated profit-sales ratios. In this case there is a steeper decline in the profit-sales ratio than that of the profit-capital ratio. However, this can be explained by the fact that sales are a more sensitive indicator of fluctuations in the economy than other variables such as capital or investment changes.

The above relationships confirm the evidence that the Indian economy did have a recession (particularly in the producer goods industry) during this period. It is however more marked in the post 1964 period and continues till at least 1966 in the case of public

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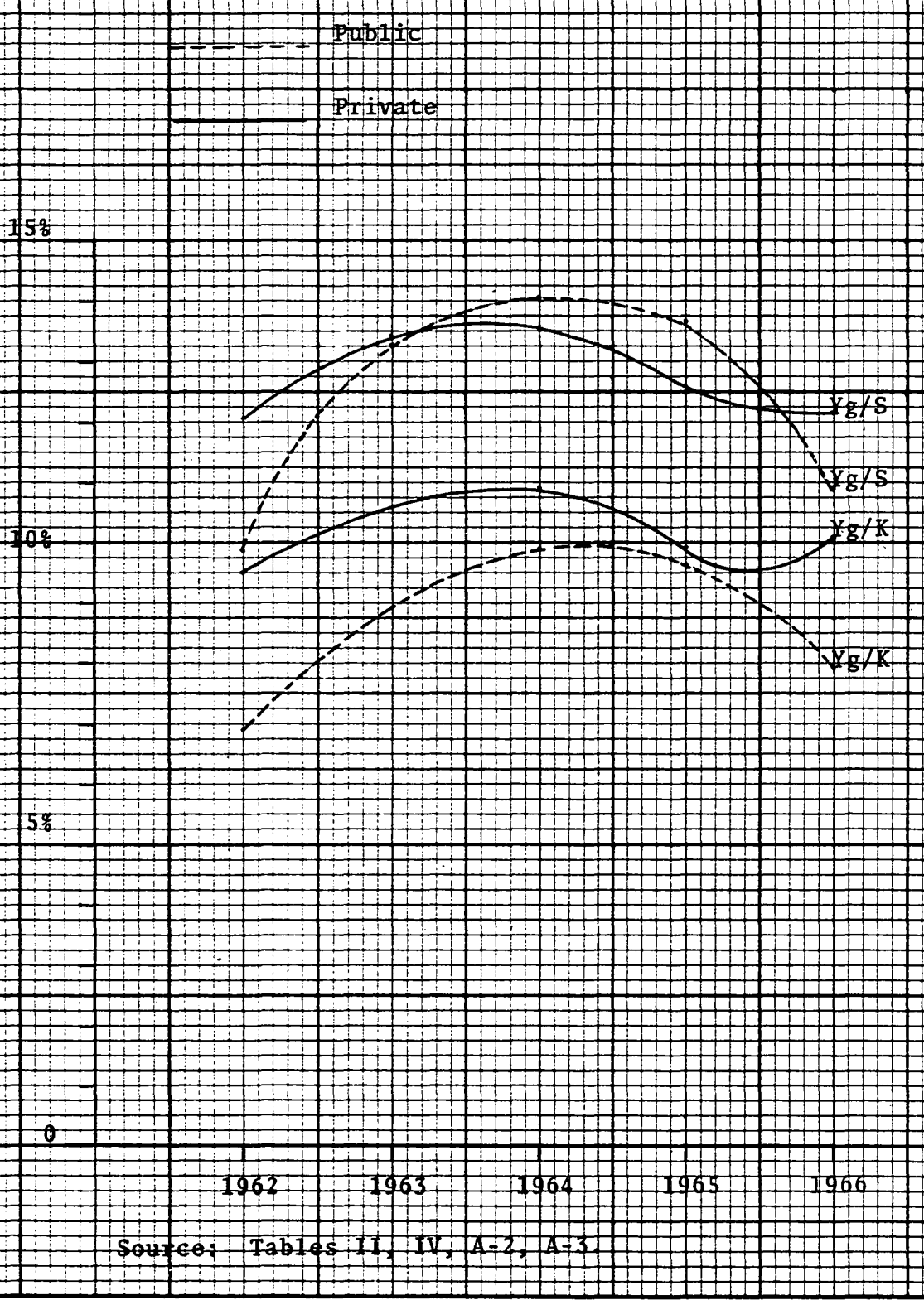
37. This actually was the case. See Government of India, Economic Survey 1963, 1965 (New Delhi: Min. of Finance, Govt. of India Press, 1964, 1966).

Figure VII

Public & Private Enterprises
Profit Ratios, Current Values.



Source: Tables II, IV, A-2, A-3.

enterprises.[38] If however, the (Figure VII) current profit ratios[39] of the private and public enterprises are compared for similar groups of industrial activities, the recession affects the public enterprise performance to a greater extent. This can be partially explained by the fact that public enterprises are concentrated in producer and heavy capital equipment industries whereas the private sector enterprises are more diversified. The other factor to be considered is the high ratio of fixed costs to total costs, which exist in the public enterprises. Due to the steep A.C. curve, a small decline in demand will result in a higher level of excess capacity and the aggregate profits will tend to be understated when expressed as a percentage of total capital.

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38. a) Government of India, "Economic. . ." op. cit.
    b) An authoritative study on the recession and its effects on capacity utilization is by: R.K. Koti and P.N. Mathur, "Unutilized Capacity in Indian Industries" (Poona: Gokhale Institute of Economics and Political Science. 1967).

39. Current profit ratios are used because of the computational difficulties of deflating private enterprise profit ratios. However, as there is a close relationship between current and deflated profit ratios, our conclusions would not be significantly altered. See J.S. Bain, a) op. cit. pp. 307-308. This close relationship is also illustrated in Figure VI.

The profit-capital ratio for the private enterprises shows a sharp increase from 1964 onwards while that of the public enterprises continues to decline. This resulted from a 'paradoxical' situation of inflation in the light and consumer product industries with a recession in the heavy and capital equipment industries of the public sector. Acute shortage of foreign exchange reserves and basic inputs created a production scarcity in the consumer product industries which led to the inflation. Though the heavy capital equipment industries also experienced this shortage, the lack of demand due to the inability of the consumer products industry to meet additional production led to a recession. The Govt. of India's Economic Survey for that period states: "The somewhat slower rate of growth of industrial production is mainly explained by the decline in the output of coal and by the absence of any significant increase in industries such as steel, aluminium. . . ."[40] With respect to foreign exchange reserves it states: "foreign exchange reserves have declined sharply by Rs. 88 crores during the 10 months ending January 1965, and only a small part of this decline is explained by repayments to the International Monetary Fund."[41]

40. --- op. cit. p. 2.

41. --- Ibid. p. 5.

Chapter VI

Conclusion

In Part I it was noted that the public enterprise profits are an important source of development funds in India. In this context the Planning Commission set the objective that during the Third Five Year Plan the public enterprises are to yield a 10% return on invested capital and mobilize Rs 300 crores in profits and internal resources.

In Part II we found that the five year average profits of a selected sample of public enterprises yield 8.63% return on invested capital. If Hindustan Steel Ltd. is excluded from the sample, the rate of return increases to 8.96%. On the other hand, the rate of return on invested capital in similar industrial-commercial activities in the private sector is 10.18%.

Despite variations in profit rates, it is concluded that the public enterprises have performed reasonably well. While they fall short of the 10% objective by 1.37%, the public enterprises mobilized Rs 287 crores in profits and internal resources[1].

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1. Govt. of India, "Annual Report on " op. cit p. 82.

In addition, the value of output increased from Rs 3,119.60 lakhs in 1961 to that of Rs 12,469.33 lakhs at the end of the Five Year Plan period[2]. Hindustun Steel Ltd. which faced severe gestation problems accounted for the major part of this increase in output. In 1961-62 the value of its output was minus Rs 550.90 lakhs whereas in 1965-66 it was plus Rs 4843.10 lakhs.

The Third Five Year Plan period experienced economic and political pressures which affected the public enterprises adversely. Foreign exchange crises, recession, Indo-Chinese War and the Indo-Pakistan War all led to a re-appraisal of investment programmes which reduced the projected funds allocated to the public enterprises. Thus any assessment of public enterprise performance during this period must bear these unusual fluctuations in mind. As was noted in Chapter V (section C,) these fluctuations did not affect the private sector equally.

The computations of the opportunity cost of capital are derived from the Reserve Bank of India sample which consists of older firms. Without a satisfactory method of revaluing historical asset figures, it is likely that private enterprise profits are overstated. The extent of this is difficult to ascertain.

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2. This is for the selected sample of 26 enterprises.

On the otherhand the private sector does not represent a competitive market structure; the profit rates of which can be used as a standard for comparison. Though market concentration studies are non-existant in India, preliminary inquiries reveal that the economy is highly concentrated[3]. Thus public enterprise profits must be compared with profits of monopolistic industries[4].

In addition, new investments are being constantly channelled into existing public enterprises and thereby raising the capital-output ratios. This to some extent understates the profit rates as new investment may not be productive immediately or in the period surveyed.

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3. See a) J. Bhagwati, "Monopoly in Public Enterprise", in The Working of the Public Sector, edited by V.V. Ramanadham, (Bombay: Allied Pub. Co. 1965) p. 92.

   b) I. Till, and C.H. Fulda, "Concentration and Competitive Potential in India". Anit-trust Bulletin. Fall 1968, p. 999

   These studies suggest that Indian manufacturing industries are highly concentrated. The studies are limited by the fact that ownership linkages and inter-locking directorates could not be taken into account. This might have revealed a still higher concentration in the economy.

4. As was noted in Chapter V, the public enterprises do not appear to be monopoly pricing. The excess rate of profit on sales on the other hand was higher in the private sector.

All these factors lead us to state that the public enterprise performance may be better than is reflected in the profit ratios.

