Why do firms adopt employee share ownership? Bundling ESO and direct involvement for developing human capital investments

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Abstract

Purpose – The purpose of this paper is to examine the relationship between employee share ownership (ESO) and employer-provided training. To be more specific, as both ESO and involvement practices can contribute to developing human capital, the paper addresses the question of whether they are substitutes or complements in the relationship with training.

Design/methodology/approach – The theoretical hypotheses are tested using the French nationally representative establishment-level survey, REPONSE, which is similar to the British WERS. The sample consists of 1,523 establishments.

Findings – The results are consistent with studies conducted elsewhere (e.g. in the UK) and provide novel findings, thereby suggesting a complementarity between ESO and involvement practices with bundles of practices becoming increasingly more complex as training expenditures increase.

Research limitations/implications – To provide further insights, future research that uses more precise information regarding ESO plans is needed.

Practical implications – Results can provide HR managers with valuable information regarding the organisational characteristics necessary to ensure a fertile ground for their training expenses.

Originality/value – The paper reflects a growing awareness that human capital development and share ownership plans may be related and that this relationship might be a more compelling explanation for share ownership plans than the standard agency theory. The contribution of ESO plans to the development of employee competencies may be at least as important as their possible effects on employee motivation and effort.

Keywords Training, Human capital, Employee involvement, Pay, Human resource management, High-performance work practices, Employee share ownership, Involvement practices, Human resource bundles

Paper type Research paper

Introduction

In recent years, there has been a growing number of financial participation studies regarding the relationship between employee share ownership (ESO) and employer-provided training (Pendleton and Robinson, 2011). Rousseau and Shperling (2003) suggest that long-term growth in ESO plans observed in many advanced industrial countries is related to the growth in importance of intangible human capital (as knowledge and skills) relative to tangible physical capital. The problem with human capital is that it cannot be tied to a particular firm in the same way as physical capital. Thus, ESO can be a solution to restrict the risk that labour mobility eliminates the value of training investments. Other company management practices also favour a long-term relationship between employees and their company, which is conducive to training. This is the case of involvement practices that enhance organisational

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commitment and have, in particular, the effect of reducing employee turnover (Huselid, 1995; Guthrie, 2001). Thus, ESO and involvement practices can be viewed as alternatives whose combined effect remains an under-researched area, even if involvement practices are found to enhance the effects of ESO in financial participation literature (Pendleton and Robinson, 2010). Indeed, to our knowledge, only Robinson and Zhang (2005) and Pendleton and Robinson (2011) have developed empirical studies focused on assessing whether ESO is conducive to training. While the latter do not test the complementarity between ESO and involvement practices, the former find little evidence to support such a complementarity. Accordingly, the need for further research in this area is emphasised by the authors given the lack of evidence in this area.

This paper seeks to advance the academic debate relative to the use of ESO for developing and protecting investments in human capital rather than as a motivational and incentive tool. It addresses a significant gap in the recent literature relative to the role of ESO in facilitating employer-provided training using data from the French employment relations survey REPONSE, which is nationally representative of French establishments. France is a relevant context to study ESO. Indeed, the fiscal and legislative framework promotes ESO adoption and development. For example, changes of the capital base of a listed company (i.e. further share offers) must be accompanied by share offers to employees. Moreover, when employees hold less than 3 per cent of the company's capital, a general meeting must be held every three years to propose to shareholders that shares should be distributed to employees joining the company savings plan. Thus, ESO plans in France are a broad-based financial participation mechanism as all employees are eligible to join an ESO plan (except employees working under fixed-term or temporary contracts). All these legal requirements favour a significant ESO. Given that there is little empirical evidence regarding the use of ESO as a way to promote investments in human capital and that previous studies were conducted in the British context, the first key question is whether ESO is conducive to high levels of training expenses in France (it can also be noticed that the proportion of companies offering ESO schemes are quite similar in UK and in France: Lowitzsch and Hashi, 2014). Given the theoretical complementarity of ESO and involvement in establishing an organisational context that favours employer-provided training, the second key question is whether ESO is efficient *per se* or whether bundling ESO and involvement practices have a major impact. This paper is unique in that it not only tests the interaction between ESO and involvement in their relationship with human capital investment, but it also tests the use of different ESO/involvement practice bundles, following the methodology developed by Dube and Freeman (2010) in their study focused on the complementarity of shared-compensation and decision-making systems.

Our results are consistent with previous studies and provide novel findings. They highlight a complementarity between ESO and involvement practices, with bundles setting up the conditions for high levels of training expenses. They also suggest that, more than the intensity of involvement practices, what is important is the use of different types of involvement practices in combination with ESO. By highlighting these complementarities, this research adds to our understanding of ESO and the use of bundles of practices to favour the development of investments in human capital.

This paper is organised as follows. Following this introduction, we develop the theoretical arguments linking ESO and involvement practices to training expenditures and address the question of complementarity between ESO and involvement practices. In the third section, we focus on the sample and the methodology. The results and findings are subsequently presented and are followed by a discussion and conclusions.

Theory and hypotheses

Training expenditures and hold-up problems

The Europe 2020 strategy for growth launched in 2010 by the European Commission promotes public and private investment in research, development, innovation and training. Investments in training should produce a flexible and highly qualified workforce capable of adapting to globalisation and a rapidly changing economy. The human capital this represents is now an important factor in corporate performance (Hitt *et al.*, 2001), which means that firms must invest to develop it. Defined by Becker in the 1960s as the knowledge, information, ideas, skills and health of individuals (Becker, 1964), human capital is likely to constitute a source of sustainable competitive advantage. From a resource-based perspective, human capital can indeed be valuable, rare and inimitable, thus serving as the basis of the firm's strategy (Barney, 1991).

The literature on human capital distinguishes between two forms: general and specific (Becker, 1964). The first is general in the sense that it is usable in a variety of firms or different contexts and is easily redeployed. The second form is specific to a firm and therefore only of interest to that firm. Accordingly, it is not redeployable. The literature has mainly focused on studying specific human capital as it is the only form that is considered a source of competitive advantage (Barney and Wright, 1997). While this original theoretical distinction appears attractive, in reality, it is much more difficult to apply and its relevance must be put into perspective. Becker himself contends that general and specific forms should be considered as two archetypes at the opposite ends of a continuum with reality often somewhere in the middle of these two extremes (Stevens, 1996). Furthermore, as there is not an airtight barrier between general and specific human capital (Lazear, 2003), a combination of general skills can be specific and constitute a source of competitive advantage (Wright *et al.*, 1994). Consequently firms must protect and develop both specific and general human capital.

