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Managers' education and the choice of different variable pay schemes: Evidence from Italian firms

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ABSTRACT

In this paper, we investigate the influence of the education of managers, which we hypothesise to be a signal of quality, on the adoption of variable pay (VP) schemes by Italian firms. We estimate the extent to which differences in the diffusion of VP between Italian firms reflect differences in the quality of managers. Our estimates, which we obtained by taking both endogeneity and unobserved heterogeneity into account, validate our hypotheses regarding the direct positive association of managers' education with the adoption of VP schemes. Furthermore, we ascertain the role of managers' education by examining its influence on the choice between different types of VP bonuses at the individual, team, and establishment levels. Our results suggest that highly educated manages are more likely to use team and individual forms of VP schemes.

Introduction

Much of the recent applied research has shown that substantial productivity differences between firms are explained by differences in their 'managerial quality' and their recourse to good management practices (Bloom & Van Reenen, 2011). Practices that are 'good' for firm productivity include incentives and thus pay and bonuses that reward effort and select employees with higher ability, as shown by the most representative empirical studies of this literature (see Bryson, 2012, for a recent survey).

However, little is known about who decides on such practices as performance-related pay and profit-sharing, as recently argued by Poutsma, Blasy, and Kruse (2012) in their introductory contribution to a special issue on this topic. Thus, despite the potentially important role of leadership, the economics literature has been largely silent on its effects on the adoption of personnel strategies that affect worker productivity (Lazear, Shaw, & Stanton, 2012).[1] In particular, few studies consider the individual profile and level of education of those who run the firm as a driving force behind the adoption of variable pay (VP). The lack of evidence on this issue is rather surprising because a high level of human capital of firm leadership favours deeper knowledge of modern management practices and acquisition of cognitive and non-cognitive skills that, in turn, enhance the adoption of performance-related-pay and other forms of wage flexibility at the firm level (Bloom & Van Reenen, 2011; Lazear, 2012).

This paper intends to fill this gap: its major contribution is an evaluation of the association of managers' education with the intensity of variable pay.

There are several direct and indirect mechanisms through which the educational levels of managers may affect the internal labour market, organisation and particularly the wage incentives utilised by firms. In this paper, we focus on how the educational levels of managers capture a multidimensional set of observable and unobservable skills and behavioural traits that are expected to be positively associated with well-designed compensation systems. This issue is particular relevant in economies characterised by small family firms, where personnel policies tend to reflect the individual features and skills of managers-employers (Bates, 1990). We expect that the education levels of manager[2] are important leadership features of successful firms and that the management generalist skills, obtained through education, lead to wider adoption of VP. Second, we seek to ascertain the role of managers' education by examining its influence on the choice of different incentives at the individual, team, and establishment levels. These issues have been examined not only for large firms but also small enterprises, using a unique and rich data set for the Italian economy, provided by ISFOL (Istituto

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[1] In the management literature, the role of management education in firm performance receives more attention. See, for example, the recent contribution on the German engineering sector by Paton and Wagner (in press).

[2] In Italy, the managers are frequently also the owners of the firm, or belong to the family that is the dominant owner of the firm. As seen below (Section 2.2), in our sample, 89% of firms are run by families.

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per lo Sviluppo della Formazione Professionale dei Lavoratori – Institute for the Development of Workers Professional Training). This dataset allows us to obtain estimates of the role of our variable of primary interest, managers' education, and to control for a broad set of explanatory variables such as business activities (innovation, exports, training, and the use of fixed-term contracts) and workforce composition (in terms of gender and education) that are likely to influence the adoption of VP.

The paper is organised as follows: Section 1 briefly discusses the related literature. Section 2 presents the data used and descriptive statistics. Section 3 illustrates the econometric framework employed and our estimation results. Section 4 concludes.

Related literature

The present study relates to two main fields in the literature: the first focuses on the role of the quality of managers in formulating personnel policies that may contribute to the proper selection of incentive schemes; the second concerns individual and collective incentives and examines both positive and dysfunctional responses to these practices.

Leadership

A useful starting point is the contribution of Lazear (2004), who argued that managers must perform many tasks and that 'individuals who run the firm have a more balanced investment strategy on average than those who end up specialising as wage and salary workers' (ibidem, p. 209). One reasonable indicator of these generalist skills is the level of education, as education is acknowledged to be one of the most important components of general human capital (see, among others, van der Sluis & van Praag, 2008, for a review of empirical studies).