Nevertheless, the limitations of this study make it inapplicable for any policy implications. As was noted in the preceding chapter, there is considerable disparity in the profit ratios of public enterprises. Though 17 enterprises at least cover the monetary cost of capital, 9 enterprises or 34% of the sample do not. Among these 9 enterprises is Hindustan Steel Ltd. which has 70% of the total assets of the sample, as book valued in 1961. The rate of return on invested capital in Hindustan Steel Ltd. during the Third Five Year Plan is .62% in current rupees. If deflated this rate of return declines to -.27%.

Though net profit ratios of public enterprises compare favourably with similar ratios in the private sector, net adjusted profit ratios suggest that public enterprises are heavily subsidized in their capital charges. Furthermore, the net adjusted profit ratios indicate the inability of public enterprises for self financed expansion. In this regard the public enterprise performance is far from satisfactory and can result in an inflationary situation in the economy.

However, profit is but one measure of performance. Though profit ratios indicate price policy, efficiency, capacity utilization rates etc; meaningful analysis can only be made if the other measures of performance are considered as well. In this regard, the scope of the present study is limited and could not incorporate the other measures. The conclusions derived must therefore be considered as tentative and the study should be viewed as a preliminary inquiry for further research. For further research it is suggested that productivity and capacity measurement studies in the public sector enterprises ought to be undertaken. In addition it is desirable to have cost benefit analysis and particular industry and firm studies.

APPENDIX

Profit measures in current rupees.

Gross profits (Y_g)	=	Excess of income over expenditure after providing for depreciation but before providing for interest, taxes and allocations to reserves.
Net profits (Y_n)	=	Excess of income over expenditure after providing for interest, taxes and depreciation, but before making allocations to reserves.

In most instances, public enterprises receive an indirect subsidy from the government by way of low interest charges. The extent to which this occurs is not always known. Hence, an adjusted net profit is calculated. This is defined as:

Net adjusted profits (Y_{na})	=	Excess of income over expenditure after providing for interest at 6% p.a. on total capital (the average rate for long term industrial finance), taxes and depreciation, but before making allocations to reserves.
Total capital (K)[1]	=	Total fixed assets (gross block) plus working capital

1. This concept of Capital is similar to that used by G. Stigler, "Capital and Rates of Return in Manufacturing Industries". (New York; NBER, 1963) p. 3. As such, it is almost all inclusive and the rate of return includes returns to both, lenders and equity holders.

(current assets minus current liabilities) plus deferred revenue expenditure minus accumulated depreciation.

Cost of sales (C) = Expenses on production/business plus depreciation or Total Sales (S) minus Gross profits (Y_g)

Total sales (S) = Total sales revenue accruing from business activity but excludes income on investments in other firms etc.

Using the symbols defined above, the profit ratios in current rupees are:

$$P_1 = Y_g/K$$

$$P_2 = Y_g/S$$

$$P_3 = Y_g/C$$

$$P_4 = Y_n/K$$

$$P_5 = Y_n/S$$

$$P_6 = Y_{na}/K$$

$$P_7 = Y_{na}/S$$

The other ratio used is:

$$E = \frac{S - C - D - i.V}{S}$$

Where E = excess rate of profits on sales,
i = interest rate at 6%,
V = equity capital,
D = depreciation.

Profit measures in deflated rupees.

Price changes in the economy are likely to affect the profit rates, therefore, deflated profit measures are necessary to derive the 'differential' rates of profit. As the profit rates are expressed in ratios, various price indexes are used to deflate the numerator and the denominator. This process is briefly described below.

Numerator

Gross profits (Y_g) are deflated by a price index for Gross National Product using 1960-61 as the base year.[2] The G.N.P. price index is used as profits are considered to be income and hence this index best measures the general purchasing power. It also measures the overall changes in the economy which would necessarily affect the profits of an enterprise or a sector of the economy.

The ideal index for deflating profits on the other hand, would be that which measures changes in the particular sector of the economy or industrial activity in which the enterprises are engaged in. However, as this is a cross section study of public enterprises, different price indexes would be necessary for each group of public

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2. This base year was chosen because in addition to being a representative one, it is also the new base year used by the Government of India for statistical purposes.

enterprises and the respective profit rates would not be comparable. The use of different price deflators would create further diversities in the profit rates that would be normally warranted by different production functions among enterprises and by different demand and market conditions. In addition, such price indexes are not readily available and serious problems are faced in devising such measures.[3]

Denominator

The profit ratios use two types of denominators. Sales revenue and total capital. The sales revenue is deflated by a grouped wholesale price index for manufactured and semi-manufactured articles. This is the only reasonable index available. It reflects the general price changes in the commodity groups in which the enterprises are engaged in.

The deflation of total capital, however, poses several problems. The concept of total capital comprises of three major components: total fixed assets (gross block), accumulated depreciation and working capital.

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3. The major problem was the lack of price data for the commodities which public enterprises manufacture or process.

Where as the former two parts comprise of historical book value figures, working capital represents more current values. This necessarily entails the use of two or more price indexes in order to derive deflated total capital figures. The price indexes used for each part of the total capital figure are briefly described below. The procedure for deflation is illustrated by a hypothetical example.

Total fixed assets are deflated by the wholesale price index for manufactured articles. This price index reasonably reflects the cost of assets in the Indian economy. It not only includes machinery manufactured in India, but also includes the "value of imports inclusive of duty".[4] The index therefore, also reflects the cost of imported assets.

Working capital is deflated by a group index number of wholesale prices of industrial raw materials and intermediate products. This index was considered to be appropriate as working capital "is required for

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4. Government of India, "Statistical Abstract of the Indian Union 1966". (New Delhi: Central Statistical Organisation. Government of India. Press) p. 208.

current business operations covering stocks of raw materials, stores and spares, works in progress, finished goods and receivables, etc."[5]

Accumulated depreciation is deflated by the G.N.P. price index for two principal reasons: a) By the provisions of the Income Tax Act, the public enterprises in India base their depreciation on the original cost of assets and not on the basis of replacement cost.[6] Thus depreciation allowances can be treated as an income. b) A suitable price deflator for converting historical depreciation values to current values in India is not available.[7]

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5. Government of India, "Annual Report on the Working of Industrial and Commercial Undertakings of the Central Government for the year 1964-65." (Bureau of Public Enterprises Dept. of Cabinet Affairs, Cabinet Secretariat.) p. 118.

6. See G.S. Bhalla, "Financial Administration of Nationalised Industries in U.K. and India." (Merrut: Meenakshi Prakashan. 1968.) pp. 253, 259-260.

7. See A.C. Harberger, "Investment in Men vs: Investment in Machines. The Case of India." in Education and Economic Development, editors C. Arnold Andersen and M.J. Bowman, (Chicago: Aldine Pub. Co. 1965.) pp. 36-37)

Hypothetical Example

Firm A

Incorporated in 1955.

Historical/Current book values as in balance sheet

		1960-61	1961-62
1)	Total fixed assets	200	250
2)	Accumulated depreciation	80	100
3)	Working capital	100	150
	Total Capital (1+3-2)	220	300

Price Indexes[8]

Year	Group Index	Mfd. Articles	G.N.P.
1955	73.46	83.22	
1960	100.00	100.00	100.00
1961	107.67	104.67	107.05

As the enterprise was incorporated in the year 1955, it is assumed that the book values of total fixed assets (which excludes depreciation both current and accumulated) in 1960-61 balance sheet reflect prices of that year.[9] In order to express these historical values in 1960-61 rupees, the assets are divided by the price index for manufactured articles in 1955. Thus:

$$\frac{\text{Rs } 200}{83.22} \times 100 = \text{Rs } 240 \text{ (approx.)}$$

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8. Source: Government of India, "Statistical Abstract ....." op. cit. p. 210. See Table A-1.

9. See pp.

Accumulated depreciation is deflated by the G.N.P. index which in this case is 100 and therefore remains the same. A similar case applies to working capital which is deflated by the group index. Total capital for firm A in 1960-61 rupees is therefore:

Rs 240 (deflated fixed assets) +

Rs 100 (current working capital) -

Rs 80 (accumulated depreciation) = Rs 260.

The addition to total fixed assets in 1961-62 in current rupees is 250-200 = Rs 50. This addition to total fixed assets in 1960-61 rupees is therefore:

$$\frac{\text{Rs } 50}{104.67} \times 100 = \text{Rs } 48 \text{ (approx.)}$$

Similarly, the addition to accumulated depreciation is Rs 100-80 = Rs 20. This expressed in 1960-61 rupees is:

$$\frac{\text{Rs } 20}{107.05} \times 100 = 18 \text{ (approx.)}$$

Working capital in 1961-62 expressed in 1960-61 rupees is:

$$\frac{150}{108.89} \times 100 = \text{Rs } 138 \text{ (approx.)}$$

Therefore total capital in 1961-62 in constant rupees is:

Rs 240 (deflated fixed assets) + 48 (deflated addition to fixed assets) + Rs 138 (deflated working capital) - Rs 80 (accumulated depreciation) - Rs 18 (addition to

accumulated depreciation) = Rs 328 (approx.)

A similar process is followed for the other years till 1965-66. After 1960-61 (the base year) only working capital, net additions to the total fixed assets and net additions to accumulated depreciation are deflated.

In converting the historical book values of total assets to 1960-61 rupees, they were divided by the price index applicable when the enterprise was first incorporated. This necessarily meant making two subjective assumptions.

a) The total fixed assets of the firm were bought in the year it was incorporated and not before.

b) There were no major additions to the total fixed assets between the year it was incorporated and 1960-61.

Both of these assumptions are debateable. The firm might have bought the assets while under construction and in different years, therefore the price index of the year of incorporation may not reflect the true prices of assets. On the other hand, a major part of the assets might have been purchased after the enterprise was incorporated. As the case may be, the above procedure for conversion of historical book values may either

overstate or understate the value of assets. This would distort the profit rates calculated.

