IMPACT OF ISO 9001 ON PRODUCTIVITY OF SELECTED SECTORS

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SUMMARY

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INTRODUCTION

The ever changing scenario in economy after liberalization, privatization and globalization has become more competitive. The market has become more complex. Quality can be most important reason for the survival of business in market. A deeper understanding of quality and while adoption of quality is important may make it possible to pursue the industrialization, thereby leading to results that are more equitable and efficient. So, due to the increment in industries and there is an increment in the employment. Quality is the key strategy for maintaining competitive advantages and ISO 9001 integrated approach to improve the quality of goods and services. Whether the activities is updated through ISO 9001 certification or not? Whether ISO 9001 is a way of managing companies to improve its overall effectiveness and performance towards achieving world class status (Zhang et al. 2000), Chapman and Al Khawaldeh (2002).ISO 9001 and its wide spread international acceptance, there is considerable confusion and frustration surrounding the role and business value of ISO 9000 certification. Research pointed out to the quality initiatives through ISO 9001 to measure the impact on productivity. Growing adoption of ISO 9001 certification has led to the emergence of a distinct stream of quality research. In majority of studies have been conducted in foreign countries and very few studies has been conducted in Indian context to evaluate the performance before and after the ISO 9001 certification. Productivity and quality are an integral component in the working of companies. Therefore, the primary purpose of the study is to identify the impact of ISO 9001 implementation on productivity in respect of the selected companies especially under power, steel and textile sector. Research in power area plays an important role in every sphere of the economic development of the country. India’s per capita electrical energy consumption is targeted for 50% growth in the Eleventh five year plan from present level of 704 units per year. Therefore, it considered as backbone of industrial & agricultural growth. The 2005 National Steel Policy (Government of India 2005) sets out the Indian Government’s vision for the future of the steel industry. The central goal is the creation of an industry with 110 million tones of capacity and 100 million tones of production by 2019-20 — implying an average growth in production of nearly 7 per cent a year. The Indian Ministry of Steel estimates that achieving this goal will require an extra US$65 billion in capital expenditure in addition to funds for technology upgrades at existing facilities. The policy focuses on the domestic sector but also envisages a steel industry growing faster than domestic consumption, which will enable export
opportunities to be realized. Current steel investment plans India’s ready availability of iron ore and low cost labor contribute significantly to the cost competitiveness of producing steel in India. The textile industry occupies a unique place in our country. One of the earliest to come into existence in India, it accounts for 14% of the total Industrial production, contributes to nearly 20% of the total exports. Being the largest foreign exchange earner, accounting for more than 5 per cent of GDP and providing direct employment to 38 million people, primarily the weaker sections, it is the second most important sector only after agriculture. A number of policies have been put in place to make the industry more competitive (A report on Indian textile industry). That’s why I have selected these three sectors from the economy. Every sector is having its own importance and these sectors have potential for the major growth due to their importance in daily life. So, I have selected these sectors. How productively companies produces output majorly depends upon the mainly human resource. So, it’s important to know the perception of the employees toward the impact of ISO 9001 on human resource practices. So, the secondary study is supplemented by the primary study.

RESEARCH DESIGN

The research design for this study is descriptive in nature it helps in identifying the features of existing phenomenon. The present study intends to examine the productivity performance in post adoption period of ISO 9001 certification in comparison to pre adoption period for the selected companies. The impact of ISO 9001 adoption is assessed by comparing the productivity and profitability change(s) in the two time windows i.e. 5 pre and 5 post adoption periods. The present study intends to examine the productivity performance either increase or decrease in the post adoption period of ISO in comparison to pre adoption period. To measure the impact of ISO 9001 on productivity, the study took assumption that any change in productivity (increase or decrease) in the post period is due to the adoption of the ISO 9001. The perception of employees towards the impact of ISO 9001 on human resource practices among the selected sectors has been studied.

OBJECTIVES OF STUDY:

Objectives help for providing direction to the research. The main objective of the research is to know the impact of ISO 9001 on productivity of companies from selected sectors. In the light of the main objective following objectives are formulated:
1. To study the difference in productivity during pre and post adoption period in selected sectors.

2. To study the difference in net profit margin during pre and post adoption period in selected sectors.

3. To study the difference in return on assets during pre and post adoption period in selected sectors.

4. To study the difference in sales growth rate during pre and post adoption period in selected sectors.

5. To compare the total productivity, net profit margin, return on assets, sales growth among selected sectors during pre and post adoption period of ISO 9001 certification.

6. To study the perception of the employees of selected sectors towards the impact of ISO 9001 on human resource practices.

