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Working Paper

MANAGERIAL AND ORGANIZATIONAL
DETERMINANTS OF THE PERFORMANCE OF
INDIAN CORPORATE PUBLIC
SECTOR ENTERPRISES

by

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Preliminery. Comments and suggestions requested. Not to be quoted.

ABSTRACT

Literature on the performance, control, and management of the central government non-departmental enterprises has been surveyed. A model of the managerial and organizational determinants of enterprise performance is developed and a number of testable hypotheses have been generated.

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The purpose of this paper is to survey published empirical material on non-departmental public sector enterprises owned and controlled by the Government of India, and to come up with testable hypotheses of the managrial and organizational determinants of their performance. The paper is divided into three parts. In the first, the corporate public sector in India is briefly surveyed. In the second, problems in assessing public enterprises and alternative approaches to assessment are discussed. In the third, a model of enterprise effectiveness is outlined and a number of hypotheses are stated, along with their rationales.

The following points are made in the paper:

1. The performance of the corporate public sector in India indicates that though profitability and productivity still appear to be below that of private sector Indian companies, both are dramatically improving.

2. There appear to be significant inter-industry and intra-industry variations in the profitability of public sector enterprises. Apart from non-availability of critical inputs, the quality of relations with the controlling authority and the quality of management and organization may be crucial variables explaining these variations.

3. Although public sector enterprises are subject to multiple controls, a recent tendency is to delegate operating autonomy to these enterprises while subjecting their policies to ministerial control and their operations to public sector-wide "guidelines".

4. There is a limited but growing empirical literature on managerial and organizational aspects of public sector enterprises. The limited work tentatively suggests the existence of both defence and growth needs in public sector managers, a relatively weak performance and efficiency orientation, and ambivalent attitudes towards participative decision making.

5. There are severe problems in assessing the performance of public sector units for comparative purposes, notably, varying reasons for starting units or nationalising them, their monopoly power, externalities that do not get reflected in conventional assessment measures, the difficult-to-measure costs of the multiple public policy objectives that public sector units are supposed to further as well as the advantages public sector units enjoy, the difficulty of establishing the operating goals of enterprises, the multiple "natural" criteria of assessment, etc.

6. A number of assessment approaches are available, such as the costs-benefits approach of welfare economics, the market structure-conduct-performance approach of industrial organization, the organization theory perspective, and the social audit approach. All of these approaches suggest that public sector enterprises need to be assessed on multiple criteria.

7. One approach for identifying high performance organizations is to identify a few criteria pertinent to efficiency, public policy, and employee welfare. Only those enterprises that do at least moderately well on these criteria and outstandingly on at least one of these, either with respect to industry norms should the enterprise operate in a competitive industry, or with respect to its own past performance if operating with a great deal of monopoly power, may be considered high performance organizations.

8. The model of enterprise effectiveness utilized postulates that it is the organizational and managerial response to a decision evoking context that determines enterprise performance, and that effective or congruent responses can be identified. A number of hypotheses of congruent responses to each of a wide variety of decision evoking contexts are developed. Some of the problems of testing these hypotheses are briefly discussed.

THE CORPORATE PUBLIC SECTOR IN INDIA

Introduction

For the size of its economy, India has a fairly massive public sector. Total gross investment in the 140 odd central government corpora at present is about Rs.130 billion (about $16 billion at the current exchan rate), and this is roughly half of all the corporate investment in the cou Gross annual capital formation in the public corporate sector roughly equal that in the private corporate sector (Sri Ram, Sharma, Nair, 1976, pp.10-11 The public sector in India produces the bulk of the country's steel, petro-chemicals, heavy machinery, machine tools, electricity generating equipment, earth moving equipment, and a large number of equally or less sophisticated products (see Appendix I). The public sector occupies a commanding position in many of the technologically sophisticated Indian industries as well as in a few other areas such as shipping and import-export trade. Currently it has over a million and a half employees, and its annual turnover is approximately Rs.150 billion (about $ 20 b.).

The build-up of the public sector began about 1956 at the time of the commencement of the industrialisation-oriented Second Five Year Plan. The Industrial Policy Resolution of 1956 adopted by the Indian Parliament reserved an entreprenourial role for the public sector in a number of basic and heavy industries. The resolution declared, "The adoption of the Socialist pattern of society as the national objective, as well as the need for planned and rapid development, require that all industries of basic and strategic importance, or in the nature of public utility services, should be in the public sector. Other industries which are essential and require investment on a scale which only the state, in present circumstances, could provide, have also to be in the public sector. The state has, therefore, to assume direct responsibility for the future development of industries over a wider area" (Ray, 1971). Later, during the regime of Mrs. Gandhi (1965-1977), a commitment was made to secure commanding heights of the economy through the expansion of the public sector. As Appendix II shows, gross investment in the public sector has increased rapidly, and not merely in industries of basic or strategic importance. Part of this rise, is of course, due to the three-fold rise in prices between 1960 and 1975, but

even so, since 1960 there probably has been at least a five-fold increase in constant rupees.

As instrument of state policy, public enterprises are also expected to strive to secure the objectives of the government, such as removal of poverty, attainment of self-reliance, a more egalitarian distribution of income, expansion of employment, balanced regional development, acceleration of the rate of national production, prevention of concentration of economic power, and technological self-sufficiency (B.P.E. and B.H.E.L., 1976, p. xiii). Besides, they are expected to generate sizeable investible surpluses, an objective that appears to be attained with increasing success (Sri Ram et. al, 1976).

Performance of the Indian Corporate Public Sector

The performance of the Indian public sector indicates the following characteristics:

1. Until recently, the profitability of the public sector as a whole was dismal. The profit before taxation, as a percentage of employed capital ranged from about -1% to 3% between 1959-60 and 1974-75 (both years inclusive) and averaged about 1/2%. By contrast, this percentage for large public limited companies in the private sector varied from about 7% to 12% and averaged about 9% (Sri Ram et. al., 1976, pp.26-27). Even when public sector companies are compared with private sector companies in the same industry (but not necessarily the same product line), the picture is not much brighter. Between 1966-67 and 1970-71, the average annual difference in profitability (percentage gross profits to capital employed) between public sector and private sector companies was -8% for mining, -37% for pharmaceutical products, -13% for machinery, and -9% for petroleum. Out of eleven industries, only in trading, and to a much lesser extent in shipping, was the advantage with the public sector (Sri Ram et. al., 1976, pp. 40-41; see also pp. 71-74). The profit performance has been poor despite certain advantages enjoyed by the public sector, such as preferential purchasing from it by the government, interest rates for loan capital substantially below

market rates, considerable monopoly power, and preferential treatment with respect to foreign exchange allocations. Against this are disadvantages stemming from long gestation periods, high charges on account of depreciation, expenditure on townships etc. (Sri Ram et al, 1976, ch. III).

2. The major causes of low profitability have been identified as idle capacity, managerial and other inefficiency, low prices due to competition, subsidisation of the consumer by the government through low prices, initially wrong investment decisions that resulted in the production of the wrong product mix, etc. (Ramanadham, 1974). Work on identifying the relative weights of these causes appears to be embryonic (Ramaswamy, 1972, ch.2).

3. In recent years there has been a rising trend in profitability. The percentage of gross return on capital employed has gone up from 5.1% in 1971-3 successively to 5.2%, 8.4%, 7.6%, and 9.7% during 1973-4, 1974-5, 1975-6 and 1976-7 (Lok Udyog, March 1978, pp.63-67). The number and percentage of profit-making public sector companies has been rising (Sri Ram et al, 1976, p.30). During these years (i.e. 1972-73 to 1976-7) internal resources generated have risen from Rs.2.6 billion in 1972-3 to 7.2 billion in 1976-7 and net profit after tax has risen from Rs.180 m. to Rs.2.4 billion. Productivity, too, has been rising rapidly (Dholakia, 1978).

4. There are substantial inter-industry variations in public sector profitability. For example, during the three years of 1972-3 to 1974-5, the percentage of profits (before tax and interest charges) to capital employed averaged 18.6% for the public sector petroleum industry, 17.6% for consultancy services, and 11.2% for medium and light engineering; by contrast, it averaged -3.3% for public sector minerals and metals, -1.2% for consumer goods and 2.0% for steel (Sri Ram et al, 1976, p.34).

5. There are substantial intra-industry variations in public sector profitability. For example, in the public sector steel industry during 1974-5, the profit making units reported a net profit of Rs.482.4 millions while the loss making units reported a net loss of Rs.116.5 millions; in the public sector heavy engineering industry during 1972-3, the profit making

units reported a net profit of Rs.150.4 millions while the loss making units reported a net loss of Rs.167.80 millions; and in the public sector consumer goods industry during 1974-5, the profit making units reported a net profit of Rs.22.5 millions while the loss making units reported a net loss of Rs.39.40 millions (Sri Ram et al. 1976, pp. 36-37). As another example of intra-industry variations in efficiency, the tonnes of steel produced per employee in 1969-70 varied from 45 at the government's Durgapur steel plant to 79 in its Bhilai steel plant (Sri Ram et al, 1976, p. 77, p.135).

6. There is very great inter-unit variation in the rate of increase in efficiency in the public sector. Between 1967-68 and 1972-73 the net value added per employee (unadjusted for inflation) rose 98% in Hindustan Steel, 260% in Bharat Heavy Electricals, 329% in Heavy Electricals (India), 89% in Hindustan Machine Tools, and 103% in Indian Oil, while it rose by only 22% in NEPA and by 23% in FACT and declined in Hindustan Antibiotics (Sri Ram et al, 1976, pp.140-1).

Point 1 above suggests that the form of ownership or the relations between owners (or their agents) and management, may significantly affect corporate performance in the public sector. Point 4 suggests that market structure, possibly in combination with constraints imposed by owners, may significantly affect corporate performance in the public sector. Point 5 suggests that the structure and process of management may also significantly influence corporate performance in the public sector. Points 2, 3 and 6 above suggest that changes in owner-management relations and in management structure and processes may significantly improve corporate performance in the public sector.

In sum, the Indian corporate public sector has indeed been a growth point of the Indian economy during the past two decades. It has enabled the establishment or expansion in India of many industries that might not have blossomed here due to their large scale, their sophisticated technology, or their inherent riskiness. It has enabled very substantial import substitution and export growth (Upadhyaya, K.K., 1977, Kesary, 1977). Its

efficiency appears to have been low (one estimate puts the annual loss to the economy on this account as between Rs.5000 million and Rs. 9000 million - see Sri Ram et al, p. 185). But it seems to be improving, although at highly uneven rates as between industries and as between units in the same industry. As in Britain, where during the first decade after the post second world war nationalisation, the rate of productivity increase was slow but picked up in the next decade (Pryke, 1971, pp. 433-4), the public sector seems fast to be closing the efficiency gap with the private sector. Though productivity in the public manufacturing sector as measured by the ratio of real net product to real net stock of capital at constant prices is still only about half of that in the private manufacturing sector (Dholakia, 1978, Appendix Table 1), the rate of productivity increase of the public manufacturing sector seems to have far outstripped that in the private manufacturing sector - one estimate puts it at 4.33% per annum versus only 0.18% per annum for the private manufacturing sector (Dholakia, 1978, Table 3). Besides, the rate seems to be picking up. Between 1960-1 and 1968-9, the average annual rate of productivity improvement in real terms was around 3.5%; from 1968-9 to 1975-6 it averaged about 8.5% in real terms (Dholakia, 1978, Table 1).

The rapid improvement in the performance of the Indian corporate public sector in recent years does not seem to be explainable in terms of changes in market structure towards either greater monopoly power or a more competitive structure in the industries served by public sector units. The major explanations are likely to lie in two complementary developments; greater operating autonomy for these units, and a more professional management of these units. In the next section, changes in the control of public sector units are briefly surveyed, and in the section after that are reported findings of researchers on public enterprise management.

