CHAPTER 9
SUMMARY, FINDINGS AND SUGGESTIONS

9.1 Introduction

9.2 Model Used

9.3 Major Findings

  9.3.1 Material Productivity Analysis
  9.3.2 Labour Productivity Analysis
  9.3.3 Overhead Productivity Analysis
  9.3.4 Overall Productivity Analysis

9.4 Suggestions and Policy Directions

9.5 Limitations of the Study

9.6 Future Scope of the Study
9.1 INTRODUCTION

Most non-communist third world countries have mixed decentralized systems, with a relative progressive private sector and the toddler mouse public enterprises. These enterprises if put in proper, timely and adequate use would provide a stable and substantial background for creating a proper long term infrastructure, useful for the private sector for its commercial use, increase own as well as private sectors productivity create employment and the needed products useful for the country as a whole for security purpose and the needed commodities for the masses at the fair prices. Thereby the accountability and responsibility of the public sector, would take the society’s welfare at the higher level. The public sector along with the provision of organized employment, it gives higher emoluments in terms of money and kind even after retirement in the form of gratuity and pension. Thus it directly as well as indirectly takes care of its people during their life time as well as even after their demise. Therefore it is said public sector is formed not to shelter a few during their life time, by providing a better living standard, it has to undertake social responsibility by providing developmental facilities like housing, roads, electricity, water supply communication, IT and above all the general security by creating law and order through government.

In many countries in which India is no exception, public sector is the progeny of pre-independence foreign owned industries and the colonial infrastructural network. In this way, the genesis of public sector in most third world countries is neither an ideological origination nor a product of any coherent and pre conceived public policy. Thus, these are the historical genesis. They are the supplied theory of organizational practices and adaptions from the west. With a commanding private sector and dominant trading and manufacturing classes in their respective countries, the colonial powers, have come to plant a particular type public intervention philosophy and a certain role to public sector. Apart from regulations, the states’ entry is halting restricted to the unavoidable minimum and confined, as far as possible to infrastructural network. Where entry is found necessary, the role of the public sector was mostly adjunctary, supportive and promotive of private sector development. In this a way, these countries have inherited the patterns of organizations be departmental or public corporations, as evolved during colonial periods and subsequently, filling advisory need through foreign advisers.
The nationalization of foreign owned industries, creating financial institutions and states entry into critical sectors of the economy, is in order to gain essential economic autonomy from foreign capital and ownership and internal vested interests. The question of interest is, what sorts of activities viz. railways, aircraft industry, petroleum, steel and metal industry, electricity, coal chemicals or fertilizers, etc. These and many more are found in private and public sectors. Thus the best to conclude is that there is no such activity, in which public sector is either inherently adapted or necessarily unsuited.

There is a big public sector leap in Asian countries, India is a counted in it. With the financing having been done in these enterprises and with the relationship with the economy’s growth – surely India has reached the second stage of take-off and now it is maturating towards developed strategy developmental stage. As discussed earlier public sector functions for the production and acceleration of economic and social justice linked through its expansion and diversification and create better conditions for the poor majorities.

The performance of the public sector, including industrial enterprises in the third world countries and specifically in Indian environment has been appalling. A country with great diversification along with expansion is India. The government India owns in some of the most critical sectors of the economy. Most of the financial institutions, commercial banks, sources of energy including petrol and petroleum products, gas and electricity, coal, life insurance, railways and airways were under its direct control capital intensive sectors, enjoy a dominant place viz. steel, heavy engineering, heavy electrical, machine tools and import trade. It is also significant that out of the just 25 largest corporations in terms of fixed assets 23 were public enterprises, in which 70 percent of the paid up capital of 46586 joint stock companies as on 31st March 1977 was owned by less than 2 percent government companies.\(^{165}\)

One unhealthy development has been the proliferation of public enterprises, at state level for political patronage. The performance of public enterprises has also been at moderate rates. It was estimated by India Bureau of PES that in the year 1980-81 seventy five running enterprises incurred a loss to the extent of Rs.754 cr. But thereafter with the post reforms liberalization of the tax structure, governments role of providing a privatization look through market investment through BSE. Entry in the market after

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1991 and specifically the millennium century approach, providing incentives, tax relief and development margin to such enterprises development, has done well.

This Research Work is on 10 navratnas, focusing on the productivity in which material, labour and overhead productivity have been found out using different tools and methodology at along with the total factors overall productivity analysis has been done.

Productivity shows the efficiency with which different inputs are transferred into goods and services. It is a multitude concept, no single definition can fully satisfy a persons. Productivity word points out at the ratio between the input and output. It is high when output is obtained from same input, or the same output is derived from less input. In mathematical terms it is written as output/output. Higher is the productivity higher share be the gross national product GND leading to higher living standards. Higher productivity can be regard4d as an efficiency of O/I terms. Men, material, machines, capital power services are lead to productivity.

9.2 MODEL USED

This study uses the productivity accounting model, after going through the above methods and finding it most viable to measure and analyse the productivity of the 10 navratnas taken in this study were BEL, BHEL, BPCL, GAIL, NALCO, HAL, HPCL, RINL, OIL, and NMDC respectively. All these industries are of central public sector enterprises. They are not only useful important but essential for generating infrastructure, useful for the industries as well as society as whole for increasing social welfare as well for supporting the needs of army for better security of the nation – for items which are essential for country’s defence purposes. It also serves the private sector through infrastructure provisions and controls it both in terms of quality and prices. Thus it has the accountability to the nation and social responsibility towards the masses.

The selection of productivity accounting model’s selection for this study was made on the grounds shown below. First it undertakes partial productivity ratios, in which material, labour, overheads as fuel, advertisement, transport are included and measured through its techniques which is possible. Second the subject of this study is based on accounting measure or productivity, which focus on accounting and commerce. Over and above this base year of output and input for model valuation is
made possible. Here it should be noted that input and output are considered without the inflation aspect adjustment.