7. To compare the perception of senior level employees and line managers from selected sectors towards the impact of ISO 9001 on human resource practices.

**HYPOTHESES:**

Keeping in view the objectives of the study, the following hypotheses have been formulated:

H: There is no significant difference in productivity during pre and post adoption period in selected sectors.

H: There is no significant difference in net profit margin during pre and post adoption period in selected sectors.

H: There is no significant difference in return on assets during pre and post adoption period in selected sectors.

H: There is no significant difference in sales growth rate during pre and post adoption period in selected sectors.

H: There is no significant difference in productivity, net profit margin, return on assets and sales growth among selected sectors during pre and post adoption period of ISO 9001 certification.
H: There is no significant difference among the perception of the employees from selected sectors towards the impact of ISO 9001 on human resource practices.

H: There is no significant difference in the perception of senior level employees and line managers from selected sectors towards the impact of ISO 9001 on human resource practices.

**SAMPLING DESIGN AND SAMPLE DESIGN:**

Sampling design is a planning the research project is to identify the target population and then determine whether a sample or a census is desired. A sample examines a portion of the target population and the portion must be carefully selected to represent the population. Non probability sampling technique i.e. judgmental sampling has been used to collect the information from the respondents of the companies. Non probability sampling technique is that sampling procedure which does not afford any basis for estimating the probability that each item in the population has of being included in the sampling. **Judgmental Sampling** occurs when a researcher’s selects sample members to conform to some criterion. I have kept in mind the criteria to select the respondents.

The sector division of economy has been taken from the annual research report of CRISIL (Credit Rating Information Services of India Limited) on the union budget of 2012-2013. Out of all sectors I have selected three sectors which having a prospect of growth in the 12th five year plan. Accordingly, the companies from each sector has been selected which is enlisted in www.bse.com.

**METHOD OF DATA COLLECTION:**

The study relied on primary and secondary data. The primary data is collected to study the perception of employees towards the impact of ISO 9001 on human resource practices. The pilot testing was done on the sample of 50 employees through self structure questionnaire. Questionnaire was prepared on the basis of literature and after discuss with supervisor, academician and official staff of companies. It was found that the answers were not consistent. After that, the language of some statements was modified and some rephrasing was done. Again 30 questionnaires were filled from the respondents. The respondent provides comments on clarity of some items and confirmed face (expression) validity of items in the questionnaire. After considering comments made by the respondents, the questionnaire was finalized.
The reliability of the questionnaire was calculated from the results of pilot testing by using SPSS software. The coefficient of reliability of the questionnaire was found to be 0.953 that is Cronbach alpha.

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\alpha = \frac{kr}{1+(k-1)r}
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(Note: \( \alpha \) denotes for Cronbach alpha, \( k \) denotes for number of items and \( r \) denotes for average correlation between the pairs of items)

Out of the 300 filled questionnaires by the respondents, 25 questionnaires were incomplete and were not considered for analysis. The result has been drawn on the basis of 275 questionnaires.

The secondary data pertains to eighteen companies listed on the BSE. Secondary data was used to understand the impact of ISO 9001 in financial terms to measure the productivity, net profit margin, return on assets and sales growth rate of the companies selected under the certain sectors such as power, textile and steel. The secondary data has been collected from prowess data base and money control.com to study the impact of ISO 9001 on productivity, net profit margin, return on assets and sales growth rate during the post adoption period of ISO 9001 certification.

**STATISTICAL TOOLS:**

Certain parametric and non parametric tests statistical tools were used. **Wilcoxon Sign Rank test, Mann Whitney U test has** to know the impact of ISO 9001 certification on productivity, net profit margin, return on assets and sales growth rate of companies from selected sectors during the post adoption period of ISO 9001 certification. **ANOVA has been used for the** comparison of the selected sectors and selected performance parameters during pre and post adoption period of ISO 9001 certification. For the analysis of primary data ANOVA and independent sample t-test have been used to study the perception of senior level employees and line managers across the selected sectors. The data collected from the survey analyze with the help of computer software SPSS package 17.0 version.
FINDINGS OF THE STUDY