The individual attributes of managers, such as education, are important in explaining personnel policies and management decisions. This view originates from the Upper echelon theory, which considers an economic organisation to be a reflection of the personal characteristics of its managers, where such characteristics include age, education, financial position and prior experience (Hambrick & Mason, 1984).

There are various channels through which the education of managers may lead to better-designed workplace practices and thereby affect the propensity to adopt VP.

First, education provides managers with a broad and balanced set of observable and unobservable skills and capabilities that are valuable both for introducing best practices in human resource management and in operating efficient and complex economic organisations. For example, by measuring lawyers' skills based on their education and experience, Garicano and Hubbard (2005) obtain evidence of positive sorting effects in law firms, whereas Cooper, Gimeno-Gascon, and Woo (1994) show that general human capital, which is represented by managers' education levels, is an important predictor of the success of new ventures. Education has been tested as an important source of skills, problem-solving ability, discipline and motivation by Ucbasaran, Westhead, and Wright (2009). Furthermore, using data on small Portuguese firms, Baptista, Lima, and Torres (2013) performed wage regressions showing that higher levels of education and experience of managers entail higher wage premiums for workers. In addition, they showed that workers' wages reflect the values of matches with managers' skills. Thus, managers' skills affect not only job creation but also the quality of jobs created.

Second, well-educated managers are likely to have deeper knowledge of modern management practices that assign increasing importance to the adoption of holistic forms of workplace organisation, including incentive systems, self-managed teams, multitasking and the delegation of decision rights. In accordance with theories of super-modular optimisation and complementarities (Milgrom & Roberts, 1995), these bundles of strategies provides means of correcting inefficiencies related to rewarding workers for completing complex jobs that cannot be regulated by explicit contracts and that call for implicit agreements (Baker, Gibbons, & Murphy, 1994). Among these agreements, it is plausible to include firm-level wage bonuses that are linked to enterprise results, captured in our analysis as VP schemes.

Third, education enhances the development of a set of skills and psychological traits such as motivation, self-control, fairness and a cooperative attitude, which provide important enforcement mechanisms for labour discipline and long-term employment relationships, mainly in workplaces characterised by incomplete contracts (Fehr & Gächter, 2000). Thus, education of managers may favour the evolution of social norms, based on gift exchange and efficiency wages that enhance reputation, trust and learning processes (Bowles, 1998). As a related argument, a significant share of workers have a preference for fairness that leads them to care about others' wages, as shown in field experiments of Fehr and Gächter (2000). The propensity of highly educated managers to use variable contracts reveals a commitment device that favours reciprocity at the workplace and minimises opportunistic behaviour. This issue is further explored below.

Individual incentives

Much of the literature on wage incentives is grounded in agency theory. The dominant model employed in this literature assumes that individual bonuses linked to performance may be an efficacious device to motivate individual employees. The adoption of variable contracts that link rewards to performance stimulates employed workers to exert greater effort and, given that there is heterogeneity among workers, permits firms to attract workers of higher skill who produce more for given levels of effort (Lazear, 2000).

However, several controversial issues, which have been appraised by Prendergast (1999), have emerged in the literature. Most of these relate to the difficulties of objective performance measurement (Baker, 1992; Holmstrom & Milgrom, 1991). Lazear and Shaw (2007) argue that when measurement costs are low, as in hedge fund trading, good workers will demand that their output be measured, whereas under a fixed mean wage for all traders, the best traders will leave the firm. However, when output is costly to measure, as in commercial banking, firms will adopt a straight salary system (pay rewards equal to *average* output). This is because, through VP, the distribution of pay among workers matches the distribution of output *minus* measurement costs and also good workers do not demand that their output be measured.

Other dysfunctional responses to incentives are formalised by the 'multitask principal-agent model', which predicts that a firm may be unable to correctly measure the output of all tasks (Holmstrom & Milgrom, 1991), resulting in a misallocation of effort towards those activities that are highly compensated and away from those that earn less compensation.

More generally, agents can 'game' the compensation system (Baker, 1992), especially when explicit incentive contracts cannot completely specify all relevant aspects of worker behaviour. In these contexts, decisions regarding pay are at the discretion of superiors in the hierarchy, and to prevent subjective assessments giving rise to biases, more holistic perspectives on performance are needed. Thus, the quality of leaders comes to fore.

Empirically, it has been found that changes in pay-setting regimes from rewards based on input measures to payments related to output outcomes may induce dramatic improvements, half of which are explained by the attraction of workers of higher ability, as found in Lazear (2000). Paarsch and Shearer (2000) estimate that