CHAPTER-2
REVIEW OF LITERATURE

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2.1 INTRODUCTION:

“If a man can group the required substance, his own views, he is a good writer” – Stevenson

Rightly it is said “A survey is nothing but systematic search for truth. It finds some factual answers to a problem, which is quantifiable and thereby amenable to investigation.

Before moving to any desired area of research, the study of research already carried out in the concerned areas is very essential. Literature survey is the study of such concerned areas of proposed research, which showers direct or indirect influence there on. The reasons to undertake literature survey and the advantages that the researcher can get are discussed below.

- Through literature survey, the utility of past research can be measured and it can be improved further.
- On the basis of such literature survey, rational guidelines can be prepared for proposed research.
- It also provides the information about the limitations of previous research, which are generally imposed due to internal or external constraints. The external constraints pertain to secondary data that points out at further research. The internal constraints come from the scope of work. The external constraints seen in previous research can be taken up in total as long as the external scenario remains the same. Earlier research provides guidelines for adoption of internal constraints, keeping in view the scope of the work.
- Research is motivated mainly by current environment. As the circumstances and environment keep on changing constantly, previous study becomes absentee as it does not or have not incorporated the existing changed circumstances. This shows the need for further research.

The title of this study is “A study on productivity Analysis of Public Sector Enterprises of India-A special Reference to Navratna Companies” of this thesis. The term ‘Productivity Analysis’ is used synonymously with the term Public enterprises (Corporate) Productivity Analysis. All the stake holders have the legitimate right specifically after public sector corporate have been in market say NSE or BSE, where the shareholders have become the additive partners/having the stake the form of dividend in such enterprises as shareholders. Though total capital share of
the government is 51% or above. The shareholders have the legitimate right to get information about different activities of the company, in the form of Annual Corporate Report. At the same time it is a legal obligation on the board of directors to furnish required accounts to the stakeholders including the government political as well as departmental heads to know the exact economic cum social status of such Public Companies with the year to year financial reports.

These reports based on yearly information of such companies, have become the main base as source of information for this research work.

The main source of secondary data used in this work was the annual reports of India Public enterprises (Navratna Companies).

The literature survey covers the studies on various aspects, pertaining to productivity through inputs viz. labour skilled, semi skilled, unskilled, Capital (financial aspects), technological changes viz. use of better knowledge viz. use of IT modem, communications, internet, computers, changes in government policies, quality products, use of better human resource, performance, efficiency and effectiveness. All these traits have been found discussed in various studies by different researchers.

In the present literature survey, the outcome of the previous studies was classified according to their respective focus. In the first level research connected to annual reports conducted in a comprehensive manner. The second level research was to take the data of various inputs viz. materials, labour, overhead expenditures and total factors for productivity. This could give the outcome in the form output dividend by inputs showing the productivity. This has been discussed in the previous chapter.

The studies undertaken abroad by different writers were taken first in chronicle order of labour, capital, knowledge and HRD total factors focusing on level of productivity. Thereafter studies done in by the Indian authors were listed in chronicle order. After going through this exercise an attempt was made to prepare a list showing the areas covered by research related to measurement of productivity.

2.2 MEANING AND BACKGROUND OF LITERATURE REVIEW

A literature review is an account of what has been published on a topic by accredited scholars and researchers. In writing the literature review, our purpose is to convey to the reader what knowledge and ideas have been established on a topic, and
what their findings are. It is not just a descriptive list of the material available, or a set of summaries.

Most are aware that it is a process of gathering information from other sources and documenting it, but few have any idea of how to evaluate the information, or how to present it.

A literature review can be a precursor in the introduction of a research paper, or it can be an entire paper in itself, often the first stage of large research projects, allowing the supervisor to ascertain that the student is on the correct path.

“A literature review is a critical and in-depth evaluation of previous research. It is a summary and synopsis of a particular area of research, allowing anybody reading the paper to establish why one is pursuing this particular research program. A good literature review expands upon the reasons behind selecting a particular research question.”

A literature review is designed to identify related research, to set the current research project within a conceptual and theoretical context. When looked at that way, almost no topic is so new or unique that one can't locate relevant and informative related research.

2.3 IMPORTANCE OF LITERATURE REVIEW IN RESEARCH

Research is made in order to inform people with new knowledge or discovery. However, it is not to be expected that everybody would willingly believe what we are tackling in our whole research paper. Thus, what we can do to make our research more credible will be to support them with other works which have spoken about the same topic that we have for our research. This is where literature review comes in.

(1) One can even have literature sources in works such as project, comments, speech, article, essay, program, theory, and others. This is why literature review involves scanning the pages of any published literature like books, newspaper, magazine, website, webpage, collection, paper, pamphlet, and the like where one may be able to find any reference to the same topic that one researching on. This time, “literature” does not exclusively refer to the poetic rendition of words, like that of Shakespeare alone.

(2) There are many reasons why literature review is rendered as a significant part of any research or dissertation. One may ask what makes it as such if it is only
supposed to contain tidbits of other related works. Literature review is the part of the study where the researcher will be given the opportunity to strengthen the study for one will be citing what other reliable authors have said about such topic. This will prove that one is not just writing about any random subject but that many others have also poured their thoughts on the topic.

(3) One may also ask what makes literature review a necessary part of the paper. This question can be answered by trying not to include the review in our paper. Obviously, it affects the length of our paper but this is not the noticeable part. What would most certainly be lacking is the fact that our paper, without the literature review, only contains all of our opinions about the facts that we have discovered through our research. Thus, how can one further convince the readers, in this case, the committee who will scrutinize our paper? This is the need that is answered only by the literature review. By the mere fact that we are using “referencing” by citing what more credible people had said about the topic will build a stronger foundation for our paper.

(4) With a literature review, one needs to establish a clear tie between the works that one has cited and the topic that one are writing about. One should be able to justify the inclusion of a certain work in our review so as to make everything that one has written useful.

The more one include useless points in its paper, the more that the committee will think that one has not put in a lot of thinking into its paper. Literature review is also unique from the rest of the paper. While one has to fill most of the paper with its own analysis, in a literature review alone, one will have to write purely about related works of other people.

Comprehensive analysis of annual financial reports of company containing financial data and almost every aspect of the activities of the company. The following discussion is on various researches undertaken by different scholars.

2.4 PRODUCTIVITY

1. George Kanavati (1979) uses, ‘Productivity as the ratio between the units of goods or services produced and the recourses consumed in production during a

specified period of time. It means the ratio of output to input with the given recourses ‘.


3. Bell J.F (1960)\textsuperscript{22} Broadly explained, ‘Productivity as the relation between output and input as a measurement of efficiency with which resources of various kind are transformed’.

