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Int. J. Production Economics

journal homepage: www.elsevier.com/locate/ijpe

Determinants of quality management practices: An empirical study of New Zealand manufacturing firms

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ARTICLE INFO

Article history:

Received 13 May 2011

Accepted 25 September 2012

Available online 10 November 2012

Keywords:

Management practices

Productivity

Performance

Econometric analysis

Policy making

ABSTRACT

A large body of research in recent years has resulted in the accumulation of knowledge about better (worse) management practices for manufacturing firms. Given the wide dissemination of knowledge about practices such as Lean Manufacturing, the importance of goal-setting, performance management systems, employee promotion and reward structures, it is unclear why some firms do not adopt these broad-based management practices. If there are management practices that have the potential to universally increase productivity of manufacturing firms, their lack of adoption by all firms in such markets remains a pertinent question. New Zealand is a small open economy facing competitive pressure from both its geographical distance from large markets and its minimum wage, which is above key international competitors. In this context we use a novel survey tool designed by Bloom and Van Reenen (2007) and McKinsey & Co. to construct a Management Practices Score (MPS) based on 18 management practices from 152 medium- and large-sized New Zealand manufacturing firms. We find that the MPS is positively associated with various firm productivity performance indicators, particularly profit per employee and firm sales, indicating that the MPS captures relevant information about management practices. We find that firm size, ownership structure, and the level of education among both managers and non-managers positively impacts management performance. Unlike the findings in earlier international research, we find that competition does not have an association with management practices. The findings here contribute to understanding why best management practices are not universally adopted by manufacturing firms.

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1. Introduction

This paper investigates the determinants of best management practices for manufacturing firms operating in a small open economy facing competitive pressure through its geographic distance from large markets and from having a minimum wage above key international competitors. We also investigate the association between management practices and firm productivity and performance to assess the validity of the Management Practices Score (MPS) utilized in this study. Examining the causes and implications of variation in productivity across firms is an important theme in many fields of economics, including production (e.g., Cua et al., 2001) trade (e.g., Melitz, 2003), labour (e.g., Van Reenen, 1996), industrial organization (e.g., Hopenhayn, 1992), and macro-

economics (e.g., Atkeson and Kehoe, 2005). It has been suggested that the level of management capability within firms is a driver of organizational performance and productivity, in turn contributing to economic growth and competitiveness (UK Work Foundation, 2003, 2005). A recent study by Alexopoulos and Tombe (2009) also suggests that the development of intangible processes and management techniques improve productivity. Supporting this view, a number of management practices have been investigated and found to positively affect performance for the average firm which adopts them. For example, Cua et al. (2001) find that the joint implementation of Total Quality Management (TQM), Just-In-Time (JIT) and Total Productive Maintenance (TPM) are generally compatible and associated with manufacturing performance. Given that there is variation in management practices adopted by firms, the question of why firms choose practices that are demonstrably less effective than others is pertinent.

To assess the reasons why firms adopt best management practices it is necessary to define and measure them through an empirical proxy which has a sufficient level of content reliability.

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A major impediment in analyzing and understanding the relationship between management practices and enterprise, industry and national economic performance, has been the lack of reliable empirical data on management practices measured in a consistent way across countries and firms. This has forced many researchers to rely on case studies. Another reason is that the effectiveness of some management practices is highly context specific (Sousa and Voss, 2008). In addition, there is a focus in the literature on different aspects of management practices in isolation, such as operations management (Holweg, 2007; Wadell and Bodek, 2005); performance management (Parmenter, 2007; Kaplan and Norton, 1996; Neely et al. (2003); Simons, 1991); and talent and people management (Ichniowski et al., 1997; Huselid 1995). A range of studies have sought to combine these different management practices to investigate how they interact and operate in unison (e.g., MacDuffie, 1995; Bloom and Van Reenen, 2007). Problematically, some of these studies have not been validated in cross-national contexts (e.g., MacDuffie, 1995) and for this reason, in this study, we use the Bloom and Van Reenen (2007) survey instrument. This instrument has been validated in a variety of contexts and has a number of properties that address some of the criticisms leveled at similar scoring methods.

Bloom and Van Reenen (2007), with McKinsey & Co., have spent more than seven years developing, testing and applying a novel approach for the robust measurement of a firm's management practices across a range of firms, industries and nations. The survey instrument is novel in that it uses a double-blind/double-scored methodology and an interview-based scoring grid that defines 'best practice' (scored as 5) and 'worst practice' (scored as 1) across 18 individual management practices for the manufacturing sector, and brings together three broad areas of management – operations, performance and people management. Individual scores are additive as each practice dimension is a relative measure (better versus worse), and are combined to construct a holistic management practices score (MPS). To assess the validity of the MPS, it has been compared directly with business performance across 17 countries (18 jurisdictions) (Bloom and Van Reenen, 2007; Green et al., 2009, 2010) and is generally positively correlated with productivity and performance in settings where it has been tested (Bloom and Van Reenen, 2007, 2010).

