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Research at the Kemmy Business School (KBS), University of Limerick (UL)

Measuring the impact of innovative human capital on small firms' propensity to innovate

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KBS RESEARCH BULLETIN

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Authors: Caverzasi Eugenio and Antoine Godin

SYNOPSIS

The ability to identify and evaluate the competitive advantage of employees' transferable and innovative characteristics is of importance to policymakers and firms. Our research extends the standard measure of human capital by developing a unique and far-reaching concept of innovative human capital and identifying its effects on small firm innovation and hence growth (jobs, sales and productivity). Our holistic model captures four key elements of the employee-manager: the traditional tangible elements, i.e., education and training, as well as the intangible elements of willingness to change in the workplace and job satisfaction. Based on information from over 1000 managers, our findings reflect the importance of innovative human capital. The research expands innovation theory by introducing the concept of innovative human capital as a determinant of small firm innovation, and highlighting its significance as a concept to consider when creating public support programmes for firms.

Introduction and Background

The importance of innovation for economic growth is well documented and has long been part of growth theory, beginning with Schumpeter's (1934) seminal work. Innovation is generally defined as the commercial application of new knowledge and the implementation of ideas, and plays an important role in firms' survival (Cefis and Marsili, 2006) . It has been acknowledged as a key driver of firm growth and productivity (Ganotakis, 2012; Slaper et al., 2011) and a driving force for industrialised economies' international competition (Kuhlmann and Edler, 2003). Competitive advantage lies in part with the firm's capacity to innovate, evaluate and exploit internal and external knowledge (Cohen and Levinthal, 1990). As the embodiment of knowledge, human capital is an essential part of innovation and provides a competitive advantage for firms. There is great interest in the challenges of measuring human capital (Soboleva, 2010), due largely to

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A full copy of the paper can be obtained at:
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http://www.sciencedirect.com/science/article/pii/S0048733314001991
or a copy can also be obtained by emailing helena.lenihan@ul.ie

the difference between human capital as a physical asset and human capital as an intangible asset (Soboleva, 2010). To date, there has been little empirical research on the combined tangible and intangible characteristics of employee-managers' human capital, whether these characteristics drive firm-level innovation, and whether they vary between small and larger-sized firms. The importance of the manager's role in firm-level innovation stems from his/her position within the firm in that managers make decisions, allocate resources, set priorities, control costs and spending, and filter ideas.

Issues and Questions Considered

The current research is motivated by the reality that firms and policymakers face many constraints and need to take advantage of existing resources, including human capital. An additional motivation is the increase in the percentage of third level education in the labour force. In Ireland, for example, the proportion of the labour force with a third level degree increased from 25% in 1996 to 36.2% in 2006; by mid-2011, 38% of people in Ireland aged 25-64 year held a third level qualification (CSO, 2011, 2012). This increase is also evident in OECD figures for the adult population. Employees with higher levels of education may no longer provide competitive advantage in terms of firm-level innovation. To this end, our research evaluates employee-managers' human capital to create a new concept, *Innovative Human Capital*. In this context, we pose two central research questions. First, does innovative human capital contribute to firm-level innovation? Second, does innovative human capital produce differing outcomes in small and larger-sized firms?

Methodology

Our empirical analysis is based on the dataset from the Irish National Centre for Partnership and Performance 2009 Workplace Survey, which provides extensive information on employees' views and workplace experiences as well as firm-specific details including innovation activity. For the purpose of the current study, we selected only managers/supervisors from the private sector; this provided us with a dataset of 1129 useable observations, separated to account for small firms (less than 50 employees) and larger-sized firms (greater than 50). These size categories are similar to those used by Hewitt-Dundas (2006) in her study of constraints of innovation for small and larger plants in Ireland. As the theory suggests, firm size impacts on firm-level innovation (Hall et al., 2009; Rogers, 2004); consequently it merits investigation when measuring the impact of innovative human capital on small firm innovation. The methodology is divided into two stages. The first defines innovative human capital based on tangible and intangible characteristics of managers employed by private firms in Ireland; using an augmented innovation production function, the second stage estimates the hypothesis that firms who employ managers with innovative human capital are more likely to innovate.

Outcomes and Findings

The results of our probit estimations indicate that innovative human capital may be more valuable to small firms (i.e. less than 50 employees) than larger-sized firms (i.e. more than 50 employees). This supports the paper's hypothesis that small firms whose managers participate in training and are willing to change are more likely to innovate. We find that small firms employing managers with innovative human capital are more likely to engage in service, product and/or process innovation. In the case of larger firms, those employing managers who participate in training are more likely to process innovate (i.e., generate ideas or behaviours leading to significant improvements in the way work is carried out). The results of this research contribute to innovation theory and proffer potentially important policy implications. While numerous policy initiatives have focused on supporting R&D in pursuit of innovation, the current economic climate of severely reduced budgets necessitates a focus on the internal resources and capabilities of firms. It is critical to create an enabling environment (within both the firm and the broader context in which the firm operates) that recognises and embraces innovative human capital as a determinant of small firm innovation. While Ireland is the focus of this research, the methodological approach and analysis may be applied more broadly by using similar workplace surveys; such surveys have been conducted in Canada and the UK and are currently in progress in Australia. Our research introduces the concept of innovative human capital; the concept will require further examination of different categories of human capital across all firm sizes (e.g., owner-managers, non-managerial employees in firms). Such research would result in more in-depth assessment of this significant new concept.

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