4. Robert Dubin (1979)\textsuperscript{23} States, ‘Productivity is the efficiency by which goods and services are produced, that is the ratio of the output of goods and services to the input of resources’.

5. Subramanian K.N. (1977)\textsuperscript{24} is of the view that, ‘Productivity is the ratio between the output of a commodity measured by its volume and one or more of the input factors also measured by these volumes’.

6. Alderson and Session (1955)\textsuperscript{25} states ‘Higher productivity means more is produced with the same expenditure of resources or the same amount is produced at less cost, releasing some of these resources for the production of other things’. Therefore when more is produced with the same expenditure of resources, it may be terms as efficiency. Thus, the word productivity is broad enough to cover both.

7. Upadhyaya D.P (1974)\textsuperscript{26} states, ‘Efficiency, maximum output, economy quality, elimination of waste and satisfaction of human through increased employment, income and better standard of living are a few objectives of productivity movement in our country or for such purpose in any other country’.

Productivity is a measure of input efficiency. It points out how many units of output is obtained from unit of input or inputs. When productivity is stressed as the matter for progress, the constant improvement of that which exists, constant adaptation of social life and economic condition to changing environment, the

\textsuperscript{23}Robert Dubin (1979), Human Relations in Administration, Prentice Hall of India, Delhi, 510
\textsuperscript{24}Subramanian K.N. (1977), Wages in India (New Delhi: Tata McGraw Hill Book Co., p.331
\textsuperscript{25}Alderson and Session (1955), Cost and Profit Outlook, Nov. 1951, --------- quoted in Productivity Accounting by Davis Hirma S, University of Philadelphia, Pennsylvania Press, 1955, p.169
\textsuperscript{26}Upadhyaya D.P (1974), Organizational Productivity in LokUdhyog, April 1974, Vol.8 No.1, p.11
continual efforts to apply new techniques and new methods, the trust in human progress and eliminating all types of waste in all forms. It is not alone the ratio but the growth in this ratio. Focusing this word productivity stands for proper utilization of all resources available to achieve best results at minimum cost.

2.5 PRODUCTIVITY AND PRODUCTION

Increased production does not necessarily mean increase in productivity. Productivity is a relative term word, whereas production is an absolute term.

8. Smith E Owen (1971)\textsuperscript{27} Suggest “the word productivity is often confused with ‘production’. Both the words are different, productivity is the ratio, whereas ‘production’ suggests volume”.

9. Prasad N.K (1979)\textsuperscript{28} states that ‘Productivity should not be confused with production. Increase in production does not necessarily mean increase in productivity. Furtherance to it, an increase in production is effects increased quantum of input, there is no increase in productivity.”

An increase in production does not itself indicate increased productivity. If the inputs of resources increase in direct proportion to the increase in output, the productivity shall remain the same. At is input increases in greater percentage than output, higher production shall be achieved at the expense of reduction in productivity.

2.6 PRODUCTIVITY AND PROFITABILITY

10. Shrivastva J. P. (1982)\textsuperscript{29} advocates, “In between cost and profitability there are actually so many factors besides profitability-example, profitability may have its origin in current scarcity.” In addition to this he points out that stresses of development and the market mechanism play their role in inflating the profitability of a producing unit while rationalization of effort in every direction is the true bases of productivity.


\textsuperscript{28}Prasad N.K (1979), Cost Accounting, Book Syndicate Private Ltd., Calcutta, pp.13-20

\textsuperscript{29}Shrivastva J. P. (1982), Labour Productivity, Oxford and IBH Publishing Co., New Delhi, p.35.
11. Gordan K.C., Chen and Garrah, Robert E.M. (1982)\textsuperscript{30} observed “With due allowances for temporary currency value fluctuations or changes in commodity or product prices there is strong positive correlation among time series data measuring productivity. Profitability or efficiency and further all this measures indicate a rate of growth in capabilities of origination to fulfill their mission as, to produce and distribute more and better products and services by managing the development and application of technology and human resources.

12. \textbf{Reason to measure and analyse productivity}\textsuperscript{31} In order to improve and increase productivity, it is desirable to measure and analyse it.

13. Mundel Marvin E (1983)\textsuperscript{32} has rightly observed, “To improve productivity we must first measure it, so as to have a due from which to measure change”.

14. Davis Hiram S (1951)\textsuperscript{33} pointing out on the importance of analyses have stated. ‘There is a strong and growing recognition, that productivity measure parse, however computed provide little guidance for either public or private economic policy and such measures become important, when factors associated with the changes or differences shown have been analyzed. Further the author states, ‘Even crude measure of productivity is connected with analyses of the factors responsible for the changes discovered can be powerful tools of economic appraisal.

15. Sardana G.D and VratPrem (1984)\textsuperscript{34} An improvement in productivity is considered vital to achieve several corporate objectives, measurement of productivity. Therefore provides an important tool and yardstick. However measurement of productivity is not an end itself. It is useful only if it meets real management needs.

16. Ibid, Sardana G.D and VratPrem\textsuperscript{35} are also of the view that “measurement of productivity simply helps to identify areas for corrective action towards

\textsuperscript{31}Reason to measure and analyse productivity, Ibid. 16
\textsuperscript{33}Davis Hiram S (1951), The meaning and measurement of productivity in industrial productivity ed. Tripp. L.R., Industrial Relation Research Association, p.13.
\textsuperscript{34}Sardana G.D and VratPrem (1984), Models of productivity measurement for manufacturing Organization with a constantly changing product mix in productivity, Vol.XXIV, No.3, p.339
\textsuperscript{35}Ibid, p.271, Sardana G.D and VratPrem
planning, redevelopment of resources and other management control techniques to achieve better performance”.

17. **Rabin Jack and Lynch Thomas D. (1983)** is of the opinion that among the management areas where productivity measures are useful are: goal setting, estimating resource requirement, cost reduction, organizational improvement, operational control, resource reallocation, responsibility accounting and motivation for improvement.

18. **Kendrick J.W (1981)** states “Increasing use at the company level as well as industry level is being made of productivity estimates and estimating resource requirements suggests productivity projects can become a means of estimating requirements for labour, material and Capital.

### 2.7 RESPONSIBILITY ACCOUNTING

19. **Fanning David (1983)** “Responsibility accounting, is a system of mechanism for controlling the wider freedoms of action that executives, managers, in other words are given by upper management for holding these executives responsible for the consequences of their decisions: Since productivity measures the changes in efficiency and the relationship of products or services to resources used, it provides visibility terms of specific mean as to the change in the efficiency of programme operations and makes manager accountable for performance. For a focus on credit why productivity system should stand the test of audit process.

20. **Kendrick J.W. (1981)** while focusing on various types of productivity data applications says ‘these applications relate to productivity indices as 25 measures of performance thus means to motivate improved efficiency.

