



EVALUATING THE ATTITUDE OF MANAGERS TOWARDS SIGNIFICANCE OF STATISTICAL TECHNIQUES FOR BUSINESS DECISION MAKING

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ABSTRACT

Purpose: Most of the managers in business organizations do not place a great significance over the statistical methods and statistical thinking, because they are often convinced that statistical thinking would not contribute towards adding any value to management and to business related decision making. This research evaluates the perception of business managers towards importance of statistical techniques in decision making.

Methodology: This research collected the responses of 150 respondents on the online survey questionnaire. Questionnaire is based on the basis of evidences gathered from the literature. This research developed two hypotheses and the questionnaire survey is divided in two parts for testing two hypotheses.

Findings: Findings of this study indicated that statistical techniques are identified to be important for taking business related decisions. Responses also informed that managers consider statistical techniques to be important for business efficiency. However, there is a lack of knowledge among managers towards using such methods.

Conclusion: This research concludes that improving knowledge, skills and abilities of managers towards using statistical methods and techniques can improve the use of such tools in business decision making.

Keywords: statistical techniques, Business and Statistics, Statistical techniques and business decision making, managers and statistics

1. INTRODUCTION

1.1 Rationale for Research

The term 'statistics' can be related to various meaning, however, in general manner statistics could be the numerical data and mathematical analyses that employ the quantified models, and uses the experiment data in scientific researches (Triola et al, 2006). Some of the common forms of statistics are averages, proportions, and comparison that used in industrial statistics and business statistics (Serfling, 2009). Many managers either from the



processing or manufacturing industries, or from the education, health or service industries, believe that statistics is not relevant to their job requirements, or their roles within organizations (Bajpai, 2009). This is mainly because statistical techniques are identified as the collection of complex mathematical techniques that are not considered to be significant for adding value to the business process and thus, rejected by managers in any form of decision making (Bajpai, 2009).

The main problem arises from the traditional management statics books that informs about heavy concentration over the mathematical calculations and other heavy computations, which significantly fail to achieve the answer for the management or business related problems (Evans, Olson, & Olson, 2007). Therefore, managers often consider statistical techniques to be highly irrelevant and time taking. However, the statistical methods and techniques could be highly significant for the business related decision making (Bajpai, 2009).

Therefore, this research specifically focuses on evaluating the significance of statistical techniques in effective business management and identifies the benefits of such methods in effective decision making.

1.2 Research Question

The question that this research would answer is:

“Do statistical techniques in business management can be helpful in improving managerial decision making and enhancing benefits for business?”

Some secondary research questions will be:

- What are some statistical techniques used in business management?
- What are the benefits of statistical techniques?
- What are the reasons that restrict managers to use statistical tools and techniques in business decision making?



1.3 Research Aims and Objectives

The aim of this research is to conduct a comprehensive research and identifying the significance of statistical methods and techniques in benefiting decision making process in business. The main objectives are:

- To understand the benefits and limitations of statistical techniques in business
- To understand the importance of statistical techniques for business managers and for benefit of business

1.4 Methodology

This research conducts the quantitative analysis of the data collected through the questionnaire survey of the 150 business managers from different departments, such as managers from operations, production, marketing, human resource and administration. Obtaining the perception of the managers is significant for identifying the reasons that why or why not managers use statistical techniques in business related decision making. The online survey was conducted for the period of 5 weeks in order to obtain the appropriate response rate.

LITERATURE REVIEW

2. WHAT ARE BUSINESS STATISTICS?

Statistics can also be designated as an important approach that involves the systematic process of collecting, presenting, analyzing and synthesizing the numerical data and helps in drawing conclusions. *A.L. Bowley* has defined statistics in three different ways. According to him statistics is the science of counting, science of averages and as the science of measuring. (as cited by Aldrich, 2008). According to *Boddington*, statistics is identified as the science of probabilities (as cited by Pillai, 2008). However, *Seligman* defined statistics as the approach that involves data collection, classification, analysis, presentation, comparison and interpretation of numerical data (Spatz, 2007). Therefore, according to different definitions, statistics is the scientific approach for decision making about a particular uncertainty being experienced.

Business statistics specially refers to the statistical techniques and tools that are used in conducting business related research for solving the managerial problems (Bhardwaj, 2009).



Solving the managerial problems is very important for effective decision making. Therefore, statistical techniques can also be considered as the numerical statements of the facts that can be used in different business areas, such as in marketing, finance and accounting, production and operations as well as in development and manpower planning (Pillai, 2008). Business statistics can be broadly divided in descriptive statistics and inferential statistics. According to Black (2009), descriptive statistics *“deals with collecting, summarizing, and simplifying data, which may be otherwise quite unwieldy and voluminous”* (p. 52). On the other hand, inferential statistics, which is also called as inductive statistics are used for collecting, summarizing and providing meaningful analysis of the data. Such statistics are used for making broad generalizations (Weiers, 2010).