Control of Public Sector in India

Since very large public funds are invested in the corporate public sector in India, it obviously would be subjected to a fairly elaborate structure of control. Public sector units are internally audited as well as

subjected to a statutory audit under the Indian Companies Act. In addition, like any other government institution, they are subject to audit by the Comptroller and Auditor General and the reporting of the results of the audit to parliament. The units are allocated to different ministries, and report to the relevant minister through his secretariat. The heads of these units are appointed by the minister concerned, commonly, however from amongst a short list prepared by the Public Enterprise Selection Board of the Bureau of Public Enterprises (Thomas, 1977). The units are subject to a multitude of government rules, regulations, and guidelines concerning pay, promotion, job security, recruitment, etc. although within limits the units may frame their own personnel and other policies (B.P.E. and B.H.E.L., 1976). They are also subject to close parliamentary scrutiny (Rajan, 1976). The parliament's committee on Public Undertakings performs the watchdog role and every year takes up a few undertakings for intensive examination. The Estimates Committee and the Public Accounts Committee also monitor the performance of public sector units (Dholakia and Khurana, 1976). As one indication of the control exercised by the parliament, in the budget session of 1969, 256 questions out of 11832 asked in the parliament pertained to public enterprises (Mallya, 1971, pp. 128-129). The most frequent questions were on loss, waste, and irregularities, on production, and staff matters. The most infrequent questions were on agreements for projects, product costs, delays in projects, export, expansion of projects, and idle capacity.

The need for public accountability of the enterprises and also simultaneously for their functioning autonomy seem to pose a significant policy dilemma. The first argues for detailed control by organs of the government; the second for substantial operating decentralisation. As a consequence there appears to have been a potent struggle between a secretariat or bureaucratic mode of running organizations epitomized by a procedural and mechanistic orientation, and a business or managerial mode of running organizations characterised by professional management, flexibility, improvisation, quick action, and results orientation. Previously, the units tended to be headed by members of the secretariat who, if deputed to a unit, could revert back to the secretariat. Later, they were asked to choose between the secretariat and a career as managers of public sector units.

The units have also been drawing fairly commonly from executive talent in the private sector. An innovation a few years ago has been to draw the ministerial secretary in charge of a public sector unit or units from the ranks of its or their executives, that is, to bring the industrial culture to the secretariat. This, however, has yet to become common practice. There appears to be some tendency to demarcate more clearly the respective responsibilities and roles of the government and the management of public sector units: control of broad policies and priorities is to remain with the government; the implementation of these policies and day-to-day operations, with the management of the enterprise. The latter would, however, remain responsible to the government and the parliament for performance, and the execution of the policies and priorities of the government (Dutt, 1973).

In sum, the tendency appears to be increasingly sharper delineation of the areas of control as between the enterprise, the particular ministry in charge, and the central government. The tendency is to embody public policy into "guidelines" that are more or less binding on all public sector units (such as the ones enumerated in B.P.E. and B.H.E.L., 1976), reserve policy making with the ministry and its secretariat, and permit residual operating autonomy to the enterprise. The evolving control pattern may not be far different from the classic patterns of control that have evolved in large, conglomerate multi-national enterprises (see e.g. Chandler, 1962).

Empirical Studies of Public Sector Management

Even a casual survey of the published literature on the management of public sector enterprises in India indicates that the vast bulk is impressionistic rather than systematic theoretical or empirical work. The earlier work (pre-1970) is almost wholly impressionistic, and in any case not very relevant today due to the enormous changes in the management and performance of the public sector. There is, however, a small but growing volume of fairly systematic work. Even this work is generally subject to many conceptual and methodological limitations. The main findings relevant to this paper are:

1. Roy (1974) in a study of the perceptions of the public and private sectors by ten elite groups in Delhi found that urban elites tended to consider the public sector as less efficient and its management as less competent than the private sector. The public sector management was seen as relatively deficient in performance orientation, more bureaucratic, less pioneering, and less decisive. The elites also tended to feel that the relationship between officials of the government and the management of public sector enterprises was characterized by asymmetry of power in favour of government and relative absence of reciprocal influence. The political insecurity of the government contributed to this problem, and the fine balance between control for the sake of public accountability and functional autonomy for the sake of organizational effectiveness often got upset. The elites also tended to believe that relative to the private sector, public sector managements were more honest, patriotic, employee-oriented, etc. The employment preference for the public sector was based largely on it providing higher compensation, job security, better working conditions, automatic promotion possibilities etc. (what industrial psychologists have termed as hygiene factors for motivating employees - see Herzberg, 1968). Overall, the strongest attribute that seemed to create favourable attitudes towards the public sector was contribution to social objectives through the creation of industrial capacity. The biggest factor which created unfavourable attitudes towards the public sector was inefficiency and lack of a results orientation. Most of the elites claimed to base their views on personal familiarity with the working of the public sector.

2. Sinha (1973), in a study of the executives of two public sector units (the Bhilai Steel Plant and a group of collieries) and two matching private sector units (Tata Steel Plant and the Tata Collieries) found that the lower efficiency of public sector enterprises was attributable not to deficient personnel but, as perceived by managers of public and private sector units, to the relationship between the government and political leaders on the one hand and the management of these companies on the other. There was too much perceived political interference in the working of public sector units. The management was perceived to be weak and bureaucratic. As a consequence, the managers of public sector units

themselves tended to carry an unfavourable overall image of their companies. Despite this, a majority of those willing to change jobs preferred to continue to work with better managed public sector units rather than migrate to the private sector.

3. Laxmi Narain (1972), in a questionnaire study of 1213 managers of 47 public sector enterprises found that the managers of public sector enterprises tended to be neutral in their evaluation of the public sector. There was some tendency on their part to rate the public sector somewhat unfavourably with respect to performance and somewhat favourably with respect to management philosophy. In this regard, Narain's findings were consistent with those of Roy (1974).

4. Dhingra (1972) in a questionnaire study of the values etc. of 265 managers in the public sector, found that public sector managers predominantly had either a moralistic or a pragmatic orientation. The percentage of those with a pragmatic orientation was substantially lower than the percentage for U.S., Japanese, or Korean managers. The bulk of public sector managers tended to be neither purely participative nor purely authoritarian, but partly participative and partly authoritarian and non-participative. A higher percentage of senior managers were participative in their orientation than top or middle and lower level managers. A higher percentage of staff managers, professionally trained managers, and older managers were participative than respectively line managers, managers without professional training, and middle aged and younger managers. There was a slight tendency for non-participative managers to experience higher upward mobility than participative managers.

5. Khurana (1972) reviewing industrial relations in the public and the private sectors, found that between 1962 and 1968, the public sector did somewhat better than the private sector as far as industrial conflict was concerned, but in both industrial relations were deteriorating, and the form of ownership (public versus private) was not too significant a factor in determining the quality of industrial relations.

6. Agarwal (1973) in his interview study of 100 public sector managers, found that there were a number of institutional reasons for the relatively poor performance of the public sector.

(a) The tendency of managers to pass the buck and avoid making decisions. This was reinforced by the emphasis on accountability rather than on results on account of being part of the government set-up. The desire to prevent abuse of authority led to a system of multiple checks and the required concurrence of a number of individuals in every decision. This slowed down decision making. Managers were also frightened of multiple audits (internal, statutory, and above all government) and post mortems long after decisions were taken. They were demoralised by multiple bosses (parliamentary committees, ministers, politicians, the public-at-large).

(b) Recruitment policies of the government, such as quotas for scheduled castes and tribes, preference to "sons of the soil", and promotion at junior levels from within, led to the hiring of substandard employees.

(c) There was widespread lack of cost consciousness, and not enough importance was given to cost-benefit analysis while making decisions. The finance departments tended to concentrate attention on the maintenance of accounts, internal audit, etc., rather than on proper budgeting and on the development of cost data to aid decision making. The inadequate quality of data relevant to decision making was independently attested by Chatterjee (1975), who reported that in a casewise analysis of shortfall in production from budgeted levels, an average of over 20% of the shortfall for certain chemical products produced in the public sector was unaccounted for during 1969-70, while another 20% shortfall was attributable to poor maintenance (ibid, Table 7).

7. In a questionnaire study of the job motivation of executives of a large public sector undertaking Kumar (1976) found that among nine factors that may contribute to performance, the three regarded as most important were personal growth and development, recognition for good work done, and feeling of worthwhile accomplishment (all three are classified as motivators

in Henzberg's motivation-hygiene theory, 1968). The three ranked lowest were decision making authority, working condition, and prestige of the organization. Job security was ranked first by junior level executives but low by middle and senior level executives while feeling of worthwhile accomplishment was ranked low by junior level executives but high by middle and senior level executives. Pay was ranked low by senior level executives but relatively high by middle and junior level executives. Recognition for good work done was ranked first by middle level executives but ranked fairly low by junior executives. All three levels of executives ranked personal growth and development high and all three ranked prestige of the organization and working condition low. The data suggestthat hygiene factors as well as some motivators are important at lower executive levels while motivators tend clearly to become more important than hygiene factors at higher levels. Broadly the same picture emerged if income level rather than hierarchical level was considered.

Respondents also ranked seven inhibitors of job performance. The first two were inconsistency in policy and lack of clear defintion of responsibility, while attitude of unions, attitude of workers, and government interference were ranked as the least important inhibitors. The data suggest that Indian executives, at least in this organization, have a strong aversion to ambiguity in their tasks. There was fairly good consistency on the rankings when the latter were analysed by level of the executives (except that senior level executives ranked union's attitude high as an inhibitor but not the junior level executives- Kumar, 1976, Table - 5) or by their age (except that young executives tended to rank workers' attitude as an inhibitor more highly than middle aged or older executives). Interestingly, government interference as an inhibitor to job performance was ranked low by all levels and age groups of executives, a finding that is inconsistent with that of Sinha (1973).

8. Prasad (1976) did a questionnaire and interview study of upward communication among the managerial personnel of a large departmentalized public sector manufacturing organization. He found that upward communication tends to be quite selective, with subordinate managers admitting to communicating

upwards favourable work performance and work-related problems almost universally, and criticisms, unfavourable opinions, unfavourable reactions to orders, failure in following procedures, unfavourable work performance, and personal and family problems rather infrequently. Even feedback of understanding and clarifications of orders, basic to carrying out the order of superiors faithfully, were communicated upwards only moderately frequently (ibid, Table 1). Despite this, the bulk of subordinates as well as superiors felt that communication with superiors and subordinates respectively was adequate and clear, although inadequacy of communication was reported by a substantially larger percentage of lowest level subordinates. The subordinates also indicated that a rather high percentage of their negative messages, when offered, tended to be lost in transit. The study points to serious deficiencies in the upward communication of negative feelings etc., at least in this organization.

9. Moitra's study (1977) of participative decision making at the plant level in the Durgapur steel plant suggests that structured participation by union representatives in decision making relating to plant level issues may improve industrial relations and decrease industrial conflict. Although after 1972 a three tier consultative machinery was evolved, only the middle-tier plant level committees functioned effectively. Apparently, as a result of the effective functioning of the plant level committees, inter-union rivalries abated somewhat and there was a decline in industrial indiscipline. After the plant level committees were dissolved, a joint consultative committee was set up and all three unions active at the steel plant were represented on it. This, too, has been fairly effective in reaching agreements between management and labour. This has been followed by the setting up of floor level production committees to involve workers directly in production decision making. A fairly high percentage of recommendations made by the floor level production committees have been implemented (ibid, p.37). A three-stage grievance procedure has been evolved with the collaboration of the unions and appears to have resulted in the settlement of a rather high percentage of grievances (ibid, p.38).