21. **Jagwant Singh (1994)** uses the following aspects as sources for productivity in his study.

   They are viz.

   1) Changes in capital/labour ratio

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39 Kendrick J.W. p.15(1981), op.cit, p.15
2) Improvement in technology
3) Education
4) Improvement in managerial knowledge
5) Changes in hours of work
6) Demographic
7) Regulation
8) Reallocation of reserves
9) Economics of scale and increased specialization
10) Entrepreneurial traits and increased specialization
11) Irregular factors
12) Miscellaneous

22. Desai Vasant (1991)⁴¹: Openers to new idea, techniques and technology by executives at all levels, altitudinal change and adaptability, and unnecessary interference of the political bosses are the prerequisite for success of any programme, be it long range planning or a programme of productivity improvement

2.8 LABOUR PRODUCTIVITY

23. Gunderson (1980)⁴²: An improvement in labour productivity is not sole attributable to a greater effort by the workforce. This could also result from the introduction of new technology which increases the quality of each worker produces. On the other hand, wage increases following productivity increases for whatever reason can be justified on the principle of the redistribution of profits resulting from increased productivity.

24. Tawfik and Chanvel (1980)⁴³: The method used to calculate labour productivity index, variations in this measure can hide fluctuations in factors other than labour. In a closed economy, the important variables likely to influence the index are those relating to labour (Such as investment in human Capital, the type of management and labour relations), Capital investments, Research and Development (R&D) and government regulations.

In an open economy, other elements enter equation. If the country’s currency value is high as had been in the last few years, this can reduce the demand of its products, since the price of its exports increase and of its imports decrease. Thus, even if it’s exporting industries register an increase in productivity, this does not necessarily mean a lower price for foreign buyers. On the other hand a high exchange rate encourages industries to be innovative in order to remain competitive - some analysts observed this phenomenon in US in early 1980s. As the exchange rate of US currency was high, many manufacturers were obliged to rationalize operations and replace equipment to remain competitive internationally.

**Multifactor Productivity Index**


The Multifactor productivity index, also known as total factor productivity include factors such as labour, capital, materials and services used as inputs in the production of goods and services. It is the best indicator economists have of technical progress. It also reflects other factors that influence productivity, economics of scale.

**2.9 LABOUR AS INPUT: LABOUR SKILLED/ SEMISKILLED/ UNSKILLED PRODUCTION**

27. Measuring Productivity

Industrial Engineer IE (2007) focuses on the significance of measuring productivity by business enterprises in the U.S. It states that the process of evaluating productivity will enable businesses to carry out accurate allocation of resources. The author discusses the article "Symmetric and Asymmetric Stationary Tests of Productivity," which focuses on the study conducted that presents the importance of examining productivity by different companies based on the data provided by the Bureau of Labor Statistics. It suggests that considering the growth rates of historical averages of productivity is important in the manufacturing process.

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46 Industrial Engineer E (2007), Measuring Productivity in the Article, Symmetric and A Symmetric stationary Tests of Productivity, Encyclopedia Magazine
28. Rising Productivity, Deepening Inequality

**Horst Brand Dissent (2008)** depicts on the inequity between worker productivity in the United States, which is increasing, and financial reimbursement which has failed to keep pace. Statistics are provided to support this contention. Also addressed is the increasing cost of living during a period when wages remain flat. The article reports the finding of a study that contradicts the notion that an increase in productivity carries with it a concomitant rise in personal income. The psychological impact of increased productivity is assessed.

29. Productivity Figures

**Human Resources (2008)** present information on labor productivity in New Zealand. For the year ending March 2007, labor productivity grew by 0.5 percent, while capital productivity growth and multifactor productivity growth were negative. Annual growth in labor productivity since 2000 was averaging 1.1 percent. Labor input has grown at a record rate of 2.2 percent per year since 2000, mainly due to continuous low unemployment from 2000 to 2007 and growth in labor force.

30. Brown's tenure was a productivity failure

**Fund Strategy (July 2, 2007)** reflects on the study of the Centre for Economic Performance at the London School of Economics in England regarding the labor productivity of Great Britain. The report showed that Britain was behind in productivity levels compared to other developed countries. It also cited factors for low productivity, but the author attributes it to the failure of Gordon Brown to fulfill his duties as Chancellor of the Exchequer.

31. Productivity Up; Labor Costs Down

**Patrick Temple-West (December 4, 2009)** shows the performance of non-farm productivity and labor costs in the U.S. in 2009. According to the U.S. Department of Labor, the productivity has increased by 8.1% while the labor costs were down by 2.5%. Moreover, economists are expecting that productivity will be revised lower to an 8.0% annual rate increase.

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47 Horst Brand Dissent (2008), Rising Productivity Deepening Inequality in Magazine Encyclopedia
48 Human Resources (2008), Labour Productivity in Newstand, Human Resources Magazine Encyclopedia Britannica Library online context.
49 Fund Strategy (July 2, 2007), Brown’s tenure was a productivity failure, Fund Strategy Magazine Encyclopedia Britannica
50 Patrick Temple-West (December 4, 2009), Productivity up, Labour costs down investment dealers’ digest.
32. Productivity up Labor Costs Increase

Gary E. Siegel (December 4, 2008)\textsuperscript{51} points out on the increase of productivity and labor costs in the third quarter of 2008 in the U.S. According to the data from the Bureau of Labor Statistics, non-farm productivity grew and labor costs rose at 1.3 and 2.8 percent, respectively. The economists from Thomson Reuters Corp. anticipated that productivity and labor cost would grow at 1.0 and 3.4 percent during the quarter.

33. Productivity fulfillment

Ed Romaine (December 2009)\textsuperscript{52} discusses how automated storage and retrieval systems (ASRS) improve work force efficiency and how they benefit manufacturing industries. It mentions that sales and implementation of ASRS have been tracked with productivity improvements. It notes that ASRS can be integrated warehouses that cost hundreds of thousands of dollars or can be single vertical lift modules (VLMs) that deal with specific task or division. It is stated that ASRS can be significant factors to the return on investment (ROI).

34. Canada's Lagging Productivity

Michael Laff (April 2009)\textsuperscript{53} stats that the country of Canada is behind other developing countries regarding training and worker productivity despite its view by others as an example for its healthcare, respect for the environment, and moderate political climate. According to a survey by the consulting agency Proud foot Consulting, Canada ranks low in worker productivity and its employees receive only eight days of annual training. Survey results also discovered that Canada is ranked last among other countries surveyed regarding how often the organization assesses its training needs.