3. BENEFITS OF STATISTICAL TECHNIQUES IN BUSINESS

Studies have identified that there are three important business areas in which statistical techniques can be used for getting benefits. Webster (2010) identified that the first area is planning for operations, which can be associated with the implementation of a new project or for planning of the reoccurring activities in the organisation. It can also be associated with budgetary planning, inventory planning and production planning. Second important area of implementing statistics is for setting up the standards (Fernandes, 2008). This can be related to the size of the human capital, volume of business sales, setting up the standard of manufactured product and analyzing the daily output. The third important function area of business in which statistics can be applied is the use of statistics as the function of control. Function of control could be understood as the comparison between the actual productions with the target production (Bhardwaj, 2009).

Some of the other studies have also identified the significance of statistics in making decisions regarding project planning, human resource planning, administration, quality control and for marketing (Doane & Seward, 2008). Studies have identified that descriptive statistical method that is used in business related research is very helpful in drawing a meaningful conclusion from the data set. Similarly, applying the statistical techniques in quality control area can help in ensuring the production of products according to desired quality. Statistical techniques can also be used for business forecasting related to target



sales (by evaluating performance of employees, flow of business, evaluating sales performance and analyzing market competition) and market predictions (Makridakis, Wheelwright & Hyndman, 2008).

4. PROBLEMS OF STATISTICS IN MANAGERIAL DECISION MAKING

Effective and informed decision making, which is very significant for business managers can only be based on analysis of valid data and information. Studies have argued that there are certain business approaches and managerial areas where statistics could not be applied, for example, valuating the perception and thought of employees, or identifying the level of risk taking in employees. Quantification of such areas is not possible through statistical tools, thus managers may not consider statistics to be significant for decision making (Hoshmand, 2009; Webster, 2010). Another problem is identified with the statistical analysis related to finding averages. Finding average could be important numerical functions that managers are required to apply on identifying different trends. Managers may fail to achieve the valid and relevant data for analysis, which can result in providing invalid results (Black, 2009).

Although studies like that of Elbanna (2006) have argued that statistical techniques are necessary for strategic decision making, but lack of knowledge of managers towards using the statistical tools can restrict them from using such methods in decision making. For example, a marketing manager may require analyzing the market and customer behavior forecast for understanding the target market and target customers (Elbanna, 2006). However, giving more significance to marketing strategies rather than collecting and analyzing numerical data may reduce the significance of statistical tools for managers. For identifying the relationship or the association between two or more variables, statistics can be used, but such relationship may not be effective in indicating cause and effect relationship (Burns, & Burns, 2008).

5. RESEARCH HYPOTHESIS

This research is specifically based on testing the hypothesis by analyzing the survey data. The two hypotheses are:



Hypothesis 1 (H1): Positive attitude of the managers towards use of statistical methods is based on perceived benefit of statistical methods in business.

Hypothesis 2 (H2): Negative Perception of managers towards benefits and efficiency of statistical techniques influence their acceptance and rejection of such tools in decision making.

6. DATA ANALYSIS AND FINDINGS

HYPOTHESIS 1 (H1): Positive attitude of the managers towards use of statistical methods is based on perceived benefit of statistical methods in business.

	Reasons	Yes	No
1	Statistical methods help in facilitating business decision making	125	25
2	Statistical techniques helps in improving business outcomes	121	29
3	Statistical techniques helps in achieving cost efficiency	118	32
4	Statistical techniques requires special skills from managers	132	18
5	Statistical techniques help managers in taking decisions regarding business efficiency	112	38

