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Exploring the relationship between HRM and firm performance: A meta-analysis of longitudinal studies☆

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A B S T R A C T

Existing literature on human resource management (HRM) practices and firm performance suggests that there is a positive association between the two variables. Most of the studies, however, are based on cross-sectional datasets and only few of them use panel or longitudinal datasets, which better allow the researchers to deal with problems of endogeneity. This paper draws on meta-analysis techniques to estimate the effect size of the relationship between high performance work practices (HPWPs) and firm performance measures based on the available longitudinal studies. We also examine whether the effect is greater for a combination of HPWPs than for individual HPWPs, and for operational performance than for financial performance. The results from statistical aggregation of eight longitudinal HRM-performance studies demonstrate an overall reported correlation of 0.287. Additionally we find that a set of integrated, mutually reinforcing HPWPs has a stronger impact on firm performance than do HRM practices individually and that, this effect is statistically invariant between operational performance and financial performance.

1. Introduction

Since the first set of survey-based, statistically analysed studies of human resource management (HRM) and performance (Arthur, 1994; Huselid, 1995; MacDuffie, 1995) was launched in the 1990s, a burgeoning of HRM academic work has attempted to demonstrate that a set of well-defined, mutually reinforcing HR practices leads to better firm performance. Particularly, they argue that so called '*high performance work practices*' (HPWPs) in strategic HRM (SHRM) can enhance firm performance through improving employee knowledge, skills, competence, commitment and productivity (Appelbaum, Bailey, Berg, & Kalleberg, 2000; Datt, Guthrie, & Wright, 2005). HPWPs are conceptualised as a set of distinct but interrelated, mutually reinforcing HRM policies and practices, rather than isolated individual HRM practices. These it is said, aim to select, develop, retain and motivate a workforce to achieve superior intermediate indicators of firm performance (Becker & Huselid, 1998; Guthrie, 2001; Huselid, 1995).

Although a large majority of published studies provide empirical evidence of a positive association between HRM and firm performance, it is difficult to demonstrate a causal link (Boselie, Dietz, & Boon, 2005; Combs, Liu, Hall, & Ketchen, 2006; Guest, Michie, Conway, & Sheehan, 2003). This is largely because insufficient methodological rigor in analysis limits inferences about the direction of causality (Shadish, Cooke, & Campbell, 2002). For example, it is difficult to know when, or by whom, HRM

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procedures are introduced (Guest, 2011). Some empirical research has tried to shed more light on this issue, but so far it has provided mixed findings. For example, some studies have reported a significant simultaneous and longitudinal relationship between HRM practices and firm performance indicators (Becker & Gerhart, 1996; Sheehan, 2014; Wright & Boswell, 2002). Others studies found that initially HRM leads to better firm performance but that this link disappears once past performance is controlled (Guest et al., 2003), suggesting that past performance is a much stronger predictor of current performance and overtakes any impact of HRM.

By reviewing 68 empirical studies, Wright, Gardner, Moynihan, and Allen (2005) summarise four types of research design among empirical studies assessing the relationship between multiple HR practices and firm performance: 'predictive', 'post-predictive', 'retrospective' and 'contemporaneous' research designs. The 'post-predictive' research design is by far the most prevalent design within the HRM-performance domain. In this design, HRM practices are measured after the performance period (see Black & Lynch, 2001). In 'retrospective' research, survey participants are asked to recall HR practices that existed prior to the performance period. Guthrie (2001) uses performance data from 1996/7 while asking respondents during that time to report the practices that existed during 1995/6. The 'contemporaneous' methodology use contemporaneous HR practices and performance data. For example, Delery and Doty (1996) use HR practices data during 1992 and year-end performance data in the estimation. Since the year-end data encompasses performance from months prior to and concurrent with HR practice measures, it is difficult to draw a firm and reliable cause-and-effect relationship. Finally, only a few studies can be classified as 'predictive'. In 'predictive' studies, the extent to which HRM practices assessed at one point in time can influence firm performance at a later point in time can be assessed. A good example is Snell and Youndt's (1995) study that relates HR practices to performance 3 years later (also see Youndt, Snell, Dean, & Lepak, 1996).

