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Case Study

The relationship between quality management practices and their effects on quality outcomes

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Abstract

Recent research into quality management has examined the relationship between quality management and performance. The purpose of this study is to identify the relationships between quality management practices, and to examine the direct and indirect effects of these practices on quality outcomes by means of replication research. The paper uses a path analysis and a research model is tested using cross-section data collected from 106 certified firms in Spain. The findings support the relationships between quality management practices and the positive impact of these practices on quality outcomes. Evidence is also found confirming previous research showing that a firm could transfer the organizational forms and behaviours underlying quality management to other countries with similar cultures. However, as minor differences emerge, managers should consider the cultural issues. The contribution of the paper is that it provides empirical support for direct and indirect effects of quality management on performance in Spain compared to previous studies carried out in USA and Korea.

Keywords: Quality management; Continuous quality improvement; ISO 9000; Path analysis; Spain

1. Introduction

Total quality management (TQM) has been applied as a way of improving activities and performance in firms (Powell, 1995; Kaynak, 2003). Several studies have showed the link between quality management practices and improved performance, using both factual data (Easton and Jarrell, 1998; Hendricks and Singhal, 1997, 2001) and perceptual data (Saraph et al., 1989; Powell, 1995; Samson and Terziovski, 1999; Prajogo and Sohal, 2006). To study this link, the data analyses are based on a series of multiple regressions (Samson and Terziovski, 1999; Douglas and Judge, 2001; Terziovski et al., 2003), correlations (Powell, 1995; Curkovic et al., 2000) and other analytical frameworks. However, few empirical studies have identified the direct and indirect effects of TQM practices on performance.

Four studies, carried out by Anderson et al. (1995), Flynn et al. (1995), Kaynak (2003) and Lee et al. (2003) examined these direct and indirect links using

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structural equation models and considering TQM as a multidimensional construct. The first three studies were performed in the USA, and the other in Korea. Therefore, extensive replication seems essential to ensure the reliability and validity of this research. For instance, the replication could be based on analyses carried out in countries other than the USA and Korea. As is known, replications may improve the understanding of the state of different fields and facilitate theory development (Singh et al., 2003).

The aim of this research is to investigate the direct relationships between TQM practices, the TQM practices directly related to quality outcomes and the indirect links among TQM practices and between them and quality outcomes in 106 ISO 9000 certified firms in Spain. This approach is developed from the point of view of replication research, and uses path analysis to determine whether the relationships between TQM practices and their effects on quality outcomes can be replicated in the firms that operate in Spain; this would test the generalizability of existing theory. Through this comparison, the contribution of the paper is to expand the results of these four studies.

In this context, Tsang and Kwan (1999) classified replications into six types: checking of analysis, reanalysis of data, exact replication, conceptual extension, empirical generalization and generalization and extension. This paper uses different measurements and/or analyses, and a different population from the four previous studies. Therefore, this paper belongs to the type of replication called "generalization and extension" by Tsang and Kwan (1999).

The remainder of this paper is organized as follows. The relationship between TQM and performance and a research model are offered based on the literature review in the next section. Then, the research methodology is described. The following section presents the results of testing the model. The implications of the results for researchers and practitioners are analysed in the discussion section. Finally, the paper includes several conclusions, limitations, and further research.

2. Literature review

The theory of quality management has been developed from three different areas: contributions from quality leaders (Deming, 1982; Juran, 1988), formal evaluation models (European Quality Award, Malcolm Baldrige National Quality Award – MBNQA, Deming Award) and measurement studies (Saraph et al., 1989; Flynn et al., 1994). This theory has identified several TQM practices. Such practices have been documented and empirically analysed in measurement studies (Section 2.1) and in studies that have investigated the relationship between TQM and performance (Section 2.2). Based on this literature review, Section 2.3 suggests the hypotheses proposed and the research model shown in Fig. 1.

2.1. Measurement studies

Several studies have developed an instrument for measuring quality management, assessing its reliability and validity, applicable to industrial firms (Flynn et al., 1994; Ahire et al., 1996) or to both industrial and service sectors (Saraph et al., 1989; Badri et al., 1995; Black and Porter, 1995, 1996; Grandzol and Gershon, 1998; Quazi and Padibjo, 1998; Quazi et al., 1998; Rao et al., 1999). Alongside these, mention must be made of the action-research based instrument by Prybutok and Ramasesh (2005) developed as a context-specific single-site empirical research.

These studies have created a valid, reliable instrument to measure quality management and identify critical factors of TQM. Such instruments can help both researchers and managers who have to make decisions related to quality management, because they can be used as an assessment tool. This is the case, for instance, of the European Foundation for Quality Management (EFQM) model.

Based on this review, and on the literature on TQM, common practices such as leadership, quality planning, human resource management, customer focus, process management, supplier management and continuous improvement were used in this research. This study also included the learning category because, although it does not appear as such in the other works cited, a number of studies in quality management have pointed out its relevance (Anderson et al., 1994; Sitkin et al., 1994; Hackman and Wageman, 1995; Dervitsiotis, 1998), and it also includes the 2000 review of the EFQM model.

2.2. Relationship between TQM and performance

Deming (1982) points out that higher quality implies lower costs and increased productivity, which in turn gives the firm a greater market share and enhanced competitiveness. Likewise, the