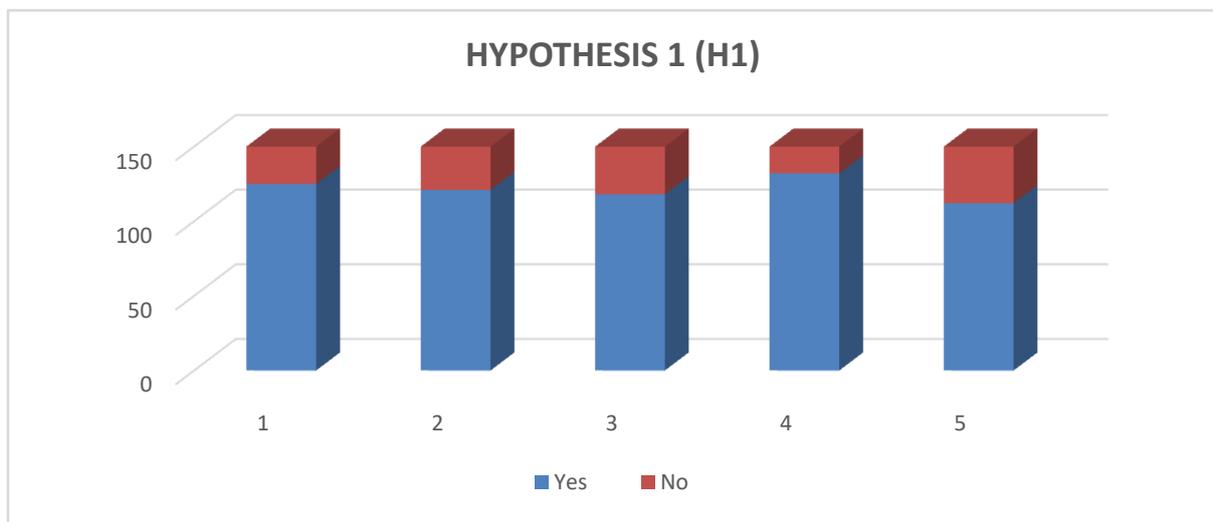


Figure: 01

Positive attitude of the managers is identified to be significant in encouraging them to use the statistical techniques for making effective business related decision making. Positive attitude analysis informed that most of the survey respondents believe that statistical methods could be significant for effective decision making in business. They also believe

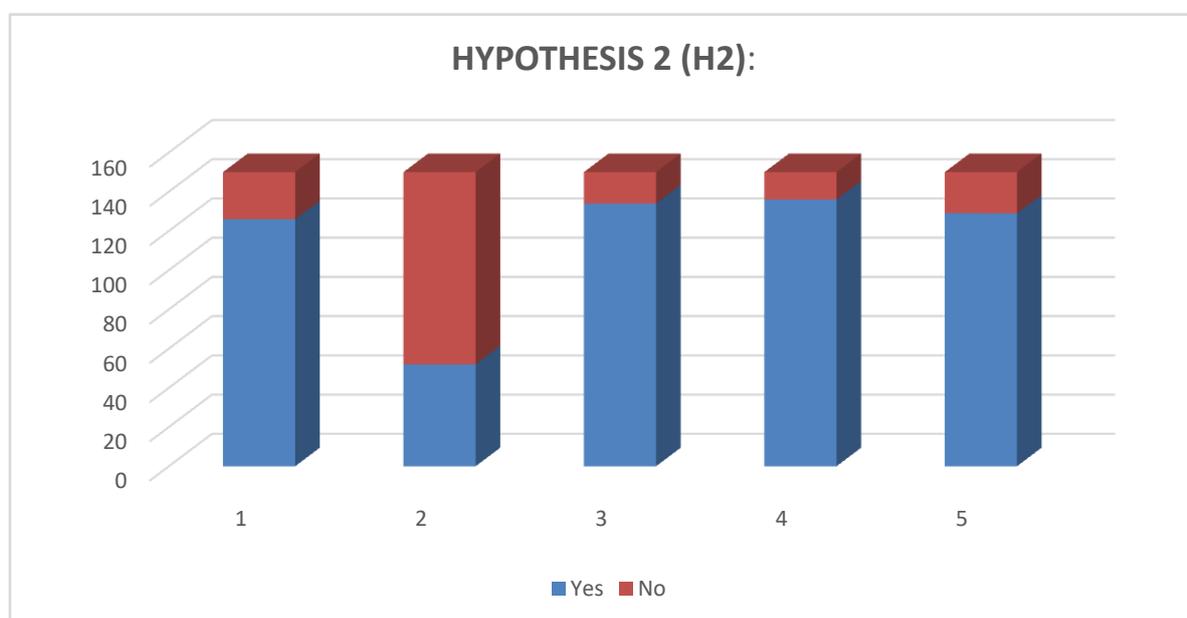


that business outcomes can be improved by taking the decisions on the basis of analysis conducted through statistical tools. In terms of cost efficiency and business efficiency, most of the respondents believe that statistical techniques could be useful. In terms of need of requiring special skills, respondents have shown that they consider it important. This indicates that it is important to enhance the skills and capabilities of the managers, so that they can effectively use such tools and can base their decisions on numerical data.

HYPOTHESIS 2 (H2): Knowledge Perception of managers towards benefits and efficiency of statistical techniques influence their acceptance and rejection of such tools in decision making.