The calculations of ratios show the productivity of 10 navratnas. Ratios as well as indices are also found out, which are useful in knowing the growth of respective enterprises during the study period. These aspects become the basis for comparisons. Productivity indices and knowing input output as well as output input ratios 2002-03 is taken as the base year for the period 2002-03 to 2011-12. It is accepted as the normal year in terms of economic activities. The study is based on the data published in the annual financial statements of the sample enterprises. The period for this study is 2002-03 to 2011-12 covering ten year period.

The productivity indices have been tested based Chi square two hypothesis, first based on null hypothesis in which productivity indices can be shown as the straight line trend on the least square method. Chi square test points out at interval as well inter productivity growth. This method is used to overcome the problem, where other methods do not suffice to show clear results. The second hypothesis represents no significant difference between productivity ratios of the PS enterprises, based on truskal walis on way analysis variance test which focuses on inter unit comparisons. It shows below the critical value and with 5 per cent significance difference or one per cent difference null hypothesis is accepted or else it is resultant to alternative hypotheses.

For the sake of better understanding, it would be pertinent to know about the results derived from different enterprises. These enterprises taken as 10 samples from the total 16 navratnas are the largest organised corporates, having a great importance in the Indian economy playing an eminent role in Indian development by uplifting the needs of the general bases at fair prices, thing the break or private monopoly and accelerating the pace of development. This can be achieved by higher productivity investing producing, distributing the commodities which are not provided by the private sector due to less profits high investments, low returns and big lag period in production. Thus these industries taken in this study are basic industries for the betterment of socioeconomic existence.
9.3 MAJOR FINDINGS

Ten navratnas are taken in this study, five manufacturing units Bharat Electronics Limited (BEL), Bharat Heavy Electrical Limited (BHEL) producing the heavy electrical items in terms of capital goods useful for electricity purpose for plant for generating electricity and produce other heavy use wires, high angled pillars, generators, transformers and other products needed or used for such purposes. BEL on the other hand produces electronics items useful for communication and IT uses, items needed for VSNL and MTNL and other items like radar sophisticated needed for defence purposes. Such products are produced by crisis as a monopolistic unit as well as to keep such a product away from private sector interference. National Alluminium Corporation Limited (NALCO) produces alluminium products. Similarly Hindustan Aeronautics Limited (HAL) produces civil aviation as well as aircrafts and spares both manufacturing and assembling of various machines have proved its importance for and in India. Lastly Rashtriya Ispat Nigam Limited is iron and steel industry and have to face certain discrepancies due to government policies.

The second group taken in 10 CPSUS is of 3 petrol and petroleum products producing companies, viz. Bharat Petroleum Corporation Limited (BPCL), Hindustan Petroleum Corporation Limited (HPCL) and Oil India Limited. These three petroleum companies have a very big share, when it comes calculating input or output expenditure and income i.e. output amount. This is the product which is a part of the natural useful for rolling the wheels of development.

Gas Authority of India Limited (GAIL) and National Mining Development Corporation (GMDC) both of them are the beneath the earth and under water products – i.e. or both.

9.3.1 Material Productivity Analysis

Material is one of the most important factor used in production as input. Material as input is used as raw material in output. Higher is the output with less material used, material productivity is said to be higher or as input material gives more output than before it is said to be an increased productivity. But output remaining the same compelling to the more national as input – shows the decrease productivity. Material constitutes 50% to 60% or 30% to 40% value or even less depending upon the product its use and the value of output produced.
The Table 5.21 in the focuses on material productivity of selected units in terms of annual average and the growth rate of output of the enterprises discussed in the earlier pages. For the purpose of knowing productivity increased in terms of annual growth rate it has been BEL with positive results showing 0.99% followed by 0.06% of HAL. Both of these manufacturing units appear to have done better and could maintain creditable results. The figures of disbelief are 108.52% overall growth of BEL. On the otherwise HAL growth rate shows just 77.66%. One of the reasons, that can be said, for it remain low percentagewise is the global slowdown in manufacturing, scarcity of raw material and shift of exporting raw material and less exports lead to low growth percentage for the period of the study. All other manufacturing enterprises, show the negative productivity growth percentage, i.e. BHEL with -1.43% NALCO with -2.79% and RINL shows -5.07 results.

Oil producing enterprises viz. BPCL, HPCL and OIL plants show negative trend as the productivity growth % was -0.41%, -0.31% and -3.4% respectively. On the growth rate front it 99.3%, 99.86% and 192.95% still the matter of worry was subsidies and the back payments in which they were involved.

Productivity growth wise GAIL shows negative results of -1.96% whereas NMDC shows positive results with 49.46% ratio. The highlight has been -1.95% in material production and growth rate of 103.95% of GAIL and positive results of productivity percentage shows less growth rate i.e. 89.24%. It means that NMDC (mining industry as a whole has been either in suspension of digging out the products during the period of the study or the government policy decisions in certain items producing mine or mining could not be exploited for certain time, either due to their allocations private sector or due to court matters. Whatever it may be the contrasts in results for productivity and growth create a gloomy picture and government is put in a fix.