10. In a questionnaire-cum-interview study of the finance executives of 11 public sector enterprises K.M. Upadhyay (1977) found that the importance attached to financial functions by finance executives that were members of the top management varied substantially. They ranked the financial planning function (planning of plant expansion, plant replacement, other large capital expenditures, etc.) as the most important, followed by financing decisions function (determination of optimal capital structure, liquidity planning, funds flow planning, etc.), financial control function (budgeting, financial analysis and reporting results, etc.). Significantly, the importance accorded to the management of income function (profit forecasting and planning, stabilising earnings, etc.) was relatively low, and investment decisions and asset management function (estimating return on investments, management of working capital, allocation of funds to alternative uses, etc.) was considered only slightly more important (ibid, Table 8). This is further evidence that the top financial executives of public sector organizations are more growth and control oriented than efficiency and profitability oriented. Another significant finding was that low level finance executives tended to be involved primarily with the financial control (budgeting, finacial analysis etc.) and incidental functions (accounting and record keeping, cash and credit control, etc.) and not with the strategically more important financial planning, financing, investment functions. These latter tended to be handled by top level and middle management finance executives (ibid, Table 4).

11. The boards of directors of public sector enterprises have a heavy representation of the secretariat culture (Nigam, 1971). Nearly two-thirds of directors are drawn from the ranks of the secretariats of ministries, particularly the finance ministry, or are retired officials of the government. Since many hold office as directors by virtue of their official positions in the government, they relinquish directorship upon transfers, etc. As a result, the average tenure of a director of public sector enterprises is a little over a year versus about six years for large private sector companies. A majority of the chairmen of public sector enterprises are part-time chairmen, mostly drawn from the ranks of the secretariat or of retired officials. On an average, each enterprise has about 5 directors, and

each individual who is a director averages about 1½ directorships. The present board system seems clearly to be weighted strongly in favour of the secretariat culture as opposed to an industrial or technical culture, and not oriented to providing sustained and expert guidance to management due to the short terms of the directors.

12 Elhance and Agarwal (1975) reported an interview and questionnaire study of delegation of authority in four units, two each in the public and the private sectors. The units were all large producers of heavy capital goods using sophisticated technology. Over 120 executives at various management levels were interviewed. About 100 responded to the questionnaire. Some significant findings were:

(a) The main factors influencing delegation of authority in both sectors were the need to develop the subordinate's effectiveness, especially his capacity to take decisions, his competence, his ability to exercise authority effectively, the authority needed by the subordinate to do his job, etc. (ibid, Tables 4-1, 5-1, 5-2). Motivating the subordinate or raising his level of satisfaction was relatively unimportant (ibid Table 4-1).

(b) Managers in both sectors indicated that they practiced a centralized, directive style of leadership. Close supervision was endorsed by a larger percentage of public sector managers than private sector managers (ibid, Table 6-1). At the same time,a majority of managers in both sectors were classfied as professing a democratic style characterised by general supervision, concern for subordinate development, and participative decision making. This finding indicates that the Indian manager, whether in the public or the private sector, seems to aspire simultaneously to a democratic style and a directive one, and probably succeeds in giving very mixed cues to the subordinate (ibid, p 41). This inference was reinforced by the fact that the superior in both sectors was seen by the subordinate as bossy and interfering as well as open to the subordinate's suggestions, respecting his competence, and interested in his welfare. Worse, however, the superior was seen, especially in the public sector, as taking credit for good results but shifting blame for bad results on to the subordinate (Table 6-2-I).

(c) Generally, in both sectors, the superior tended to view his subordinates as fairly mature (i.e. competent, committed, etc.) (ibid, Table 6-3). However, the public sector superior tended to see his subordinates as having less initiative and less commitment to the company than the private sector superior.

(d) The degree of overall authority delegated to respondents appeared to be moderate, and about the same in both sectors, but it tended to be lower in the public sector with respect to financial and personnel matters (ibid, Table 7-1). Public sector managers reported significantly greater need for authority in the financial and personnel areas (ibid, Table 9-3).

(e) For important activities, private sector managers tended less often to issue detailed instruction to subordinates and tended more often to ask for reports, then public sector managers (ibid, Tables 8-1 and 8-10 respectively).

(f) In both sectors, the important reasons given for practicing a centralized, directive form of leadership were the concept of the superior's ultimate authority, matters having company-wide implications, the lack of confidence in the subordinate's efficiency, the need to get the subordinate to conform to the superior's objectives, company policy, the need to check on the subordinate's performance, etc. (ibid, Tables 10-1, 10-2, 10-3, 10-5, 10-6).

(g) A much larger percentage in the private sector considered subordinate's lack of adequate information as a reason for inadequate delegation of authority, while a much larger percentage in the public sector considered the subordinate's fear of being criticised for mistakes as a reason for inadequate delegation (ibid, Table 10-7). In both sectors there was agreement that inadequate delegation led to lack of initiative and lack of commitment (ibid, Table 11-1). Managers in the public sector believed especially that increase in delegation would lead to greater efficiency and motivation, while managers in both sectors expected it to increase job satisfaction, job involvement, and identification with the company (ibid, Table 11-2).

(h) In both sectors, superiors perceived much more commonly the advantages of detailed instructions (such as more systematic work),than its disadvantages, such as demotivation (ibid, Tables 11-4, 11-5).

The study indicated that the points of similarity between the public and the private sectors relating to delegation of authority far outweigh the differences. Nonetheless the greater self-orientation vis-a-vis his subordinate (see point (b))the lower opinion of the manager concerning the initiative and commitment of his subordinates (point (c)), the lower authority of the manager with respect to financial and personnel matters (point (d)), defensiveness on the part of subordinates as a reason for non-delegation of authority (point (g)), the closer supervision (point (b)) and the more detailed instructions issued to subordinates (point (e)), indicate some of the superior - subordinate problems in the public sector that may need to be attended to improve performance.

Some Inferences from Management Related Research on Indian Public Enterprises

It is difficult to draw any strong inferences from the empirical literature on public sector management except that of great need for much larger and better research (Basak, 1975). The studies as a group have many limitations: limited coverage, unvalidated measures, inadequate conceptualization. Some very tentative conclusions, however, are:

1. There are conflicting findings about the political interface of public sector units. In Sinha's study (1973) there was much complaint about political and governmental interference. Kumar (1976), on the other hand, found that governmental interference was the least potent inhibitor of job motivation of public sector managers. It is likely therefore that the political interface of units varies substantially from unit to unit and may be a significant predictor of unit performance.

2. Risk aversion including fear of criticism may be a notable factor of public sector managers. The studies of Sinha (1973), Agarwal (1973), Elhance and Agarwal (1975), and Prasad (1976) all attest to this, and

the consequences seem to be red tapism, poor organizational performance, and poor upward communication especially of negative feedback, In addition, there may also be widespread aversion to ambiguity (Kumar, 1976). Ambiguity about tasks and relationships, it may be noted, is characteristic of growing or changing organizations (Burns and Stalker, 1961). Given the entrepreneurial role and rapid growth of public sector units in India, this high risk aversion and intolerance for ambiguity among their executives may be counterproductive. In addition, the relatively low level of pragmatism (relative to be levels in the enterpreneurial cultures of U.S., Korea, and Japan-Dhingra, 1972) may also handicap enterprise entrepreneurship.

3. The attitudes of public sector managers towards the public sector are not very flattering to the public sector (Sinha, 1973; Narain, 1972). Without positive job attitudes there may not be the reservoir of commitment necessary to overcome to challenges posed by headlong growth, long gestation periods, a cramping political environment, and so forth.

4. Except at low levels of public sector management, hygiene factors such as good working conditions, pay, or job security may not be strong motivators. Rather, the prospects for personal growth and development and for worthwhile accomplishment may be (Kumar, 1976). This has large implications for the design of the incentive systems in public sector units. Also, in conjunction with the possibly high risk aversion noted in point 2 about, it is likely that the typical manager in the public sector is a bit schizoid: he wants personal growth but is unwilling to take risks to secure it. Some strengthening of growth orientation and weakening of risk aversiveness through achievement and power motivation training (McClelland, 1961, 1975), sensitivity training (Rush, 1969), creativity training (Khandwalla, 1978 b) may be in order, as also selection and promotion procedures that increase the proportion of high growth orientation-low risk aversive managerial personnel.

5. Profitability and efficiency are perhaps not as highly valued by the management of the Indian public sector as control and accountability (Roy, 1974; Sinha, 1973; Agarwal, 1973; Upadhyay, 1977). This may be a cause of the relatively poor profit performance of the corporate public

sector in India (Sri Ram et al, 1976).

6. Managers in the public sector tend to have ambivalent attitudes towards participative management (Dhingra, 1972, Elhance and Agarwal, 1975). Most tend simultaneously to harbour participative and authoritarian beliefs. While public sector units may be rife with democratic structures like committees, the conduct of their managers may minimise two-way communication with subordinates and cue subordinates to conceal negative feedback (Prasad, 1976). Given sophisticated technologies (and therefore, a fairly highly educated workforce), multiple business and social objectives, and rapid organizational growth, excellent intraorganizational collaboration and a high degree of agreement on organizational goals and activities are likely to be crucial. Participative management offers a potent integrative device (Khandwalla, 1973 b). Limited evidence (Moitra, 1977) indicates that where in the public sector it has been tried honestly and with some persistence, it has yielded good results.

The foregoing conclusions are, to repeat, quite tentative, and may get altered rather quickly with new evidence. Also, the public sector scene in India is changing rapidly. Its performance is improving rapidly and its management seems to be getting more and more professionalised. There is clearly the need for major, new research efforts to establish anything definitive regarding the management of public sector enterprises.

PROBLEMS IN ASSESSING PUBLIC ENTERPRISES AND APPROACHES TO ASSESSMENT

Problems in Assessing Public Sector Units

There are several problems in assessing public sector units:

a) In non-socialist developing countries, units that are in the public sector are generally of four kinds:

i) Natural monopolies like railways, that have downward sloping unit cost curves. These are hard to assess, being monopolies. Only their own past performance offers perhaps reasonable benchmarks for assessing their current efficiency.

ii) Entrepreneurial ventures that at the start, and for many years thereafter, are monopolies or near monopolies. These generaly are large units with sophisticated technologies and long gestation periods that produce basic or strategically important export-substitution prducts. Many of the public sector manufacturing units in India are of this type. These, too, are difficult to assess because of the absence of industry norms, and here, too, past performance may offer reasonable benchmarks for assessing efficiency, innovation, etc.

iii) Sick units in the private sector that have been taken over to maintain employment, etc. These typically require fairly large rehabilitation efforts and are difficult to assess while they are nursed back to health. For these units past performance may be only partially useful as basis for comparison except during the nursing period. Current industry efficiency, growth rate etc. mayprovide more reasonable benchmarks once the sick unit is nursed back to health.

iv) Units taken over or instituted to acquire "commanding heights" or for other ideological reasons. The State Trading Corporation is perhaps an example of this. Their profitability may not be a good guide to their performance because of their monopoly power or because they are sometimes used as instruments of taxation through their pricing policies. If competitive

norms exist they could be evaluated against them, failing which assessment against the benchmark of previous performance could be attempted.

b) Public sector units are often set up to facilitate further economic growth in the economy. That is to say, they have large externalities. Thus, it may be fairer to assess them not only in terms of their own efficiency, but also in terms of the stimulus they provide to other socio-economic activity (Nove,1973). A railway line in a backward area may not break even; but it may generate a lot of industrial activity in the region served by it. Thus, assessment should involve a thorough cost-benefit analysis rather than a mere focussing on the profitability, efficiency, etc. of the unit. Such a cost-benefit analysis is hard and expensive to do year after year, and even if done, could mask operating inefficiencies in the enterprise. Besides, it may not always be feasible to convert every cost and every benefit into monetary terms.

c) Public sector enterprises are instruments of state action and therefore are obligated to adopt all or major goals of the state. This may imply such policies as equal opportunity employment, location in depressed areas, welfare of employees, good corporate citizenship, and the like. Such obligatory costs may not always be borne by comparable private sector units, so that it may be unfair to compare the profitability of public sector units with those of private sector units producing similar product lines. Since it is often difficult to measure the precise impact of these politically imposed costs, the comparability of public and private sector units remains somewhat elusive. Equally, public sector units often enjoy special privileges, such as below market rate financing (Sri Ram et al, 1976, ch. III), priorities in the import of capital goods or essential inputs, special price preferences, etc. which depress their accounting costs below their true costs. These privileges, too, are difficult to quantify.

d) A problem by no means unique to public sector units is the question of establishing the goals of the organization. Organizations, it may be argued, can be assessed fairly only in terms of what they are striving to accomplish, rather than on criteria imposed by a researcher. But the identification of the operating goals of an organization is no easy matter.