- Five years before and five years after the certification have been taken to study the average trends of the selected companies of steel sector. Trend of Productivity shows a declining trend from 2 years to 4 year in pre adoption period. Productivity ranges from Rs. 316.381 millions to Rs. 298.069 millions for 2 year to 4 year respectively. The productivity is highest during the post adoption period from 1 year to 3 year that is Rs.439.282 millions.
- Productivity had a declining trend Rs.107.634 millions to Rs.101.164 millions respectively. Productivity of selected companies of textile sector is declining during pre adoption period (1 year to 5 year). The productivity is highest during the post adoption period from 1 year to 3 year that is Rs.104.613 millions. Lowest average of productivity during the pre adoption period (1 year to 5 year) is Rs.101.659 millions.
- The hypothesis being rejected there is no significant difference between the pre and post adoption period. It can be pointed out that ISO 9001 rather have a negative impact as per the results of the analysis.
- Overall, mean value of net profit margin during of steel sector (5 years before certification) pre adoption period (Rs. 3.371 millions) is less than the mean of (5 years after the ISO 9001 certification) post adoption period (Rs. 4.810 millions).
- Overall, results show that there is a negative impact on net profit margin of companies in textile sector. So, the hypothesis being rejected that there is no significant difference between net profit margin of pre and post adoption period of ISO 9001 certification in selected companies of textile sector.
- The trends during pre adoption period there is a fluctuating trend as initially decline then increases in subsequent years. On other counterpart, during the post adoption period the increasing trend has been found such as Rs. 220.594 millions to Rs. 253.499 millions. Further, it increases to Rs. 294.610 millions. The hypothesis being accepted that there is no significant difference between return on assets of pre and post adoption period of ISO 9001 certification in selected companies in power sector.
- During the pre period of the ISO 9001 certification ROA having a declining trends such as from Rs. 613.977 to Rs. 317.249 millions. In post adoption period there is increasing trend but the rate of increase is quite low than the pre period of ISO 9001 certification. So, there is
a superior ROA during the pre adoption period. There is a significant difference between ROA during pre and post adoption period of the certification in steel sector.

- During the pre period having a fluctuating trend such as initially decline then it starts increasing. On other counterpart, the trend during the post adoption period the growth of average of return on assets has been also decrease such as from Rs. 16.027 million to Rs. 7.321 millions. The hypothesis being rejected there is no significant difference between the pre and post adoption period in textile sector.

- There is a fluctuation during pre and post adoption periods. Both periods have declining trends as the rate of declining different but there is highest growth of sales growth of power sector during the post adoption period that is Rs. 116.096 millions. Overall, average growth is higher sales growth during the post adoption period (Rs. 111.334 millions) as compare to pre adoption period such as (Rs.110.142 millions).

- There are fluctuations during pre adoption period. On other counterpart, the sales growth rate is increasing during post adoption period and there is a higher growth rate during the post adoption period of the ISO 9001 certification (Rs. 116.665 millions). As exhibits from table (p=.021<.05). It can be concluded from the result of Mann Whitney U test that there is a statistically significant difference between pre and post adoption period. So, there is a significant difference between respective periods of textile sector.

- It was found that Jindal Steel ltd, Sesa Goa, and SAIL ltd having a significant difference in net profit margin between pre and post period of the ISO 9001 certification (p<.05). Under the textile sector, OCM has a significant difference between pre and post period of the certification but on other counterpart, rest of the companies from textile sector having no significant difference in net profit margin during pre and post period of the ISO 9001 certification.

- Under textile sector, Aditya Birla Nuvo ltd, OCM ltd, Nuchem ltd, and Alok Apparel ltd has been selected to know the impact of ISO 9001 certification on ROA during the post period of the ISO 9001 certification. All selected companies of textile sector had not statistical significant difference in return on assets in pre and post period of the ISO 9001 certification.
• Under steel sector, companies not having a significant impact during the post adoption period of the ISO 9001 certification on sales growth of selected companies of steel sector namely Bhushan steel ltd, Jindal steel ltd, Jindal saw ltd, Tata steel ltd and Sesa Goa ltd (p>.05).

• The employees of power sector and textile sector have agreed to a great extent that management of both sectors provide personal leadership for quality products and quality improvement. From the analysis of variance it has been found that there is significant difference between the perception of the employees towards the impact of ISO 9001 on the leadership for the quality across the selected sectors namely steel, power and textile.

• The table analysis of variance revealed that in respect of top level encouragement, reward, group incentives and non financial incentives there is a significant difference among the perception of employees across the selected sectors namely steel, power and textile sector.

• From the analysis it was found that there is a significant difference between the perception of employees towards the impact of ISO 9001 on selected human resource practices across the power, steel and textile sector.

• The results of the test reveal that no significant difference has been found regarding any of the statement concerning role of ISO 9001 in responsibility towards quality between senior level employees and line managers. Thus, the level of truth of various variables concerning role of ISO 9001 is same for the employees of both levels. Hence, there is no difference in the perception of the employees towards the responsibility and leadership towards quality due to an ISO 9001. Hence, hypothesis being rejected.

