



## TQM and performance: Is the relationship so obvious?

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### ABSTRACT

This study explores the relationship between total quality management (TQM) and firm performance taking TQM as an internally consistent system of practices. The study tests the link between the two variables using the universal approach, analyzes whether the most competitive firms are those adopting TQM, and tests for an isomorphic effect on other firms. The study uses a sample of Spanish firms that have received TQM prizes at the national or regional level between 1997 and 2003 and a control sample for comparison. The findings indicate that in the absence of any evidence to confirm the universal hypothesis, TQM pioneers experience performance gains, because of the early implementation of the system; however, late adopters do not experience similar results. Firms using a TQM system are not necessarily better than their counterparts are, before putting the system into action. The study uses panel data that takes into account the unobservable heterogeneity between individuals and the dynamics of firms' financial variables.

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### 1. Introduction

Though many researchers consider total quality management (TQM) to be an important organizational innovation, often authors include TQM among management fads (David and Strang, 2006; Miller et al., 2004; Rich, 2008). A great deal of empirical research investigates the relationship between TQM and performance. Some authors find positive results (Anderson et al., 1995; Choi and Eboch, 1998; Hendricks and Singhal, 1996, 1997, 2001a,b; Shenaway et al., 2007), other researchers fail to find any significant link (Powell, 1995; Westphal et al., 1996) and some studies even identify an inverse relationship (Davis, 1997). In the light of these findings, numerous authors highlight the need for a deeper investigation of the relationship between TQM and performance and the creation of further bridges between organizational theory and TQM (Dean and Bowen, 1994; Hackman and Wageman, 1995; Sila, 2007; Sitkin et al., 1994; Sousa and Voss, 2002; Spencer, 1994; Waldman, 1994).

This study explores the link between TQM and performance from different perspectives. On the one hand, the work contrasts the universal approach to the direct relationship between TQM and performance. TQM is almost prescriptive in orientation (Dean and Bowen, 1994) and advocates a universal application to organizations and organizational activities (Sitkin et al., 1994). On the other hand, the study analyzes the cause and effect relationships between TQM and performance, both within and between firms. The study tests whether the relationship between TQM and performance is associated with firms, which were already performing better before the

implementation of TQM, or whether the relationship is more important for the first firms to put this system into practice.

The use of panel data takes into account the unobservable heterogeneity between individuals and the dynamics of firms' financial variables. Nowadays, any business research must take into account not only cross-section effects but also time effects. This issue is not present in the existing research on TQM, at least as far as the authors are aware. Therefore, the results reported in previous literature are less robust than those achieved in the present study. The main conclusion emerging from this study is that only early TQM adopters experience performance gains because of TQM implementation. The evidence also suggests that the greatest impact on performance takes place a year after receiving external recognition for implementing the system.

The remainder of the research follows the next structure: the second section presents the theoretical basis for the study and the hypotheses; the third describes the database; the fourth discusses the methodology and results; and the fifth summarizes the main conclusions.

### 2. Theoretical framework

#### 2.1. TQM and performance — the universal approach

One of the basic principles when applying a total quality system is to bear in mind that TQM practices function as an interdependent system that combined with other organizational assets generates competitive advantage (Hackman and Wageman, 1995). Milgrom and Roberts (1990) defend the systemic concept and develop a formal optimizing model of the way in which manufacturing methods that encompass TQM assist firms to maximize their expected profits. Other areas of Management Theory, such as Human Resources, apply the concept of fit or internal consistency (Arthur, 1994; Huselid, 1995; MacDuffie, 1995). In the TQM

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context, the main contributions employing this perspective are those that view TQM as a holistic construct (Chenhall, 1997; Choi and Eboch, 1998; Douglas and Judge, 2001; Easton and Jarrell, 1998; Hendricks and Singhal, 1996, 1997, 2001a,b; Lai and Cheng, 2005; York and Miree, 2004).

The use of the systemic concept in TQM complicates implementation because the expected outcome depends on the need for a thorough transformation of the firm's management system. Several TQM experts suggest that successful implementation of TQM requires metamorphosis, total change or radical change (Reger et al., 1994) and the complete reformation of organizational culture (Olian and Rynes, 1991). The most widely used models at both the theoretical and practical levels are the Malcolm Baldrige, the Deming and the European Foundation Quality Management (EFQM) models, which incorporate the set of TQM constructs most frequently used in the literature (Sousa and Voss, 2002). The implementation of TQM in an organization is a complex process. For this reason, managers must assess the degree of implementation of TQM practices when evaluating the TQM relationship with competitive advantage (Douglas and Judge, 2001). These models also have an accreditation system in which a team of experts assesses the internal consistency or fit between the various factors.