35. Smarter rubber testing that contributes to rubber industry productivity

John S. Dick in Rubber World (January 2010)\textsuperscript{54} explores the increase in the labor productivity in the rubber industry and trade in the U.S. It notes that innovations in the rubber testing are the factors that contributed to the improvements in

\textsuperscript{51}Gary E. Siegel (December 4, 2008), Productivity up, Labour Costs Increase, Bond Buyer, Magazine, British Library
\textsuperscript{52}Ed Romaine (December 2009), Productivity Fulfillment, Industrial Engineer, Encyclopedia Britannica Library
\textsuperscript{53}Michael Laff (April 2009), Canada’s Lagging Productivity, Canada’s Council of Research and Development Dept. Article IV.7.
\textsuperscript{54}John S. Dick (January 2010), Innovations in Rubber Testing are the factors that contributed to the improvement in Productivity Rubber World 2010.
It mentions the productivity gains from such improvements such as the rationalization of test methods, automation and simplification of tests as well as improvement in the statistical test sensitivity.

36. **Having friends at work increases productivity, study reveals**

   M. R. in *Employee Benefit (September 2007)*\(^{55}\) reports that having friends at work increases productivity according to recent survey results from Account, a temporary staffing company for accounting, finance and bookkeeping professionals based in Menlo Park, California. Sixty-three percent of employees believe that productivity increases when coworkers are friends outside of the office.

37. **New labor pact must close gap in productivity**

   *Automotive News (June 11, 2007)*\(^{56}\) comments on the productivity of General Motors Corp. (GM), Ford Motor Co. and DaimlerChrysler AG at their North American factories. According to the 2007 Harbour Report, they have closed the productivity gap with their Japanese counterparts from about $1,500 per vehicle to $200 to $300. The author says that these “companies should look work to improve stamping and power train operations while negotiating new labor contracts”, they must close the remaining productivity gap.

38. **Harbour in Detroit boost productivity**

   David Barkholz (*June 4, 2007*)\(^{57}\) presents the “Harbour Report on automaker productivity” by Ron Harbour in Detroit, Michigan. The report revealed that Nissan Motor Co. Ltd. is the most efficient assembler of vehicles with 20.51 average labor hours per vehicle, while Toyota Motor Corp. won top honors for total manufacturing productivity. Chrysler Group Company was the least efficient of the six main North American manufacturers.

39. **The impact of the economic downturn on productivity growth**

   Malindi Myers (*June 2009*)\(^{58}\) Labour productivity growth is an important indicator of how efficiently the economy is functioning, particularly in the longer term as an indicator of underlying economic growth potential, but also in the shorter

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\(^{55}\)M. R (September 2007), Sixty three percent employees believe that productivity increases when coworkers are friends outside in the office Employee Benefit Magazine

\(^{56}\)Automotive News (June 11, 2007), Companies should look work to improve stamping and operations while negotiating new labor contracts”, Automotive News

\(^{57}\)David Barkholz (June 4, 2007), Harbour in Detroit boost productivity, Michigan, Automotive News Magazine

\(^{58}\)Malindi Myers (June 2009), Recent Economics Impact on the Economic down turn on productivity growth, economic and labour Market Review.
term in that it reflects how efficiently the labour market is interacting with changes in output and production. As with the last two recessions, productivity growth has fallen in line with the drop in output growth, in terms of both timing and depth, because of a lag in the response of businesses in reducing labour input as output and production has reduced. However, recent labour market data suggests that the labour market has been adjusting apace in recent months, and is likely to continue to do so, while production data suggests there is some out in the decline. This shift in the dynamics between the labour market and output growth would be expected to result in productivity growth picking up in the coming quarters.

40. Depression Outreach Programs Yield Productivity Gains

Francisca Azocar (2008)\textsuperscript{59} which examines the impact of depression outreach programs towards employees productivity which conducted by Francisca Azocar that was published in the February 2008 issue of the journal "Benefits & Compensation Digest" is presented.

41. The Minimum Wage: Ethics and Productivity

Karen Moustafa Leonard (June 2008)\textsuperscript{60} shows how unskilled worker has been the target of the minimum or living wage argument for over a century, and the idea of appropriate minimum rates is a current problem facing both domestic and global companies. For many, the issue of whether there should be a minimum wage in the United States is divisive. Arguments that it would cause job loss and other societal problems have not been supported. Neoclassical economic theory views workers as a means of production and competition as determining wages which are, in turn, aligned to productivity. The view of wage as a motivating force to improve productivity is discussed. The alternative view that wages are determined also by the needs of workers to subsist is also highlighted.

42. Financial Problems May Harm Employee Productivity

Phil Fogli (July 2008)\textsuperscript{61} advises employers to offer a benefits program that addresses employees' financial issues, which could help improve employee productivity. It notes that empowering employees financially could result in increased productivity and reduced health issues, which could translate to lower health care cost

\textsuperscript{59}Francisca Azocar “Depression Outreach Programmes Yield Productivity” (2008), Research in Benefits, Quarterly
\textsuperscript{60}Karen Moustafa (June 2008) “The Minimum Wage Ethics and Productivity”, Collective Negotiations magazine
\textsuperscript{61}Phil Fogli (July 2008), Financial Problems may harm Employees Productivity, Employee Benefit News
and an improved bottom line. It discusses the benefits of educating employees about retirement programs, such as increased understanding of their benefits package and reduced concerns about certain financial problems.

43. Linking Labor Productivity to Economic Freedom

Edward Nissan, Farhang Niroomand (2008) discusses the role of enterprise in the promotion of economic growth in a capitalistic setting. It provides a review of literature related to theories on economic growth and development. Indexes on productivity and economic freedom were used in the comparison of countries grouped by region and income. Results of an analysis revealed a statistically significant relationship between productivity and the economic freedom index of the Heritage foundation. These findings support the hypothesis that economic liberalization induces growth despite discrepancies in the levels of productivity and economic freedom index.

2.10 CAPITAL PRODUCTIVITY –MULTIFACTOR PRODUCTIVITY –TOTAL PRODUCTIVITY

44. Productivity Figures

The article (April 2008) presents information on labor productivity in New Zealand. For the year ending March 2007, labor productivity grew by 0.5 percent, while capital productivity growth and multifactor productivity growth were negative. Annual growth in labor productivity since 2000 was averaging 1.1 percent. Labor input has grown at a record rate of 2.2 percent per year since 2000, mainly due to continuous low unemployment from 2000 to 2007 and growth in labor force.


