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THE RELATIONSHIP BETWEEN LEAN MANUFACTURING MANAGEMENT AND FINANCIAL PERFORMANCE

Abstract: This paper shows a model to conduct an empirical study in order to improve their performance. This study intends to examine the relationships between lean manufacturing management and financial performance. Lean manufacturing management is one of the most important tools that companies used to develop their performances. In this study, lean manufacturing management includes Total productive maintenance (TPM), Group technology to enhance the flow of product (GT), Employee involvement in problem solving (EMP), statistical process control to monitor quality, just in time production methods (JIT). Financial performance divided in two different groups such as operation and business financial performance. According to this study business financial performance comprises return on equity (ROE), sales growth (SG), and stock return (SR) on the other side, Operational Financial Performance includes asset productivity, employee productivity, gross margin ratio, and cycle time. In this research, a model has been developed that includes Lean manufacturing management and financial performance to study their influence on manufacturing industries. The findings showed that lean manufacturing management had positive effect on operation and business financial performance. It is hoped that this paper can provide an academic source for both academicians and managers due to investigate the relationship between lean manufacturing management and financial performance.

Key words: lean manufacturing management, financial performance, operation financial performance, business financial performance, industry.

1. INTRODUCTION

According to Olsen, O. E. (2004) both operations management literature and common sense contend that implementing best practices on the factory floor inevitably results in improved business level financial performance. However, empirical research studies fall short in consistently substantiating this relationship

with respect to the broad set of operations commonly known as “lean manufacturing” practices. Lean manufacturing may be considered as a synergistic set of integrated modern manufacturing management practices commonly classified under subsets total productive maintenance (TPM), total quality management (TQM), just-in-time (JIT), and a collection of supportive human

resource management practices including employee empowerment and teamwork. Lean manufacturing encompasses such practices as statistical process control (SPC), supply base rationalization, customer requirements integration, in-house designed technology, reengineering setups, integrated product design, worker teams, pull production, employee involvement in problem solving, supplier information sharing and partnership, and cellular manufacturing.

2. LITERATURE REVIEW

2.1 Previous research

The purpose of this research is capturing and quantifying the connection between lean manufacturing management practices and financial performance at both the business and operations levels. The literature review tries to identify how past studies addressed the practice performance connection, and will show that:

1. Analysis methods used in accounting and financial literature, along with the practice constructs developed in the operation management studies, offer a means for more accurately testing and describing the practice-performance connection.
2. Recent operations management (OM) studies have extended a valid and reliable set of constructs for measuring lean practices.
3. The practice-performance connection has not yet been sufficiently established, especially regarding financial performance.

Howton et al (2000) utilize six different terms to identify companies just in time. Claiming a practice is not equivalent to measuring the extent of its practice usage. Descriptive studies in the literature testify to this lack of uniformity in mix and extent of practice implementation.

Based on this research, main deficiency results from the limited

capability of their survey instruments to reliably capture a full range of lean practices. Furthermore, the previous research has not examined the relationship of practices to business level performance such as stock return, earnings per share, and return on equity (ROE). Previous researchers namely Upton (1998), identified the impact of just in time on performance. According to this study, JIT had positive effect on performance. This study uses four broad practice areas that are typically included in lean operations management, namely total quality management (TQM), infrastructure or common practices, total productive maintenance (TPM), just-in-time (JIT). Setup time reduction is classified as a just in time practice, and Involvement or customer focus is classified as being primarily total quality management. A major contention in the literature is that each lean practice being mutually and synergistic supportive, is complicated to isolate in its resulting impact on performance (Ward, Bickford, & Leong, 1996; Shah, 2002). Flynn et al, (1995) utilized the concept of “common” or “infrastructure” practices for both total quality management and just in time to circumvent the problem of practice classification while recognizing the interdependencies of lean practices.

The studies by Fullerton et al (2003) and Fullerton et al (2001) ask only ten survey questions to capture the extent of implementation across all lean practice areas. In contrast, Cua et al (2001) utilize seventeen factors derived from a survey containing sixty nine questions. Furthermore, this study examines the impact of lean manufacturing practices on business and operation performance. Variables at the operations financial performance level tend to be influenced directly by the operation's function. Operational financial performance variables used in this study include cycle time, gross margin ratio, employee

productivity, asset productivity. Otherwise, business financial performance variables utilized in this research comprise stock return, sales growth, return on equity. One criterion for selecting financial variables maintains that the variables must measure sustained performance and not be unduly influenced by abnormal changes in a particular year's performance. Three overall measures of business financial performance are utilized in this study: stock return (SR), sales growth (SG), return on equity (ROE). To ensure sustained performance, five years of data from 1998 to 2002 was utilized. Two different measures of central tendency are applied to the business financial performance measures (the median is used for ROE and SG and the mean for SR). Applicable sections explain the reasons for selecting different measures.