The theoretical arguments are diverse and suggest a link between the implementation of these systems and firm performance. York and Miree (2004) note that the arguments gather under two main headings: customer satisfaction (Ahire and Dreyfus, 2000; Choi and Eboch, 1998; Hendricks and Singhal, 1996; Omachonu and Ross, 1994; Rust et al., 1994; Shetty, 1998) and efficiency improvement (Anderson et al., 1995; George and Weimerskirch, 1998; Handfield et al., 1998; Reed et al., 1996). If the firms improve the quality of their products and services then their reputation, customer satisfaction and customer loyalty will increase too. As a consequence, firms will be able to increase their market share and product prices, and therefore their profits. Firms also achieve efficiency improvement by means of productivity increase, improvement of product design and processes. The development of these activities enables to achieve a reduction in the costs of production and an increase in sales.

Besides, if the usefulness of TQM from the business perspective lies in its potential to achieve and maintain competitive advantage (Powell, 1995) and TQM programs increase the degree to which customers consider their requirements met and organizations improve efficiency, then global and economic measures of organizational effectiveness will improve over the long term (Hackman and Wageman, 1995).

**H<sub>1</sub>.** The implementation of a contrasted TQM system leads to an increase in global firm performance.

## 2.2. Cause-effect in TQM and performance

When investigating the TQM–firm performance relationship consider the causal linkages. Most research that finds a positive relationship between TQM and performance establishes causality relationships through cross-section data. Some studies (Easton and Jarrell, 1998; Hendricks and Singhal, 1997, 1999, 2001a) attempt to analyze the effect of TQM on performance in the long term. However, few studies investigate the causal linkages, that is, whether or not the increase in performance is a direct consequence of TQM or whether or not different reasons are relevant for explaining the observed relationship. This study explores the cause-effect links from two different points of view to answer two different questions. First, do the best firms adopt a TQM system and therefore do performance differentials pre-exist before TQM implementation? In other words, are the differentials due to some of the firms were already better? Second, do early implementers of a contrasted TQM system achieve more performance gains than late-implementer firms do? In other words, does being the first have consequences for performance?

Consider the issue of causation or covariation. If the studies do not analyze the firms' performance before TQM implementation, the

researchers can conclude that firms have improved their performance as a consequence of this innovation, when actually their performance could be better than their counterparts before the implementation. In line with this argument York and Miree (2004) consider that if the firms were already better performers, the relationship between TQM and performance is a covariation, but not a causal relationship. One theoretical reason that can justify the fact that TQM firms are better before the implementation is the consideration of TQM as a system. Bearing in mind that TQM practices function as an interdependent system, which requires a radical and complete change of principles and practices, and that a partial change in practices is not effective, as the first hypothesis defines, firms should possess enough economic and human resources to be able to effect the transformation. Very few studies have analyzed this question. York and Miree (2004) find that firms receiving an award already showed a better financial performance than their competitors did before adopting TQM methods. Hansson and Eriksson (2002), in their study of Swedish quality award recipients, find weak differences in the performance of the firms between the implementation period and the post-implementation period. They argue that quality award recipients might obtain high performance even before implementation of TQM.

**H<sub>2</sub>.** Firms that adopt a TQM system perform better, even before implementation, than those that do not adopt a TQM system.

Consider the issue of early implementers or late implementers. Institutional Theory (Di Maggio and Powell, 1983; Meyer and Rowen 1977) tries to account for homogeneity between organizations. This theory helps to answer the second hypothesis. Indeed, a number of authors use Institutional Theory in the analysis of TQM (Mueller and Carter, 2005; Sila, 2007; Staw and Epstein, 2000; Westphal and Shortell, 1997; Zeitz et al., 1999). Competitive isomorphism describes the tendency of organizations to try to become like those they perceive to be more successful, while “mimetic behavior” refers to a widespread propensity for managers to adopt practices that are already in place in other organizations. A desire to improve performance drives early adopters of organizational innovations, but as innovation spreads, the diffusion reaches a threshold beyond which adoptions provide legitimacy rather than improving performance (Meyer and Rowen, 1977). However, strategies that are rational for individual organizations may not be rational if large numbers adopt them (Di Maggio and Powell, 1983).

Under this perspective, Benner and Veloso (2008), Taylor and Wright (2003) and Westphal and Shortell (1997) analyze the relationship between early adopters and performance, arguing that pioneering companies in applying a TQM model can benefit from being the first ones in the market in which they adopt an innovation. Such companies can be the first ones to achieve major levels of customer satisfaction or efficiency improvements, and therefore take advantage of this better situation. In this sense pioneering companies in applying TQM can obtain extraordinary profitability if the competition reacts slowly (Lederer and Rhee, 1995). Otherwise, competitive isomorphism and mimetic behavior can explain why late firms adopt this system although they are not the first ones.

**H<sub>3</sub>.** a: Firms that are early implementers of a contrasted TQM system achieve higher performance gains. b: Late implementers do not see the same performance gains as pioneer firms do from adopting a contrasted TQM system.

## 3. Database

### 3.1. TQM implementation

The choice of the variable to measure the level of TQM adoption is a key issue. The literature provides two main options. The first verifies the level of implementation by means of surveys or interviews to

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