Alex Turvey (March 2009) focus on the Multi-factor productivity (MFP), sometimes referred to as 'total-factor productivity' or 'growth accounting', is a method of analysing productivity which allows for a more in-depth assessment of performance at a whole economy or sectoral level. It apportions growth in output to contributions from capital, from labour and a residual MFP which represents the

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63 Human Resources Magazine (April 2008), Present information on labour productivity in New Zealand Human Resource Magazine Cyclopedia Britannica Library
64 Alex Turvey (March 2009), Multi factor Productivity Estimates for 1998 to 2007 in Economic and Labour Market Review Magazine Encyclopedia British Library
'productivity change' not explained by the growth in either labour or capital inputs. This approach permits more detailed analysis of what is driving output growth compared with the traditional 'headline' measures of productivity, which use only labour as their factor input. This article presents multi-factor productivity results for 1998 to 2007 using an experimental quality-adjusted labour input measure and experimental estimates of capital services growth as inputs. The analysis has been produced for the whole economy, the market sector and some broad industry groupings.

46. Relation of productivity with efficiency, effectiveness and quality

Povilas Vanagas (2008) states that the problem and the goal of the research is to indicate relation of productivity with the efficiency, effectiveness and quality and to make proposals for personnel productive labour motivation. The comparable logical analysis of scientific literature and empirical research based on a case study are used in the article. The XX century was entitled as century of productivity because the productivity during this century dramatically increased. Productivity is actual output (quantity of products or services produced) divided by amount of resources used (some input factors of production: capital, investment, raw materials, etc.) (Gaither, 1996). There are four definitions on the productivity

47. John Kendrick (1981) and Daniel Creamer

Partial productivity is the ratio of output to one class of output. Total factor productivity is the ratio of net output to the sum of associated labour and capital inputs. · Total productivity is the ratio of total output to the sum of all input factors. · Comprehensive total productivity index is the total productivity index multiplied by the intangible factor index. A partial productivity — labour productivity indicator is current in many countries for the comparative purposes. Moreover without labour productivity indicator it is not possible to calculate the total productivity and the comprehensive total productivity indicators. 'Efficiency is the ratio of actual output generated to the expected (or standard) output prescribed. Effectiveness is the degree to which the relevant goals or objectives are achieved (Sumanth, 1998). Efficiency improvement does not guarantee productivity improvement. Efficiency is a necessary, but not a sufficient condition for productivity (Sumanth, 1998). Effectiveness and

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efficiency are necessary in order to be productive. Total Quality Management negated the estimation that high quality goods and services have to be expensive because production cost of qualitative products needs huge sums of money. The progressive worldwide experiences negated this opinion. Hence quality improvement does not decrease productivity but increases it. It is necessary to develop a compensation system as quality and productivity motivation factor. It is purposeful to establish the fixed and variable part of wage. Variable part of wage should be established on the basis of personal and specific to work employee's traits and his/her behaviour at work, i.e., depending on quality of performed work, promptness accomplishing the work, initiative, diligence, versatility and other positive behaviour characteristics at work which are the factors of labour productivity improvement. Also is very important to develop moral compensation means. The purpose of means of moral influence is to create psychological comfort for employees enabling them to pursue perfect quality and labour productivity.

48. Contributions to Productivity and Growth

Foundations and Trends in Entrepreneurship (2008) examines the contribution of entrepreneurs to productivity and growth in terms of value added, labor productivity, and total factor productivity (TFP). The contributions of entrepreneurs to the level of gross domestic products (GDP) and the growth of GDP are compared. Growth in production due to a more efficient use of production factors is represented by the growth in TFP.

49. Multi-factor productivity analysis

Peter Goodridge (July 2007) presents multi-factor productivity, sometimes referred to as total factor productivity or growth accounting, results for 1997 to 2005 using an experimental quality-adjusted labour input measure and experimental estimates of capital services growth as inputs. The analysis has been produced for the whole economy and some broad industry groupings, with the aim of better understanding the UK's productivity performance over this period and of using the results as a diagnostic check on the consistency of output and input data.

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68 Peter Goodridge (July 2007) presents Multifactor Productivity Analysis, Economic & Labour Market Review
50. Financial Worries Drain Productivity at Work

USA Today Magazine (November 2008)\textsuperscript{69} reveals the impact of the financial crisis on workplace productivity, according to a survey conducted by Workplace Options. This reflects U.S. citizens' growing sense of anxiety over finances and the troubled economic climate as a whole. The financial situation is also affecting long-term financial decisions.

2.11 KNOWLEDGE USE PRODUCTIVITY/QUALITY I.T., IPT (INTERNET PROTOCOL TELEPHONY), LAPTOP, MOBILE AND DESK PHONE USE

51. Productivity Main Driver for IPT

Chee Sing Chan (December 2007)\textsuperscript{70} focuses on the growth of Internet Protocol telephony (IPT) in 2006. According to the author, productivity gains brought by cheaper long distance phone calls and lower network management costs in consolidated IPT networks, influenced organizations to convert to the IPT system. Other benefits of IPT use include a more productive mobile workforce and convergence of devices like laptops, mobile and desk phones.

52. Intangible Investment and UK Productivity

Economic & Labour Market Review (June 2007)\textsuperscript{71} discusses the intangible investment and productivity in Great Britain. It is reported that the work by researchers at Queen Mary, University of London, tests suggestions for economic measurement of a wide range of intangible investment by firms. It also covered the business investment in software, research, and suggested that these elements of intangible capital could roughly double Great Britain business investment. This has been used to render growth accounting analysis for the British market section.

53. Changing Productivity Trends

Bharat Trehan (2007)\textsuperscript{72} on the arguments concerning the factors that affect the decline of productivity in the 1970s and its sudden growth in the 1990s in the U.S. It was believed that the decreasing return in science and technology and the slow

\textsuperscript{69}USA Today Magazine (November 2008) reveals Financial Worries & Drain Productivity at Work

\textsuperscript{70}Chee Sing Chan (December 2007) focuses on “Productivity Main Driver for IPT paperin Encyclopedia


\textsuperscript{72}Bharat Trehan (2007) points out at “Changing productivity Trends” Encyclopedia Britannica
phase of adoption on the use of information technology (IT) have contributed to the
decline. However, it shows that the growth of productivity in the 1990s is associated
in the capital goods sector and the introduction of IT.

54. Quality and productivity

Industrial Engineer: IE (2007)\textsuperscript{73} focuses on the study which shows the
advantageous relationship of quality and productivity among manufacturing
industries. According to the research, the measurement of per-unit profit is used to
create a mathematical relationship between quality and productivity. It is stated that
the development in quality and productivity increased profits.

55. Regional Productivity Growth and Plant-Level Dynamics

Yoonsoo Lee (2007)\textsuperscript{74} explores how productivity growth of the U.S. economy
is affected by the process of manufacturing plants at various stages including entry,
expansion and exit. An important source of productivity growth is net-entry effects.
But some incumbents retool their production facilities to incorporate new technology.
Productivity growth rates are also affected by differences in reallocation patterns.
Also, some economists think that productivity growth in the 1990s is attributed to
information technology (IT).