However, it can be pointed out that the wholesale price index for manufactured articles has been reasonably stable. In addition, most enterprises have gone into production within a year after incorporation,[10] which reflects that major additions to fixed assets in later years are unlikely. As the time it takes between an enterprise being constructed, incorporated and operated cannot be too divergent in most cases, the price index in the year of incorporation would fairly represent the value of assets.

Prof. A.C. Harberger[11] uses similar techniques to measure the rates of return in private joint-stock companies in India. Though Prof. Harberger uses the wholesale price index for manufactured articles in the denominator, he does not deflate the book values of total assets in the base year. He however does deflate net additions to fixed assets in later years.

While a similar process could have been followed in the present analysis, this student is in conceptual disagreement with Prof. Harberger's method.

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10. Govt. of India, "Annual Report on the Working of..... op. cit." Chapter IV.

11. op. cit. Appendix. p. 36-37.

By not expressing total fixed assets in constant rupees in the base year, but only certain parts of the denominator, Prof. Harberger understates the value of total capital and thereby overstates the rates of return. Prof. Harberger's profit measures therefore, do not reflect the 'real rates of return'.

It is very likely that Prof. Harberger followed this procedure because he was dealing with a large sample of older firms whose years of incorporation were not available to him. In case of the present study, not only is the sample relatively small, and the years of incorporation are available, but the enterprises are relatively new and price fluctuations would not affect the value of total fixed assets to such a significant degree as to distort the results.

Despite the several drawbacks such as absence of complete data on the enterprises since they were incorporated, the lack of a wide variety of price deflators in an under-developed economy like that of India and certain conceptual issues described above, this procedure does appear to be reasonable. The weaknesses do not destroy, although they certainly impair the value of our calculations. For this reason alone, the present analysis <u>does not</u> rest its findings on deflated

profit ratios, but also considers ratios in current values. By isolating price influences on the various components of the profit ratios, the differential rates of return will indicate any improvements in efficiency, technology and favourable (or unfavourable) demand and market conditions.[12]

Using symbols therefore, our deflated profit ratios are defined:

$$Pd_1 = Y_{dg}/Kd.$$

$$Pd_2 = Y_{dg}/Sd.$$

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12. G. Stigler, op. cit. pp. 118-131.

Table A-1

Selected Index Number Series

Year	1 Industrial Raw-Materials	2 Semi-Mfd. Articles	3 Manufactured Articles	4 Group Index (1,2)	5 Group Index (2,3)	6 G.N.P. Index
1950	89.19	83.00	82.38	86.11	82.45	
1951	106.19	98.26	98.41	102.24	98.42	
1952	76.22	81.82	86.64	79.04	86.00	
1953	77.30	77.41	82.30	77.37	81.62	
1954	74.92	76.86	84.14	75.91	83.11	
1955	70.10	76.78	83.22	73.46	82.28	
1956	81.55	86.54	86.81	84.06	86.83	
1957	85.08	85.36	90.06	85.24	89.32	
1958	82.63	86.07	90.15	84.37	89.56	
1959	86.23	87.33	91.31	86.80	90.81	
1960	100.00	100.00	100.00	100.00	100.00	100.00
1961	106.41	108.89	104.67	107.67	105.29	107.05
1962	98.91	109.99	105.42	104.47	106.04	114.77
1963	98.91	108.73	107.67	103.84	107.86	132.91
1964	112.68	116.67	110.85	114.69	111.75	153.98
1965	130.18	130.92	118.78	130.57	120.61	160.35

Source: (a) Columns 1 to 5, Government of India, "Statistical Abstract of the Indian Union 1960 & 1966" (Government of India. Cabinet Secretariat.)
(b) Column 6, Government of India, "Estimates of National Product (Revised Series) 1960-61 to 1965-66" (C.S.O. Dept. of Statistics. Government of India. Oct. 1967.)

Table A-2

Public Enterprises

Gross Profits as a Percent of Total Capital ($P_1=Y_g/K$) in Current Rupees (lakhs)

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Industrial Engineering (I)						
Hindustan Steel Ltd.	-3.09%	-.94%	1.96%	2.67%	2.50%	.62%
Bharat Electronics Ltd.	3.90%	6.94%	7.68%	11.79%	15.04%	9.07%
Hindustan Cables Ltd.	8.72%	12.89%	11.02%	13.25%	1.65%	9.50%
Hindustan Machine Tools	13.88%	20.33%	20.45%	16.32%	7.91%	15.77%
Indian Telephone Industries	10.73%	13.84%	16.31%	15.76%	19.11%	15.15%
Praga Tools Ltd.	1.91%	11.01%	16.06%	11.55%	4.43%	8.99%
* Average (I)	4.85%	9.40%	11.12%	11.28%	7.68%	8.86%
* Average (excld. Hind. Steel Ltd.)	6.18%	11.13%	12.65%	12.71%	8.54%	10.24%
Industrial Chemicals (II)						
Fertilizer Corpn. of India	1.21%	3.67%	4.52%	5.17%	1.84%	3.28%
Hindustan Antibiotics Ltd.	27.81%	22.46%	22.23%	11.95%	21.26%	21.14%
Hindustan Salts Ltd.	9.89%	9.89%	13.74%	9.81%	-1.42%	8.38%
Hindustan Insecticides	15.63%	23.20%	17.42%	21.70%	16.32%	18.85%

Table A-2 contd.

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Indian Rare Earths	4.46%	11.20%	18.44%	16.68%	10.48%	12.25%
* Average (II)	11.80%	14.08%	15.27%	13.06%	9.69%	12.78%
Shipping and Ship Building (III)						
Shipping Corpn. of India	5.26%	6.13%	5.19%	5.89%	6.23%	5.74%
Mogul Lines Ltd.	17.89%	17.50%	21.13%	15.50%	20.29%	18.46%
Garden Reach Workshops	3.39%	6.97%	9.12%	5.90%	12.39%	7.55%
Hindustan Ship Yards Ltd.	.48%	.06%	.14%	.34%	2.22%	.64%
Mazagon Docks Ltd.	7.87%	11.86%	11.84%	8.56%	7.99%	9.62%
* Average (III)	6.97%	8.50%	9.48%	7.23%	9.82%	8.40%
Aviation (IV)						
Air India	2.99%	8.28%	10.67%	8.27%	3.11%	6.66%
Indian Airlines Corpn.	.56%	3.64%	4.85%	8.94%	1.15%	3.82%
* Average (IV)	1.77%	5.96%	7.76%	8.60%	2.13%	5.24%

Table A-2 contd.

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Minerals and Oil (V)						
Indian Oil Co. Ltd.	-5.35%	11.80%	8.04%	7.85%	4.54%	5.37%
National Coal Dev. Corpn.	.73%	2.90%	1.16%	-1.65%	2.63%	1.15%
* Average (V)	-2.31%	7.35%	4.60%	3.10%	3.58%	3.26%
Construction (VI)						
Hindustan Housing Factory	14.42%	6.18%	6.35%	8.24%	16.96%	10.43%
National Buildings Constn. Corpn.	-.90%	-15.05%	-17.99%	-4.33%	-2.80%	-8.21%
National Projects Constn. Corpn.	13.36%	8.24%	11.26%	6.66%	5.47%	8.99%
* Average (VI)	8.96%	-.21%	-.12%	3.52%	6.54%	3.73%
Miscellaneous (VII)						
Ashoka Hotels Ltd.	14.83%	17.58	18.91%	21.54%	12.83%	17.13%
National Newsprint & Paper Mills	8.96%	9.91%	13.71%	12.61%	11.35%	11.30%

Table A-2 contd.

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
* Average (VII)	11.89%	13.74%	16.31%	17.07%	12.09%	14.21%
* Average (total)	6.82%	8.93%	9.94%	9.56%	7.94%	8.63%
* Average (Total excld. Hindustan Steel Ltd.)	7.22%	9.32%	10.26%	9.83%	8.16%	8.96%

Source: a) Computed from Government of India, "Annual Report on the Working. . ." op. cit.

b) Individual Enterprise Balance Sheets.

Table A-3

Public Enterprises

Gross Profits as a Percent of Sales (P_2 = Yg/S) in Current Rupees (lakhs)

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Industrial Engineering (I)						
Hindustan Steel Ltd.	-26.60%	-4.85%	7.24%	10.17%	8.64%	-1.09%
Bharat Electronics Ltd.	10.54%	15.85%	15.49%	20.51%	20.00%	16.47%
Hindustan Cables Ltd.	12.47%	14.80%	11.56%	19.68%	2.50%	12.20%
Hindustan Machine Tools	28.77%	32.95%	33.27%	28.00%	19.51%	28.50%
Indian Telephone Industries	13.31%	15.43%	18.02%	17.97%	22.75%	17.49%
National Instruments	3.72%	15.37%	19.71%	14.25%	5.71%	11.75%
Praga Tools Ltd.	-4.84%	3.88%	10.20%	16.45%	9.86%	7.11%
*Average (I)	5.33%	13.34%	16.49%	18.14%	12.71%	13.20%

Table A-3 contd.

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
*Average (excld. Hind. Steel Ltd.)	10.66%	16.38%	18.04%	19.47%	13.38%	15.58%
Industrial Chemicals (II)						
Fertilizer Corpn. of India	4.05%	10.51%	10.89%	10.46%	5.86%	8.35%
Hindustan Antibiotics Ltd.	41.47%	34.33%	31.93%	19.57%	27.49%	30.95%
Hindustan Salts Ltd.	17.53%	17.53%	16.17%	22.00%	-10.10%	12.62%
Hindustan Insecticides	23.69%	27.72%	23.63%	26.31%	25.69%	25.40%
*Average (II)	19.17%	21.37%	22.05%	20.24%	13.14%	19.19%
Shipping and Ship Building (III)						
Shipping Corpn. of India	17.75%	16.23%	13.36%	12.68%	15.04%	15.01%
Mogul Lines Ltd.	17.89%	17.50%	21.13%	15.50%	20.29%	18.46%

Table A-3 contd.