Human capital has one main characteristic that sets it apart from other types of resources, whether material or financial: it cannot be dissociated from the individual to whom it belongs, thus making it a specific risk. Consequently, investments in training, aimed at developing human capital, are at the centre of a hold-up problem (Blair, 1995; Ben-Ner *et al.*, 2000). An employer can fear that employees resign after training sessions to work for another company that offers higher pay. In this case, the firm's investment in training would be a complete waste of resources. Therefore, rents generated by training must be shared by the firm and its employees so that the latter use their skills for the benefit of the former (Becker, 1996). Accordingly, it is necessary to manage the risk of a hold-up problem linked to investments in training and develop long-term employment relations so that the firm's investments remain profitable. There are several possible solutions. The first would consist of establishing contracts that specify the commitments of both the firm and the employee and define the way the rents are shared. However, such contracts would be complicated to draft as well as difficult and costly to implement (Williamson, 1979). As this solution cannot be easily envisaged, two other possibilities exist: ESO and involvement practices.

ESO solution

ESO favours the creation of an identity of interest between employee and employer and tends to lock-in employees (Pendleton and Robinson, 2011), both of which are conducive to employer-provided training.

The identity of interest relies on governance mechanisms and psychological effects, with a great emphasis on the latter. From a governance perspective, employee owners,

as shareholders of their company, benefit from the same rights to information as other shareholders. They also have the right to ask questions of management during the annual general meeting, either directly or through a shareholders' association if it exists. In practice, however, it is relatively rare. ESO can also lead to the presence of employee representatives on the board of directors (this is the case in approximately 20 per cent of French listed companies). Indeed, in French firms, where the employees hold more than a 3 per cent interest, the law provides for at least one employee representative on the board of directors (see Ginglinger *et al.*, 2011).

The identity of interest also relies on psychological effects of ESO. It has been argued that ESO supports and encourages favourable attitudes towards the company, thereby enhancing psychological ownership (Pierce *et al.*, 1991) and enhancing organisational identification (Long, 1978). Since the seminal work of Klein (1987), many empirical studies have highlighted attitudinal effects of ESO, showing that it can generate intrinsic satisfaction from owning shares (Pendleton *et al.*, 1998), extrinsic satisfaction due to financial gains (Buchko, 1993) and instrumental satisfaction by being involved in the decision making of the company (Long, 1980). In their study of the effects of ESO on work satisfaction, work motivation and affective commitment, Caramelli and Briole (2007) underline that French legislation favours the development of a "consciousness of being a stockholder" as it may have a positive effect on employee affective commitment to the organisation.

A more recent literature emphasises that ESO helps to retain employees and therefore ensures that the benefits of employer-provided training are not lost with resignations of employees (Rousseau and Shperling, 2003). ESO promotes the development of a long-term relationship between the firm and its employees as the latter hold shares, receive annual dividends, and hope to see the value of their shares increase over time. Legal requirements also favour this long-term relationship. For example, French legislation requires that free allocation of shares cannot be sold by employees for four years. Empirical studies confirm this lock-in effect, as ESO is associated with lower employee turnover (Wilson and Peel, 1991; Buchko, 1993; Sengupta *et al.*, 2007) as well as reduced rates of absenteeism (Brown *et al.*, 1999; Fakhfakh, 2004).

Given that ESO favours identity of interest and tends to lock-in employees, both of which are favourable to securing investments in human capital, we put forward the following hypothesis:

H1. The presence of ESO is associated with a high level of training expenses.

Direct involvement practices solution

Another possible solution to promote and protect companies' investments in human capital is to develop a long-term relationship between employees and the company through involvement practices. Such practices, while initiated by management to achieve managerial goals, allow for and enhance employee influence do not involve any *de jure* sharing of authority and power (Marchington *et al.*, 1992).

Contrary to the philosophy of industrial democracy, which perceives involvement as a fundamental democratic right for workers to extend a degree of control over managerial decision making in an organisation, the economic efficiency model suggests that allowing employees to have input into work and business decisions leads to better decisions and more comprehensive understanding, which, in turn, promotes employee commitment (Wilkinson and Dundon, 2010). Accordingly, involvement practices can lead to better outcomes, such as lower turnover and absenteeism (Blau and Boal, 1987), and thereby promote long-term relationships between the firm and its employees.

Information access and the possibility to make proposals are critical components of high-involvement work systems (Marchington *et al.*, 1992; Huselid, 1995; McNabb and Whitfield, 1998; Addison and Belfield, 2000). Marchington *et al.* (1992) differentiate two forms of direct involvement: downward communication (DC) from management to staff (traditional meetings between the manager and his/her team, team meetings with senior managers, company newsletters) and upward problem-solving (UPS) practices, which focus on the employee's capacity to make proposals (quality circles, team meetings designed to improve performance, procedures for employees to make proposals such as suggestion boxes). DC traditionally communicates organisational goals and the business position of the organisation. The logic is that employees will be more understanding of the reasons for business decision and thus be more committed to the organisation's actions (Wilkinson and Dundon, 2010). While communication in itself is a weak form of involvement, it is important as it promotes employee understanding about various aspects of the company. UPS practices go beyond communication by encouraging employees to share their ideas for company improvement. It contributes to a more cooperative climate by allowing employees to positively impact their work environment, and hence, it augments employee commitment.

Both DC and UPS practices have psychological effects on the employee as well (Lawler, 1986). For example, employees who participate in a quality circle programme identify more strongly with the company and its goals than do those who do not participate (Verma and McKersie, 1987). Such identification with the company is consistent with a low intention to leave the company, as indicated by several empirical studies that find a link between the use of involvement practices and lower employee turnover rates (Huselid, 1995; Guthrie, 2001). Nevertheless, the effects of involvement practices are not always as well defined, and thus, these practices may be of limited use if the staff does not know how to incorporate them (Wood and De Menezes, 2008).

Given that DC and UPS may enhance employee commitment, favour a long-term relationship between employees and their company and contribute to the management of the hold-up problem linked to investment in human capital, we advance the following hypotheses:

H2. Direct involvement practices are associated with a high level of training expenses.

H2a. DC practices are associated with a high level of training expenses.

H2b. UPS practices are associated with a high level of training expenses.

ESO and involvement practices: independent, redundant or complementary?

As both ESO and involvement practices can contribute to developing and protecting human capital, the question that arises is that of their independency, redundancy and complementarity. Several empirical studies show firms that implement ESO also rely on high-involvement work practices (Pendleton, 1997; McNabb and Whitfield, 1998; Addison and Belfield, 2000; Dube and Freeman, 2010). Furthermore, many empirical studies that focus on certain performance outcomes, such as productivity, emphasise that, in certain conditions, there is a complementary relationship between ESO and involvement practices (Blinder, 1990; Doucouliagos, 1995; Perotin and Robinson, 2003; Pendleton and Robinson, 2010). This complementarity is a key question with respect to this field (Poutsma *et al.*, 2006).