56. Okun's Law and Productivity Innovations

Robert J Gordon (2010)\textsuperscript{75} the author relates Okun's Law to innovations in
productivity. Okun's Law, devised by economist Arthur Okun, states that there is an
empirically observed relationship between unemployment to losses in the production
capabilities of a country. Under Okun's law one point increase in unemployment is
associated with two points of negative growth of gross domestic product. A number of
factors are addressed including productivity changes, the decline in real wages and
labor union power, and the trend toward treating employees as disposable
commodities.

\textsuperscript{73}Industrial Engineer: IE (2007) depicts “Auality and Productivity in Industrial Engineer IE Magazine.
\textsuperscript{74}Yoonsoo Lee (2007) shows “Regional Productivity Growth and Plant Level Dynamics”, Encyclopedia Britannica, British Library
\textsuperscript{75}Robert J Gordon (2010), The author relates “Okins Law and Productivity Innovations” showing
relationship between unemployment to losses in production
57. Information Technology and the U.S. Productivity Revival: What Do the Industry Data Say?

Kevin J. Stiroh (2002)\textsuperscript{76} points out at the consensus is now emerging from aggregate growth accounting studies that both the production and the use of information technology (IT) have contributed substantially to the US aggregate productivity revival in the late 1990s. This article addresses the issue by moving beneath the aggregate data to examine the post-1995 productivity performance of the individual industries that produce IT, use IT, or are relatively isolated from the IT revolution. By examining variation in productivity growth over time and across industries and by exploring the link with IT capital, one can better understand the US productivity revival. Two specific questions are addressed. First, is the US productivity revival widespread, or is it concentrated in relatively few industries? Second, are industry productivity gains linked to IT use?

58. Marketers Scrutinize Shops' Productivity

Jack Neff (2008)\textsuperscript{77} focuses on Asset link, a company which creates "marketing-operations management" computer software which enables corporate marketers to better assess advertising agency productivity and return on marketing investment. The company has several major clients in the pharmaceutical industry including Pfizer.

59. BMW exec seeks Productivity Gain

Automotive News (2007)\textsuperscript{78} article presents an interview with Frank-Peter Arndt, group board member for production in Bayerische Motoren Werke AG (BMW). He talks about the long-term productivity plans of BMW. He says that the company is planning to boost model changeover speed. Arndt cites an example showing the combination of flexibility and a high changeover speed.

60. “Blogs can Alleviate e-mail Fatigue and Boost Productivity”

Russell Davies (2008)\textsuperscript{79} reflects on the benefits offered by blogs to the advertising industry in Great Britain. He presents several websites that provides information to advertisers on how to increase productivity and promote efficiency in

\textsuperscript{76}Kevin J. Stiroh (2002) opines about “Information Technology and US Productivity Revival. What do the industry data say?

\textsuperscript{77}Jack Neff (2008) argues “Marketers Scrutinize Shops Productivity”, Magazine

\textsuperscript{78}Automotive News (2007) “BMW Executive seeks Productivity Gain”, Automotive News Magazine

\textsuperscript{79}Russell Davies (2008) is of the opinion that “Blogs can alleviate and mail fatigue and boost productivity” in Encyclopedia British Library
carrying out business operations. The author asserts that setting goals to be accomplished for the day plays significant role on enhancing productivity.

61. Productivity Growth in the Supply Chain—Another Source of Competitiveness for Aquaculture

Frank Asche, Kristin H. Roll, Ragnar Tveteras (2007)\(^{80}\) discusses the productivity growth in the supply chain in aquaculture. Productivity growth is the main engine of growth in salmon aquaculture and other aquaculture species, which also increases control of the production process allowing market-oriented production and sales. Farmed salmon grown into the most important fresh species, which is fueled by a productivity growth at the production level, led to a number of innovations in distribution and logistics in bringing high-quality fish to the market with a high degree of reliability.

62. Using Web 2.0 Tools to Increase Your Productivity

Adnan Siddiqui (2009)\(^{81}\) reports on the significance of using Web 2.0 tools to improve engineer's productivity at work and professionalism. It discusses how the four significant Web 2.0 services, such as blogs, enhanced search engines, social networks, and industry and trade sites, could help a practicing engineer improve productivity. Moreover, it highlights the benefits provided by each service to a practicing engineer, including the expansion of an engineer's peer network and contacts for both technical knowledge and keeping users up-to-date on new contents posted about the topic.

63. The Productivity Gap between Europe and the United States: Trends and Causes

Bart van Ark, Mary O'Mahony, Marcel P Timmer (2008)\(^{82}\) suggests that since the mid-1990s, labor productivity growth in Europe has significantly slowed compared to earlier decades. In contrast, labor productivity growth in the United States accelerated, so that a new productivity gap has opened up. This paper shows that this development is attributable to the slower emergence of the knowledge economy in Europe. We consider various explanations which are not mutually exclusive. These include lower growth contributions from investment in information

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\(^{80}\) Frank Asche, Kristin H. Roll, Ragnar Tveteras (2007) have stated „Productivity Growth in Supply Chain – another source and competitiveness for aquaculture

\(^{81}\) Adnan Siddiqui (2009) shows “using web 2.0 tools increase your productivity of magazine, Encyclopedia

\(^{82}\) Bart van Ark, Mary O'Mahony, Marcel P Timmer (2008) have found out :The productivity Gap between Europe and United State and Trends and Causes”, Encyclopedia British Library Report
and communication technology; the small share of information and communications technology producing industries in Europe; and slower multifactor productivity growth, which proxies for advances in technology and innovation. Underlying these are issues related to the functioning of European labor markets and the high level of product market regulation in Europe. The paper emphasizes the key role of market service sectors in accounting for the productivity growth divergence between the two regions. We argue that improved productivity growth in Europe's market services will be needed to avoid a further widening of the productivity gap.

Others Aspects about Productivity:

64. Reallocation, Firm Turnover, and Efficiency: Selection on Productivity or Profitability

Lucia Foster, John Haltiwanger, Chad Syverson (2008) investigated the nature of selection and productivity growth in industries where we observe producer-level quantities and prices separately. We show there are important differences between revenue and physical productivity. Because physical productivity is inversely correlated with price while revenue productivity is positively correlated with price, previous work linking (revenue-based) productivity to survival confounded the separate and opposing effects of technical efficiency and demand on survival, understating the true impacts of both. Further, we find that young producers charge lower prices than incumbents. Thus the literature understates new producers' productivity advantages and entry's contribution to aggregate productivity growth.

65. Productivity Not Age Key to Indian Growth

In Fund Strategy (2008) author comments on the factors affecting the economic development in India. It asserts that the economic development depends on the country's productivity through high level of technology and good infrastructure. It inflects that the key challenge to the country involves the development on infrastructure and labor force in industrial and service sector. It is pointed out that the rapid growth of the country depends on broadening economic development rather than the age of its population.