Generally, the 'predictive' research employs a more elaborate research design where causality is tested more rigorously using longitudinal data. Panel or longitudinal data offer several advantages compared to cross-sectional data - e.g. more degrees of freedom, more variability, more efficiency in estimation, ability to study dynamics, allows for time-invariant unobservable variables and the sequence of events in time helps to reveal causation (e.g. Baltagi, 2008; Heckman, Ichimura, Smith, & Todd, 1998; Hsiao, 2006; Rosenbaum & Rubin, 1985). However, the use of panel data is not a panacea for inferring causal relationships (see Shadish et al., 2002), but it provides a more informative setting than cross-sectional data to study statistical relationships between variables in non-experimental research designs.

Hence, this paper combines the evidence from 'predictive' and longitudinal studies and applies a meta-analysis. Indeed, researchers in various disciplines, including management and organisational behaviour, have used meta-analysis as a tool to accumulate data and synthesise them into generalisable knowledge (Hunter & Schmidt, 2004). To this end, a group of researchers (Combs et al., 2006; Crook, Todd, Combs, & Woehr, 2011; Jiang, Lepak, Hu, & Bear, 2012; Subramony, 2009) have adopted meta-analyses to examine the relationship between HRM practices or HPWPs and organisational performance. However, the existing body of meta-analyses has rarely differentiated between the research designs used in the pooled studies (see discussion by Rouse & Daellenbach, 1999). By aggregating extant 'predictive' and longitudinal studies only, this study will estimate the effect sizes and test whether the use of HPWPs leads to better firm performance.

The remainder of the paper is structured as follow. Section 2 discusses the primary theories and theoretical models (i.e. resource-based view, universalistic perspective and contingency/fit theory) within the HRM-performance nexus. Section 3 describes the sample and explains the meta-analysis technique. Section 4 presents the key results of meta-analysis. Section 5 discusses the findings and implications for each hypothesis. The final section concludes the paper.

2. Literature review

2.1. Resource based view (RBV) of the firm

Increased interest in the HRM-performance nexus has led to the development of various theories and approaches to the question of whether and how HRM strategies can contribute to the creation of competitive advantage and superior performance. One widely accepted theoretical framework is the resource-based view (RBV) of the firm. RBV considers that relative firm performance depends on the interplay of human, physical and organisational resources over time (Barney, 1991). Initiated in the mid-1980s by Wernerfelt (1984), Rumelt (1984) and Barney (1986) and refined by Barney (1991), the RBV borrows heavily from earlier research by Penrose (1959). In her pioneering work of *The Theory of the Growth of the Firm*, Penrose (1959) suggests a theory of effective management of a firm's resources, productive opportunities, and diversification strategy. This provides an explanatory logic to unravel the relationship among internal resources, capabilities (where capabilities are defined as the abilities to manage the use of resource) and competitive advantage (Kor & Mahoney, 2004). Moreover, the theory asserts that organisations are viewed as collections of heterogeneous resources and capabilities that are imperfectly mobile across firms. By implication, this not only suggests asymmetries in firm resource endowments and capabilities, but also that these differences persist over time (Barney, 1991; Conner, 1991; Conner & Prahalad, 1996; Prahalad & Hamel, 1990).

Additionally, a group of scholars (e.g. Barney, 1986, 1991; Collis & Montgomery, 1995; Peteraf, 1993) have developed specific criteria for determining whether resources should be considered as heterogeneous and strategic to foster and sustain competitive advantage. Among others (e.g. Dierickx & Cook, 1989; Lippman & Rumelt, 1982), Barney's (1991) specification of the characteristics of a sustainable competitive advantage that resources and capabilities must be valuable, rare, and imperfectly imitable or substitutable has received widespread recognition as well as criticism (for example, causal ambiguity). Firms that embrace such resources can gain a resource-based competitive advantage over rivals and enjoy improved short-term and long-term