From a theoretical perspective, ESO and involvement practices are complementary. DC is necessary for employees to understand the objectives of the company, and

communication of the ESO plan is widely considered a critical issue (Caramelli and Briole, 2007). In the French context, Fakhfakh (1997) and Guery and Stevenot (2013) find that the effects of broad-based financial participation schemes are weak when there is a lack a communication regarding these schemes. As participative practices, UPS practices help to manage the risk of free-riders (a limitation for ESO) because they encourage a more cooperative corporate culture (Weitzman and Kruse, 1990) and because they lead to co-monitoring (Blair *et al.*, 2000; Kruse *et al.*, 2004; Conyon and Freeman, 2004; Blasi *et al.*, 2006). Psychologically, these practices also help satisfy employees' higher order needs, such as influence, respect, self-worth, and thus foster greater trust and cooperation (Kim, 2005). However, to be effective, these participative practices must also lead to the creation of a genuine participative environment (Sengupta, 2008). At the same time, the hope of financial gain linked to ESO encourages employees to participate in teams and engage in quality circles and other involvement practices (Ben-Ner and Jones, 1995; MacDuffie, 1995).

This complementary relationship relates to the concept of bundles of practices that are coherent and have beneficial effects on corporate performance (Dyer and Reeves, 1995; Becker and Gerhart, 1996; Delery and Shaw, 2001). MacDuffie (1995) finds that the bundling of work practices is critical. "It is the combination of practices into a bundle, rather than individual practices, which shapes the pattern of interactions between and among managers and employees" (p. 200). This perspective is found in the works of Ichniowski *et al.* (1997) and Appelbaum and Berg (2000). While the question of complementarity between ESO and involvement practices has been the subject of many studies focused on the implications for productivity, there are very few studies that have examined this complementary with regards to training expenditures. One of the rare studies was conducted by Robinson and Zhang (2005), but the results "provide little evidence to support an ESO-based bundles solution to the protection of valuable human capital and instead re-emphasise the influential and independent role that ESO plays" (p. 482). However, with regard to the theoretical arguments that favour a complementary relationship between ESO and involvement, we put forward the following hypothesis:

H3. The use of bundles of practices combining ESO, DC practices and UPS practices is associated with a high level of training expenses.

Data description and methodology

Data

These theoretical hypotheses are tested using the French 2004-2005 REPONSE survey that was conducted by DARES (the research department of the Ministry of Labour). This time frame, before the economic crisis, was chosen to avoid a disruptive effect of the crisis on the relationship between ESO, involvement and training expenses (e.g. according to the French Ministry of Labour, French companies have reduced their training expenses with the crisis). Despite this choice, it is clear that the issue of the effects of ESO during a crisis period could be very stimulating. The REPONSE survey is similar to the British WERS survey (for a comparison, see Conway *et al.*, 2008; Marsden and Belfield, 2010). The sample includes 2,930 establishments with 20 or more employees, which is representative of the non-agricultural sector as a whole. Considering that we are interested in ESO, we purged the sample of establishments belonging to the public administration and associative sectors. We also eliminated firms whose first or second category of shareholders is firm employees. Generally, in France, ESO plans

opened to all or most employees make available to employees only a small proportion of the company's equity (typically 1-5 per cent). Thus, situations where employees are the first or the second category of shareholders correspond to worker co-operatives or to companies funded by leveraged buy-outs where top managers are an important shareholder alongside a private equity firm. As a result, in the end, our sample consists of 1,523 establishments. Similar to WERS, information relative to each establishment is collected via three questionnaires: the first is administered to the manager responsible for employment relations and personnel, the second is administered to a worker representative, and the third is designed for employees. The manager questionnaire provides information mainly on the labour organisation, establishment changes, job management, employee representation, pay systems and conflicts. The data set provides information regarding the level of training expenses, whether employees are covered by an ESO plan, whether DC practices are implemented in the establishment and whether UPS practices are implemented. The current analyses use the establishment weights provided to adjust for sample stratification.

Key variables

As in previous studies (Robinson and Zhang, 2005; Pendleton and Robinson, 2011), training is used as a proxy of the firm's investment in human capital. More precisely, these investments are assessed based on the amount spent on training expenses in 2004. A question asked of the manager relative to training expenses is, "What percentage of the payroll do training expenses represent in 2004?" It is a five-category response item whereby each category corresponds to a share of the training expenses: less than 1.5, 1.5-2, 2.1-3, 3.1-4, more than 4 per cent. It is important to note that in 2004, French law required companies with 20 or more employees to spend at least the equivalent of 1.5 per cent of their payroll on training, though not all companies did so (approximately 20 per cent of the establishments in our sample indicated training expenses below this legal requirement). Our interest is, therefore, the variation above this level of training expenditures. Of the establishments in our sample, 31.9 per cent reported a level of training expenses just above the legal requirement (between 1.5 and 2 per cent). Thus in approximately half of the sample, training expenses exceeded 2 per cent of the payroll: 21.5 per cent of the establishments were between 2.1 and 3 per cent, 12.1 per cent of the establishments were between 3.1 and 4 per cent in, and 13.8 per cent of the establishments reported that than 4 per cent of the payroll went to training expenses.

To determine whether employees were shareholders in the company, the survey asks, "Do employees hold shares in the company?" Given the sample restrictions as indicated herein, we are confident that the ESO variable is consistent with the definition of ESO in the French Commercial Code. As the ESO variable is dichotomous, we do not have any information regarding the amount of capital held by employees. Thus, it is impossible to determine if they hold a small or a substantial stake in the firm, which is a limitation of our study. Of the establishments in our sample, 13.4 per cent report that they offer ESO. Accordingly, we expect a positive association between the existence of ESO and the level of training expenses.

Direct involvement practices include both DC and UPS (Marchington *et al.*, 1992). With respect to DC practices, the REPONSE questionnaire asks whether a company newsletter is distributed directly to all employees (40.0 per cent of the sample) and whether regular team briefings are held (77.3 per cent). These group briefing sessions are typically an opportunity for managers to convey information to employees about current events within the company as well as the company's strategy and current

results. Approximately 82.6 per cent of establishments use at least one DC practice. Two questions on the REPONSE questionnaire are helpful in determining the company's upward employee involvement practices. The first asks whether managers promote or encourage employee participation by providing suggestion boxes (21.9 per cent of the sample). The second question asks whether the company allows employees to express their views in meetings (21.7 per cent) and/or in quality circles (46.5 per cent). From these three variables, another variable is constructed to determine whether the establishment uses UPS practices, and the results indicated that 58.3 per cent of the establishments do. More broadly, 86.8 per cent of the establishments use at least one direct involvement practice. Thus, we expect a positive association between direct involvement practices and the level of training expenses. A list of variables and descriptive statistics are presented in Appendix.