2.2 The relationship between lean manufacturing management and financial performance

Olsen, O. E. (2004) pointed out that the concept of lean manufacturing management is captured in two ways 1) individual practices, 2) categorical strategic archetype. The first case contends that lean practices tend to act in mutually supportive sets of interrelated practices rather than as standalone mechanisms or practices in simple linear combinations. The remainder of the chapter develops five general propositions about the relationships between lean manufacturing management practices and financial performance as follows:

1. Individual lean practices had positive effect on business financial performance (H1),
2. Lean archetype had positive effect on business financial performance (H2),
3. Individual lean practices had positive effect on operations financial performance (H3),
4. Lean archetype had positive effect on operations financial performance (H4), and

5. Operations financial performance had positive effect on business financial performance assuming that lean archetypes have specific relationships between operations financial performance measures that can be used to identify lean firms (H5).

Empirical and theoretical support for each proposition to justify its inclusion in this study is provided.

3. RESEARCH QUESTIONS

The main research questions of this study are as below:

Do lean manufacturing management practices improve financial performance?

4. RESEARCH OBJECTIVES

The general objective of this research is to describe the influence of lean manufacturing Management practices and financial performance at both the operations and business levels.

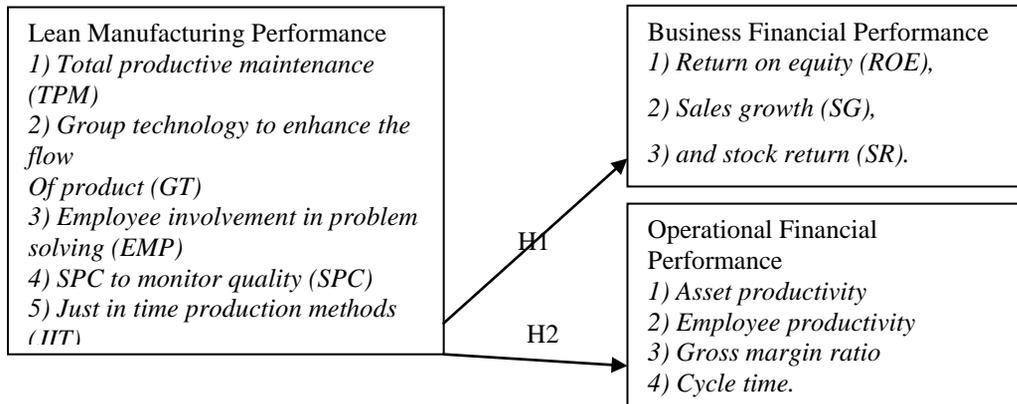
5. RESEARCH METHODOLOGY

This research is going to use quantitative survey. The population of this study is the managers and employees. The Respondents of this survey research include managers and employees. Multiple regressions will be used to determine the causal relationship between the different constructs of the suggested model of the study. SPSS and AMOS software will be used to analyze the data. The sampling frame of this research has improved by using many resources namely direct communicate with managers from related automobile industries by using telephone, email, and formal websites of connected industries. To establish the relationship between lean manufacturing management practices and financial performance, it is

necessary to create a research design that effectively captures both variables. The design used in this study combines an analysis of archival financial performance

data with an empirical survey of practice data from a sample frame of manufacturing companies.

Theoretical Framework



5.1. Hypotheses Development

The hypotheses of this study are developed as following:

H1: lean manufacturing management is positively related to business financial performance

H2: lean manufacturing management is positively related to operation financial performance

6. CONCLUSION

The aim of this paper was to carry out a theoretical study on the relationship between Lean Manufacturing Management and Financial Performance. The main

contribution of this paper was to persuade managers to take a serious attention on the relationship between Lean Manufacturing Management and Financial Performance. Investigating the relationship led us to lucrative outcomes. This study theoretically reviewed prior literatures on same problem in other countries. The aim was to shed some light on the research problem. A survey is designed in order to conduct an empirical research for examining survey's hypotheses. It is hoped that the important facts addressed in this paper will be a means whereby managers and researchers will be able to investigate the relationship between Lean Manufacturing Management and Financial Performance.

REFERENCES:

[1] Flynn, B. B., Sakakibara, S., & Schroeder, R. G. 1995. Relation between JIT & TQM: Practices and performance. *Academy of Management Journal*, 38(5): 1325-1360.
 [2] Fullerton, R. R. & McWatters, C. S. 2001. The production performance benefits from JIT implementation. *Journal of Operations Management*, 19(1): 81.
 [3] Fullerton, R. R., McWatters, C. S., & Fawson, C. 2003. An examination of the

- relationships between JIT and financial performance. *Journal of Operations Management*, 21(4): 383.
- [4] Howton, S. D., Higgins, E. J., & Biggart, T. B. 2000. The information content of just-in-time inventory system adoption announcement. *Journal of Business Finance & Accounting*, 27(5/6): 711.
- [5] Olsen, O. E. (2004). *Lean Manufacturing Management: the relationship between practice and firm level financial performance*. PhD dissertation, 1-83.
- [6] Shah, R. 2002. *A configurational view of lean manufacturing and its theoretical implications*. Unpublished Dissertation, The Ohio State University, Columbus, OH.
- [7] Upton, D. 1998. Just-in-time and performance measurement systems. *International Journal of Operations & Production Management*, 18(11/12): 1101.
- [8] Ward, P. T., Bickford, D. J., & Leong, G. K. 1996. Configurations of manufacturing strategy, business strategy, environment, and structure. *Journal of Management*, 22(4): 597-626.