Stated goals can mislead one as to what the actual goals are, for the latter often diverge from the former (Scott, 1957; Zald, 1963). The modern corporation has many stakeholders, such as managers, unions, bankers, customers, and the government, and the operating goals of the enterprise are not so much the outcome of rational target setting exercises as the outcome of power struggles between and among the various stakeholders (Thompson and Tuden, 1959; Cyert and March, 1963). Since the outcome of this political process is indeterminate, so are the operating goals of the organization, although the allocation of resources and the vigour with which some activities are pursued and others neglected may indicate what the emergent goals of the enterprise are. It is only after one establishes what these emergent goals are that one can start speaking about the efficiency with which these are pursued.

e) If one chooses to assess organizations on the basis of "natural" criteria rather than their operating goals, then such criteria are likely to form a long list. Organizations are, after all, purposive collectivities that operatein a society with political institutions and economic constraints. As collectivities they could "naturally" beassessed in terms of how satisfactory they are to their members, that is, in terms of the latter's job satisfaction, physical and mental well-bing, etc. (Blauner, 1960, Schneider and Alderfer, 1973). Being purposive collectivities, equally "naturally" they could be assessed in terms of how effectively they achieve the primary objectives for which they are set up, such as profitability in the case of business firms, health care in the case of hospitals, etc. As social institutions they would "naturally" have to be assessed in terms of their legitimacy in the eyes of society, in terms of their public standing and image (Parsons, 1960, Lyden, 1975). As entities in a political system they could be "naturally" assessed in terms of their ideological consonance with the ruling political ideology, and as entities in an economic system they would "naturally" be assessed in terms of their contribution to the solving of the basic economic problems faced by any society - that of what to produce, how much to produce, for whom to produce, and so forth (Samuelson, 1967). With so many natural criteria for assessing organizations, conflicting assessments are likely to be common, perhaps

inevitable. How does one then make an overall assessment of any organization, be it in the private or the public sector?

The foregoing catalogue of difficulties in assessing public sector units- the difficulty of distinguishing between genuine efficiency and good results obtained through the exercise of monopoly power, pricing and the other constraints imposed by political authority, costs imposed by the enforced adoption of politically mandated social objectives, special privileges granted by political authority, the externality issue, the difficulty of establishing the operating goals of the organization, the long gestation or rehabilitation periods during which performance looks worse than it is - are meant to caution against hasty conclusions about their effectiveness. While the author has not come across any entirely satisfactory way of assessing any organization, let alone public sector enterprises, a number of approaches are available.

1. Welfare economics approach: Since public sector enterprises commonly have missions beyond that of mere profit maximization, the cost benefit approach is preferable in evaluating their performance. In this approach both the direct and indirect costs of starting or operating the enterprise are computed and compared to the direct and indirect benefits of starting or operating the enterprise. For example, the cost-benefit analysis of starting a steel plant in a particular area would include not only its direct financial costs and the monetary value of its production, but also (preferably) monetised values of the ecological damage it may do as well as the ancilliary employment or export substitution it may generate. Monetisation of indirect costs and benefits can however become quite arbitrary, and consequently distort the overall assessment of a unit (Nowe. 1973, pp. 83-87).

2. Market structure, conduct, performance approach: The industrial organization approach, basing its conclusions on real world data and pragmatic considerations, has favoured a market structure that is workably - not perfectly - competitive, market conduct that stresses rivalrous but not predatory, misleading or coercive pricing and promotion

behaviour, and performance of firms characterized by efficiency, parsimonious promotion, moderate rather than too low or too high profits, sufficient but not excessive product differentiation, reasonably stable prices, and innovation in products and processes (Clark, 1940, 1961). With regards to performance, the multiple criteria form an attractive package, but also require value judgements on the part of the researcher should he be faced with high performance on some criteria and low on the others. There is some evidence, however, that when faced with multiple performance data on organizations, there tends to be fairly good consensus among experts on what constitutes overall high and low performances, but poorer consensus on what constitutes overall medium performance (Peck and Scherer, 1962, pp. 543-580).

3. Organizational theory perspective: Organization theory regards organizations as purposive collectivities, dynamically interacting with their environments (Cyert and MacCrimmon, 1969; Khandwalla, 1977 b, ch.1). It explicitly recognises the possibility, indeed the universality, of intra-organizational conflicts about objectives (Cyert and March, 1963) and views organizational performance as resulting from the interaction between situational, strategic, structural, technological, and behavioural variables (Khandwalla, 1977 b, ch.7). It hypothesises that organizational performance is influenced not only by these variables individually, but perhaps more strongly by congruence between these variables. Given a kind of business environment, it argues, certain congruent strategies, styles of management, and organization structures are more likely to result in high organizational performance than other strategies etc., or lack of congruence between these (Lawrence and Lorsch, 1967; Khandwalla, 1973b; Khandwalla, 1977 b, ch. 11, 15).

Organizational researchers study a wide variety of organizations, not just business firms, and indeed, study work units and embedded organizations as often as independent organizations. Consequently, a wide variety of measures of performance and organizational effectiveness have been employed (Steers, 1975). These range all the way from "hard" measures like productivity, profitability, growth rate etc. to "softer" behavioural measures like

adaptability, absence of organizational strain, employee satisfaction, cohesion, etc. These have been utilised sometimes singly, at others a few together at a time. Generally, the preference of organization theorists has been to adopt as criteria a task performance or efficiency measure such as productivity, growth rate, or profitability, and a measure of employee morale, and consider these two to constitute together a measure of organizational effectiveness. There is a tendency to add to these two a measure of organizational resilience or adaptability, and also a measure of legitimacy, such as the organization's societal value or public image (Friedlander and Pickle, 1968; Khandwalla, 1977 b, ch. 15). There is no guarantee, of course, that the management or other determinants of all these different measures of performance or effectiveness are necessarily the same. Quite possibly, the management policies and organizational structures that help the unit do well on one measure like profitability may sometimes be counterproductive for doing well on another measure such as a good public image (Dubin, 1976; Khandwalla, 1977 ch. 10).

4. <u>The social audit approach:</u> In recognition of the multiple criteria with which public enterprises need to be evaluated, students of the public sector suggest that information on financial as well as non-financial performance be reported by public enterprises (Abt, 1972; Lessem, 1974; Preston and Post, 1975; Dholakia and Khurana, 1976). Abt suggests monetisation of social costs and social benefits attributable to an enterprise. Lessem suggests that performance in terms of contribution to standard of living, interpersonal satisfaction, and the individual employee's sense of self-esteem or self-actualisation be measured in appropriate units and reported in those units. Preston and Post suggest that corporate performance should be measured in terms of contribution to national goals such as high life expectancy or mental health, and be compared with relevant industry or other norms. Dholakia and Khurana break down performance into the unit's financial performance (such as return on those assets employed purely for economic reasons), social performance that can be monetised, such as the enterprise's medical expenditure per employee, pollution control expenditure as percentage of sales, or exports as percentage of sales (along with the norm for the industry or the nation or the corporate public sector as a whole), and social performance that cannot be monetised,

such as the number of accidents per capita, or air quality in the plant, or the percentage of employees that come from disadvantaged communities such as scheduled castes and scheduled tribes, or the per capita number of inventions, all compared to relevant industry, national, or other norms. It is, of course, not very easy to disagreegate social performance from economic performance, for many amenities like housing or health care which Dholakia and Khurana suggest should be excluded from "economic" assets are in the form of perquisites that attract employees to the public sector. Nor is it always clear where the trade-offs lie between achievements on economic criteria and those on social criteria. For example, how well has the organization performed thathas an outstanding exports or pure-air-in-plant performance and a dismal financial performance? Still, as a tool of a management by exception system, the social audit approach provides a useful configuration of performance related information.

All four approaches suggest that organizations, particularly public sector enterprises, need to be assessed on multiple criteria. Further work may reveal emporical relationships between these criteria (e.g. profitability of the unit and job satisfaction of its employees) and thereby indicate a more parsimonious set of criteria for assessing public sector units. A limited number of non-monetary lead indicators of socially relevant performance may be feasible. Given the monopolistic character of most public sector enterprises, particularly in developing countries, comparison of current performance with past performance may be more realistic than comparison with "industry norms" or hypothetical performance under competitive conditions.

The Operational Concept of Performance

Formulation of hypotheses that link contextual, strategic, structural or behavioural variables to performance variables of public enterprises becomes difficult when there are multiple criteria for assessment. As a simplifaction it is assumed that public enterprises in developing countries strive to do well

with respect to operating efficiency, implimentation of major goals of public policy (such as export substitution), and the satisfaction of their employees. If an enterprise does at least moderately well on all the three imputed goals and outstandingly on at least one of the three goals, it may be deemed to be a high performer. If the unit operates in a competitive environment, whether the performance on any goal is high, medium or low may fairly be done with respect to leading firms in the industry. If the unit does not operate in a competitive environment, the comparison bases may have to be performance in a comparable earlier year(s). Detailed operationalisation must await empirical work, but profitability in a competitive environment and profitability discounted by abnormal price increases by the enterprise in a non-competitive environment, may be suitable as an efficiency criterion. Since a prime reason for starting corporate public enterprises in India is import substitution (or expansion of exports), export performance (including import substitution) may serve as a measure of success in implementing public policy. Job satisfaction of employees, as indicated by turnover rates, absenteeism rates, industrial relations conflicts, and ratings of job satisfaction (where available) may usefully measure the unit's performance vis-a-vis its employees.

In the following section, a model of organizational performance is presented, followed by the development of a number of testable hypotheses.

ENTERPRISE EFFECTIVENESS IN THE PUBLIC SECTOR

A Model of Enterprise Effectiveness

The market structure - conduct-performance literature (for a fine summary see Scherer, 1970) considers market structure as a major determinant (through market conduct) of industry performance (Scherer, 1970, p.5). However, it does not shed much light on the performance determinants of individual enterprises, especially enterprises that are more or less monopolies (as Indian public enterprises commonly are). Organization theory does indicate what these determinants may be (Khandwalla, 1977b, ch. 7 and 15). It especially postulates that enterprise performance is a function of the congruence or fit between a number of variables. The major classes of these variables are: situational variables (the type of organization's industry, its size, control by external agency, the nature of the business environment, etc.), strategic variables (the style and goals of the top management of the enterprise, the latter's business strategy), structural variables (degree of decentralization, form of departmentalization, planning, control, and information system, reward system, coordinative system etc.), and behavioural variables (the dominant motives and attitudes of personnel). While individual variables may marginally affect enterprise performance, they are likely to effect it much more strongly in certain effective combinations or congruences (Lawrence and Lorsch, 1967; Khandwalla, 1973b; Child, 1975; Khandwalla, 1976a, 1977a, and 1977b). The underlying idea is that a number of organizational responses are possible in any situation. If the organization picks a response that is particularly appropriate to the given situation (organization theory indicates the responses that are especially likely to be effective), then the probability of high performance appreciably increases, just as an inappropriate response may significantly lower it.