Statistical methods

Given the key premise that ESO and involvement practices secure investments in human capital and therefore increase the likelihood of establishments having high levels of training expenses, we estimated the following model:

$$\text{Human capital investment} = \alpha + \beta_1(\text{ESO}) + \beta_2(\text{Involvement}) + \beta_3(\text{Controls})$$

where human capital investment measures the training expenses relative to the establishment payroll, ESO measures the presence of ESO, and involvement is the vector of DC practices and UPS practices. The remaining vector includes a number of control variables that could impinge on the dependant variable. First, it is evident that training expenses are most likely related to training needs. A variable is included to control for the length of time needed for a newcomer to do his job as well as an established employee. A dummy for the skills of the workforce is also created to distinguish establishments where managers and engineers make up the largest category of employees. These two variables reflect the level of human capital required by the establishment. A number of establishment characteristics could also prove influential in determining the level of training (Hoque and Bacon, 2006), such as trade union presence (Green *et al.*, 1999; Boheim and Booth, 2004; Hoque and Bacon, 2008) because such characteristics could be associated with features that are conducive to training (such as low employee turnover). This is controlled by a dummy measure of the presence of at least one union representative in the establishment, given the expected relationship with training expenses to be positive. Profit sharing can increase worker training by alleviating hold-up problems, reducing worker separation and increasing training investment amortisation period (Green and Heywood, 2011). Therefore, the presence of a profit sharing scheme is controlled by a dummy variable with a positive expected relationship with training. Furthermore, one variable records the intensity of competition with which the establishment must face (Pendleton and Robinson, 2011). Competition is considered intense if the establishment has weak or no freedom to establish its sale prices. In such a situation, establishments could face difficulties when investing in training. Thus, the expected relationship of competition with training is negative. Establishment and firm size are controlled for because earlier studies indicate that these are important influences on training provisions (Black and Lynch, 1997; Green *et al.*, 2000; Whitfield, 2000; Hoque and Bacon, 2006), that is, the amount companies spend on training increases with the size of the establishment. We also anticipate a positive relationship with companies comprised of several establishments

because these establishments must train managers and employees to reduce internal uncertainty and principal agent problems (Erickson and Jacoby, 2003; Hoque and Bacon, 2006). Finally, with industry serving as the reference, dummies are included for the following sectors: wholesale and retail, transport and services.

Several versions of this model were estimated. To test our first two hypotheses according to which the presence of ESO and the presence of direct involvement practices are associated with high levels of training expenses, we initially estimated an ordered probit model in which the human capital investment measure can take any one of the five values of the training expenses scale. In this first model, the involvement variable was the use of at least one involvement practice. The model was then refined to test not only the presence of involvement practices but also the intensity of the practices by including a scale variable of the use of involvement practices (0-5 practices) rather than the presence variable (Model 2). To distinguish between the different types of involvement practices and thereby test *H2a* and *H2b*, we estimated the link between training expenses and three independent variables: the presence of ESO, the use of at least one DC practice and the use of at least one UPS practice (Model 3). In these three models, we expected the coefficient β_1 for ESO and the coefficient in the involvement vector β_2 to be positive and statistically significant. In a last step, which tested *H3*, we replaced these three independent variables with mutually exclusive variables representing each possible combination of practices: ESO only, DC only, UPS only, ESO and DC, ESO and UPS, DC and UPS, ESO and DC and UPS (Model 4). Table I presents the descriptive statistics of these mutually exclusive variables. The combination ESO and UPS was excluded from the regression because no establishment uses it. The combination ESO only is rare (approximately 1 per cent), but it does not seem to be a problem in the regression models given that the results are similar if we drop the variable from the regression. This approach, used by Dube and Freeman (2010) in their study relative to the complementarity of shared-compensation and decision-making systems, permits the testing of the link between different bundles of practices that establishments can use to safeguard their investments in human capital and the level of training expenses. We expected positive and significant coefficients for these bundles as well as a more marked relationship the most complete bundles.

Findings

ESO and direct involvement as ways to favour high training expenses

H1 was that the presence of ESO is associated with a high level of training expenses. Table II reports the estimates of Models 1, 2 and 3. In these three models, ESO is always significantly and positively associated with the level of training expenses (coefficients

	Mean	Linearised SE
Bundle "ESO only"	0.012	0.004
Bundle "DC only"	0.244	0.014
Bundle "UPS only"	0.034	0.007
Bundle "ESO and DC only"	0.040	0.006
Bundle "DC and UPS only"	0.463	0.016
Bundle "ESO and DC and UPS"	0.083	0.007

Table I.
Descriptive statistics

Notes: ESO, Employee share ownership; DC, downward communication; UPS, upward problem solving

	Model 1	Model 2	Model 3	Model 4
Employee share ownership (ESO)	0.308**	0.288**	0.319**	
Direct involvement (at least one practice)	0.444***			
Direct involvement intensity (0-5 practices)		0.246***		
Downward communication (DC)			0.332**	
Upward problem solving (UPS)			0.438***	
Bundle "ESO only"				0.044
Bundle "DC only"				0.124
Bundle "UPS only"				−0.086
Bundle "ESO and DC only"				0.477**
Bundle "DC and UPS only"				0.455***
Bundle "ESO and DC and UPS"				0.992***
Skills acquisition < 1 month	Ref.	Ref.	Ref.	Ref.
Skills acquisition 1-6 months	0.091	0.030	0.048	0.035
Skills acquisition 6 months to 1 year	0.258*	0.213	0.238	0.222
Skills acquisition > 1 year	0.343**	0.285**	0.303*	0.291*
Small firm (20-49 employees)	Ref.	Ref.	Ref.	Ref.
Medium firm (50-199 employees)	0.096	0.090	0.077	0.088
Quite large firm (200-999 employees)	0.086	0.030	0.080	0.091
Large firm (1,000 employees and more)	0.156	0.013	0.100	0.102
Establishment size (log of employees)	0.197***	0.176***	0.182***	0.178***
One-site establishment	−0.090	−0.082	−0.065	−0.073
Skills ratio	0.112	0.124	0.116	0.125
Union representative	0.126	0.148	0.159	0.157
Profit sharing	0.229***	0.175**	0.196**	0.198**
Competition	0.126	0.158*	0.142	0.150
Industrial sector	Ref.	Ref.	Ref.	Ref.
Wholesale and retail	−0.208*	−0.167	−0.173	−0.171
Services	−0.079	−0.044	−0.041	−0.040
Transport	−0.092	−0.033	−0.062	−0.056
F	7.56***	10.42***	8.60***	9.05***
n	1,523	1,523	1,523	1,523