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Garden Reach Workshops Ltd.	4.13%	9.05%	8.01%	5.73%	13.50%	8.08%
Hindustan Ship Yards Ltd.	.72%	.07%	.25%	.51%	2.61%	.83%
Mazagon Docks Ltd.	5.35%	7.49%	7.44%	5.73%	6.54%	6.51%
*Average (III)	9.16%	10.06%	10.03%	8.03%	11.59%	9.77%
Aviation (IV)						
Air India	4.64%	11.97%	14.90%	13.23%	4.51%	9.85%
Indian Airlines Corpn.	.58%	3.69%	5.92%	8.35%	1.32%	3.97%
*Average (IV)	2.61%	7.83%	10.41%	10.79%	2.91%	6.91%
Minerals and Oil (V)						
National Coal Dev. Corpn.	3.01%	11.84%	5.21%	-4.07%	6.02%	4.40%
Indian Oil Ltd.	-2.30%	3.67%	3.04%	3.87%	2.27%	2.11%

Table A-3 contd.

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
*Average (V)	.35%	7.75%	4.12%	-.10%	4.14%	3.25%
Construction (VI)						
Hindustan Housing Factory	15.44%	7.91%	4.62%	7.18%	13.71%	9.77%
National Buildings Constn. Corpn.	-.55%	-7.52%	-7.64%	-3.28%	-2.53%	-4.30%
National Projects Constn. Corpn.	5.54%	9.52%	9.38%	6.42%	4.35%	7.04%
*Average (VI)	6.81%	3.30%	2.12%	3.44%	5.17%	4.17%
Miscellaneous (VII)						
Ashoka Hotels Ltd.	31.55%	33.52%	32.63%	34.12%	24.34%	31.23%
National Newsprint & Paper Mills	17.88%	19.75%	23.89%	22.08%	19.02%	20.52%
*Average (VII)	24.71%	26.63%	28.26%	28.10%	21.68%	25.87%

Table A-3 contd.

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
*Average Total	9.80%	13.26%	14.14%	13.70%	10.98%	12.37%
*Average (total excld. Hindustan Steel Ltd.)	11.25%	13.99%	14.42%	13.84%	11.08%	12.91%

Source: a) Computed from: Govt. of India, "Annual Report on the Working. . ." op. cit.
b) Individual Enterprise Balance Sheets.

Table A-4

Public Enterprises

Gross Profits as a Percent of Total Costs (P_3 = Yg/C) in Current Rupees (lakhs)

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Industrial Engineering (I)						
Hindustan Steel Ltd.	-21.05%	-4.63%	7.81%	11.32%	9.46%	.58%
Bharat Electronics Ltd.	11.78%	18.84%	18.33%	25.80%	25.00%	19.95%
Hindustan Cables Ltd.	14.25%	17.37%	13.07%	24.50%	2.57%	14.35%
Hindustan Machine Tools	40.40%	49.15%	49.87%	38.89%	24.24%	40.51%
Indian Telephone Industries	15.05%	18.24%	21.98%	21.91%	29.46%	21.32%
National Instruments Ltd.	3.86%	18.16%	24.55%	16.62%	6.06%	13.85%
Praga Tools Ltd.	-4.62%	4.04%	11.35%	19.69%	10.94%	8.28%
*Average (I)	8.52%	17.31%	20.99%	22.67%	15.39%	16.97%
*Average (excld. Hind. Steel Ltd.)	13.45%	20.96%	23.19%	24.56%	16.37%	19.71%

Table A-4 contd.

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Industrial Chemicals (II)						
Fertilizer Corpn. of India	4.23%	11.74%	12.22%	11.68%	6.23%	9.22%
Hindustan Antibiotics Ltd.	70.87%	52.29%	46.92%	24.33%	37.91%	46.46%
Hindustan Salts Ltd.	21.25%	21.25%	19.30%	28.20%	-9.17%	16.16%
Hindustan Insecticides	31.04%	38.36%	30.95%	35.71%	34.57%	34.12%
Indian Rare Earths	10.04%	20.16%	38.20%	29.67%	20.19%	23.65%
*Average (II)	27.48%	28.76%	29.51%	25.91%	17.94%	25.92%
Shipping and Ship Building (III)						
Shipping Corpn. of India	21.58%	27.39%	15.42%	14.52%	17.71%	19.32%
Mogul Lines Ltd.	26.19%	27.70%	33.93%	31.86%	40.08%	31.95%
Garden Reach Workshops	4.30%	9.95%	8.70%	6.08%	15.61%	8.92%

Table A-4 contd.

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Hindustan Ship Yards Ltd.	.73%	.07%	.25%	.51%	2.68%	.84%
Mazagon Docks Ltd.	5.65%	8.10%	8.04%	6.07%	7.00%	6.97%
*Average (III)	11.69%	14.64%	13.26%	11.80%	16.61%	13.60%
Aviation (IV)						
Air India	4.87%	13.59%	17.51%	15.25%	4.73%	11.19%
Indian Airlines Corpn.	.58%	3.83%	6.29%	9.11%	1.33%	4.22%

Table A-4 contd.

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
*Average (IV)	2.72%	8.71%	11.90%	12.18%	3.03%	7.70%
Minerals and Oil (V)						
Indian Oil Co. Ltd.	-2.24%	3.81%	3.14%	4.03%	2.32%	2.21%
National Coal Dev. Corpn.	3.10%	13.43%	5.50%	3.91%	6.41%	6.47%
*Average (V)	.43%	8.62%	4.32%	3.97%	4.36%	4.34%
Construction (VI)						
Hindustan Housing Factory	18.26%	8.60%	4.84%	7.74%	15.84%	11.06%
National Buildings Constn. Corpn.	-.55%	-6.99%	7.10%	-3.18%	-2.47%	-4.05%
National Projects Constn. Corpn.	5.86%	10.52%	10.35%	6.86%	4.55%	7.62%
*Average (VI)	7.85%	4.04%	2.69%	3.80%	5.99%	4.87%

Table A-4 contd.

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Miscellaneous (VII)						
Ashoka Hotels Ltd.	46.10%	50.43%	48.43%	51.81%	32.18%	45.79%
National Newsprint & Paper Mills	21.78%	24.62%	31.39%	28.33%	23.49%	25.92%
*Average (VII)	33.94%	37.52%	39.91%	40.07%	27.83%	35.85%
*Average (Total)	13.58%	17.69%	18.50%	18.12%	14.19%	16.41%
*Average (excld. Hindustan Steel Ltd.)	14.97%	18.58%	18.93%	18.39%	14.38%	17.05%

Source: a) Computed from: Govt. of India, "Annual Report on the Working. . ." op. cit.
b) Individual Enterprise Balance Sheets.

Table A-5

Public Enterprises

Rate of Excess Profit on Sales ($E = \frac{S-C-D-i.v}{S}$) in Current Rupees (lakhs)

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Industrial Engineering (I)						
Hindustan Steel Ltd.	-52.65%	-22.55%	-7.56%	-5.28%	-4.61%	-18.53%
Bharat Electronics Ltd.	-2.04%	7.18%	8.82%	15.41%	16.58%	9.19%
Hindustan Cables Ltd.	8.49%	11.84%	8.95%	16.77%	.29%	9.26%
Hindustan Machine Tools	20.68%	26.17%	28.39%	24.28%	13.99%	22.70%
Indian Telephone Industries	9.13%	12.38%	15.49%	15.45%	20.55%	14.60%
National Instruments	-5.75%	7.42%	12.68%	6.18%	-7.68%	2.57%
Praga Tools Ltd.	-18.10%	-8.21%	1.59%	9.70%	1.91%	-2.62%
*Average (I)	-5.74%	4.89%	9.76%	11.78%	5.86%	5.31%
*Average (excld. Hind. Steel Ltd.)	2.06%	9.46%	12.65%	14.63%	7.60%	9.28%

Table A-5 contd.

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Industrial Chemicals (II)						
Fertilizer Corpn. of India	-8.69%	-.65%	.17%	-1.30%	-6.41%	-3.37%
Hindustan Antibiotics	37.12%	30.69%	28.66%	15.69%	24.78%	27.38%
Hindustan Salts	6.47%	6.47%	9.66%	10.32%	-60.75%	-5.56%
Hindustan Insecticides	19.27%	24.09%	19.89%	22.94%	21.08%	21.45%
Indian Rare Earths	-3.60%	8.52%	20.27%	15.61%	10.69%	10.29%
*Average (II)	10.11%	13.82%	15.73%	12.65%	-2.12%	10.03%
Shipping and Ship Building (III)						
Shipping Corpn. of India	-.08%	2.75%	2.54%	4.22%	6.99%	3.28%
Mogul Lines Ltd.	17.36%	18.04%	20.53%	20.55%	25.89%	20.47%
Garden Reach Workshops	1.33%	6.59%	6.32%	3.51%	11.62%	5.87%

Table A-5 contd.

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Hindustan Ship Yards Ltd.	-8.29%	-6.28%	-10.02%	-7.53%	-2.82%	-6.98%
Mazagon Docks Ltd.	3.56%	5.93%	6.08%	4.14%	4.13%	4.76%
*Average (III)	2.77%	5.40%	5.09%	4.97%	9.16%	5.48%
Aviation (IV)						
Air India	1.14%	8.69%	11.90%	10.35%	-1.28%	6.16%
Indian Airlines Corpn.	-3.29%	-.10%	2.52%	5.38%	4.49%	1.80%
*Average (IV)	-1.07%	4.29%	7.21%	7.86%	1.60%	3.98%
Minerals and Oil (V)						
Indian Oil Co. Ltd.	-5.36%	2.76%	2.47%	1.43%	.49%	.35%
National Coal Dev. Corpn.	-10.00%	-.49%	-8.29%	-17.93%	6.98%	-5.94%
*Average (V)	-7.68%	1.13%	-2.91%	-8.25%	3.73%	-2.79%

Table A-5 contd.