• The result of the test reveals that significant difference has been found between senior level employees and line managers regarding reward to the workers for the quality improvement and existence of group incentive for quality improvement ideas.

• The result of the test reveals that no significant difference has been found between senior level employees and line managers regarding working in team with members for the variety of areas to introduce new products, regarding criterion for employees’ selection.

• There is a significance difference between the perception of employees at senior level employees and line managers towards the scenario regarding the hygiene of company.

• The quality is the main agenda or more important role play in new product development process and involvement of employees at initial stage of the product. It reveals that there is
the significant difference between the perception of senior level employees and line managers. Senior level employees agreed for the involvement of the employees in the designing of the product but the line managers are neither agree nor disagree (MS=3.07) involvement of employees at the designing of the product.

- In respect of the criteria for the selection of employees and group discussion for the problem solution there is a significant difference between the senior level employees and line managers.

- ISO 9001 an international quality standard helps to develop a positive perception towards the image of the company both levels having a similar perception or there is no significant difference between the perception of senior level employees and line managers. Hence, the hypothesis accepted. Ague (1994) suggests that organizations loose right of the link between ISO 9000 and total quality; the process becomes a bureaucratic exercise and a paper chase. This may be explained by the fact that in the early years, the certified companies need some time to adjust their processes or systems to the requirements of ISO standards.

**SUGGESTIONS**

During the course of study of Impact of ISO 9001 on productivity of selected sectors. Certain aspects struck prominently to the researcher. It is relevant to put them under the heading suggestions; even otherwise the utility of the study receive a sense of fulfillment by incorporating such as heading. The suggestions can be broadly seeking some amendments to adjust their processes or systems of the companies to meet the requirements of ISO standards. Those are being considered for creating and inventing a new procedure. A detailed account of these suggestions is given below:

- The researcher was amazed at the companies of power sector showing declining trends of net profit margin during the post adoption period. Companies should look into the reasons of the decreasing trends of net profit margin during the post adoption period. To be mentioned that ISO 9001 have a negative impact on some companies. Management of the companies has to take steps required for restructuring of processes of organization in view of ISO 9001 certification.
The companies of steel sector should focus on the crucial aspects of leadership as the employees of power sector and textile sector have agreed to leadership qualities such as commitment and accountability are not effective. There is a urgent need of effective strategy to train the managers for improving their leadership qualities.

The companies should encourage the teamwork of senior level employee’s of management and line managers to decide the priorities of training in their respective organizations.

The companies should explore in detail the causes due to which there is gap in the perception of employees at senior level employees and line managers towards the scenario regarding the hygiene of company. There is need to make a check over the hygiene of the company.

The special attention should be given to the quality of new product development process and involvement of employees at initial stage of the product. The company should incorporate the ideas of employees at initial stage of the work.

The companies should adopt ISO 9001 as quality driven force but it is possible if the companies direct activities of the employees to follow the requirement of the clauses of ISO 9001. It can be possible to conduct training and workshop of employees before implementing ISO 9001.

From the analysis it has been found that there is a significant difference only in terms of independent trends during pre and post adoption period. But on an average the impact become negligible or not significant. Future researcher can explore the reasons of such contradiction.
• There should be employees feedback surveys in companies after regular intervals so that information from employees on areas like personal health and wellness, workplace relationships, commitment and problem solving mechanism can be collected.

• An effective training and development programmes for enhancing the knowledge of various clause of ISO 9001 for which timely workshops with the help of experts can be arranged. It helps in building relationship and motivation of employees.

• A supportive climate and culture should be encouraged by providing opportunities to individuals to make meaningful contributions in teamwork planning and administration of the organizations.

• Companies should encourage participate management and smooth flow of communication within the organization. It will encourage employees to express their views on various issues/ problem of implementing ISO 9001.

• It is suggested that companies should emphasis on improving of managerial skills and working conditions of the employees especially involve in implementation of ISO 9001.

• It can be suggested for future research that researcher can incorporate more companies for that future research.

**IMPLICATIONS**
Getting the better understanding of “Impact of ISO 9001 on productivity of selected sectors” is the bedrock of the study. Even through ISO is not to be considered a panacea of all problems. Its full integration and application is the requirement of success. Like the most of the researches, the research also has some limitations though it has some contribution to the field. The sample size is small due to the time and cost constraints which may not be suitable to conclude the research. Similar studies can be carried out for developing the theoretical framework. Globalization is opening doors for MNC indeed there is scope for comparison of the ISO impact on MNCs Vs Indian companies.
Any other interested research scholar allowed to explore different dimensions in the same area. The study will help in data base regarding ISO in selected sectors. This will serve as a basis for further research in the realm of ISO 9001.