Note: *,**,***Significant at 10, 5 and 1 per cent level, respectively

Table II. Determinants of training expenses; ordered probit coefficients

significant at 5 per cent but near of 1 per cent). This result strongly supports our *H1*, and is also consistent with previous studies that highlight that ESO can be a way of favouring the development of human capital investments (Robinson and Zhang, 2005; Pendleton and Robinson, 2011). *H2* was that direct involvement practices are associated with a high level of training expenses. The coefficients of the involvement variables conform to expectations across all specifications. The presence of direct involvement practices is strongly significant (1 per cent level) and positively related to training expenses, as is the direct involvement intensity variable. This confirms *H2* that direct involvement practices are associated with a high level of training expenses. In Model 3, a distinction is made between DC and UPS. The level of training expenses is related to downward practices as well as upward practices, with a greater significance and a greater coefficient for the latter. Accordingly, *H2a* (relative to DC) and *H2b* (relative to UPS practices) are supported by the empirical data.

Not surprisingly, the need to train new employees is associated with the level of training expenditures. However, as there is no link with the skills ratio, engineers and managers represent the largest category of employees. While this may seem surprising, this finding is consistent with the results of previous studies on the subject (Pendleton

and Robinson, 2011). We further note that establishments with large numbers of employees also have higher training expenses than those with fewer employees. There is, on the other hand, no link with the size of the firm, which suggests that training policies are more dependent on the establishment's characteristics than on the characteristics of the company. The results do not confirm existing studies that show the presence of a union is positively associated with the establishment's training efforts, but rather, they confirm that profit sharing encourages training expenses (Green and Heywood, 2011).

The importance of bundling practices

As the results highlight that both ESO and direct involvement are associated with training expenses and as we expect a complementarity between ESO and direct involvement, we tested for interaction effects. Accordingly, we re-estimated Models 1, 2 and 3 using additional terms to capture interaction effects between ESO and the presence of direct involvement (Model 1), ESO and the intensity of direct involvement (Model 2), and ESO and DC and ESO and UPS (Model 3). None of these interaction terms was statistically significant. However, as the use of interaction terms does not capture specific arrangements of ESO and direct involvement practices, we tested the different combinations of ESO, DC and UPS practices, as did Dube and Freeman (2010), to test *H3* that the use of bundles of practices combining ESO, DC practices and UPS practices is associated with a high level of training expenses (Model 4). First, it is remarkable to observe that there is no link between the importance of training expenses and the use of a single category of practices, whatever its nature. It is only when a minimum of two categories are used simultaneously that a link exists with training expenditures. Comparing the results of "ESO + DC" and "DC + UPS" combinations shows, furthermore, that when associated with DC, UPS practices are more closely linked to the level of training expenses than is ESO. Finally, the strongest link is observed when a complete combination, "ESO + DC + UPS", is used. The results for the control variables are similar to those of Models 1-3. Computing marginal effects for the different levels of training expenses (Table III) puts in light that bundles composed of at least two kind of practices are linked negatively to low levels of training expenses and positively to high levels of training expenses. Furthermore, focusing the analysis on high levels of training expenses, the marginal effect of the "complete" bundle "ESO and DC and UPS" appears larger than those of the other significant bundles. This model that integrates bundles of practices strongly supports *H3* and points to a gradual process, or an increased complexity, in the combined use of ESO and non-contractual mechanisms linked to the level of training expenses. These results suggest, in particular, that while ESO can be

Table III.
Determinants of training expenses; marginal effects for different levels of training expenses (in percentage of the payroll)

	Less than 1.5%	1.5-2%	2.1-3%	3.1-4%	More than 4%
Bundle "ESO only"	−0.010	−0.006	0.004	0.005	0.008
Bundle "DC only"	−0.029	−0.019	0.011	0.014	0.023
Bundle "UPS only"	0.022	0.011	−0.008	−0.010	−0.014
Bundle "ESO and DC only"	−0.094***	−0.092*	0.022***	0.053**	0.110*
Bundle "DC and UPS only"	−0.159***	−0.096***	0.057***	0.076***	0.123***
Bundle "ESO and DC and UPS"	−0.157***	−0.202***	−0.001	0.087***	0.273***

Notes: Results for other variables omitted. *,**,***Significant at 10, 5 and 1 per cent level, respectively

considered as a means to manage potential hold-up problems associated with training expenditures, ESO is only effective when direct involvement practices are also being implemented.

Discussion and conclusions

Drawing on a theoretical background underlying the use of ESO to favours investments in human capital, rather than to serve as a motivational and incentive tool (Blair, 1995; Ben-Ner *et al.*, 2000; Rousseau and Shperling, 2003), the first key question of the paper was whether ESO offsets high levels of training expenses in France. Our results are consistent with studies conducted elsewhere (e.g. in Great Britain) (Robinson and Zhang, 2005; Pendleton and Robinson, 2011) and suggest that whatever the legislative and fiscal framework, ESO favours training expenses because managers anticipate that ESO reduce the risk that employees will leave the company after employer-provided training sessions. Given that the financial gain for employees linked to ESO differs among different institutional contexts, as the "voice effect" of ESO, our results highlight the psychological dimension of ESO (Klein, 1987), or more specifically, the intrinsic satisfaction generated from owning shares (Pendleton *et al.*, 1998).

The second key question was whether ESO is efficient *per se* or whether bundling ESO and direct involvement practices has more positive results. Due to the use of bundles of practices linking ESO and direct involvement in empirical methods (Dube and Freeman, 2010), our results emphasise the complementary nature of ESO and direct involvement practices and provide novel findings that advance our knowledge of the relationship between ESO and training. Indeed, our results diverge from those of Robinson and Zhang (2005), who emphasise the specific role of ESO. First, ESO is only effective in favouring training expenses if it is combined with direct involvement practices. Second, the results shed light on a progressive approach. The complete combination (ESO, DC and UPS) is more significantly linked to training expenses and has a higher coefficient than less elaborate combinations that include only two of the three categories of practices. Thus, the more the firm invests in training, the more it uses a multitude of practices to encourage employees to commit during their own training, use acquired skills and remain loyal to the firm. These results echo those of Kato and Morishima (2002) in their study of productivity whereby they concluded that gains in productivity are insignificant when a single form of involvement coexists with ESO. More broadly speaking, our results confirm the interest of studying ESO not only as an independent practice but also when linked to other HR practices organised in coherent bundles (Ben-Ner and Jones, 1995; Levine, 1995; Poutsma *et al.*, 2006; Dube and Freeman, 2010).