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83 Lucia Foster, John Haltiwanger, Chad Syverson (2008) have focused in their study Reallocation Firm Turnover and Efficiency: Selection on Productivity or Profitability”, Magazine
84 In Fund Strategy (2008) have found out “Productivity not Age Key to Indian Growth” in Fund Strategy Magazine
66. Public Sector and Non Profit Private NGO’s Driving Productivity, Engagement and Innovation by Building Trust.

Carolyn Lane (2008) focuses on the productivity problem in public, private and not-for-profit sector in New Zealand. It stresses the relativity of trust to productivity and profit, to engagement, and engagement to productivity, and to innovation and innovation to productivity. The author states that working on trust will give an individual a direct boost on productivity while that individual carries out other changes. The seven drivers of work productivity are mentioned.

67. Total Public Sector Output and Productivity

Economic & Labour Market Review (2009) reports on the publication of the latest estimates of Total Public Service productivity from 1997 to 2007 by the British Office for National Statistics (ONS) Centre for the Measurement of Government Activity on June 9, 2009. Data show that the output of Total Public Service in the period rose by 33.6% while total gross domestic product (GDP) grew by an annual average of 2.9%. In addition, it has been found that education productivity declined by 3.2% as health care productivity fell by 4.3%.

68. Thermal Environment and Productivity in the Factory

Xiaojiang Ye, Huanxin Chen, Zhiwei Lian (2010) in their Field investigations of two different factories were carried out in Zhenjiang and Shanghai during the cool season to analyze the relation among indoor environment, humans, and productivity. In particular, this study examined the effect of the working environment and other factors on thermal comfort and productivity in factories. In this study, the mean thermal neutral temperature was 19.0 °C (or 66.2 °F) in the factory during the cool season. The results show that productivity (103.2% in Zhenjiang and 100.6% in Shanghai) does not reach its maximum when the occupants’ thermal sensation votes (TSV) are neutral or comfort. The highest productivity (105.1% in Zhenjiang and 104.7% in Shanghai) occurs when the TSV of the subjects is slightly cool. The productivity in a slightly warm state is 104.5% in Zhenjiang (103.4% in Shanghai), which is also higher than that in a neutral state. A slightly cooler or warmer environment might enhance productivity more than in a neutral, comfortable

85 Carolyn Lane (2008) The author states drinking productivity, Engagement and Innovation by Building Trust
environment. People in an environment with good air quality supply could easily obtain high productivity if the thermal environment is acceptable. Compared with other factors, maintaining good indoor air quality might be the best way to maintain higher productivity for the factories in this survey.

69. Total Public Service Output and Productivity

Mike Phelps (2009) shows in Economic & Labour Market Review that Public services account for over 20 per cent of Gross Domestic Product (GDP). Almost everyone is a potential user of public services such as the NHS or schools. Taxpayers, as the main funders of public services, also have a legitimate concern about 'what we are getting for our money'. One important aspect of this, though not the only aspect, is productivity: the quantity of output that is produced divided by the quantity of input used.

70. Most of the studies on Industries have focused mainly on technical change in different periods.

A pioneering study by Beri G. C. (1962) estimates partial and total productivity for cement, cotton, textiles, iron and steel industries for the period 1948 to 1955. Among the four industries, Cement Industry registered the highest increase of total productivity (18.81%) as well as labour productivity (125.62%) while capital productivity declined during the period.

71. Singh R. R. (1966) has tried to measure productivity trends in Indian Industry for the period of 1951-63. His study shows the labour productivity increased by 61% while the productivity of all inputs taken together did not show any appreciable rise.

72. Krishna Raj and Mehta S. S. (1968) calculated partial productivity for both labour and capital for the year 1946-64. Labour productivity registered an increase of about 42%, while capital productivity declined by 18%.

73. Chatterjee A.K. (1973) studied labour productivity indices for 26 manufacturing industries for the period 1960-65. While comparing the two periods, the study found that the rate of increase in industrial productivity was

\[ \text{Productivity} = \frac{\text{Output}}{\text{Input}} \]

91Krishna Raj and Mehta S. S. (1968) “Partial Productivity for both Labour and Capital for 1946-64”
relatively much higher during the former period than the latter. The sharp upward trends of productivity in some of the industries during 1946-58 may be possible partially due to prevailing abnormal conditions in the base year 1946.

74. **Benerjee A. (1975)** provides an account of productivity trends for the period 1946-64. He has divided the period into two parts 1946-56 and 1959-64, because of incomparability of the data. In the capital productivity showed a decline up to 1958. There was a steady decline up to 1958. There was a steady decline in total productivity for the period 1953 to 1965. The total factor productivity indices showed a downward trend. The movement of labour and capital productivity showed a downward trend.

75. **Desai A. S. and Ghuman B. S. (1980)** in their study calculated partial productivity for the both labour and capital for the year 1968-69 to 1977-78 taking Punjab Manufacturing Sector as a whole. Both labour productivity and capital productivity declined by 15.97% and 57.94% respectively.

76. **Mukherji I. N. (1983)** in his research found that the labour productivity increase at the compound annual rate of 4.06% whereas capital productivity index declined by 71%. He calculated partial productivity for the year 1950-67 for the Manufacturing Sector of Bihar.

77. **Sen S. K. (1983)** in his study found that both labour and capital productivity showed upward trends in period 1971-78 for Jute Textiles.

78. **Golder B. N.’s study (1983)** Responded labour productivity increased at the average annual rate of 3.83%. During the same period there was a fall in capital productivity at the average annual rate of 1.14%.

79. **Chauhan Pratapsinh L. (1993)** The study found that material and labour productivity decreased, while capital productivity increased so total productivity

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increased. The overall productivity for the year 1980-81 to 1989-90 was for 7 sugar mills of Saurashtra region in Gujarat.

80. **Shukla Hiteshbhai J. (2001)**\(^{99}\) shows in his study that only those companies which have adopted technology in production process achieved higher productivity among the soda ash chemical industries of India. In his study it was found that Tata Chemicals Ltd, Gujarat performed very well while Tuticor in Alkali Chemical Ltd, Tamilnadu performed worst during the period of study.

81. **Parmar Kanjibhai R. (2004)**\(^{100}\) The study shows in his study that material and labour productivity decreased by 5.59% and 30.86% respectively, while overhead productivity increased by 38.81%. Total productivity decreased by 5.61%. They have studied overall productivity for the year 1996-97 to 2002-03 for 7 fishing companies of Gujarat was taken in the study.

82. **Dave Kamleshbhai (2005)**\(^{101}\) shows in his study that material productivity decreased by 7.83%, while labor and overhead productivity increased by 8.67% and 69.32% respectively. Total productivity increased by 1.21%. The study on overall productivity was for the year 1994-95 to 2002-03 for 7 refinery companies of petroleum industry in India.