9.3.2 Labour Productivity Analysis

Labour productivity percentage in the table 6.21 in the index shows the positive trend for the enterprise BHEL and HAL with 7.89% and 2.26% productivity growth whereas growth rate of these two shows the results 100.24% and 118.97% respectively. Labour machine ratio in some cases in petroleum crude oil producing companies is concerned it is more than 2 crore:1 lakh. It appears in the labour productivity side and growth rate side. Productivity and growth rate follows the
material productivity trend. Labour productivity for the other commodity manufacturing enterprises i.e.BEL with -2.30 NALCO with -8.62 and RINL with 5.12% in productivity show the negative trend for the period 2002-03 to 2011-12. On the growth side 111.53% is by BEL, 151.21% by NAIL though productivity of shows negative results RINL also shows 127.73% a positive growth rate against negative productivity percentage of -5.12% for the period in study. Labour productivity percentage in Oil petrol enterprises show -0.25% productivity increase for BPCL and 1.20% for HPCL and 2.20% productivity increase rate for OIL plant. Interestingly growth rate of these three enterprises was 111.76%, 113.60% and 98.14% respectively. The productivity growth index for these three giant corporates was 110.37% for BPCL 120.20% for HPCL and 110.24% of OIL company. The output input ratio was 8.21. This shows that for every Re the outcome in terms of output was in the ratio of 8.21: 0.12 for BPCL for the period in the study. Thus productivity in terms of output outcome for these oil companies appear to be 86:1 O/I productivity ratio i.e. Rs.86 output for every Re spent on labour unit. It was only BPCL where growth rate was negative at -0.25% whereas for HPCL and OIL the results show the positive results of 1.20% and 2.20% for the period of the study oil group companies maintains a positive trade of growth.

The productivity wise growth has been appreciable it could have had been further up, but stringent policies along with the market demand, to support the planning period and take advantage of the sustainable growth rate, it would further be beneficial, if the ministry and the politicians take up the favourable stand and let market forces play the part in demand and supply the results shall be further in favour of the economy.

9.3.3 Overhead Productivity Analysis

Table 7.21 shows overhead productivity of the 10 navratnas showing output input ratio at 15.07 as the outcome of the manufacturing units viz. BEL, BHEL, NALCO, HAL and RINL. Among these BEL appears to get maximum returns as known from its O/I. This is the extent of 10.58 ratio. The lowest ratio pertaining to overhead productivity ratio favour NALCO with 3.08 ratio. I/O wise BEL is at the lowest with 0.09 which shows it is better off with the minimum overhead costs and NALCO with the highest 0.33 I/O, it means that overhead cost of NCL is the maximum compared with the other manufacturing units. BEL with 0.20 growth and
productivity growth rate of 118.04%. In this table RINL with 150.67% is at the top in productivity growth and NALCO with 79.91 at the bottom. The reason in productivity growth being low can be due to increased fuel costs as well as the maintenance costs along with contingency costs summed up with overheads expenditure. The overall outcome shows 0.17 growth.

Similarly for petroleum companies OIL, with 1.83 output input ratio shows overhead expenditure was the lowest giving the view of its operational constraints. On the other side HPCL with 26.89 and BPCL with 24.47 O/I shows that compared to manufacturing companies return are three to four times, so far the outcome of the result is concerned. Here it should be taken into account, petroleum producing companies most of the expenditure is on capital intensive items as machinery. I/O side for both the corporate BPCL and HPCL show 0.04 whereas OIL shows 0.55 I/O ratio. For all the companies growth rate has been 0.12% productivity growth wise BPCL has 123.38% with OIL with 98.22% is last among the three oil producing companies in the study.

GAIL and NMDC are the monopolist firms – GAIL producing gas whereas NMDC mining where iron ore, copper, zinc and other items in metallic form. Both the companies show that expenditure-wise GAIL with 11.98 ratio and NMDC with 4.69. Though the new government policy of allowing private companies to enter the fray have further created oligopolies – by handing over same parts for exploring gas in Krishna and Godhavari and Jamnagar in the sea water to Reliance and to some extent Adani Group still I/O results show NMDC with 0.25 and GAIL with 0.07 shows growth of -0.03 GAIL and NMDC 0.87 with 241.07% growth and GAIL showing productivity growth of 98.53%. This is the reason why the companies including huge profits, thence showing surplus. This is an advantage to the government as a whole, where such companies can be looked at the time of need for investment for higher responsibility for the planning, that it has taken for economic development of the nation.

9.3.4 Overall Productivity Analysis
Overall productivity shows the overall expenditure in table 8.21, taking into account selected units of the central public sector enterprises. The total manufacturing units i.e. BEL, BHEL, NALCO, HAL, and RINL the output input ratio is 5.30 annually with NALCO at 0.56 the lowest with the least results at the bottom and RINL
showing 1.38 ratio at the peak ratio results. Productivity results show 102.85% whereas input output results at an average of 2.69 per annum showing an outcome average of -1.48% and productivity growth of 110.99% yearly.

Similarly 3 oil producing and distributing companies show 1.493 as ratio average with OIL at 2.41 ratio towards overall productivity and BPCL as well as HPCL show 0.96 ratio each and OIL 0.42 ratio which is the least expenditure and better returns in terms of profitability productivity index shows 106.79% annual whereas productivity growth rate it is 98.78% at an average with OIL at the bottom with 93.50% HPCL at 102.89% and 99.89% respectively. GAIL and NMDC are the two monopolist companies which shower their experience to the private sector. But in the last 5 years the mining industry as well as gas sector is under heavy criticisms due to political private industrialists as well as the so called politicians who have blackened their hands by entering counteracts with the private sector. Bigwigs industrialists of a big satire have had to face the brunt to prove their creditability. As these are the two sectors along with petrol and petroleum products in which once the heavy, capital intensive investment is made or rigs and machineries pertaining to exploration under the sea water and digging on the land surface it becomes a matter of risk and safety for which such machineries for petrol items as well as for gas exploration and exploitation of the natural source is 2 crore : 1 lakh. Thus it is the maintenance cost, fuel costs, enrolments to labour according to this field knowledge and the risk involved in such opportunity, enrolments to the employees are paid accordingly.