Inevitably, our study has some limitations. While REPONSE has many of the key qualities that are desirable for such an analysis, there are attributes that are less desirable. This particularly applies to the cross-sectional nature of the data set and the broad definition of share ownership used in the survey questionnaire. As in any cross-sectional study, there is a potential for reverse causality. The theoretical framework suggests using bundles of practices that incorporate ESO and direct involvement practices favours the development of human capital investments, but it is also possible to envisage that investments in training are a necessary consequence of a choice by the employer to implement a high-involvement work system that requires significant employee skills (MacDuffie, 1995). A longitudinal study would offer a chronological analysis of events as well as a better demonstration of causality links. Thus, the results should be perceived as indicative of the need for further more focused research rather than being interpreted as definitive in their own right.

Our results have substantial implications for both policy making and academic research with respect to ESO. While physical assets are decreasing, human capital appears to be a source of competitive advantage and a resource for efficient strategies. Policy initiatives to promote companies' investments in training must take into account that, given its potential effect on employees, ESO favours training expenses. Attention should therefore be given to the fiscal framework of ESO plans. These findings also have implications for HR managers as the organisational characteristics conducive to employer-provided training are identified. From an academic perspective, this paper reflects a growing awareness that human capital development and ESO plans may be related and that this relationship may be a more compelling explanation for share ownership plans than the standard agency story (as suggested by Sengupta *et al.*, 2007; Pendleton and Robinson, 2011). To our knowledge, this is the first empirical study to inform on the complementarity between ESO and direct involvement to favour human capital development. As the data set used for this study predates the economic crisis, it could be interesting to replicate the empirics in order to test the stability in this result regardless of the economic context. Moreover, as the sample consist in French establishments, it is important for academics to determine whether this complementarity between ESO and direct involvement in the development of human capital investments exists in other countries and other institutional contexts. This is a promising line of inquiry for future studies on ESO.

References

Addison, J.T. and Belfield, C.R. (2000), "The impact of financial participation and employee involvement on financial performance: a re-estimation using the 1998 WERS", *Scottish Journal of Political Economy*, Vol. 47 No. 5, pp. 571-583.

Appelbaum, E. and Berg, P. (2000), "High performance work systems: giving workers a stake", in Blair, M. and Kochan, T. (Eds), *The New Relationship: Human Capital in the American Corporation*, Brookings Institution, Washington, DC, pp. 102-137.

Barney, J.B. (1991), "Firm resources and sustained competitive advantage", *Journal of Management*, Vol. 17 No. 1, pp. 99-120.

Barney, J.B. and Wright, P.M. (1997), "On becoming a strategic partner: the role of human resources in gaining competitive advantage", *Human Resource Management*, Vol. 37 No. 1, pp. 31-46.

Becker, B. and Gerhart, B. (1996), "The impact of human resource management on organizational performance: progress and prospects", *Academy of Management Journal*, Vol. 39 No. 4, pp. 779-801.

Becker, G.S. (1964), *Human Capital*, Columbia University Press, New York, NY.

Becker, G.S. (1996), "The economic way of looking at behavior: the nobel lecture", Essays in Public Policy No. 69, Hoover Institution, Stanford University, Palo Alto, CA.

Ben-Ner, A. and Jones, D.C. (1995), "Employee participation, ownership, and productivity: a theoretical framework", *Industrial Relations: A Journal of Economy and Society*, Vol. 34 No. 4, pp. 532-554.

Ben-Ner, A., Burns, W.A., Dow, G. and Putterman, L. (2000), "Employee ownership: an empirical exploration", in Blair, M. and Kochan, T. (Eds), *The New Relationship: Human Capital in the American Corporation*, Brookings Institution, Washington, DC, pp. 194-240.

Black, S. and Lynch, L. (1997), "Beyond the incidence of training", Discussion Paper No. 362, Centre for Economic Performance, London School of Economics, London.

Blair, M. (1995), *Ownership and Control: Corporate Governance for the 21st Century*, Brookings Institution, Washington, DC.

Blair, M., Kruse, D. and Blasi, J. (2000), "Employee ownership: an unstable form or stabilizing force?", in Blair, M. and Kochan, T. (Eds), *The New Relationship: Human Capital in the American Corporation*, Brookings Institution, Washington, DC, pp. 241-298.

Blasi, J.B., Kruse, D. and Freeman, R. (2006), "Shared capitalism at work: impacts and policy options", in Lawler, E. and O'Toole, J. (Eds), *America at Work*, Palgrave, New York, NY, pp. 275-296.

Blau, G.J. and Boal, K.B. (1987), "Conceptualizing how job involvement and organizational commitment affect turnover and absenteeism", *Academy of Management Review*, Vol. 12 No. 2, pp. 288-300.

Blinder, A.S. (Ed.) (1990), *Paying for Productivity: A Look at the Evidence*, Brookings Institution Press, Washington, DC.

Boheim, R. and Booth, A. (2004), "Trade union presence and employer-provided training in Great Britain", *Industrial Relations*, Vol. 43 No. 3, pp. 520-545.

Brown, S., Fakhfakh, F. and Sessions, J.G. (1999). "Absenteeism and employee sharing: an empirical analysis based on French panel data, 1981-1991", *Industrial and Labor Relations Review*, Vol. 52 No. 2, pp. 234-251.

Buchko, A.A. (1993), "The effects of employee ownership on employee attitudes: an integrated causal model and path analysis", *Journal of Management Studies*, Vol. 30 No. 4, pp. 633-657.

Caramelli, M. and Briole, A. (2007), "Employee stock ownership and job attitudes: does culture matter?", *Human Resource Management Review*, Vol. 17 No. 3, pp. 290-304.

Conway, N., Deakin, S., Konzelmann, S., Petit, H., Rebérioux, A. and Wilkinson, F. (2008), "The influence of stock market listing on human resource management: evidence for France and Britain", *British Journal of Industrial Relations*, Vol. 46 No. 4, pp. 631-673.

Conyon, M. and Freeman, R. (2004), "Shared modes of compensation and firm performance: UK evidence", in Blundell, R., Card, D. and Freeman, R. (Eds), *Seeking a Premier League Economy*, University of Chicago Press, Chicago, IL, pp. 109-146.

Delery, J.E. and Shaw, J.D. (2001), "The strategic management of people in work organizations: review, synthesis, and extension", *Research in Personnel and Human Resources Management*, Vol. 20, pp. 165-197, available at: www.emeraldinsight.com/doi/book/10.1016/S0742-7301%282001%2920.