The model of enterprise performance is shown in Figure 1. It indicates that effective combinations or congruences between situational and strategic variables creates a potential for high organizational performance as do congruences between situational and structural variables, among strategic variables, between strategic and structural variables, among structural

FIGURE 1

A Model of Performance Determinants of Public Enterprises

1.	Degree of congruence between situational and strategic variables	High – Potentially high organizational performance Low – Potentially lower organizational performance
2.	Degree of congruence between strategic variables	High – Potentially high organizational performance Low – Potentially lower organizational performance
3.	Degree of congruence between situational and structural variable	High – Potentially high organizational performance Low – Potentially lower organizational performance
4.	Degree of congruence between strategic and structural variables	High – Potentially high organizational performance Low – Potentially lower organizational performance
5.	Degree of congruence between structural variables	High – Potentially high organizational performance Low – Potentially lower organizational performance
6.	Degree of congruence between structural and behavioural variables	High – Potentially high organizational performance Low – Potentially lower organizational performance

Enterprise Performance = A + B1 Congruence No.1 + B2 Congruence No.2 +B3 Congruence No.3 + B4 Congruence No. 4 + B5 Congruence No.5 + B6 Congruence No.6 .

variables, and between structural and behavioural variables. It also indicates that incompatibilities or low congruences between situational and strategic variables potentially lowers organizational performance as do incompatibilities between situational and structural variables, among strategic variables, among structural variables, between situational and structural variables, and between structural and behavioural variables. The net effect of these congruences and incompatibilities is the predictor of enterprise performance.

Organizational theory recognises the interactions between all classes of variables (Leavitt, 1965). Ideally, therefore compatibilty or incompatibility between and among all the classes of variables should be treated as determinants of enterprise effectiveness. Neither organizational research nor organization theory has evolved to the point where such a comprehensive model can be meaningfully utilised to generate testable hypotheses. The more limited model of Figure 1 has been expounded keeping in mind current knowledge to generate a number of testable hypotheses on public enterprise performance.

Figure 1 embodies a particular model of organizational functioning. It is assumed that what at any time gets defined as "given" by decision makers profoundly affects the structure and functioning of organizations. That is to say, organizational change decisions involve adaptations to these perceived constraints (Cyert and March, 1963). The latter initially are likely to be the nature of the enterprise's industry, the organization's scale of operations, business conditions, etc. Business strategy and the style of management get evolved in the light of these initial "givens". Once business strategy and the style of top management are crystallised, the structure of the organization begins to be adjusted to them. The structure of the organization also is influenced by the motives, attitudes, and expectations of the personnel (and vice versa). In this sequence of choices and adjustments, those that are synergetic tend to yield desirable results in terms of enterprise performance while those that are maladaptive tend to yeild undesirable results.

Given below are a number of hypotheses of synergetic combinations. Brief rationales are provided for each hypothesis.

Hypotheses of Enterprise Performance

1A. For public enterprises, the relations with their controlling agencies (ministries, etc.) are critically important. These relations may be viewed along two dimensions: the degree of autonomy enjoyed by the enterprise, and the degree of supportiveness shown by the controlling agency in matters such as grant of funds, import licences, clearance for expansion plans, etc. The choice of management style is likely to become critical when autonomy or/and supportiveness are both low.

H_1A_1. If the autonomy granted to the public enterprise and the supportiveness of the controlling authority are both low, performance potential is increased if the top management is technocratic as well as participative.

Rationale: If the enterprise is tightly controlled and must struggle to achieve its goals, it must be able to argue persuassively its case before its controllers for greater funding, for permission to expand capacity or diversity etc. It must be able to marshall carefully gathered and analysed facts and figures and this calls for a technocratic management orientation. It must also generate an internal consensus on what it wants to do and how, and keep personnel motivated in adverse circumstances. These call for a participatory orientation. If either or both orientations are absent in the top management of the unit, the chances of high performance are likely to diminish substantially.

H_1A_2. If the autonomy granted to the public enterprise is high but the supportiveness of the controlling authority is low, performance potential is increased if the top management is risk taking and organic and/or technocratic and participative.

Rationale: When there is low supportiveness or high hostility in the environment, a bold enterpreneurial approach and/or a professional management approach have been found to be effective (Khandwalla, 1977b, p.592, Table 15-3). Careful planning, analysis, etc. combined with internal cohesion and high motivation yielded by a participative approach are likely to be useful for reasons given in rationale to H_1A_1. Equally, bold imaginative strategies when effectively implemented through a flexible, organic administration are likely

to win the favour of sceptical controllers more than business as usual, conservative business strategies.

1B There has been considerable research on the relationship between properties of the external environment and the management of the organization(Dill 1958; Burns and Stalker, 1961; Lawrence and Lorsch, 1967; Khandwalla, 1976a, 1977b ch. 11; Shortell, 1977; etc.) The general argument is that there can be no one best type of management because of the variety in operating environments. In a given operating environment, however, some types of management may be more effective than others. A number of dimensions of the operating environment have been identified, the chief of which are environmental hostility, turbulence, restrictiveness, diversity, and technological complexity (Khandwalla, 1977b, ch.9). The following hypotheses pertaining to effective response to the industry environment of public enterprises have been developed keeping in mind the extant organizational research.

H1B1 If the industry environment is turbulent, that is, characterized by frequent major unforeseen changes and developments, performance potential is increased if the style of top management is risk taking and organic.

Rationale: In a fast-changing, turbulent environment, obsolescence of products, processes, and business strategies tends to be a major exigency. To succeed, the management needs to keep one step ahead of the pack, that is, take risks in a situation of rather imperfect information. Since decisions and strategic choices have been made in a situation of imperfect information, strategies and structures must be rapidly adjusted in the light of further information. Therefore, an organic, flexible (as opposed to a mechanistic and rigid) top management orientation is necessary. Khandwalla found that in a turbulent environment, the precentage of high performance increased significantly for companies whose top managements had a risk taking and organic orientation (Khandwalla, 1977b, p.430, Table 11-5).

H1B2 If the industry environment is relatively unchanging or stable, and the top management is conservative, performance potential is increased if the top management is mechanistic and noncoercive in its orientation.

Rationale: There is a tendency for a stable environment to beget a conservative management style (Khandwalla, 1977b, p. 430, Table 11-5). Given a stable industry and a conservative management, a mechanistic (bureaucratic) orientation makes sense because in such an environment obsolescence is not a critical issue but efficiency is. A mechanistic orientation with its emphasis on standard operating procedures, hierarchical relationships and the like is likely to contribute to efficiency. If role relationships and activities are standardised and routinised, arbitrary and authoritarian management actions are likely to upset the statusquo andcause severe morale problems. Khandwalla found that the percentage of high performance among conservatively managed companies in a stable environment jumped significantly when the management was also mechanistic and non-coercive in its orientation (Khandwalla, 1977b, p.430, Table 11-5).

H1B3 If the industry environment is relatively complex, that is, characterised by many legal or other constraints, much market diversity, and significant technological sophistication, performance potential is increased if the top management orientation is technocratic and participative.

Rationale: A complex environment implies that decision making must be preceded by a lot of analysis of strategic issues and alternatives based on technical information. The decision makers need to rely on an army of technocrats and must themselves have commitment to technocracy and expert analysis. With the elaborate functional specialisation technocracy begets, the necessity of coordinated action, collaborative relations among experts and between decision makers and experts and generally team management, is high. This is facilitated by a participative approach to decision making, faith in organization development, and good human relations. In Khandwalla's study of Canadian companies, it was noticed that while corporate performance tended to be high in a complex environment (possibly because its complexity acted

as a barrier to entry), a technocratic and participative orientation in top management wasassociated with even higher corporate performance (Khandwalla, 1977b, p. 430, Table 11-5).

H1B4 If the industry environment is relatively noncomplex, that is, characterised by homogeneous market, few governmental or other restrictions, and relatively low technological sophistication requirements, performance potential is increased if the top management is risk taking but nontechnocratic and nonparticipative.

Rationale: When the industry environment is relatively simple, much technocracy is not needed by the organization, nor sophisticated coordination, collaboration, and consensus building. Hence, a technocratic and participative orientation is unnecessary and possibly slows down decision making. But a simple environment tends to be an easy entry environment, and therefore confers a comparative advantage on the bold and risk taking managements. Khandwalla found that though the percentage of high performance companies was low in a simple environment, it shot up dramatically for companies that were managed by risk taking but nontechnocratic and nonparticipative managements (Khandwalla, 1977b, p.430, Table 11-5).

2A. Ingredients of operating management style have been found to have interesting synergistic effects (Khandwalla, 1977a and 1977b ch.11 and 15). Management orientations that are widely believed to be beneficial, such as the technocratic or participative orientations, may yield poor organizational performance when associated with certain other management orientations, while the so-called ineffective orientations, such as coercive, mechanistic, and conservative, may yield good results when combined with the right orientations (Khandwalla, 1977a).

H2A1 If the top management is risk taking in its orientation, performance potential is increased if the top management orientation is organic (that is, anti-bureaucratic) and decreased if it is mechanistic.

Rationale: If the top management is inclined to go for big, bold, risky moves in a situation of considerable uncertainty, it must be highly flexible in order to adjust rapidly to the evolving situation. Khandwalla found that companies with risk taking and organic managements had a much higher percentage of high performers than risk taking companies with a mechanistic or bureaucratic orientation (Khandwalla, 1977a, and 1977b, p. 428, Table 11-4).

H2A2 If the top management is technocratic, performance potential is increased if the management is participative, and diminished if it is nonparticipative.

Rationale: If the top management is technocratic, there is high potential for staff-staff, staff-line conflicts because of over-specialisation and selective perception. Participative management is necessary to ensure a high level of team work and collaboration. Khandwalla found that the percentage of high performers in companies with a technocratic and participative management orientation was much higher than in companies with a technocratic but not participative management orientation (Khandwalla, 1977a, and 1977b, p.428, Table 11-4).

H2A3 If the top management is conservative (that is, aversive to taking risky investment or other decisions), performance potential is increased if the management is mechanistic and noncoercive, and diminished if it is organic and/or coercive.

Rationale: A conservative top management tends to enter well-tried fields, technologies, etc., for it prefers to learn from the mistakes of the pioneers. Its advantage lies not in temporary monopoly yielded by trying out a novel process or product etc., but in efficiently operating a safe process. Hence, a mechanistic or bureaucratic orientation characterised by a stress on order, structure, standardization, formalization etc. usefully supplements cautious decision making. And if an administration is systematic and formalised, there is little justification for arbitrary exercise of power. Khandwalla found that the percentage of high performance in conservatively managed companies with a mechanistic and noncoercive orientation was much higher

than in conservatively managed companies with an organic or coercive orientation (Khandwalla, 1977b, p.428, Table 11-4).

2B The goals of management have very great implications for organizational design, for each goal translates into a goal-means hierarchy that powerfully shapes the strategy, structure, technology, and workflow of the organization (Simon, 1960; Khandwalla, 1977b, ch.10). If the organization has multiple and partially conflicting goals, as most public enterprises are believed to have, a high order of professionalisation is needed to "optimise" on several goals.

H2B1 If the top management pursues a large number of partially conflicting goals, performance potential is increased if the top management is technocratic and participative.

Rationale: Multiple and conflicting goals call for a good deal of management ingenuity. The data, analysis, and complex planning needed to cope with the diverse pulls of strongly held multiple goals is best provided by a professionally and participatively oriented management. Khandwalla found that high management aspirations with respect to a number of partially conflicting corporate goals was associated with a technocratic and participative orientation in top management (Khandwalla, 1977b, p.382, p.391).