83. **Jatakia Tusharbhai D. (2006)**\(^{102}\) points out in his study that material productivity decreased by 0.03%, while labor and overhead productivity increased by 2% and 4.42% respectively. Total productivity increased by 0.11%. The overall productivity was undertaken for the years 1996-97 to 2004-05 for 8 co-operative dairy & milk supply units of Gujarat.

84. **Dave Rajesh K. (2005)**\(^{103}\) Studied a comparative analysis of productivity vis-à-vis profitability of district co-operative banks of Saurashtra during a period of 1993-94 to 2002-03. It was found that economic productivity and total productivity have no meaningful relation with profitability.

\(^{99}\)Shukla Hiteshbhai J. (2001) “Compares with higher technology achieved high productivity in Soda Ash” unpublished Thesis from Saurashtra University, Rajkot


\(^{101}\) Dave Kamleshbhai (2005) “Productivity Analysis of seven refinery companies for the year 1994-95 to 2002-03”. Thesis submitted to Saurashtra University, Rajkot


85. **Dodia Bhavsinh M. (2005)** undertook a comparative analysis of cost effectiveness on productivity – a special reference to Saurashtra Uni. & Gujarat University during a period of 1993-94 to 2004-05. It was found in his study that Ratio of cost effectiveness per student to total expenditure was highest for total expenditure and number of student was lower than Saurashtra University compared to Gujarat University while Total productivity ratio income and expenditure was highest for Saurashtra University compared to Gujarat University.

86. **Ajmera Butalal C. (2005)** in his study of liquidity, productivity viz. – a- viz. financial efficiency of birla group of companies during a period of 1997-98 to 2002-03. He found that The overall productivity was the highest in Hindalco Ltd.(1.367) and it was found very lowest in Kesoram Industries Ltd.(0.215), Thus Birla Group of Companies except Orient Paper Ltd., Shree Digvijay Cement Ltd., Birla Corporation Ltd., Century Textile Ltd., and Texmaco Ltd. was not utilizing the its overall productivity.

87. **Mulchandani Jagdish M. (2008)** studied a corporate responsibility in Gail and IOC – a public sector enterprise. He found in his study that sales volume of the company, PAT and ROI does not affect corporate social responsibility score.

88. **Beri G. C. (1962) Bombay** Author has worked on this study of the problem of measurement of production and productivity in Indian Industry during the years 1957-59. He has discussed in his book on the concept of Index Number of Industrial Production and measurement of productivity in details.

89. **Fabricant Soloman (1973) New Delhi** He has discussed in his book on environment of public enterprise, organization pattern in public enterprise, financial and personnel management in public enterprise, material and production management in public enterprise, industrial relation and worker’s participation in

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106 Mulchandani Jagdish M. (2008) “Corporate Responsibility in Gail and IOC a Public Sector Enterprises” A Study published as an article
public enterprise and public accountability in public enterprise in details. He has also discussed in his book about the basic facts on productivity, sources of higher productivity, economic policy and productivity and productivity at abroad in details.


91. Roy R. C., IAS (1985) 110, New Delhi He shows in his book that he has tried to investigation the natural resources and human resources potential and to concentrate on the important personnel processes by selecting eight government companies and four corporation of Orissa. He found that there were different problems. He studied such problems like recruitment, training personnel appraisal, wage salary policy and administration and control over public sector undertakings.

92. Mukherjee A.K. (1988) 111, Allahabad points in his study it was observed that the public sector undertakings relied substantially on external finance. The best course for the public enterprises is to take recourse to internal sources.

93. Rastogi P.N. (1988) 112, New Delhi He shows the concepts of culture and values provide the basis for analysis. The analysis shows that the quest for productivity and innovation is linked to men’s quest for meaning and purpose in life and that without a strong spiritual support system, a durable culture of productivity cannot be sustained.

94. Mathew M. J. (1996) 113, Jaipur states in his study that the two most powerful institutions in society today are business and government. They both meet on common causes amicably or otherwise, together to determine public policy formation and for the benefit for public.

110 Roy R. C., IAS (1985) “Audit of All Public Sector Undertakings”, India Oil News (June-July) 279
95. ‘The Financial Express’ (2003)\textsuperscript{114} points out that “If any work of the company thinks that he will get 100%. Productivity by their employees, that be considered as a nonsense thought.

Overview of Researches as discussed is mostly related to financial aspects, performance, efficiency, productivity and its measurement review above clearly show that there has been a lot of concern amongst academicians, financial markets and accounting professionals, government and public in general about the outcome of published material.

An attempt to identify the main direction of these researches provides the following observations. Few researches have their views focused on two or more aspects while others either concentrated on one trait of productivity such as only labour or capital.

Usually the researchers have highlighted towards the private companies where profitability would highly stress on efficiency and performance. In this circumstance the result would focus more on the done than done. With the increase in liberalization, privatization and globalization business activities, there has been a lot of concern about harmonization of private public partnership (PPP) and their yearly disclosure annually and internationally. The reason behind this being the FDI (Foreign Direct Investments) and FII (Foreign Institutional Investments) have entered the India Markets in a big ways: much of the researches focused private companies and worked on their activities and financial results. Thus, discussed inputs those could provide better results.

Most of the researchers have tried to develop a better format but year after year seldom have shown the improvement suggested by their respective research. This points out that there is no consultancy between academicians, researchers or the corporate.

This study attempts to identify the factors which influenced the content, adherence to present requirements to the social cause of welfare and the attitude of the public sector’s management towards there aspects of social responsibilities, accounting and equity.

Thus, it firmly shows the need for a research in this area and more so in the context of economy like India in Such global scenario.

\textsuperscript{114} ‘The Financial Express’ (2003) “Productivity is Non-sense Thought” p.12
This study undertaken by the scholar is on the productivity of public sector enterprises. The main outcome from any manufacturing company or a service firm is to know its efficiency, effectiveness and performance. This finally depends upon the productivity of a company. The enterprises that are taken as sample from the population of 17 Maha Navratnas have a big role to play in the infrastructural development of the country. Infrastructure for any less developed country needs a huge investment. There is a very big gap in terms of period for getting returns on the investment made of such infrastructural facilities viz. roads, transportation, railways, telephone, civil aviation, military requirements, posts, electricity generation and distribution, etc. All these goods required are for security purposes, business development and social welfare.

The returns are low and slow for/by the provision of such materials or services as health and education. But the mission of the public sector enterprises is not only the profits – but fastening the process of development, coordinating the government planning process and uplifting the standard of living of the employees giving the organised sector’s salaries, incentives and other initiatives for better living and environment.