Doucouliagos, C. (1995), "Worker participation and productivity in labor-managed and participatory capitalist firms: a meta-analysis", *Industrial and Labor Relations Review*, Vol. 49 No. 1, pp. 58-77.

Dube, A. and Freeman, R. (2010), "Complementarity of shared compensation and decision-making systems: evidence from the American labor market", in Kruse, D.L., Freeman, R.B. and Blasi, J.R. (Eds), *Shared Capitalism at Work: Employee Ownership, Profit and Gain Sharing, and Broad-Based Stock Options*, University of Chicago Press, Chicago, pp. 167-199.

Dyer, L. and Reeves, T. (1995), "Human resource strategies and firm performance: what do we know and where do we need to go?", *International Journal of Human Resource Management*, Vol. 6 No. 3, pp. 656-670.

Erickson, C.L. and Jacoby, S.M. (2003), "The effect of employer networks on workplace innovation and training", *Industrial and Labor Relations Review*, Vol. 56 No. 2, pp. 203-227.

Fakhfakh, F. (1997), "Quand l'intéressement passe inaperçu […]", *Travail et Emploi*, No. 71, pp. 53-63.

Fakhfakh, F. (2004), "The effects of profit sharing and employee share ownership on quits: evidence from a panel of french firms", in Perotin, V. and Robinson, A. (Eds), *Advances in the Economic Analysis of Participatory and Self-Managed Firms*, Vol. 8, JAI Press, Greenwich, CN, pp. 129-147.

Ginglinger, E., Megginson, W. and Waxin, T. (2011), "Employee ownership, board representation, and corporate financial policies", *Journal of Corporate Finance*, Vol. 17 No. 4, pp. 868-887.

Green, C.P. and Heywood, J.S. (2011), "Profit sharing, separation and training", *British Journal of Industrial Relations*, Vol. 49 No. 4, pp. 623-642.

Green, F., Machin, S. and Wilkinson, D. (1999), "Trade unions and training practices in British workplaces", *Industrial and Labor Relations Review*, Vol. 52 No 2, pp. 179-195.

Green, F., Felstead, A., Meyhew, K. and Pack, A. (2000), "The impact of training on labour mobility: individual and firm-level evidence from Britain", *British Journal of Industrial Relations*, Vol. 38 No. 2, pp. 261-276.

Guery, L., Stevenot, A. (2013), "Participation financière et climat social: une analyse des perceptions comparées dirigeants/salaries", *Relations Industrielles/Industrial Relations*, Vol. 68 No. 2, pp. 290-311.

Guthrie, J.P. (2001), "High-involvement work practices, turnover, and productivity: evidence from New Zealand", *Academy of Management Journal*, Vol. 44 No. 1, pp. 180-190.

Hitt, M.A., Biermant, L., Shimizu, K. and Kochhar, R. (2001), "Direct and moderating effects of human capital on strategy and performance in professional service firms: a resource-based perspective", *Academy of Management Journal*, Vol. 44 No. 1, pp. 13-28.

Hoque, K. and Bacon, N. (2006), "The antecedents of training activity in British small and medium-sized enterprises", *Work, Employment & Society*, Vol. 20 No. 3, pp. 531-552.

Hoque, K. and Bacon, N. (2008), "Trade unions, union learning representatives and employer-provided training in Britain", *British Journal of Industrial Relations*, Vol. 46 No. 4, pp. 702-731.

Huselid, M. (1995), "The impact of human resource management practices on turnover, productivity, and corporate financial performance", *Academy of Management Journal*, Vol. 38 No. 3, pp. 635-672.

Ichniowski, C., Shaw, K. and Prennushi, G. (1997), "The effects of human resource management practices on productivity: a study of steel finishing lines", *American Economic Review*, Vol. 87 No. 3, pp. 291-313.

Kato, T. and Morishima, M. (2002), "The productivity effects of participatory employment practices: evidence from new Japanese panel data", *Industrial Relations*, Vol. 41 No. 4, pp. 487-520.

Kim, D.O. (2005), "The benefits and costs of employee suggestions under gainsharing", *Industrial and Labor Relations Review*, Vol. 58 No. 4, pp. 631-652.

Klein, K. (1987), "Employee stock ownership and employee attitudes: a test of three models", *Journal of Applied Psychology Monographs*, Vol. 72 No. 2, pp. 319-332.

Kruse, D., Freeman, R., Blasi, J., Buchele, R., Scharf, A., Rodgers, L., and Mackin, C. (2004), "Motivating employee owners in esop firms: human resource policies and company performance", in Perotin, V. and Robinson, A. (Eds), *Advances in the Economic Analysis of Participatory and Self-Managed Firms*, Vol. 8, JAI Press, Greenwich, CN.

Lawler, E.E. (1986), *High Involvement Management*, Jossey-Bass, San Francisco, CA.

Lazear, E.P. (2003), "Firm-specific human capital: a skills-weights approach", Discussion Paper No. 813, IZA, June, Bonn.

Levine, D. (1995), *Reinventing the Workplace: How Business and Employers Can Both Win*, Brookings Institution, Washington, DC.

Long, R. (1978), "The effects of employee ownership on organizational identification, employee job attitudes, and organizational performance: a tentative framework and empirical findings", *Human Relations*, Vol. 31 No. 1, pp. 29-48.

Long, R. (1980), "Job attitudes and organizational performance under employee ownership", *Academy of Management Journal*, Vol. 23 No. 4, pp. 726-737.

Lowitzsch, J. and Hashi, I. (2014), *The Promotion of Employee Ownership and Participation*, Study prepared by the Inter-University Centre for European Commission's DG MARKT, Final Report, European Union.

McNabb, R. and Whitfield, K. (1998), "The impact of financial participation and employee involvement on financial performance", *Scottish Journal of Political Economy*, Vol. 45 No. 2, pp. 171-187.

MacDuffie, J.P. (1995), "Human resource bundles and manufacturing performance: organisational logic and flexible production systems in the world auto industry", *Industrial and Labour Relations Review*, Vol. 48 No. 2, pp. 197-220.

Marchington, M., Goodman, J., Wilkinson, J. and Ackers, P. (1992), "New developments in employee involvement", Employment Department Research Paper Series No. 2, London.

Marsden, D. and Belfield, R. (2010), "Institutions and the management of human resources: incentive pay systems in France and Great Britain", *British Journal of Industrial Relations*, Vol. 48 No. 2, pp. 235-283.