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Construction(VI)						
Hindustan Housing Factory	12.25%	4.69%	2.68%	4.81%	11.49%	7.18%
National Building Const. Corpn.	-2.44%	-8.74%	-8.90%	-5.10%	-4.81%	-5.99%
National Projects Constn. Corpn.	3.16%	6.20%	7.79%	5.10%	3.08%	5.06%
*Average (VI)	4.32%	.71%	.52%	1.60%	3.25%	2.08%
Miscellaneous (VII)						
Ashoka Hotels	22.68%	24.90%	24.73%	26.96%	15.95%	23.04%
National Newsprint & Paper Mills	6.69%	9.19%	14.56%	12.37%	9.61%	10.48%
*Average (VII)	14.68%	17.04%	19.64%	19.66%	12.78%	16.76%

Table A-5 contd.

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
*Average (Total)	1.88%	6.82%	8.53%	8.23%	4.70%	6.03%
*Average (excld. Hindustan Steel Ltd.)	4.06%	8.00%	9.17%	8.77%	5.07%	7.01%

Source: a) Computed from: Govt. of India, "Annual Report on the Working. . ." op. cit.
b) Individual Enterprise Balance Sheets.

Table A-6

Public Enterprises

Net Profits as a Percent of Total Capital ($P_4 = Y_n/K$) in Current Rupees (lakhs)

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Industrial Engineering (I)						
Hindustan Steel Ltd.	-3.18%	-3.74%	-.71%	.35%	.27%	-1.40%
Bharat Electronics Ltd.	3.63%	5.36%	3.54%	5.51%	5.69%	4.74%
Hindustan Cables Ltd.	4.08%	5.92%	5.03%	7.29%	-2.23%	4.01%
Hindustan Machine Tools	12.64%	14.85%	15.32%	10.31%	4.05%	11.43%
Indian Telephone Industries	3.49%	4.56%	5.64%	4.80%	7.16%	5.13%
National Instruments Ltd.	1.14%	4.74%	8.20%	5.20%	1.58%	4.17%
Praga Tools Ltd.	-2.69%	.18%	2.10%	4.61%	-.12%	.83%
*Average (I)	2.73%	4.55%	5.58%	5.43%	2.35%	4.12%
*Average (I)(excld. Hind. Steel Ltd.)	3.71%	5.93%	6.63%	6.28%	2.70%	5.05%
Industrial Chemicals (II)						
Fertilizer Corpn. of India	.22%	2.33%	3.43%	4.57%	.52%	2.21%

Table A-6 contd.

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Hindustan Antibiotics Ltd.	15.04%	11.17%	11.46%	7.88%	11.15%	11.34%
Hindustan Salts Ltd.	7.71%	7.71%	6.84%	3.06%	-1.42%	4.78%
Hindustan Insecticides	8.07%	8.55%	7.81%	9.49%	8.31%	8.44%
*Average (II)	7.10%	8.02%	8.82%	6.62%	4.46%	7.00%
Shipping and Ship Building (III)						
Shipping Corpn. of India	3.96%	4.82%	4.07%	4.46%	4.33%	4.32%
Mogul Lines Ltd.	8.30%	13.14%	19.81%	11.80%	11.43%	12.89%
Garden Reach Workshops	1.43%	3.78%	2.92%	.68%	4.50%	2.66%
Hindustan Ship Yards Ltd.	.03%	.06%	.14%	.09%	1.36%	.33%
Mazagon Dock Ltd.	5.46%	3.65%	5.79%	2.45%	2.34%	3.93%
*Average (III)	3.83%	5.09%	6.54%	3.89%	4.79%	4.82%
Aviation (IV)						
Air India	1.95%	7.36%	8.24%	6.97%	1.88%	5.28%
Indian Airlines Corpn.	.56%	3.64%	4.69%	6.75%	.60%	3.24%

Table A-6 contd.

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
*Average (IV)	1.25%	5.50%	6.46%	6.86%	1.24%	4.26%
Minerals and Oil (V)						
Indian Oil Co. Ltd.	-5.59%	9.12%	4.16%	1.39%	1.35%	2.08%
National Coal Dev. Corpn.	-.56%	1.39%	.18%	-3.22%	.80%	.28%
*Average (V)	-3.07%	5.25%	2.17%	-.91%	1.07%	1.18%
Construction (VI)						
Hindustan Housing Factory	5.59%	2.09%	1.41%	2.68%	6.43%	3.64%
National Buildings Constn. Corpn.	-1.81%	-18.01%	-22.85%	-8.08%	-6.38%	-11.42%
National Projects Constn. Corpn.	5.36%	7.48%	7.10%	4.09%	2.05%	5.22%
*Average (VI)	3.04%	-2.81%	-4.78%	.43%	.71%	-.85%

Table A-6 contd.

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Miscellaneous (VII)						
Ashoka Hotels Ltd.	12.47%	6.53%	7.67%	9.24%	5.55%	8.29%
National Newsprint & Paper Mills	8.96%	9.91%	10.19%	6.82%	7.38%	8.65%
*Average (VII)	10.71%	8.22%	8.93%	8.03%	6.46%	8.47%
*Average (Total)	3.87%	4.88%	5.26%	4.51%	3.17%	4.35%
*Average (Total excld. Hindustan Steel Ltd.)	4.15%	5.22%	5.49%	4.67%	3.28%	4.58%

Source: a) Computed from: Govt. of India, "Annual Report on the Working. . ." op. cit.
b) Individual Enterprise Balance Sheets.

Table A-7

Public Enterprises

Net Profits as a Percent of Sales ($P_5 = Y_n/S$) in Current Rupees (lakhs)

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Industrial Engineering (I)						
Hindustan Steel Ltd.	-27.46%	-19.21%	-2.64%	1.35%	.96%	-9.40%
Bharat Electronics Ltd.	9.81%	12.25%	7.15%	9.58%	7.56%	9.27%
Hindustan Cables Ltd.	5.83%	6.80%	5.28%	10.83%	-3.39%	5.07%
Hindustan Machine Tools	26.20%	24.07%	24.93%	17.70%	9.98%	20.57%
Indian Telephone Industries	4.33%	5.08%	6.23%	5.48%	8.53%	5.93%
National Instruments Ltd.	2.23%	6.62%	10.06%	6.42%	4.96%	6.05%

Table A-7 contd.

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Praga Tools Ltd.	-6.31%	.40%	4.86%	9.94%	-.08%	1.76%
*Average (I)	2.09%	5.14%	7.98%	8.75%	4.07%	5.60%
*Average (excld. Hind. Steel Ltd.)	7.01%	9.20%	9.75%	9.99%	4.59%	8.10%
Industrial Chemicals (II)						
Fertilizer Corpn. of India	.74%	6.66%	8.27%	9.25%	1.66%	5.31%
Hindustan Antibiotics Ltd.	22.43%	17.08%	16.47%	12.90%	14.42%	16.66%
Hindustan Salts Ltd.	13.67%	13.67%	8.05%	6.86%	-10.10%	6.43%
Hindustan Insecticides	12.22%	10.21%	10.59%	11.50%	13.04%	11.52%
Indian Rare Earths	9.12%	15.54%	21.86%	11.13%	6.00%	12.73%
*Average (II)	11.63%	12.63%	13.04%	10.32%	5.00%	10.52%

Table A-7 contd.

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Shipping and Ship Building (III)						
Shipping Corpn. of India	13.36%	12.76%	10.49%	9.61%	10.45%	11.33%
Mogul Lines Ltd.	9.62%	16.28%	23.75%	18.39%	16.12%	16.83%
Garden Reach Workshop	1.74%	4.91%	2.56%	.66%	4.90%	2.75%
Hindustan Ship Yards Ltd.	.05%	.07%	.25%	.13%	1.61%	.42%
Mazagon Docks Ltd.	3.71%	2.30%	3.64%	1.64%	1.91%	2.64%
*Average (III)	5.69%	7.26%	8.13%	6.08%	6.99%	6.83%
Aviation (IV)						
Air India	3.03%	10.63%	11.51%	11.14%	2.73%	7.80%
Indian Airlines Corpn.	.58%	3.69%	5.73%	6.30%	.69%	3.39%
*Average (IV)	1.80%	7.16%	8.62%	8.72%	1.71%	5.59%

Table A-7 contd.

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Minerals and Oil (V)						
Indian Oil Co. Ltd.	-2.40%	2.83%	1.57%	.69%	.67%	.67%
National Coal Dev. Corpn.	-2.30%	5.60%	.82%	-7.91%	1.83%	-.37%
*Average (V)	-2.35%	4.21%	1.19%	-3.61%	1.25%	.15%
Construction (VI)						
Hindustan Housing Factory	5.99%	2.68%	1.02%	2.34%	5.19%	3.44%
National Buildings Constn. Corpn.	-1.11%	-8.99%	-9.77%	-6.13%	-5.77%	-6.34%
National Projects Constn. Corpn.	2.22%	8.65%	5.91%	3.94%	1.65%	4.47%
*Average (VI)	2.36%	.78%	-.94%	.05%	.35%	.52%

Table A-7 contd.

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Miscellaneous (VII)						
Ashoka Hotels Ltd.	26.52%	12.45%	13.24%	14.63%	10.54%	15.47%
National Newsprint & Paper Mills	17.88%	19.75%	17.76%	11.93%	12.36%	15.93%
*Average (VII)	22.20%	16.10%	15.50%	13.28%	11.45%	15.70%
*Average (Total)	5.83%	7.41%	8.06%	6.93%	4.55%	6.55%
*Average (excld. Hind. Steel Ltd.)	7.16%	8.47%	8.48%	7.15%	4.69%	7.18%

Source: a) Computed from: Govt. of India, "Annual Report on the Working. . ." op. cit.
b) Individual Enterprise Balance Sheets.