The results of GAIL and NMDC where productivity results show their ratios low at 0.02 and 0.07 at an average respectively for the period the study. Still the overall outcome thought is -4.28% for GAIL and 23.98 shows that inspite of productivity being 99% and 106.45% productivity growth rate shows an ample example for the role of labour productivity in these firms, that shows the role of labour in the mining sector is not only more, or is not only important it is essential as some of its processes which need, decision making at different levels of mining, the need of labour exists. For GAIL the underground underwater explorations are more by machines, and labour skill is also needed at different stages of production. Thus it appears the results are positive.
9.4 SUGGESTIONS AND POLICY DIRECTIONS

From the above findings the following suggestions can be made for improving Material, Labour, Overhead and overall productivity of selected units.

(A) Material Productivity:

To improve Material Productivity Out of 10 selected units except BEL & HAL have negative material productivity growth percentages like BHEL (-1.43%) NALCO (-2.79%) RINL (-5.07%), so this unit must concentrate on better uses of materials, to improve the material productivity.

(B) Labour Productivity:

The use labour units in different enterprises are different. Just to make the point Straight a few enterprises have the labour expenditure more than other factors of production. Thus to improve labour productivity proper ratio of Skilled, Semi-Skilled and Unskilled Labour should be maintained.

(C) Overhead Productivity:

To improve Overhead Productivity out of 10 selected units except BHEL & HAL has negative growth. From the viewpoint of productivity among the 10 selected units the performance of BEL is very Low as compare to remaining 9 units. So, BEL needs to concentrate on overhead expenses of organizations.

(D) Overall Productivity:

From the viewpoint of overall productivity NALCO’s performance is the lowest of 0.56, and followed by RINL (1.38%). Hence, these two units need to improve its productivity.

9.5 LIMITATIONS OF THE STUDY

1. The secondary data which is used for this study is based on Annual Reports, Journals, Magazines and other Publications. Therefore, the quality of this research depends on quality and reliability of data published in Annual Report.

2. This study is related with only for Navratna Companies of India. Findings cannot be generalized entire Public Sector.

3. There are many approaches to the measurement of productivity. There is no unity among the experts. So the researcher has taken productivity accounting model.
4. Productivity Accounting Model has its own limitation which also is applied to the research study.

5. The calculation of partial productivity is only for academic interest.

9.6 FUTURE SCOPE OF THE STUDY

The issue of productivity is receiving a lot of attention in the media and the policy community. It has also attracted a good deal of commentary from various interest groups. By and large, this has helped move the debate in the right direction, even though at times there may have been attempts to use the debate to promote particular agendas. This underscores the need for a broader, more inclusive public, engagement. While simple enough in concept, productivity is notoriously difficult to measure, and even harder to attribute to specific causes.

Notwithstanding the uncertainties surrounding measurement, it remains a constant ambition for government, business and the community to maintain and improve the high living standards that Indian are enjoying over last decade. Government policies are clearly integral to the economic environment in creating and shaping the fundamental influences and complementary policies that support productivity growth. Good understanding, good process, and open public debate are an essential part of this.

Complementary policies and programs need to be monitored and evaluated regularly against well-defined performance indicators to mitigate the risk of policy failure and ensure they are achieving their target objectives in an effective and efficient manner. The current productivity debate needs better information, more data and better access, more analysis and more analysts to participate in policy development. It also requires a deeper and more nuanced understanding of the phenomena at play in our economy that takes account of the broad spectrum of social, environmental and strategic considerations. That is why broader public engagement is essential.

Through record-high terms of trade, the Millennium Mining Boom has delivered a big boost to our incomes in recent years but that will not last forever. Going forward, India’s youth demographic and increasing working population mean that our future living standard will rely a lot more on productivity growth. The productivity debate is ultimately about securing India’s future.
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XIX


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XXI


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- **Kutch Tourism** - Changing Standards - Rashmi Kumari Gautam
- **Productivity Analysis of Central Public Sector Enterprises** with special reference to 10 CPSEs - Pravin R Patel
Productivity Analysis of Central Public Sector Enterprises with special reference to 10 CPSEs

ABSTRACT

After independence, it was a favour duty of government for economic development by adopting a process which took the economy towards a developed stage. A mixed economy, purview gave public sector a dominant role to play. Government policy and the global environment put a great pressure on industrial sector to increase productivity with efficient and effective performance. Thus with the background of colonial rule, India march towards socio-economic set up, gave a higher responsibility to function with high accountability and undertook social responsibility.

Key words: Total Factors Productivity CPSEs, Impact on Indian Economy
PRODUCTIVITY ANALYSIS OF CENTRAL PUBLIC SECTOR ENTERPRISES WITH SPECIAL REFERENCE TO 10 CPSES

1. INTRODUCTION

Since planning as a process for development, public sector has come to a dominant position in the economic scene. The government departments till 1947, discharged the low and order function, but they had no instrumental experience of running industrial and economic enterprises. Public sectors afterwards became a tool with some modifications for bringing desired economic goal. Thus public sector became the chosen instrument for achieving greater production and proper distribution.

2. INDUSTRIAL POLICY 1956 AND THEREAFTER

The industrial policy resolutions showed the path of which public sector was to start and develop (i) basic industries (ii) strategically important (iii) infrastructural facilities and (iv) public utility services. Many of such industries had a massive capital investment and had a long gestation period. There were the core industries and were beyond the capacity of private sector. The mission two, of public sector was not profit maximization but was to achieve balanced development to curtail private monopoly be useful to the society in terms of social considerations as a whole and look after the requirements of the defence. This does not mean that profits should expect, as profit it is a measure for better performance and efficiency.

3. IMPORTANCE AND WHY SELECTION OF THIS TOPIC

This paper focuses on the Central Public Sector Enterprises having been decorated by the centre with the world Navratna due to the following aspects.

1. ENORMOUS SIZE

Its size is not only due to financial operations – but they turn out diversity of output of goods and services and controls activities in areas like, fuel, electricity, petroleum, coal, metals, fertilizers, electronic equipment, communications, IT, gas, etc. and even bread and milk and in other enclosed fields.
2. PHENOMENAL GROWTH

Massive capital investment made the number of personnel employed turnover and support to the government exchequer is huge and the strategic nature of the products and services – talks the public sector in the key position.