3. The relationship between situational and structural variables has been extensively studied although the literature on effective as opposed to ineffective structural responses to situational parameters is meagre. A number of studies have examined the changes in organizational structure that accompany changes in the size of the organization (e.g. Pugh, Hickson, Hinings, and Turner, 1969; Blau, 1970; Child and Mansfield, 1972; Khandwalla, 1974). The general finding is that the larger the organization, the more bureaucratic its structure becomes. That is, the latter is characterised by more and more division of labour, role and functional specialization, longer hierarchy, greater formality in roles, relations, and communication, greater use of rules, controls, and standard operating procedures, etc. - the well known characteristics of bureaucracy as conceived by Max Weber (1947).

There is also a large literature on the structural adaptation to properties of the organization's external environment (e.g. Thompson, 1967; Galbraith, 1970; Khandwalla, 1972, 1973a, 1977b ch. 13; Pennings, 1975; Shortell, 1977). The general proposition is that the operating environment of the organization is a source of opportunities, exigencies, and contingencies, and that the organization often must structurally respond to these to maintain its viability. Since the operating environment may vary from organization to organization, such variation tends to be accompanied by variation in such structural variables as decentralization, form of departmentalization, control system, intelligence gathering system, etc.

H3.1 If the public enterprise is large, performance potential is increased if the structure of the organization is characterised by elaborate division of labour, functional specialization, a pronounced hierarchy of authority, routinisation of work, formal communications, etc., and diminished if the degree of bureaucratization (in Weber's sense) is low.

Rationale: To be able to carry on a large volume and variety of activities efficiently, the large organization needs to develop structural mechanisms of differentiation of activities like division of labour and specialized functions, and also mechanisms of coordination and integration, like standardization, hierarchy, an organization-wide system of common rules, regulations, and controls, etc. Child (1975) found that in his study of British organizations, as size increased, the high performance companies tended to get bureaucratised (in Weber's sense of the term) to a higher degree than low performing organizations.

H3.2 If the industry environment is marked by multi-faceted competition, high performance potential is increased if decision making is decentralised and the organization operates a sophisticated intelligence, planning, and control system.

Rationale: Multi-faceted competition, that is, rivalry in the market place that extends to price competition, competition in product quality, variety, delivery, competition for channels, competitive promotion, etc., is likely to pose many requirements for the organization: the need to forecast future developments, the need to keep abreast of moves by rivals, the need to innovate, the need to analyse market data carefully, the need to extend discretionary authority to lower management levels to meet the local moves of rivals, and simultaneously the need for organization - wide planning and coordination to meet competition effectively (Khandwalla, 1973a, 1976b). These multiple demands necessitate a complex organizational structure and much decentralization. A sophisticated control and information system is needed to permit decentralization and management by exception, and a sophisticated market intelligence system is needed to facilitate sophisticated planning of business strategy. In a study of U.S. manufacturing companies, Khandwalla found that what he described as sophisticated uncertainty reduction mechanisms (e.g. market intelligence system), differentiation mechanisms (delegation of decision making authority by the chief executive, divisionalization, etc.), and sophisticated integration or coordination mechanisms (sophisticated control system, participative decision making at top levels of management) were more evidenced in a group of highly profitable companies reportedly operating in a highly competitive environment than in a comparable group of low profitability companies also operating in a highly competitive environment (Khandwalla, 1973b).

4. Organizational structural response to the organization's business strategy and goals has been fairly extensively studied although empirical studies of effective versus ineffective responses are conspicuous by their absence. It is likely that congruence between the organization's business strategy and its structure may increase the chances of high performance and incompatibility between them may lower it. Business strategy includes choices concerning what to produce, of what quality, for what markets, etc.

H4.1 If the enterprise is diversified, especially if diversification is of the conglomerate variety, high performance potential is increased if the organizational structure is divisionalised.

Rationale: A diversified organization that markets unrelated products is likely to be rather difficult to manage in a centralized manner or with a functional form of departmentalization. Divisionalisation tends to be a common response to such a strategy (Chandler, 1962).

H4.2 If the enterprise's business consists of non-uniform, high technology projects or products, performance potential is increased if the organization has a matrix structure.

Rationale: The matrix structure consists of highly specialized functional areas from whom expert personnel are periodically drawn and assigned to projects or customised product orders. In other words, temporary mini-organizations, consisting of complementary personnel, are created to service an order more effectively. There is a tendency for high technology organizations to develop a matrix structure (Galbraith, 1970, 1971).

H4.3 If the enterprise markets standardized and related products, performance potential is increased if the organization has a functional departmental structure, advance planning of operations, and a number of inter-functional coordinating committees.

Rationale: Full-fledged divisionalization becomes infeasible when there are large interdependences in the joint production and/or distribution of the company's products. Coordination and planning of the company's overall production or marketing activities is likely to be more critical than coordination between the production and marketing staffs of each individual product. Thus, functional departmental structure makes more sense than a divisional structure. The residual coordination needs between the production and marketing activities pertinent to each product may be secured though advance planning of operations and inter-functional coordination committees. Advance planning of operations is feasible because of standardized (as opposed to custom-made) products.

H4.4 If the enterprise markets standardized products and employs a mass production technology to produce them, performance potential is increased if the enterprise gets vertically integrated and decentralized, and adopts a sophisticated planning and control system.

Rationale: If the enterprise markets standardised, mass produced products, full (engineering) capacity utilization and the rapid disposal of output are critical concerns, the first to reap fully the scale economies, and the second to save on inventory costs. Backwards and forwards vertical integration ensures greater control over crucial inputs into the production process (the ready availability of which is a particularly serious problem in scarcity - ridden developing economies) and also greater control over the distribution of products. A policy of vertical integration inevitably adds to the diversity of the company's activities and makes top management decision making much more complex. This complexity forces decentralization of decision making, but since the activities of a vertically integrated company are linked together in a workflow, a sophisticated planning and control system needs to be operated to secure coordination and retain decentralization. Khandwalla found that the links between the use of mass production technology, vertical integration, decentralization, and sophisticated controls were substantially stronger for a group of highly profitable U.S. manufacturing companies than for another group of comparable but much less profitable U.S. manufacturing companies (Khandwalla, 1974).

H4.5 If the enterprise employs a sophisticated capital intensive technology for production purposes, performance potential is increased if the selection and reward systems of the organization are sophisticated.

Rationale: Highly trained manpower is needed to man a sophisticated operations technology. Even if a few individuals operating the production system are incompetent or unmotivated, the entire system's performance may be affected because of the built- in interdependence between the parts of such systems.

Hence, sophisticated selection of personnel is vital. So also in the employment of a sophisticated reward system. Such a system does not treat every employee alike but strives to meet the particular needs of individuals, is designed to meet a broad rather than a narrow range of human needs, is geared to measure its effectiveness, and is flexibile enough to incorporate changes in the light of feedback.

H 4.6 If the top management pursues a large number of partially conflicting goals, performance potential is increased if a sophisticated intelligence, planning, coordination, control, and reward system is employed by the enterprise.

Rationale: The pursuit of multiple, partially conflicting goals implies the necessity of carefully gathered market intelligence and other external environmental information pertinent to the different goals. It also implies the use of sophisticated planning, control, and coordination mechanisms in order to ration resources as between different goals, monitor performance on the various goals, coordinate specialised activities to achieve each goal, work through conflicting demands made by the different goals, etc. In addition, since scarce managerial and other human resources are deployed for achieving a number of goals, these resources need to be made more productive. The reward system must therefore be sophisticated enough to evoke a high degree of inspiration and commitment to ensure high productivity. An over-reliance on any one human need such as for money or position will not be enough. Extra ingenuity, commitment, and effort may come forth if all the major needs - for security, for affiliation, for recognition, for power, for status, for doing something distinctive, for actualisation of potential, and so forth are harnessed in the reward system.

5. The relationship between the various elements of organizational structure has received some attention during recent years (Hall, 1963; Lawrence and Lorsch, 1967; Pugh, Hickson, Hinings, 1969; Child, 1972; Khandwalla, 1973b, 1977b, ch. 13; etc.) For instance, in recent years, organizational researchers have begun to study intensively the internal differentiation of organizations (Hall, 1963; Katz and Kaln, 1966;

Lawrence and Lorsch, 1967; Van de Ven and Delbecq, 1974). Since different parts of the organization are assigned different tasks, to the extent these tasks vary from one another on such dimensions as time span of reliable feedback about their performance, the complexity of their operations, the degree of routinization of their activities, the degree to which their outputs are standardized, and the like, their designs will exhibit a corresponding variation, in terms of such variables as mode of decision making (team versus individual decision making), advance planning of operations, formalisation of interpersonal relations, etc. High levels of intraorganizational differentiation can cause serious coordination problems between interdependent departments of the organization, which if neglected, would diminish organizational performance (Lawrence and Lorsch, 1967). Thus, internal differentiation tends to stimulate the development of coordinative or integrative structural mechanisms.

H5.1 If the enterprise has highly differentiated products or technologies, performance potential is increased if the organizational units (departments, divisions, sections, etc.) show a large variation on such dimensions as operating culture, leadership style, planning sophistication, and the extent of technocracy.

Rationale: If the products are highly differentiated, the production and marketing sections pertaining to each product are likely to differ from those for other products in their operating characteristics. Similarly, if company technologies are highly differentiated, there will be large variations in the operating characteristics of the organizational units in charge of particular company technologies. Unless this operating diversity is permitted, the sections etc., will not be able to carry out their missions effectively.

H5.2 If the enterprise has highly differentiated products or technologies and if organizational units are highly differentiated, performance potential is increased if special coordination and collaboration mechanisms are utilised by the organisation.

Rationale: Given a high state of internal differentiation, unless special attempts are made at coordination and collaboration between interdependent organizational parts, serious sub-optimization problems are likely to arise (Lawrence and Lorsch, 1967). The common mechanisms of coordination are reference to a common boss in the event of a dispute (use of hierarchy), third party arbitration, the setting up of coordinating committees, etc. Some of the more complex forms of effective coordination are an organic management culture which encourages disputants to settle their disputes directly rather than through their bosses (Burns and Stalker, 1961, Lawrence and Lorsch, 1967), mediators who are perceived as competent by the disputants and who are intermediate between the disputants in their work orientations (Lawrence and Lorsch, 1967), the settlement of disputes at those levels where all the information is available rather than at higher levels where all the information may not commonly be avoidable (Lawrence andLorsch, 1967), organization development programs (see, Rush, 1973 for descriptions of several O.D. programs), and sophisticated advance planning of operations to forestall coordination difficulties (see for example, Anthony, 1965). In the event of high internal differentiation, some or all of the above integrative mechanisms may need to be pressed into service.

H5.3 If important units in an organisation are interdependent, structural mechanisms to coordinate their activities suffice to increase enterprise performance potential if these units do not differ significantly in their operating cultures, but structural as well as behavioural mechanisms of coordination are needed to increase enterprise performance potential if these units differ significantly in their operating cultures.

Rationale: When important departments or units of an organization are interdependent, a significant potential for conflict exists. If, however, their operating cultures are fairly similar (in terms of such aspects as achievement orientation, ways of dealing with conflicts, attitudes towards innovation and change, etc.) the serious negative stereotypes about each

others personnel or work are not likely to arise, and so structural mechanisms like coordinating committees, joint advance planning exercises, standard operating procedures for resolving disputes, etc., may suffice. Where, however, work ethic and operating cultures differ strongly, and the departments must coordinate their activities, emotional issues, negative stereotypes and the like are likely to be reinforced with every dispute, and structural mechanisms may not be able to elicit willing and effective collaboration. Behavioural mechanisms such as organizational development type programs involving sensitivity training, team building, leadership training, training in effective communications, intergroup collaboration exercises, and the like may become necessary for the personnel of the interfacing departments.