Table A-8

Public Enterprises

Net Adjusted Profits as a Percent of Total Capital ($P_6 = Y_{na}/K$) in Current Rupees (lakhs)

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Industrial Engineering (I)						
Hindustan Steel Ltd.	-9.18%	-7.01%	-4.05%	-3.32%	-3.49%	-5.41%
Bharat Electronics Ltd.	-2.09%	.46%	-.43%	2.32%	2.87%	.62%
Hindustan Cables Ltd.	-.65%	1.53%	.63%	4.52%	-4.34%	.33%
Hindustan Machine Tools	7.88%	10.43%	10.95%	7.16%	1.04%	7.49%
Indian Telephone Industries	-.80%	.78%	1.17%	1.79%	4.79%	1.54%
National Instruments Ltd.	-4.08%	-.44%	2.87%	-.21%	-3.83%	-1.13%
Praga Tools Ltd.	-8.06%	-4.20%	-1.57%	1.62%	-2.83%	-3.00%
*Average (I)	-2.42%	.22%	1.36%	1.98%	-.82%	.06%

Table A-8 contd.

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
*Average (excld. Hind. Steel Ltd.)	-1.30%	1.42%	2.27%	2.86%	-.38%	.97%
Industrial Chemicals (II)						
Fertilizer Corpn. of India	-4.78%	-2.32%	-1.47%	-.82%	-4.15%	-2.70%
Hindustan Antibiotics Ltd.	9.24%	5.22%	5.67%	1.88%	5.15%	5.43%
Hindustan Salts Ltd.	1.71%	1.71%	.84%	-2.93%	-7.42%	-1.21%
Hindustan Insecticides	2.62%	3.12%	2.28%	3.82%	2.51%	2.87%
Indian Rare Earths	-1.52%	4.38%	8.59%	2.11%	-2.24%	2.26%
*Average (II)	1.45%	2.42%	3.18%	.81%	-1.23%	1.32%
Shipping and Ship Building (III)						
Shipping Corpn. of India	-1.04%	-.22%	-1.18%	-.38%	-.12%	-.58%

Table A-8 contd.

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Mogul Lines Ltd.	2.30%	7.14%	13.81%	4.27%	4.76%	6.45%
Garden Reach Workshop	-3.17%	-.26%	-.59%	-2.35%	1.96%	-.88%
Hindustan Ship Yards Ltd.	-5.51%	-5.93%	-5.85%	-5.65%	-3.77%	-5.34%
Mazagon Docks Ltd.	1.87%	.35%	2.17%	-.28%	-.87%	.64%
*Average (III)	-1.11%	.21%	1.67%	-.87%	.39%	-.05%
Aviation (IV)						
Air India	-3.00%	2.28%	4.67%	2.27%	-2.88%	.66%
Indian Airlines Corpn.	-5.43%	-2.35%	-1.14%	2.94%	-4.84%	-2.16%
*Average (IV)	-4.21%	.03%	1.76%	2.60%	-3.86%	-.75%
Minerals and Oil (V)						
Indian Oil Co. Ltd.	-11.59%	5.38%	.97%	1.85%	-1.45%	-.96%

Table A-8 contd.

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
National Coal Dev. Corpn.	-5.26%	-3.09%	-4.83%	-7.65%	-3.36%	-4.83%
*Average (V)	-8.42%	1.14%	-1.93%	-2.90%	-2.40%	-2.90%
Construction (VI)						
Hindustan Housing Factory	1.71%	-2.01%	-2.16%	-1.18%	2.66%	-.19%
National Building Constn. Corpn.	-6.91%	-21.05%	-23.99%	-10.33%	-8.80%	-14.21%
National Projects Constn. Corpn.	-.63%	2.24%	3.29%	.66%	-.51%	1.01%
*Average (VI)	-1.94%	-6.94%	-7.62%	-3.61%	-2.21%	-4.46%

Table A-8 contd.

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Miscellaneous (VII)						
Ashoka Hotels Ltd.	8.09%	1.53%	2.38%	6.30%	1.27%	3.91%
National Newsprint & Paper Mills	2.96%	3.91%	4.10%	.82%	1.38%	2.63%
*Average (VII)	5.52%	2.72%	3.24%	3.56%	1.32%	3.27%
*Average (Total)	-1.68%	0.06%	0.65%	0.30%	-1.01%	-0.26%
*Average (excld. Hind. Steel Ltd.)	-1.38%	0.34%	0.84%	0.44%	-0.92%	-0.05%

Source: a) Computed from: Govt. of India, "Annual Report on the Working. . ." op. cit.
b) Individual Enterprise Balance Sheets.

Table A-9

Public Enterprises

Net Adjusted Profits as a Percent of Sales ($P_7 = Y_{na}/S$) in Current Rupees (lakhs)

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Industrial Engineering (I)						
Hindustan Steel Ltd.	-79.21%	-35.99%	-14.98%	-12.68%	-12.08%	-30.98%
Bharat Electronics Ltd.	-5.66%	1.05%	-.87%	4.04%	3.82%	.47%
Hindustan Cables Ltd.	-.92%	1.76%	.66%	6.72%	-6.58%	.32%
Hindustan Machine Tools	16.34%	16.21%	17.81%	12.28%	2.57%	13.04%
Indian Telephone Industries	-.99%	.87%	1.29%	2.04%	5.71%	1.78%
National Instruments Ltd.	-7.94%	-.62%	3.52%	-.27%	-4.92%	-2.04%

Table A-9 contd.

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Praga Tools Ltd.	-18.91%	-9.10%	-3.62%	3.50%	-8.87%	-7.40%
*Average (I)	-13.89%	-3.68%	.54%	2.23%	-2.90%	-3.54%
*Average (excld. Hind. Steel Ltd.)	-3.01%	1.69%	3.13%	4.71%	-1.37%	1.03%
Industrial Chemicals (II)						
Fertilizer Corpn. of India	-16.13%	-6.63%	-3.55%	-1.66%	-13.21%	-8.21%
Hindustan Antibiotics Ltd.	13.78%	7.98%	8.14%	3.08%	6.66%	7.92%
Hindustan Salts Ltd.	3.04%	3.04%	.99%	-6.57%	-52.77%	-10.45%
Hindustan Insecticides	3.97%	3.73%	3.10%	4.63%	3.95%	3.87%
Indian Rare Earths	-3.12%	6.56%	12.87%	2.90%	-3.60%	3.12%
*Average (II)	.32%	2.93%	4.31%	.47%	-11.79%	-.75%

Table A-9 contd.

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Shipping and Ship Building (III)						
Shipping Corpn. of India	-3.51%	-.59%	-3.05%	-.83%	-.29%	-1.65%
Mogul Lines Ltd.	2.66%	8.85%	16.56%	6.66%	6.72%	8.29%
Garden Reach Workshops	-3.17%	-.26%	-.59%	-2.35%	1.96%	-.88%
Hindustan Ship Yards Ltd.	-8.36%	-6.23%	-10.15%	-8.31%	-4.44%	-7.49%
Mazagon Docks Ltd.	1.27%	.22%	1.36%	-.19%	-.71%	-.27%
*Average (III)	-2.22%	.39%	.82%	-1.00%	.65%	-.27%
Aviation (IV)						
Air India	-4.66%	3.30%	6.52%	3.64%	-4.21%	.91%
Indian Airlines Corpn.	-5.65%	-2.38%	-1.39%	2.74%	-5.55%	-2.44%
*Average (IV)	-5.15%	.46%	2.56%	3.19%	-4.88%	-.76%

Table A-9 contd.

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Minerals and Oil (V)						
Indian Oil Co. Ltd.	-4.98%	1.67%	.36%	.91%	-.72%	-.55%
National Coal Dev. Corpn.	-21.52%	-12.60%	-21.58%	-18.81%	-7.67%	-16.43%
*Average (V)	-13.25%	-5.46%	-10.61%	-8.95%	-4.19%	-8.49%
Construction (VI)						
Hindustan Housing Factory	1.83%	-2.57%	-1.57%	-1.03%	2.15%	-.23%
National Building Constn. Corpn.	-4.22%	-10.51%	-10.19%	-7.84%	-7.95%	-8.14%
National Projects Constn. Corpn.	-.26%	2.59%	2.74%	.63%	-.41%	1.05%
Average (VI)	-.88%	-3.49%	-3.00%	-2.74%	-2.07%	-2.44%

Table A-9 contd.

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Miscellaneous (VII)						
Ashoka Hotels Ltd.	17.21%	2.93%	4.12%	9.98%	2.42%	7.33%
National Newsprint & Paper Mills	5.91%	7.80%	7.15%	1.43%	2.31%	4.92%
*Average (VII)	11.56%	5.36%	5.63%	5.70%	2.36%	6.12%
*Average (Total)	-4.73%	-0.72%	0.60%	0.17%	-3.68%	-1.67%
*Average (excld. Hind. Steel Ltd.)	-1.75%	0.68%	1.22%	0.69%	-3.34%	-0.50%

Source: a) Computed from: Govt. of India, "Annual Report on the Working. . ." op. cit.
b) Individual Enterprise Balance Sheets.

Table A-10

Public Enterprises

Gross Profits as a Percent of Total Capital (Pd_1 = Ydg/Kd) in Constant (1960-61) Rupees (lakhs)

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Industrial Engineering (I)						
Hindustan Steel Ltd.	-2.48%	-.71%	1.26%	1.67%	1.61%	.27%
Bharat Electronics Ltd.	4.09%	5.97%	5.77%	8.16%	10.72%	6.94%
Hindustan Cables Ltd.	7.67%	10.62%	7.83%	8.54%	1.14%	7.16%
Hindustan Machine Tools	11.43%	16.34%	14.76%	10.39%	5.16%	11.61%
Indian Telephone Industries	8.97%	10.93%	11.29%	10.18%	13.02%	10.87%
National Instruments Ltd.	-1.75%	9.05%	11.30%	7.12%	2.82%	6.40%
Praga Tools Ltd.	-1.75%	1.41%	3.16%	4.95%	2.15%	1.98%
*Average (I)	4.24%	7.65%	7.91%	7.28%	5.23%	6.46%

Table A-10 contd.