3. MODEL EMPLOYER

Public sector is expected to be just and fair to its employers. The employee may not be model one – public sector has also to support under privileged section in the matter of recruitments etc. and with the better return be accountable and socially responsible, both, production wise and productivity wise, pricewise and support-wise take up sick units, takeover the sick textiles mills in Ahmedabad. Profitability may be distorted by factors beyond the control of managements dumping more constraints on the public sector. Therefore profitability may not be good parameter for judging performance of the public sector. It becomes necessary to find out some other way to judge the performance of this sector. “A study of productivity of public sector units becomes relevant”. It is the duty of every respective enterprise’s management with the given constraints affecting the unit, to improve its productivity and make continuous efforts to monitor and improve it.

4. PERFORMANCE OF PUBLIC SECTOR

Public sector has come under criticism in all forums viz. social as well media in general. The operational decisions are based on considerations then commercial. A plant in a backward area lacks required infrastructure. This increases the project and operating costs. But there are social economic benefits to the area as a result of location of a unit – but this is not slated in the balance sheet of the enterprise. Similar is the case in terms of price of its products wherein strategic items might be subsidized – gas, petrol, etc. This would help the pocket of the consumers – or other firms using such products as inputs. This all is not reflected in their balance sheets.

5. CUMULATIVE EFFECT

The productivity of any commercial unit, private sector or in public sector is the cumulative effect of the productivity of number of inputs and services in the production
process. Thus in the manufacturing unit, there are inputs like materials, labour, capital, overheads, etc. This is also known as partial productivity – with different inputs being focused of the respective productivity.

6. INVENTORY AND INVENTORY CONTROL

Inventory is the vital area for the materials put on process use. Raw materials, stores and spares are purchased, stored and issued to the respective department at the needed time by the material department. Thus purchased, stored, issued at the right time effects productivity. Thus it becomes necessary for material’s department to have inventory control. Storing the needed stock in terms of quantity and quality it would not have to face a larger financial impact. For this just in time purchases of inputs and other stores for the plant is the best way for curtailing the expenditure on the output produced. Therefore time, prices of materials, their supply and trend of domestic and international markets, along with the government policies, expectation of changes should be worked out.

Paper accounting for the stock in the stores and the life of existence of stock spares that it has frequently cleared the shelf of the raw material or spare to keep the vouch and account. Higher is the ‘turnover’ of spares more efficient shall be the timely production and there would be no old stock if periodical and continuous stock account (inventory is taken regularly) leading to first in first out basis.

1. To keep the production what moving relevant items, sufficient stock is maintained and do not effect operational closure.
2. Arrangement should be systematic … verified … usable should not be out of date.
3. Maintain proper records and accounts … by maintaining receipts and issue records receipts. Positive answer in the above would help to achieve
4. Partial and Overall Productivity

Partial productivity focuses on material productivity, labor productivity, and overhead productivity. Taking into account and putting all these inputs biz. Materials, labour and overhead shows the overall, all factors productivity.

The discussion above leads to overall productivity of central public sector. 10 navratna enterprises viz. (1) Bharat Electronic Limited (BEL), (2) Bharat Heavy
Electrical Limited (BHEL), (3) Bharat Petroleum Corporation Ltd. (BPCL), (4) Coal India Limited (CIL), (5) Gas Authority of India Limited (GAIL), (6) Hindustan Aeronautics Limited (HAL), (7) Hindustan Petroleum Corporation Limited (HPCL), (8) Rashtriya Ispat Nigam Limited (RINL), (9) National Aluminum Company Ltd. (NALCO), (10) National Mineral Development Corporation Limited (NMDC).

4. OBJECTIVES OF THE STUDY

1. To examine the overall productivity of the central public sector enterprises.
2. To know the results and impact of 10 CPEs enterprises.

5. WHY TO MEASURE AND ANALYZE

For finding out the productivity which is understood as the ratio of output to input with respect to given resources(1) Robert E. M.C. Garrah(2) defines productivity as, “a ratio of output of goods and services to input of resources.”(3) Higher productivity means (i) more is produced with same expenditure of resources or (ii) the same amount is produced at less cost. When more is produced with the same expenditure of resources it may be termed as effectiveness when the same amount is produced at less cost it may be termed as efficiency. “Productivity” word covers both- “There is a growing recognition that productivity measures parse however, computed provide little guidance either for public or for private economic policy and that such measures only take on significance when the factors associated with the changes or differences shown have been analysed”(4) “Measurement of productivity simply helps to identify areas for corrective action towards Planning, redeployment of resources and other management control techniques to achieve better performance.(5)

Measurement and analysis based on three types of indices(6).

1. Total productivity index viz. total output/all input factors
2. Total factor productivity viz. Net Output/Total Factor input
   Where Net output = output – intermediate goods and services
   Total factor input = Manpower input + capital input
3. Partial productivity index i.e. output / one factor of input

The importance of other factors besides labour efficiency is clearly recognized by the users of data(7).

6. MODEL AND METHODOLOGY USED

This study for the selection of model to be used for results and findings has relented more or “Productivity Accounting Model”(8) (PAM) wherein

- The data which is used should be available for the measurement of productivity.
- It should help management in analyzing areas of improvement, taking into account all possible outputs and inputs used – keeping out external factors such as price rise etc. from calculation of productivity of the organization. PAM as is observed takes all these considerations into account for this reason the model is taken in the study because

1. This is the best model available
2. The model is based on accounting data and the present paper is also based on accounting thus this model is found to be fit. Rightly has John Carey(9) said, “Accounting can deal with data not only in terms of money, but also in terms of material labour, time, index numbers and other valid units of measurement, accounting is not as many suppose confined to financial data”. To begin it with the definition of productivity as a ratio of output to input(10) where output and input are measured in money terms that is in rupees in India. In order to overcome the price changes, where rupee purchasing power reduces due to inflation to overcome this situation and to make the analysis more useful, the method is required for revaluation output and input. This can be undertaken by the base year price.