Pendleton, A. (1997), "Stakeholders as shareholders: the role of employee share ownership", in Kelly, G., Kelly, D. and Gamble, A. (Eds), *Stakeholder Capitalism*, Macmillan, Basingstoke.

Pendleton, A. and Robinson, A. (2010), "Employee stock ownership, involvement, and productivity: an interaction-based approach", *Industrial and Labor Relations Review*, Vol. 64 No. 1, pp. 3-29.

Pendleton, A. and Robinson, A. (2011), "Employee share ownership and human capital development: complementarity in theory and practice", *Economic and Industrial Democracy*, Vol. 32 No. 3, pp. 439-457.

Pendleton, A., Wilson, N. and Wright, M. (1998), "The perception and effects of share ownership: empirical evidence from employee buy-outs", *British Journal of Industrial Relations*, Vol. 36 No. 1, pp. 99-123.

Perotin, V. and Robinson, A.M. (2003), *Employee Participation in Profit and Ownership: A Review of the Issues and Evidence*, European Parliament, Luxembourg.

Pierce, J.L., Rubenfeld, S.A. and Morgan, S. (1991), "Employee ownership: a conceptual model of process and effects", *Academy of Management Review*, Vol. 16 No. 1, pp. 121-144.

Poutsma, E., Kalmi, P. and Pendleton, A. (2006), "The relationship between financial participation and other forms of employee participation: new survey evidence from Europe", *Economic and Industrial Democracy*, Vol. 27 No. 4, pp. 637-667.

Robinson, A.M. and Zhang, H. (2005), "Employee share ownership: safeguarding investments in human capital", *British Journal of Industrial Relations*, Vol. 43 No. 3, pp. 469-488.

Rousseau, D. and Shperling, Z. (2003), "Pieces of the action: ownership and the changing employment relationship", *Academy of Management Review*, Vol. 28 No. 4, pp. 553-570.

Sengupta, S. (2008), "The impact of employee-share-ownership schemes on performance in unionised and non-unionised workplaces", *Industrial Relations Journal*, Vol. 39 No. 3, pp. 170-190.

Sengupta, S., Whitfield, K. and McNabb, B. (2007), "Employee share ownership and performance: golden path or golden handcuffs?", *The International Journal of Human Resource Management*, Vol. 18 No. 8, pp. 1507-1538.

Stevens, M. (1996), "Transferable training and poaching externalities", in Booth, A.L. and Snower, D.J. (Eds), *Acquiring Skills: Market Failures, Their Symptoms and Policy Responses*, Centre for Economic Policy Research, Cambridge University Press, Cambridge, pp. 19-40.

Verma, A. and McKersie, R.B. (1987), "Employee involvement: the implications of non involvement by unions", *Industrial and Labor Relations Review*, Vol. 40 No. 4, pp. 556-568.

Weitzman, M. and Kruse, D. (1990), "Profit sharing and productivity", in Blinder, A. (Ed.), *Paying for Productivity: A Look at the Evidence*, Brookings Institution Press, Washington, DC, pp. 95-142.

Whitfield K. (2000), "High-performance workplaces, training, and the distribution of skills", *Industrial Relations*, Vol. 39 No. 1, pp. 1-25.

Wilkinson, A. and Dundon, D. (2010), "Direct employee participation", in Wilkinson, A., Gollan, P. J. and Lewin, D. (Eds), *The Oxford Handbook of Participation in Organizations*, Oxford University Press, Oxford, pp. 167-185.

Williamson, O.E. (1979), "Transaction-cost economics: the governance of contractual relations", *Journal of Law and Economics*, Vol. 22 No. 2, pp. 233-261.

Wilson, N. and Peel, M.J. (1991), "The impact on absenteeism and quits of profit-sharing and other forms of employee participation", *Industrial and Labor Relations Review*, Vol. 44 No. 3, pp. 454-468.

Wood, S. and De Menezes, L. (2008), "Comparing perspectives on high involvement management and organizational performance across the British economy", *International Journal of Human Resource Management*, Vol. 19 No. 4, pp. 639-682.

Wright, P.M., McMahan, G.C. and McWilliams, A. (1994), "Human resources and sustained competitive advantage: a resource-based perspective", *International Journal of Human Resource Management*, Vol. 5 No. 2, pp. 301-326.

Appendix

	Description	Mean	Linearised SE
Training expenses	Training expenses (percentage of establishment's payroll) (1-5)	2.760	0.049
Employee share ownership (ESO)	Employees hold shares of the company (0,1)	0.134	0.012
Downward communication (DC)	Use of at least one of the following: company newsletter to all employees, regular team briefings (0,1)	0.826	0.016
Upward problem solving (UPS)	Use of at least one of the following: briefing groups, quality circles, suggestion boxes (0,1)	0.582	0.019
Direct involvement	Use of at least one of the following: downward communication practices, upward problem-solving practices (0,1)	0.868	0.014
Direct involvement intensity	Number of direct involvement practices used (0-5)	2.033	0.050
Skills acquisition < 1 month	A new employee needs less than 1 month to do his job as well as an established employee (0,1)	0.116	0.012
Skills acquisition 1-6 months	A new employee needs between 1 and 6 months to do his job as well as an established employee (0,1)	0.261	0.017
Skills acquisition 6 months-1 year	A new employee needs between 6 months and 1 year to do his job as well as an established employee (0,1)	0.263	0.017
Skills acquisition > 1 year	A new employee needs more than 1 year to do his job as well as an established employee (0,1)	0.360	0.018
Small firm	Establishment belongs to company with 20-49 employees (0,1)	0.418	0.019
Medium firm	Establishment belongs to company with 50-199 employees (0,1)	0.266	0.016
Quite large firm	Establishment belongs to company with 200-999 employees (0,1)	0.143	0.011
Large firm	Establishment belongs to company with 1,000 employees and more (0,1)	0.172	0.013
Establishment size	Establishment size (log of employees)	4.056	0.027
One-site establishment	The company has only one establishment (0,1)	0.557	0.019
Skills ratio	Managers and engineers are the most numerous category of employees (0,1)	0.109	0.011
Union representative	There is at least one union representative in the establishment (0,1)	0.347	0.017
Profit sharing	Employees are covered by a profit sharing plan (0,1)	0.582	0.018
Competition	The flexibility of the establishment to set its sale price is low or zero (0,1)	0.727	0.017
Industry	The establishment operates in the industrial sector (0,1)	0.410	0.018
Wholesale and retail	The establishment operates in the wholesale sector (0,1)	0.220	0.015
Services	The establishment operates in the services sector (0,1)	0.282	0.017
Transport	The establishment operates in the transport sector (0,1)	0.088	0.012

Table AI. Definition of variables and descriptive statistics

About the author

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