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
*Average (excld. Hind. Steel Ltd.)	5.36%	9.05%	9.01%	8.22%	5.83%	7.49%
Industrial Chemicals (II)						
Fertilizer Corpn. of India	1.12%	3.15%	3.29%	3.10%	1.17%	2.36%
Hindustan Antibiotics Ltd.	23.07%	17.66%	14.93%	7.02%	12.75%	15.08%
Hindustan Salts Ltd.	8.52%	8.13%	9.70%	6.43%	-1.08%	6.34%
Hindustan Insecticides	13.38%	18.04%	11.72%	12.04%	10.36%	13.22%
Indian Rare Earths	3.50%	8.27%	12.50%	9.52%	6.49%	8.05%
*Average (II)	9.91%	11.05%	10.42%	7.74%	5.93%	9.01%
Shipping and Ship Building (III)						
Shipping Corpn. of India	5.17%	5.66%	4.08%	4.03%	4.21%	4.63%

Table A-10 contd.

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Mogul Lines Ltd.	12.97%	11.61%	12.16%	9.14%	12.91%	11.75%
Garden Reach Workshops	2.90%	5.59%	6.25%	3.73%	8.48%	5.39%
Hindustan Ship Yards Ltd.	.40%	.05%	.09%	.21%	1.41%	.43%
Mazagon Docks Ltd.	6.79%	9.42%	8.45%	5.62%	5.61%	7.17%
*Average (III)	5.64%	6.46%	6.20%	4.54%	6.52%	5.87%
Aviation (IV)						
Air India	2.46%	6.29%	6.99%	4.97%	1.81%	4.50%
Indian Airlines Corpn.	.44%	2.69%	3.46%	5.10%	.73%	2.48%
*Average (IV)	1.45%	4.49%	5.22%	5.03%	1.27%	3.49%
Minerals and Oil (V)						
Indian Oil Co. Ltd.	-5.01%	10.49%	6.28%	5.64%	3.30%	4.14%

Table A-10 contd.

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
National Coal Dev. Corpn.	.69%	2.62%	.92%	-1.19%	1.90%	.98%
*Average (V)	-2.16%	6.55%	3.60%	2.22%	2.60%	2.56%
Construction (VI)						
Hindustan Housing Factory	12.53%	5.03%	4.44%	5.24%	10.97%	7.64%
National Buildings Constn. Corpn.	-.89%	-13.60%	-13.90%	-4.74%	-3.41%	-7.30%
National Projects Constn. Corpn.	12.10%	7.17%	8.55%	4.45%	3.65%	7.18%
*Average (VI)	7.91%	-0.46%	-0.30%	1.65%	3.73%	2.50%
Miscellaneous (VII)						
Ashoka Hotels Ltd.	10.88%	11.73%	10.77%	10.59%	6.12%	10.01%
National Newsprint & Paper Mills	6.98%	7.67%	9.73%	7.87%	5.98%	7.64%

Table A-10 contd.

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
*Average (VII)	8.93%	9.70%	10.25%	9.23%	6.05%	8.82%
*Average (Total)	5.68%	6.97%	6.75%	5.78%	4.99%	6.03%
*Average (excld. Hind. Steel Ltd.)	6.00%	7.27%	6.97%	5.94%	5.13%	6.26%

Source: a) Computed from: Govt. of India, "Annual Report on the Working. . ." op. cit.
b) Individual Enterprise Balance Sheets.

Table A-11

Public Enterprises

Gross Profits as a Percent of Total Sales (Pd_2 = Ydg/Sd) in Constant (1960-61) Rupees (lakhs)

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Industrial Engineering (I)						
Hindustan Steel Ltd.	-26.23%	-4.48%	5.88%	7.39%	6.50%	-2.18%
Bharat Electronics Ltd.	10.36%	14.14%	12.50%	14.88%	15.04%	13.49%
Hindustan Cables Ltd.	12.26%	13.67%	9.38%	14.28%	1.88%	10.29%
Hindustan Machine Tools	28.30%	30.44%	27.00%	20.32%	14.67%	24.14%
Indian Telephone Industries	13.09%	14.25%	14.62%	13.04%	17.11%	14.42%
National Instruments Ltd.	3.65%	14.19%	15.99%	10.34%	4.29%	9.69%
Praga Tools Ltd.	-4.76%	3.58%	8.27%	11.93%	7.41%	5.28%
*Average (I)	5.23%	12.32%	13.38%	13.16%	9.55%	10.73%

Table A-11 contd.

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
*Average (excld. Hind. Steel Ltd.)	10.48%	15.12%	14.63%	14.13%	10.06%	12.88%
Industrial Chemicals (II)						
Fertilizer Corpn. of India	3.99%	9.71%	8.84%	7.59%	4.41%	6.90%
Hindustan Antibiotics Ltd.	40.79%	31.72%	25.91%	14.20%	20.67%	26.65%
Hindustan Salts Ltd.	17.23%	16.19%	13.12%	15.96%	-7.55%	10.99%
Hindustan Insecticides	23.29%	25.61%	19.17%	19.09%	19.31%	21.29%
Indian Rare Earths	8.96%	15.49%	22.42%	16.60%	12.62%	15.21%
*Average (II)	18.85%	19.74%	17.89%	14.68%	9.89%	16.20%
Shipping and Ship Building (III)						
Shipping Corpn. of India	17.46%	15.00%	10.84%	9.20%	11.31%	12.76%

Table A-11 contd.

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
Mogul Lines Ltd.	20.40%	20.04%	20.55%	17.53%	21.52%	20.00%
Garden Reach Workshops	4.06%	8.36%	6.49%	4.15%	10.15%	6.64%
Hindustan Ship Yards Ltd.	.71%	.06%	.20%	.37%	1.96%	.66%
Mazagon Dock Ltd.	5.26%	6.92%	6.04%	4.15%	4.92%	5.45%
*Average (III)	9.57%	10.07%	8.82%	7.08%	9.97%	9.10%
Aviation (IV)						
Air India	4.56%	11.05%	12.09%	9.60%	.33%	7.52%
Indian Airlines Corpn.	.57%	3.41%	4.80%	6.06%	.99%	3.16%
*Average (IV)	2.56%	7.23%	8.44%	7.83%	0.66%	5.34%
Minerals and Oil (V)						
Indian Oil Co. Ltd.	-2.26%	3.39%	2.47%	2.81%	1.70%	1.62%

Table A-11 contd.

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
National Coal Dev. Corpn.	2.96%	10.94%	4.23%	-2.95%	4.53%	3.94%
*Average (V)	0.35%	7.16%	3.35%	-0.07%	3.11%	2.78%
Construction (VI)						
Hindustan Housing Factory	15.18%	7.31%	3.75%	5.20%	10.31%	8.35%
National Buildings Constn. Corpn.	-.54%	-6.94%	-6.20%	-2.38%	-1.90%	-3.59%
National Projects Constn. Corpn.	5.44%	8.80%	7.61%	4.66%	3.27%	5.95%
*Average (VI)	6.69%	3.05%	1.72%	2.49%	3.89%	3.57%
Miscellaneous (VII)						
Ashoka Hotels Ltd.	31.03%	30.97%	26.47%	24.76%	18.30%	26.30%

Table A-11 contd.

	1961-62	1962-63	1963-64	1964-65	1965-66	Average
National Newsprint & Paper Mills	17.58%	19.56%	22.45%	18.56%	14.30%	18.49%
*Average (VII)	24.30%	25.26%	24.46%	21.66%	16.30%	22.39%
*Average (Total)	9.74%	12.45%	11.72%	10.28%	8.38%	10.51%
*Average (excld. Hind. Steel Ltd.)	11.18%	13.13%	11.96%	10.39%	8.46%	11.02%

Source: a) Computed from: Govt. of India, "Annual Report on the Working. . ." op. cit.
b) Individual Enterprise Balance Sheets.

SELECTED BIBLIOGRAPHY

A.

Books

Ackley, G. Macroeconomic Theory. MacMillan Co. 1961.

Agarwal, R.C. State Enterprise in India, Allahabad, Chaitanya Pub. House. 1961.

Bain, J.S. Industrial Organization. New York: John Wiley & Sons. 1967.

Bauer, P.T. Indian Economic Policy and Development. Oxford Univ. Press. 1965.

Bhalla, G.S. Financial Administration of Nationalised Industries in U.K. and India. Merrut: Meenakshi Prakashan. 1968.

Bhandari, K.C. Nationalization of Industries in India. Calcutta: Academic Publishers. 1962.

Bhatt, V.V. Aspects of Economic Change and Policy in India. 1800-1960. New Delhi: Allied Pub. Print. Ltd. 1963.

Crum, W.L. Corporate Earning Power. Stanford University. 1929.

Das, N. The Public Sector in India. Bombay: Asia Pub. House. 1966.

Datt, R. and Sundharam, K.P.M. Indian Economy. New Delhi: Niraj Prakashan. 1967.

Diamond, W. Development Banks. Baltimore: John Hopkins. 1957.

Ferguson, C.E. Microeconomic Theory. Illinois: R.D. Irwin Inc. 1966.

Fellner, W. and Haley, B. (eds). Readings in the Theory of Income Distribution. Illinois: R.D. Irwin Inc. 1951.

Ganguly, D.S. Public Corporations in a National Economy. Calcutta: Bookland Print. Ltd. 1963.

Gill, R.T. Economics and the Public Interest. Pacific Palisades: Goodyear Pub. Co. 1968.