Thus tools along with model, collection of data, selection of the base year, variables are discussed, revaluation having been done, comparison of the ten Central Public Enterprises, though Chi square test and Kruskal Wallis one way analysis of variance along with statistical techniques of mean, standard deviation and coefficient of variation has been formed with their respective results.
7. OUTCOME WITH THEIR RESPECTIVE RESULTS

Taking the output and input figures from the Annual Financial statements of respective 10 CPSEs. Results are as follows in the form of ranks to the units as per their productivity and performance.

Furtherance to this, one can find from PR Patel’s thesis which shows above results, appear to be hypothetically tested and to be positive.

Table (i) Comparison of Total Factors Productivity of Navratnas Percentagewise 2002-03 to 2011-12

<table>
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<tr>
<td>1 BEL</td>
<td>1.30</td>
<td>6</td>
<td>106.36</td>
<td>2</td>
<td>5.03</td>
<td>4</td>
<td>2.41</td>
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<td>6</td>
<td>-0.09</td>
<td>5</td>
<td>28</td>
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<tr>
<td>2 BHEL</td>
<td>1.24</td>
<td>8</td>
<td>106.12</td>
<td>3</td>
<td>3.64</td>
<td>2</td>
<td>0.58</td>
<td>3</td>
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<td>8</td>
<td>0.95</td>
<td>3</td>
<td>27</td>
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<tr>
<td>3 BPCL</td>
<td>1.04</td>
<td>10</td>
<td>93.41</td>
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<td>0.13</td>
<td>1</td>
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<td>6</td>
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<td>6</td>
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<td>4 GAIL</td>
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<td>93.36</td>
<td>10</td>
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<tr>
<td>9 OIL</td>
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<td>6.82</td>
<td>1</td>
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</table>

The highlight of figures in table (i) shows total factors productivity for the 10 navratnas

1. Total of output input ratio comes to 16.82 with an average of 1.682 as ratio, which appears to be similar to their counter parts i.e. private sector NMDC tops the list with 3.95. O/I ratio and BPCL with 1.04 ratio.

2. Productivity-wise index also the total index shows 1015.36 with an average of 101.563%. Here it should be noted that majority of the CPSEs are fuel and electrical consumers’ utility produced items in which a certain amount of autonomy is given to the respective management – it appears bureaucracy and Ministry in charge still have a say in decisions of the companies to a smaller or greater extent – and our social functioning of bureaucrats are slave to their habits. Thus decision is either pending or taken late which pressurize the decisions for operations of the enterprises.
3. Coefficient variance value total is at 105.69% with the average value at 10.569 against the Chi square average of 5.9555. With their outcome hypothesis Ho of null hypothesis and H1 alternative hypothesis – null hypothesis appears to have been accepted in BEL, BHEL, BPCL, GAIL, GHAL, OIL. Thus the test of Kruskal Wallis has proved to be positive. H1 alternative hypothesis is accepted – a null hypothesis is neglected in NACL, RINC, and NMDC.

4. Input output average shows the total of 10 navratnas at 7.18 ratios with an average of 0.718, each is efficient performance wise in the long run.

5. Growth rate of these central public sector enterprises during the period of study i.e. 2002-03 to 2011-12 has been positive to the extent of 1.049% growth rate per annum.

   Overall productivity shows rank wise OIL at the first rank, the second and the third ranks are occupied by BHEL and BEL followed by NMDC at the fourth rank and at the bottom i.e. the 10th is again the petroleum giant HPCL.

8. CONCLUSION

   The mission for public sector enterprises is to support to create economic and social infrastructure, which may provide opportunities for the society in general for higher growth. The public sector is not only accountable to the society or to the government; it has taken into consideration commercial and environmental aspects. It has to operate with a view to put control on the private sector monopoly side by side; it has to prove its efficiency in performance. This can come by growth and profits, as these are the factors showing productivity and efficiency along with effectiveness of an individual enterprise. Overall situation shows PSCEs are providing their worth though political pressures divert their responsibilities.
9. REFERENCES

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Table of Content

1. THE ROLE AND PERFORMANCE OF PUBLIC SECTOR ENTERPRISE IN INDIA- Prof. Pravin R Patel
2. MANAGING AND REPORTING INTELLECTUAL CAPITAL- Mr. Mukesh R. Goyani & Mr. Jignesh P. Vaghela
3. INVESTIGATING IMPACT OF CULTURE ON MANAGEMENT STYLE OF EXPATRIATE MANAGERS- Naitik J Patel
4. ECONOMIC VALUE ADDED- Dr. S J Parmar
5. RAJIV GANDHI EQUITY SAVING SCHEME (RGESS) AN OVERVIEW- Dr. Shailesh J Parmar
6. STRESS MANAGEMENT: A PATH OF HAPPY LIFE- Dr. Meenakshi Somani
7.  ચીન–ભારત–જાપાન વચ્ચે વિપશ્ચી વ્યાપારની  ની સંકીર્ણતા પર સમાચાર -
THE ROLE AND PERFORMANCE OF PUBLIC SECTOR ENTERPRISES IN INDIA

ABSTRACT

In a developing economy like India, public enterprises have become an essential part of The programmes of economic development. It would not be appropriate to use any single measure to estimate the role of public sector in the Indian economy. It would be desirable to use a few indicators like employment, investment, value of output, savings, capital formation and capital stock. The development of basic and key industries, has all along taken place in the public sector. The paper represents the role and performance of Public Sector Enterprises in India. This paper also includes the challenges which the Public Sector Enterprises are facing in an economy.
THE ROLE AND PERFORMANCE OF PUBLIC
SECTOR ENTERPRISES IN INDIA

1. INTRODUCTION

Public sector undertaking is a term used for a government-owned corporation. The term is used to refer to the companies in which the government owns a majority (51% or more) of the company equity. A public sector enterprise is a corporation where management control of the company rests with the government; it can be central government or the state governments. Prior to 1947, there was no “Public sector” in the Indian economy. The only instances worthy of mention were the railways, the posts and telegraphs, the port trusts and Aircraft factories and a few state managed undertakings like the government salt factories etc. However in the post independence period the expansion of public sector was undertaken as an integral part of the 1956 industrial policy.