6. Organizational design, to be effective, must be responsive not merely to the task parameters of an enterprise, but also to its human parameters, for as organization theorists have pointed out, organizations are socio-technical rather than merely technical systems (Emery and Trist, 1960; Leavitt, 1965; Katz and Kahn, 1966; etc.). The neglect of the human element may lead to much alienation, psycho-sometic illnesses, possibly low productivity and low organizational performance (Trist and Bamforth, 1952; Argyris, 1957; Likert, 1961; Sales and House, 1971). Unfortunately, much of the work to-date tends to have an evangelical flavour, and sophisticated research that links variations in employee personality with alternative organizational structures and the effects of these linkages on organizational performance is conspicuous by its absence. In India, there has been only limited systematic empirical work on the personality structure of the employees of public enterprises, particularly of the managers. The extant work as well as casual empiricism suggests that besides being either a moralist or a pragmatist (Dhingra, 1972), and having both strong security and personal growth needs, especially in younger managers (Kumar, 1976), the typical manager tends to be from the urban middle class and therefore has strong security and status needs, has a technical education (engineering, accountancy etc.) rather than a liberal arts education, and has considerable intolerance of ambiguity, fear of failure, and risk aversion (Agarwal, 1973; Prasad, 1976; Kumar, 1976). Assuming that this description holds true for a

substantial percentage of Indian public enterprise managerial personnel, possibly also for many of the other white collar personnel, what organizational design would increase the potential for high enterprise performance?

H 6.1 If managerial personnel of an enterprise have respectively strong defence as well as growth needs, specialised training, and high intolerance of ambiguity, performance potential is increased if the reward system of the enterprise makes both job security and personal growth conditional upon high job performance, individuals are rotated through different kinds of job to broaden their perspective, over time they move through increasingly less structured jobs, and a decision making structure is developed to permit personnel to participate in decisions affecting their work or fate.

Rationale: Security and status needs (collectively, defence needs) as well as higher order needs for personal growth and development, for wdrthwhile work, and so forth, may be simultaneously active in managerial personnel in Indian public sector units (rather than sequentially active per Maslow, 1954). Therefore, a reward system that makes reward of greater job security, status, opportunity for interesting work, etc., conditional upon desirable job performance is likely to elicit high productivity and efficiency. By contrast, a reward system that does not provide for the satisfaction of these needs, or provides for their satisfaction unconditionally, or provides for their satisfaction independently of job performance through a seniority system is unlikely to elicit high productity or effective job performance. (Were the human material different, say the managers had by and large high need for achievement, a performance oriented reward system may be far less necessary, for, within limits, high job performance would be forthcoming regardless of how it is rewarded).

Since the manager's job is a multi-role job (Mintzberg, 1973), specialised training may act as a bar against the manager performing his generalist roles such as that of a team builder, intelligence gatherer,

information disseminator, external representative of the group he is heading, etc. Thus, rotation through increasingly varied jobs may help the manager acquire greater general management expertise. In addition, if the typical manager suffers from aversion to ambiguity, processing him initially through highly structured but progressively less structured less clear-cut jobs, may help him overcome his intolerance for ambiguity. (Again, if the human material were different, say only those with previous managerial experience more recruited into public enterprises, job rotation and progressively less structured jobs may be less necessary).

An implication of the foregoing is that a sophisticated performance appraisal system, reward system, and career planning system would increase the potential for high performance in Indian public enterprises.

Besides the foregoing, a structure that enlists the participation of managerial personnel in decisions that affect their work or fate may be helpful. When defensive needs are strong, one response is to press management for rules and regulations that prevent arbitrary exercise of power by superiors and depersonalize superior - subordinate relations (Gouldner, 1954; Crozier, 1964). This can make the organization excessively rigid and maladaptive to work-related contingencies (Crozier, 1964). A structure of participative decision making is a superior alternative to depersonalisation of superior-subordinate relations, for it provides a check against arbitrariness without damaging flexibility. Besides, it tends to build greater commitment to what is jointly decided and greater cohesion, once differences are worked through and resolved, and may also generate more creative solutions through the pooling of the ideas of a number of individuals (Coch and French, 1948; Likert, 1961; Tannenbaum, 1966). Management by objectives is one mechanism for participative goal setting and decision making, others being works councils and periodic departmental and section level meetings to reach consensus decisions.

The hypotheses are summarised in Table 1.

TABLE 1

A SUMMARY OF HYPOTHESES CONCERNING PUBLIC ENTERPRISE PERFORMANCE

Hypothesis No.		Choice Initiating Parameter	Responses Hypothesized to Raise Performance Potential
H1A.1		Low autonomy and unsupportive controlling authority	Technocratic and participative top management orientation
H1A.2	✓	High autonomy and unsupportive controlling authority	Risk taking and organic top management, and/or technocratic and participative top management orientation
H1B.1		Turbulent industry environment	Risk taking and organic top management orientation
H1B.2		Stable industry environment and conservative top management	Mechanistic and noncoercive top management orientation.
H1B.3	✓	Complex industry environment	Technocratic and participative top management orientation
H1B.4		Noncomplex industry environment	Risk taking, nontechnocratic, and non participative top management orientation
H2A.1	✓	Risk taking top management orientation	Organic top management orientation
H2A.2	✓	Technocratic top management orientation	Participative top management orientation
H2A.3		Conservative top management orientation	Mechanistic and noncoercive top management orientation
H2B.1	✓	A number of strongly held partially conflicting goals for the enterprise	Technocratic and participative top management orientation
H3.1	✓	Large size of the enterprise	Bureaucratic structure (in the Weberian sense)
H3.2	✓	Multi-faceted competitive pressure on the enterprise	Decentralized authority structure, sophisticated intelligence, planning, and control systems.
H4.1		Conglomerate diversification	Divisionalised organizational structure
H4.2		Marketing of customised, sophisticated outputs	Matrix organizational structure

Hypothesis No.		Choice Initiating Parameter	Responses Hypothesized to Raise Performance Potential
H4.3		Marketing of standardized and interdependent products	Functional departmental structure, advance planning of operations, inter-functional coordinating committees.
H4.4		Marketing of standardized mass produced products	Vertical integration, decentralization, sophisticated planning and control system
H4.5		Sophisticated capital intensive technology	Sophisticated selection and reward system
H4.6	✓	Strongly held multiple, partially conflicting management goals	A sophisticated intelligence, planning, coordination and control system and sophisticated reward system.
H5.1		Highly differentiated products or technologies	High intraorganizational variations in operating culture, leadership styles, planning sophistication, and degree of technocracy.
H5.2		Highly differentiated products or technologies, and high intraorganizational differentiation	Special coordinative and collaborative mechanisms
H5.3		Interdependence between important organizational units with (a) Low difference in their operating cultures	Reliance on structural coordinative mechanisms.
		(b) Large difference in their operating cultures	Reliance on structural as well as behavioural coordinative mechanisms
H6.1	✓	Specialised training, strong defence needs as well as growth needs and intolerance of ambiguity in managerial personnel	Performance based reward system, job rotation, movement over time through increasingly less structured jobs, participatory decision making structure.

Issues in Testing Hypotheses

A very substantial empirical effort would have to be mounted to test the foregoing hypotheses. Such an effort is shortly planned. Data will be gathered by examining internal documents and published data, by administering questionnaires, and by selectively interviewing personnel. The major problems pertain to operational definitions of variables, sample size, and analysis and interpretation of data. These will be dealt with very briefly, since the thrust of the paper is on developing hypotheses, not on testing them.

Past empirical work provides a good starting point with respect to operationally defining variables, although ensuring that they are valid and reliable measures in the Indian context remains a major task. Some pretesting of the instruments designed to gather the data is called for. Since congruence between sets of variables are hypothesized to be determinants of enterprise performance, congruence measures will have to be developed. Variance of a unit's scores on a set of standardized variables, whose congruence is a determinant of performance, may provide a useable inverse measure of congruence (Khandwalla, 1973b).

Testing of so many hypotheses, even if only in a very preliminary fashion, requires a large sample size. At present, intensive study of only four enterprises is contemplated. However, by selecting multi-unit enterprises, it may be possible to increase substantially the sample size (by treating units as organizations for tests of certain hypotheses).

Multiple regressions on performance, with congruence measures as independent variables may be a reasonable way of testing the hypotheses listed in Table 1, provided a large enough sample is available. Failing that recourse will be had to tests of association and failing even this, to qualitative judgement.

APPENDIX I

SHARE OF PUBLIC SECTOR IN SELECT INDIAN INDUSTRIES

	Year for which Data Available	% Share of Public Sector
Telecommunication equipment	1971-2	100%
Copper	1972	100%
Transport equipment	1970-1	100%
Defence equipment	1971-2	100%
Newsprint	1972-3	100%
Coal	1972-3	Nearly 100%
Heavy Electricals	1973-4	73% to 100%
Power Generation	1970-1	88%
Mineral oil	1970-1	86%
Railway locomotives, boilers, coaches	1969-70	Over 80%
Steel ingots	1972-3	72%
Petroleum: refinery throughput	1972	60%
Nitrogeneous fertilizers	1972-3	46%
Machine tools	1972	43%
Crude oil	1971	42%
Industrial boilers	1971-2	38%
Phosphatic fertilizers	1972-3	35%
Iron ore	1972-3	22%
Textiles (looms)	1973	19%
Railway wagons	1970-1	19%
Manganese ore	1972	15%
Pharmaceuticals	1971-2	11%
Sugar	1971-2	4%

Source : Sri Ram, Sharma, Nair, 1976 Table 1.

APPENDIX II

GROSS INVESTMENT, SALES, PROFITS, ETC. OF CENTRAL GOVERNMENT NON-DEPARTMENTAL PUBLIC SECTOR ENTERPRISES

	1960-1	1965-6	1970-1	1975-6	1978-9 (estimated)
Number of undertakings	48	74	97	129	150
Gross investment (in billions of rupees unadjusted for inflation)	9.5	24.1	46.8	89.7	130.0
Gross sales (in billions of unadjusted rupees)	2.1	8.6	32.4	116.9	150.0
Profits before tax to capital employed	1.1	1.3	-0.2	3.0	

Gross Investment in Select Industries (in billions of rupees)

Steel	25.7
Minerals and metals	4.6
Coal	9.2
Petroleum	4.7
Chemicals and pharmaceuticals	14.7
Heavy engineering	7.8
Medium and light engineering	1.9
Transportation equipment	3.0
Consumer goods	1.1
Trading and marketing services	4.7
Transportation services	8.6
Financial services	2.7

Sources:

(1) "Central govt. public enterprises: performance during 1975-6" Lok Udyog, Vol. XI, 3, June 1977, pp 49-58.

(2) Sri Ram, Sharma, Nair, 1976 (Tables 14, 15).

REFERENCES

Abt, Clark
1972 "Managing to save money while doing good". Innovation, No.27.

Agarwal, R.D.
1973 "What ails the public sector undertakings". Indian Journal of Commerce, Vol. XXVI, Part III, pp. 651-664.

Anthony, Robert
1965 Planning and Control Systems: a Framework for Analysis. Boston: Division of Research, Graduate School of Business Administration, Harward University.

Argyris, Chris
1956 Personality and Organization. New York: Harper

Basak, Aroon.K.
1975 "Management and performance of public enterprises in developing countries: the need for further research". Lok Udyog, Vol. IX, 3, 9-15.

Blau, Peter
1970 "A formal theory of differentiation in organizations". American Sociological Review, Vol 35, 201-218.

Blauner, Robert
1960 "Work satisfaction and industrial trends in modern society". In Galerson and Lipset (eds), Labor and Trade Unionism. New York: Wiley.