Gosh, A. Indian Economy, Its Nature and Problems. Calcutta: World Press. 1963.

Hanson, A.H. Public Enterprise and Economic Development. London: Routlege and Kegan Paul Ltd. 1960.

Hart, P.E. and Bates, J. Studies in Profit, Business Savings and Investment in the United Kingdom 1920-1962. London: George Allen & Unwin Ltd. 1965.

Higgens, B. Economic Development: Problems, Principles, and Policies. New York: W. Norton & Co. 1968.

Hirschman, A.O. The Strategy of Economic Development. Yale University Press. 1965.

Hultgren, T. Costs, Prices and Profits, Their Cyclical Relations. New York: NBER. Columbia Univ. Press. 1965.

Indian Statistical Institute, Economic Strategy and the Third Five Year Plan. Bombay: Asia Pub. House. 1963.

Iyenges, S. Kesava. 15 Years of Democratic Planning. Vol. I and II. Bombay: Asia Pub. House. 1965.

Jain, R.K. Management of State Enterprises in India. Bombay: Manaktalas. 1967.

Keynes, J.M. General Theory of Employment, Interest and Money. MacMillan Co. 1967.

Khera, S.S. Management and Control in Public Enterprises. Bombay: Asia Pub. House. 1964.

----- Government in Business. Bombay: Asia Pub. House. 1963.

Krishnamachari, V.T. Fundamentals of Planning in India. Bombay: Orient Longmans. 1962.

Kuh, E. and Meyer, J.A. The Investment Decision. Cambridge, Mass.: Harvard Univ. Press. 1957.

Kuznets, S. Six Lectures on Economic Growth. Illinois: The Free Press, Glencoe. 1959.

Lewis, W.H. Overhead Costs. London: George Allen & Unwin Ltd. 1949.

Little, J.M.D. A Critique of Welfare Economics. Oxford: Clarendon Press. 1950.

Marshall, A. Principles of Economics. MacMillan Co. 1966. 8th edn.

Meir, G.M. Reading Issues in Development Economics. New York: Oxford Univ. Press. 1964.

----- and Baldwin R.E. Economic Development. New York: John Wiley & Sons Inc. 1964.

Myrdal, G. Asian Drama: An Inquiry into the Poverty of Nations. New York: Pantheon. 1968.

National Bureau of Economic Research. Business Concentration & Price Policy. New York: NBER. Columbia Univ. Press. 1954.

Nurkse, R. Problems of Capital Formation in Underdeveloped Countries. Oxford University Press. 1967.

Oxenfeld, A.R. Industrial Pricing and Market Practices. New York: Prentice Hall Inc. 1951.

Paton, W.A. Corporate Profits as Shown by Audit Reports. New York: NBER. Columbia Univ. Press. 1935.

----- Corporate Profits: Measurement, Reporting, Distribution, Taxation. Illinois: R.D. Irwin Inc. 1905.

Prasad, P. Some Economic Problems of Public Enterprise in India. London: Stenford Kroose. 1957.

Ramanadham, V.V. (editor). The Working of the Public Sector. Bombay: Allied Publishers. 1965.

----- The Structure of Public Enterprise in India. Bombay: Asia Pub. House. 1962.

----- The Efficacy of Public Enterprise. Bombay: Allied. 1963.

----- The Control of Public Enterprises in India. Bombay: Asia Pub. House. 1964.

----- Problems of Public Enterprise. Chicago: Quadrangle Books. 1959.

Rostow, W.W. The Stages of Economic Growth. Cambridge University Press. 1967.

Sachs, J. Patterns of Public Sector in Under-Developed Economies. Bombay: Asia Pub. House. 1962.

Sharma, T.R. The Working of State Enterprises in India. Bombay: Vora Pub. Co. 1961.

Spencer, D.L. India, Mixed Enterprise and Western Business. The Hague: Martinus Nijhoff. 1959.

Stekler, H.O. Profitability and Size of Firm. Berkeley: IBER. Univ. of California. 1963.

Stigler, G. Capital and Rates of Return in Manufacturing Industries. New Jersey: NBER. Princeton Univ. Press. 1963.

Taylor, P.E. The Economics of Public Finance. MacMillan Co. 1961.

Venkatasubbiah, H. Indian Economy Since Independence. Bombay: Asia Pub. House. 1961.

B.

Articles

Alchian, A.A. "The Rate of Interest, Fisher's Rate of Return Over Costs and Keynes' Internal Rate of Return". American Economic Review. Dec. 1955.

Bain, J.S. "Relation of Profit Rate to Industry Concentration: American Manufacturing. 1936-40". Quarterly Journal of Economics. Aug. 1951.

----- "The Profit Rate as a Measure of Monopoly Power" Quarterly Journal of Economics. Feb. 1941.

Baumol, W.J. "On Theory of Oligopoly". Economica. N.S. Aug. 1958.

Bhalla, G.S. "Economic Theory and Public Enterprise Pricing". Indian Economic Journal. Oct. - Dec. 1964.

Chandra, M. "Profitability and Investment Criteria" Commerce. June 1968.

Crosland, C.A.R. "Prices and Costs in Nationalized Undertakings". Oxford Economic Papers. N.S. Jan. 1950.

Epstein, R.C. "Profits and Size of Firms in the Automobile Industry 1919-1927". American Economic Review. Dec. 1931.

Forum of Free Enterprise. "A Survey of State Enterprises in India". Economic Times. Feb. 1962.

Hanson, A.H. "Development Corporations". Yorkshire Bulletin of Economic and Research. Sept. 1961.

Hawtrey, R.G. "The Nature of Profit". The Economic Journal. Sept. 1951.

Hotelling, H. "The General Welfare in Relation to Problems of Taxation and of Railway Utility Rates." Econometrica. July 1938.

Kahn, R.F. "Some Notes on Ideal Output". Economic Journal. 1932.

Lewis, W.A. "Public vs: Private Saving". Socialist Commentary. Sept. 1956.

Lerner, A.P. "The Concept of Monopoly and Measurement of Monopoly Power". Review of Economics and Statistics. 1933-34.

Lipsey, R.G. and Lancaster, R.K. "The General Theory of Second Best". The Review of Economic Studies. 1956-57.

Mathur, P.C. "Surpluses from Public nterprises". Indian Journal of Public Administration. July-Sept. 1964.

Meade, J.E. and Fleming, J.M. "Price and Output Policy in State Enterprise. A Symposium." Economic Journal. Dec. 1944.

Meek, R.L. "An Application of Marginal Cost Pricing - The Green Tariff in Theory and Practice". Journal of Industrial Economics. July 1963 and November 1963.

Osborn, R.C. "Efficiency and Profitability in Relation to Size". Harvard Business Review. March 1951.

Rao, V.K.R.V. "Role of Public Sector in the Indian Economy". Indian Journal of Public Administration. July-Sept. 1964.

----- "Problems of Public Enterprises". Commerce. (Bombay) March 4th, 1961.

Read, R.B. "Return to Investment: A Guide to Management Decision". Journal of the National Association of Cost Accountants. June 1954.

Rosenstein-Rodan, P. "Planning Within the Nation". Annals of Public and Co-operative Economy. Jan.-Mar. 1963.

Shah, M.M. "Commercial Profitability vs: Social Profitability". Lok Udyog. Sept. 1967.

Sethi, S.P. "Public Sector or Private Enterprise". The Business Quarterly. Sept. 1966.

Singh, I. "Measurement of Efficiency". Indian Journal of Public Administration. July-Sept. 1964.

Stigler, G. "The Economies of Scale". Journal of Law and Economics. Oct. 1958.

Subbarmaiah, J. and Kothandaram, L. "State Government Undertakings: A Different Policy Approach Suggested". Commerce. Vol. CVI.

Subbaraman, K.N. "Performance Evaluation in Industries". Lok Udyog. Aug. 1967.

Tyndal, D.G. "The Relative Merits of Average Cost Pricing, Marginal Cost Pricing, and Price Discrimination". Quarterly Journal of Economics. Aug. 1951.

Udpa, S.R. "Gestation Problems of a Public Sector Undertaking". Lok Udyog. June 1967.

Weiss, L. and Hall, M. "Firm Size and Profitability". Review of Economics and Statistics. Aug. 1967.

Wilson, T. "Price and Output Policy of State Enterprise." Economic Journal. Dec. 1945.

C.

Government Documents

Clarkson, Gordon and Co. "Profitability Study: Five Major Canadian Retail Food Chains". Special Joint Committee of the Senate and House of Commons on Consumer Credit. (Prices). March 1967.

Govt. of India. Industrial Policy Resolution, 1956. (New Delhi).

----- Second Five Year Plan. Planning Commission of India, New Delhi. 1956.

----- Third Five Year Plan. Planning Commission of India, New Delhi. 1961.

----- India in Perspective. 1967.

----- Perspective of Development 1960-61 to 1975-76. Perspective Planning Division, Planning Commission.

----- "Annual Report on the Working of Industrial and Commercial Undertakings in Public Sector". Min. of Finance. Bureau of Public Enterprise, New Delhi.

----- Economic Survey 1961 to 1967. New Delhi.

H.M.S.O. Great Britain, Ridley Commission. CMND 8647. 1952.

I.B.R.D. Current Economic Position and Prospects of India. A.S. 54a. Wash., D.C. 1956.

Rao, V.K.R.V. "Prices, Incomes, Wages and Profits in a Socialist Society". All India Congress Committee Sub-Committee Ooty Seminar May 30-June 5, 1959. (Papers Discussed). New Delhi. 1959.

Reserve Bank of India. Monthly Bulletins 1961-67.

U.N. Dept. of Economic Affairs, Structure and Growth of Selected Economies. New York. 1958.

U.N. ECAFE. "The Increasing Role of the Public Sector". Economic Survey of Asia and the Far East. 1960. Bangkok. 1961.