The industrial policy resolution 1956 gave the public sector a strategic role in the Indian economy, for one thing at the time of independence the country was backward and underdeveloped basically an agrarian economy with a weak industrial base, heavy unemployment, low level of savings and investment and near absence of infrastructural facilities, Indian economy needed a big push. This push could not come from the Indian private sector, which was starved of funds and of managerial ability and was incapable of undertaking risks involved in large long-gestation period investments. The public sector was thought of as engine for self reliant economic growth to develop a growth to develop agricultural and industrial base, diversify Indian economy and overcome economic and social backwardness.

2. CLASSIFICATION OF PUBLIC SECTOR UNDERTAKINGS

Public Sector Undertakings (PSUs) can be classified as Public Sector Enterprises (PSEs), Central Public Sector Enterprises (CPSEs) and Public Sector Banks (PSBs). The Central Public Sector Enterprises (CPSEs) are also classified into 'strategic' and 'non-strategic'. Areas of strategic CPSEs are:
• Arms & Ammunition and the allied items of defence equipments, defence aircrafts and warships
• Atomic Energy (except in the areas related to the operation of nuclear power and applications of radiation and radio-isotopes to agriculture, medicine and non-strategic industries)
• Railways transport.

Public Sector Enterprises having objects to promote commerce, art, science, religion, charity or any other useful purpose and not having any profit motive can be registered as non-profit company under section 25 of the Companies Act, 1956. This section empowers the Central Government to grant a licence directing that such an association may be registered as a company with limited liability, without the addition of the words 'Limited' or 'Private Limited' to its name. Such companies are also called as the Non-profit or 'No Profit - No Loss' companies.

3. OBJECTIVES OF CENTRAL PUBLIC SECTOR ENTERPRISES

In a developing economy like India, public enterprises have become an essential part of The programmes of economic development for the following reasons:
• To Build and Develop Infrastructure
• To Provide a Strong Industrial Base
• To Raise Resources for Economic Development
• To Achieve a Desired Pattern of resource Allocation
• To Secure a Balanced Regional Development
• To reduce Income Inequality

4. ROLE OF CENTRAL PUBLIC SECTOR ENTERPRISES

Public sector has made an important contribution to the economic development of India during the planning period. The passage of Industrial Policy Resolution of 1956 and the adoption of the socialist pattern of society as our national goal further led to deliberate enlargement of the role of public sector. It would not be appropriate to use any single measure to estimate the role of public sector in the Indian economy. It would be
desirable to use a few indicators like employment, investment, value of output, savings, capital formation and capital stock.

1. EMPLOYMENT GENERATION

There has been a rapid and continuous expansion of employment in public enterprises. There are two important categories of public sector employment: (a) government administration and defense and other government services like health, education, research and various activities to promote economic development. (b) public sector proper i.e. economic enterprises owned by the center, state and local government.

CPSEs employed 14.9 lakh people (excluding casual workers) in FY2010 as compared to 15.3 lakh in FY2009, a decrease of 2.8 percent. However, total salaries went up from INR 83.0 thousand crores in FY2009 to INR 90.9 thousand crores in FY2010, a growth of 9.4.

Gross Domestic Product (GDP) CPSEs growth has been in line with the overall growth of the country, recording a CAGR of 11 percent as against the GDP growth rate of 16 percent CAGR during FY2005-2010. Decline in turnover from INR 12.7 lakh crores in FY2009 to INR 12.3 lakh crores in FY2010 was primarily because of reduction in sales of refined petroleum (INR 74 thousand crores) though turnover is some other industries have been increased e.g. transportation, power generation, etc.

2. INFRASTRUCTURE

Public sector has made a very valuable contribution in the development of a strong infrastructure and the provision of social and economic overheads, which is an essential precondition for rapid economic growth. This includes development of transport and communication, power, irrigation, education, research and training public health services, housing etc.

3. STRONG INDUSTRIAL BASE

Public sector has also made a notable contribution in laying the foundation of strong industrial base. The development of basic and key industries, has all along taken place in the public sector. These industries include iron and steel, heavy machinery, heavy
engineering, heavy electronics, heavy chemicals, minerals and oil, cement, fertilisers, etc. The development of these industries in the public sector has laid the foundation of a strong rapid and broad-based industrial growth and has enabled the country to attain self-reliance in a number of industrial items.

4. REDUCTION IN REGIONAL DISPARITIES

Public Sector has also made an important contribution in reducing regional disparities. Within the constraints of technical and economic considerations, the backward areas have been given preferences in the matter of location of industrial projects.

5. TURNOVER AND PROFITS

There has been a phenomenal increase in the turnover of public enterprises in recent years. For example, the total turnover of public sector enterprises in 1980-81 was about Rs 28,635 crores which increased to about Rs. 5,86,140 crores in 2003-2004. Public enterprises in India had for the first time earned a gross profit of Rs. 17.8 crores in 1972-73 and since then their profits have shown a sustained rise. For example, these enterprises recorded a net profit of Rs. 445 crores in 1981-82, which increased to Rs. 2,400 crores in 1991-92 and Rs. 53,168 crores in 2003-2004.