Bureau of Public Enterprises (B.P.E.) and Bharat Heavy Electricals Limited
1976 Government Policy for the Management of Public Enterprises. New Delhi: Govt. of India, Ministry of Finance, B.P.E., and B.H.E.L.

Burns, Tom and G.M. Stalker
1961 The Management of Innovation. London: Tavistock Publications

Chandler, Alfred
1962 Strategy and Structure, Cambridge, Mass: M.I.T. Press.

Chatterjee, Pareshnath
1975 "Productivity audit in public enterprises". Lok Udyog, Vol.IX, 4, 31-42.

Child, John
1972 "Organization structure and strategies of control: a replication of the Aston study". Administrative Science Quarterly, Vol. 17, 1963-1977.

1975 "Managerial and organizational factors associated with company performance, Part II". Journal of Management Studies, Vol.12,1.

Child, John and Roger Mansfield
1972 "Technology, size, and organization structure". Sociology, Vol. 6, 368-393.

Clark, James
1940 "Toward a concept of workable competition". American Economic
1961 Review, 30, 241-256. Competition as a Dynamic Process. Washington: Brokings

Crozier, Michel
1964 The Bureaucratic Phenomenon. Chicago: University of Chicago Press

Cyert, R.M. and K.R. MacCrimmon
1969 "Organizations". In Lindzey and Aronson (ed.) The Handbook of Social Psychology, Vol. 1. Menlo Park, Calif: Addison-Wesley.

Cyert, Richard M. and James G. March
1963 A Behavioural Theory of the Firm. Englewood Cliffs, N.J.: Prentice-Hall.

Dhingra, O.P.
1972 "Participative predispositions of public sector managers". Lok Udyog, Vol.V. No.12, pp. 1201-1211.

Dholakia, Bakul H.
1978 "Relative performance of public and private manufacturing enterprises in India: total factor productivity approach". Economic and Political Weekly, Vol. XIII No.8, pp. M4-M11.

Dholakia, Nikhilesh, and Rakesh Khurana
1976 "Total performance measurement system for public enterprises". Lok Udyog, Vol. X, No.4, pp. 43-53.

Dill, William
1958 "Environment as an influence on managerial autonomy". Administrative Science Quarterly, Vol.2, 209-243.

Dubin, Robert
1976 "Organizational effectiveness: some dilemmas of perspective". Organization and Administrative Sciences, Vol.7, 1-2, 7-13.

Dutt, R.C.
1973 "Management of state enterprises-the Kumaramangalam model". Lok Udyog, Vol. VII, 4, 5-10.

Emery, F.E. and E.L. Trist
1960 "Socio-technical systems". In Churchman and Verhulst (eds.) Management Sciences: Models and Techniques, Vol.2 London: Pergamon Press.

Elhance, D.N. and R.D. Agarwal
1975 Delegation of Authority. Bombay: Progressive Corporation.

Friedlander, Frank and H. Pickle
1968 "Components of effectiveness in small organizations". Administrative Science Quarterly, Vol. 13, 289-304.

Galbraith, Jay
1970 "Environmental and technological determinants of organizational design". In Lorsch and Lawrence (eds), Studies in Organization Design, Homewood, Ill: Irwin-Dorsey.

1971 "Matrix organization designs: how to combine functional and project forms". Business Horizons, Vol. 14, 29-40.

Gouldner, Alvin
1954 Patterns of Industrial Bureaucracy. New York: The Free Press of Glencoe.

Hall, Richard H.
1963 "Intraorganizational structural variation: application of the bureaucratic model". Administrative Science Quarterly, Vol. 7, 295-308.

Herzberg, F.
1968 "One more time: how do you motivate employees?" Harvard Business Review, Jan.-Feb.

Katz, Daniel and Robert L. Kahn
1966 The Social Psychology of Organizations. New York: Wiley

Kesary, V.G.
1977 "Exports and the public enterprises". Lok Udyog, Vol. XI, No.3 pp. 3-6.

Khurana, S.K.
1972 "Industrial relations in public and private sector industry in India". Indian Journal of Industrial Relations, Vol. VII, No.3, pp 411-431.

Khandwalla, Pradip N.
1972 "Environment and its impact on the organization". International Studies of Management and Organization, Vol.2, 297-313.

1973 a "The effect of competition on the structure of top management control". Academy of Management Journal, Vol. 16, 2, 285-295.

1973 b "Viable and effective organizational designs of firms." Academy of Management Journal, Vol. 16, 3, 481-495.

1974 "Mass output orientation of operations technology and organizational structure". Administrative Science Quarterly, Vol.19, 1,74-97.

Khandwalla, Pradip N.
1976 a "Some top management styles, their context, and performance" Organization and Administrative Sciences, Vol.7, 4,21-51.

1976 b "Properties of competing organizations" T.R. No.109. Ahmedabad: Indian Institute of Management, Ahmedabad. Forthcoming in Nystrom and Starbuck (eds.), Handbook of Organization Design, to be published by Oxford University Press.

1977 a "The chemistry of effective Management". Vikalpa, Vol.2,2,151-163

1977 b The Design of Organizations. New York: Harcourt Brace Jovanovich

1978 a "The mediating influence of top management styles on the relationship between external environment and organizational structure: tests of some hypotheses". W.P. 23, Indian Institute of Management Ahmedabad.

1978 b "China in bull-pens: creativity in Indian organizations". Paper presented at the 13th Alumni Conference of the Indian Institute of Management, Ahmedabad.

1978 c "Crisis responses of competing versus non-competing organizations". W.P. 192, Indian Institute of Management, Ahmedabad. Forthcoming, special issue on crisis management, Journal of Business Administration.

Kumar, A
1976 "Managerial motivation". Lok Udyog, Vol X, pp. 21-25.

Lawrence, Paul and Jay Lorsch
1967 Organization and its Environment. Cambridge, Mass: Harvard University Press.

Leavitt, Harold
1965 "Applied organizational change in industry". In March (ed), Handbook of Organizations. Chicago: Rand McNally.

Lessem, Ronnie
1974 "Accounting for an enterprise's wellbeing". Omega, Vol.2, No.2

Likert, Rensis
1961 New Patterns of Management. New York: McGraw-Hill.

Lyden, Fremont James
1975 "Using Parson's functional analysis in the study of public organizations". Administrative Science Quarterly, Vol.20, 59-70.

Mallya, N.N.
1971 Public Enterprises in India: their Control and Accountability. New Delhi: National Publishing House.

Maslow, Abraham
1954 Motivation and Personality, New York. Harper

McClelland David C.
1961 The Achieving Society. New York: Irvington

1975 Power, the Inner Experience. New York: Irvington.

Mintzberg, Henry
1973 The Nature of Managerial Work: New York: McGraw-Hill.

Moitra, A.K.
1977 "Practice of participative management in DSP." Lok Udyog, Vol. XI, 2, 35-39.

Narain, Laxmi
1972 "Managers' views about the public sector - a study". Lok Udyog, Vol. 6, Nov. pp 5-15.

Nigam, Raj, K.
1971 "Structure pattern of boards of directors of public enterprises". In Nigam (ed.), Management of Public Sector in India, 37-48 Bombay: Vora & Co.

Nove, Alec
1973 Efficiency Criteria for Nationalised Industries, London: George Allen Unwin Ltd.

Parsons, Talcott
1960 Structure and Process in Modern Societies, New York: Free Press.

Pennings, Johannes
1975 "The relevance of the structural-contingency model for organizational effectiveness". Administrative Science Quarterly, Vol.20, 393-410.

Prasad, Lalmani
1976 "An assessment of upward communication in a public sector organization". Lok Udyog, Vol.X, No.4, pp.35-41.

Preston, Lee E. and James E. Post
1975 "Measuring corporate responsibility". Journal of General Management, Vol.2, Spring.

Pryke, Richard
1971 Public Enterprise in Practice. London: MacGibbon & Kee.

Pugh, D.S., D.J. Hickson, and C.R. Hinings
1969 "An empirical taxonomy of structures of work organizations". Administrative Science Quarterly, Vol.14, 116-126.

Pugh, D.S., D.J. Hickson, C.R. Hinings, and C. Turner
1969 "The context of organizational structures". Administrative Science Quarterly, Vol. 14, 91-114.

Rajan, N.
1976 "Accountability to parliament and laying of annual reports on the table of house". Lok Udyog, Vol. X, No.4, pp. 19-21.

Ramanadham, V.V.
1974 "Accumulated deficits". In Ramanadham (ed.) Pricing and Investment in Public Enterprise. New Delhi: Oxford and I.B.H. Publishing Co.

Ramaswamy, T.
1972 Public Enterprises in India: Objectives & Performance Delhi: Meenakshi Prakashan.

Ray, H.N.
1971 "Public enterprises in India - strategy, objectives, and control". In Nigam (ed.), Management of Public Sector in India, Bombay: Vora & Co.

Roy, S.K.
1974 Corporate Image in India: a Study of Elite Attitudes towards Private and Public Industry. New Delhi: Shri Ram Center for Industrial Relations and Human Resources.

Rush, Harold M.F.
1969 Behavioural Science: Concepts and Management Application. New York: National Industrial Conference Board.

1973 Organization Development. New York: National Industrial Conference Board.

Sales, Stephen, and James House
1971 "Job dissatisfaction as a possible risk factor in coronary heart disease". Journal of Chronic Diseases, Vol. 13, 12, 261-273.

Samuelson, Paul
1967 Economics, 7th Edition. New York: McGraw-Hill

Scherer, F.M.
1970 Industrial Market Structure and Economic Performance. Chicago: Rand McNally.

Schneider, Benjamin and Clayton Alderfer
1973 "Three studies of needs satisfaction in organizations". Administrative Science Quarterly, Vol.18, 489-505

Scott, Robert A.
1957 "The factory as a social service organization: goal displacement in workshops for the blind". Social Problems, Vol. 15, 160-165.

Shortell, Stephen M.
1977 "The role of environment in a configurational theory of organizations." Human Relations, Vol. 30, ,275-302.

Simon, H.A.
1960 Administrative Behaviour. New York: Harper and Row.

Sinha, J.B.P.
1973 Some Problems of Public Sector Organizations. New Delhi: National Publishing House

Sri Ram, V., N. Sharma, and K.K.P. Nair
1976 Performance of Public Sector Undertakings. New Delhi: Economic and Scientific Research Foundation

Tannenbaum, Arnold
1966 Social Psychology of the Work Organization. Belmont, Calif: Wadsworth.

Thomas, Philips
1977 "Personnel policies in public enterprises". Management in Government, Vol. VIII, pp 302-316.

Thompson, James D.
1967 Organizations in Action. New York: McGraw-Hill

Thompson, J.D. and A Tuden
1959 "Strategies, structures, and processes of organizational decision". In Thompson et al. (eds), Comparative Studies in Administration, Pittzburgh: University of Pittsburgh Press.

Trist, Eric and K.W. Bamforth
"Some social and psychological consequences of the Longwall method of coal mining". Human Relations, Vol.4, 3-38

Upadhyaya, K.K.
1977 "The dimensions of import substitution in India". Lok Udyog, Vol. XI, No.1, pp.37-42.

Upadhyay, K.M.
1977 "Functions of finance executives in selected public sector enterprises". Lok Udyog, Vol. XI, No.9, pp. 15-22.

Van de Ven, Andrew and Andre Delbecq
1974 "A task contingent model of work unit structure". Administrative Science Quarterly, Vol.19, 183-197.

Weber, Max
1947 The Theory of Social and Economic Organizations. Edited and translated by Talcott Parsons and A.M. Henderson New York: Oxford University Press.

Zald, M.N.
1965 "Comparative analysis and measurement of organizational goals: the case of correctional institutions for delinquents". Sociological Quarterly, Vol.4, 206-30.