The finding that the MPS is associated with higher firm performance and productivity in several different national settings is more consistent with a universalist conception of management practices than a contingency perspective, where the adoption of more best management practices is reflective of 'better management', and hence is why there would be such an association.

The extant literature has focused on investigating economies that have access to large markets which allow for scale such as Europe, North America or Asia, and some economies which have relatively low labour costs. It is unclear if the same management practices identified by Bloom and Van Reenen as being 'best' for manufacturing firms would be valid for firms in economies that have less of an opportunity to exploit scale and/or labour cost advantage. Regional settings such as New Zealand provide a constructive setting to investigate this question.

In New Zealand the manufacturing industry accounts for 14.1% of real GDP and 12.7% of employment (The Treasury and New Zealand Government, 2009). New Zealand has a number of characteristics which differentiate its firms from firms in the US, Europe and other countries where the MPS has been investigated. First, New Zealand has a much smaller economy and population, making economies of scale much more difficult to achieve when catering for local demands (Gal, 2001). Second, there is more sector firm aggregation most likely due to geographic isolation limiting access to large markets, and the country's ability to support only a

small number of competing firms in many of its industries (OECD, 2003). Third, the presence of stricter labour laws makes labour more expensive than in some regional competitors such as China.¹ Increasingly SMEs in the manufacturing sector are confronted with competition from cheaper manufactured products from countries such as China and India (Bessant and Tidd, 2007). The high labour costs put pressure on firms to adopt management practices that maximize labour productivity in order to compete internationally. Fourth, New Zealand has a relatively open economy,² which encourages high levels of competition.

New Zealand's governance and regulatory regime is of a high standard, yet its Gross Domestic Product (GDP) per capita remains low and significantly lags other comparable OECD countries (OECD, 2009), with New Zealand ranking at the bottom end of the productivity league. Moreover, since the end of the 1990s, New Zealand has slipped from 10th to 20th in the World Economic Forum's Global Competitiveness Index, with the 2009 OECD Economic Survey of New Zealand stating: 'boosting [New Zealand's] productivity growth is crucial for closing the substantial income gap with other OECD countries'. Reflecting on the broader trend of falling productivity per person, total sales for manufacturing firms have also been decreasing in real terms over the long term (Statistics New Zealand, 2007, 2009a, 2009b, 2009c). Given that productivity has been falling and firms are facing significant international competition, New Zealand is a valuable setting for observing examples of better and worse management practice and cross sectional variation in productivity data.

Pressures from the forces of globalization and other factors have the potential to drive the adoption and development of innovative approaches for improving productivity where scale and labour cost advantage is more difficult to achieve. Despite these competitive pressures, business surveys conducted in 2007 and 2008 concluded that the most significant factor that hampered innovation activities in New Zealand firms was the lack of appropriately skilled management resources (Statistics New Zealand, 2007, 2008). If there are management practices which have the potential to 'universally' increase the productivity of manufacturing firms, we ask the pertinent question: why they are not adopted by all firms in such a market? To investigate this we replicated the Bloom et al. (2007) methodology in the context of New Zealand manufacturing firms.

Section 2 of this paper covers the theory development and research hypotheses; Section 3 contains the sample selection, research methodology and research design; Section 4 presents the analysis, results and findings, while Section 5 concludes the analysis and discusses managerial and policy implications.

2. Theory development and research hypotheses

2.1. Theory and hypothesis building – best management practice

The question of how best to manage manufacturing firms has a long history in the literature, and to some extent the history of management thought has followed the evolution and identification of best practice. For example, scientific management was followed by the administrative theorists, reflecting a shift from structured, coercive forms of management to an interdisciplinary

¹ In 2010, the minimum wage per hour for New Zealand was USD 9.56 (Parliamentary Counsel Office, 2010); China 0.93 USD (for Guangzhou province) (China Labour Consultation Network, 2011); US 7.25 USD (US Department of Labour, 2009) – exchange rates as of 26 May 2012.

² In 2012, the Index of Economic Freedom (IEF) of New Zealand is 82.1 (Rank 4); China 51.2 (Rank 138); US 76.3 (Rank 10). (The Heritage Foundation and the Wall Street Journal, 2012).

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