6. EXPORT PROMOTION

Some public enterprises have done much to promote Indian exports. The state trading corporations and the minerals and metals trading corporations have done a wonderful job of promoting exports in all parts of the world. Hindustan steel ltd, the Bharat Electronics ltd are some of the public enterprises which are exporting increasing proportion of their output and earning foreign exchange.

7. REDUCTION IN NUMBER OF SICK CPSES

Number of sick CPSEs has reduced from 111 in FY2003 to 45 in FY2010, post the establishment of the Sick Industrial Companies Act, 1992. Under the Act, Board for Industrial and Financial Reconstruction (BIFR) was created to monitor CPSEs that were not performing well. Out of the 64 CPSEs registered with the Board in FY2010, 47 CPSEs have already been disposed off; of which, 2 have been declared ‘no longer sick’
and 5 have been dropped off the list due to improved performance. The BIFR is yet to take action on 17 CPSEs.

5. PERFORMANCE OF CENTRAL PUBLIC SECTOR ENTERPRISES

Policy developments for CPSEs mainly relate to increased delegation of financial and operational powers and revival of CPSEs. With a view to delegating enhanced financial and operational powers to CPSEs, the government introduced the Navratna Scheme in July 1997. In December 2010, the Government introduced the Maharatna Scheme enhancing financial delegation to CPSEs. Coal India Limited and Neyveli Lignite Corporation Limited were conferred Maharatna and Navratna status respectively in 2011 and the number of CPSEs under these categories increased to 5 and 16 respectively. In December 2004, the government established a Board for Reconstruction of Public Sector Enterprises (BRPSE) to advise on revival / restructuring of sick and loss-making CPSEs. The BRPSE has made recommendations in respect of 62 CPSEs until 31 October 2011. The government, in turn, has approved proposals for revival of 43 CPSEs and closure of two. The total assistance approved by the government in this regard up to 31 October 2011 is ` 25,104 crore (` 3,873.86 crore as cash assistance and ` 21,230.67 crore as non-cash assistance). Out of the 43 CPSEs approved for revival by the government, 13 turnaround CPSEs have posted profit before tax (PBT) consecutively for three or more years. There were altogether 248 CPSEs under the administrative control of various ministries/ departments as on 31 March 2011. Out of these, 220 were in operation and 28 were under construction. The share of cumulative investment (paid-up capital plus long-term loans) in all the CPSEs stood at ` 6,66,848 crore as on 31 March 2011, showing an increase of 14.8 per cent over 2009-10. The share of manufacturing in gross block, during 2010-11, was 27.8 per cent. The share of mining, electricity, and services in total investment, in terms of gross block, was 23.0 per cent, 25.2 per cent, and 23.2 per cent respectively. The net profit of (158) profit-making CPSEs stood at ` 1,13,770 crore in 2010-11. The net loss of (62) loss-making enterprises, on the other hand, stood at ` 21,693 crore during the same period. The year also witnessed severe financial ‘under recoveries’ by public-sector oil marketing companies (OMCs) as they had to keep the
prices of petroleum products low in the domestic market despite high input prices of crude oil. Foreign exchange earnings of the CPSEs amounted to ₹ 97,004 crore during 2010-11, which was less than the total foreign exchange outgo of ₹ 5,22,577 crore.

6. PERFORMANCE OF CPSES DURING 2010-11 (RS.CRORE)

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<th>Sr.No.</th>
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<td>9</td>
<td>Interest paid</td>
<td>38998</td>
<td>36060</td>
<td>8.15</td>
</tr>
<tr>
<td>10</td>
<td>Contribution to central exchequer</td>
<td>156124</td>
<td>139918</td>
<td>11.58</td>
</tr>
<tr>
<td>11</td>
<td>Foreign exchange earnings</td>
<td>97004</td>
<td>84224</td>
<td>15.17</td>
</tr>
<tr>
<td>12</td>
<td>Foreign exchange outgo</td>
<td>522577</td>
<td>424207</td>
<td>23.19</td>
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</tbody>
</table>

Source: Department of Public Enterprises.

7. CHALLENGES FACED BY CPSES

While CPSEs have started witnessing considerable rebound and are poised for growth, there are still some roadblocks which may restrict their full throttle growth, some of these include:

1. Corporate Governance:

   There is lack of proper governance structure for CPSEs which often inhibits the transparency and free functioning of these enterprises. Multiple reporting agencies exist with separate agenda, thereby, retarding the growth of CPSEs.
2. **Scope for improvement in projects and operations management:**
   
   CPSEs need to benchmark their capabilities and offerings with private players in order to remain competitive and aligned to pace of the industry. CPSEs need to adopt an integrated approach to offer a sound value proposition to the market rather than working in isolation.

3. **Development and management of manpower:**
   
   It is utmost important for any organization to have the right pool of resources, and the same holds true for CPSEs as well. Recruitment of right talent, training of manpower, matching the skills and job responsibilities, and keep the workforce motivated can act as a catalyst for a CPSEs growth.

4. **Lack of financial autonomy:**
   
   CPSEs do not enjoy financial independence unlike their private counterparts which often lead to delays in decision making. Formulating a business case for fund raising, seeking approvals, etc. can be an arduous task for CPSEs.

5. **Difficulty in attracting private investments:**
   
   Public-private partnerships can be a key success factor for many CPSEs, thus, it is important for government to create a robust ecosystem which encourages private participation.

6. **Political interference:**
   
   There is often a clash between agenda of political parties and objectives of CPSEs which may impair their growth and autonomy. Being a public enterprise, political parties are likely to have influence on decision making of these CPSEs as well.

7. **Bureaucracy, red-tapism and corruption:**
   
   Lack of proper governance, transparency, etc. may translate into bureaucratic and corrupt environment within some CPSEs, leading to a tarnished image of the entire set of CPSEs.
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