Reasons	Yes	No
There is a lack of knowledge regarding statistical techniques	126	24
Managers are often overloaded with work that restrict them to use statistical methods	52	98
There is a lack of organizational training and support in using of statistical methods	134	16
Lack of financial resources to conduct statistical research for decision making	136	14
There is a lack of appropriate Statistical techniques for business decision making	129	21

Figure: 02





The number of response of the managers regarding the knowledge perception have shown that lack of knowledge regarding statistical techniques among the managers is identified as the significant reason affecting their ability to use such tools and techniques in decision making. This finding also aligns with the findings of earlier studies that informed about the lack of training and skills among managers. 98 respondents reported that workload is not a significant reason behind lack of use of statistical techniques in decision making. This indicates that workload could not be identified as a major reason behind not using such tools, and thus, provides a new finding in this area. Most of the earlier researches have indicated that workload as the main factor. However, this research does not find it to be a major reason behind rejecting the use of statistical techniques. 134 respondents informed that lack of organizational support and training in using statistical techniques for developing informed decision making is a significant reason that affects the perception of managers. This also indicates that organizational support and training provided to the managers could enhance their knowledge and skills to employ such methods in decision making. Results also indicated that lack of financial support and lack of appropriate statistical methods for everyday business decision making also impact the perception of managers. Financial support and knowledge enhancement can result in improving the utilization of statistics in business related decision making.

Therefore, this research significantly contributes towards adding new elements to understand the acceptance and rejection of statistical techniques in business management. Earlier researches have not focused on analyzing the importance of organizational support and training and its influence on knowledge perception of managers.

7. CONCLUSION

This research focused on evaluating the attitude of the managers toward the use of statistical techniques in business related decision making. The data collected through the survey questionnaire informed that there is a lack of statistical thinking among the managers. Although study respondents believe that statistical techniques could be important for business, as it can enhance business related decision making, but there is a lack organizational support, financial support and training to encourage managers to use



statistical methods. This research indicates that there is a need of enhancing organizational capabilities for preparing managers to use statistical tools and to make decisions on the basis of numerical data. This research significantly contributes towards informing about the importance of managerial perception, importance of organizational training and support and enhancing the financial resources to improve perception of managers and to encourage them.

REFERENCES

1. Aldrich, J. (2008). Professor AL Bowley's theory of the representative method. *Arch. Hist. Exact Sci*, 63, pp.51–79
2. Bajpai, N. (2009). *Business statistics*. Pearson Education India.
3. Bhardwaj, R. S. (2009). *Business statistics*. Excel Books India.
4. Black, K. (2009). *Business statistics: Contemporary decision making*. John Wiley & Sons.
5. Burns, R. P., & Burns, R. (2008). *Business research methods and statistics using SPSS*. Sage.
6. Doane, D., & Seward, L. (2008). *Applied Statistics in Business & Economics with Student CD*. McGraw-Hill/Irwin.
7. Elbanna, S. (2006). Strategic decision-making: Process perspectives. *International Journal of Management Reviews*, 8(1), 1-20.
8. Evans, J. R., Olson, D. L., & Olson, D. L. (2007). *Statistics, data analysis, and decision modeling*. Pearson/Prentice Hall.
9. Fernandes, M. (2008). *Statistics for business and economics*. Bookboon.
10. Hoshmand, A. R. (2009). *Business forecasting: a practical approach*. Routledge.
11. Kiradoo, Giriraj. Changing Role of Use of Statistical Data in Managing Business Operations to Improve Decision Making (2012). *IJARMSS*, 01(03), PP. 141-150 (2012).
12. Makridakis, S., Wheelwright, S. C., & Hyndman, R. J. (2008). *Forecasting methods and applications*. John Wiley & sons.
13. Pillai, R. S. N. (2008). *Statistics (theory & practice)*. S. Chand Publishing.
14. Serfling, R. J. (2009). *Approximation theorems of mathematical statistics* (Vol. 162). John Wiley & Sons.
15. Spatz, C. (2007). *Basic statistics: Tales of distributions*. Cengage Learning.
16. Triola, M. F., Goodman, W. M., Law, R., & Labute, G. (2006). *Elementary statistics*. Reading, MA: Pearson/Addison-Wesley.
17. Webster, A. L. (2010). *Applied Statistics For Business*. Tata McGraw-Hill Education.



18. Weiers, R. M. (2010). *Introduction to business statistics*. Cengage Learning.

APPENDIX:

SURVEY QUESTIONNAIRE

Evaluating the attitude of the managers towards the efficiency of statistical techniques in decision making (n= 150)

Reasons	Yes	No
Statistical methods help in facilitating business decision making		
Statistical techniques helps in improving business outcomes		
Statistical techniques helps in achieving cost efficiency		
Statistical techniques requires special skills from managers		
Statistical techniques help managers in taking decisions regarding business efficiency		

Evaluating the reasons for the lack of use of statistical techniques for business related decision making (n=150)

Reasons	Yes	No
There is a lack of knowledge regarding statistical techniques		
Managers are often overloaded with work that restrict them to use statistical methods		
There is a lack of knowledge regarding use of statistical methods		
Lack of financial resources to conduct statistical research for decision making		
Statistical techniques are not appropriate for business decision making		