

Safeguarding investments in human capital: Evidence of complementarity between ESO and involvement practices

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Abstract

This paper examines the complementary relationship between employee share ownership (ESO) and involvement practices, both of which are used to protect the firm's investments in human capital. From a theoretical standpoint, ESO as well as involvement practices encourage greater commitment of employees to training programmes, use of acquired skills and loyalty to the firm. While many empirical studies have shown that ESO must be implemented alongside involvement practices in order to have a positive effect on productivity, very few have dealt with the question of preserving human capital. Based on a sample of 1527 establishments, the results of this study reveal that the use of a single type of practice is never linked to the level of investment in human capital. Conversely, the higher these investments are, the more the establishment relies on bundles that combine a large number of practices. Our results provide strong evidence of complementarity between ESO and involvement practices and support the use of bundles of practices to safeguard investments in human capital.

Keywords

Employee Share Ownership, involvement practices, human capital, human resource bundles, high performance work practices

INTRODUCTION

Financial participation, traditionally viewed as a means of improving the economic and financial performance of the firm, has been strongly developed throughout the world over the last few decades. It is increasingly considered a standard attribute of labour relations in industrialised countries (Poutsma and De Nijs, 2003). Greater reliance on such schemes has also been observed in countries that have more recently embraced capitalism, as is the case in Eastern Europe (Mygind 2012) or in emerging economies, such as India (Carberry 2012). The importance of the institutional framework in which financial participation is developed has been underlined (Poutsma, Blasi, Kruse, 2012), as certain contexts are more favourable for developing these forms of compensation than others. The legislative and fiscal framework is, in this sense, an important criterion in that it can encourage, or not, the adoption of such schemes by employers (Pendleton and Poutsma, 2004). Since the end of the 1950s, French public authorities have developed a set of measures encouraging the development of profit-sharing and ESO schemes. These means of compensation are, for example, taxed less than salaries and bonuses, and this applies to both firms and employees. Similarly, in firms where employees are not covered by a profit-sharing scheme, negotiations must be organised each year between management and unions in view of setting up such a system. In France financial participation is based on a collective and long-term approach. Indeed, when such a plan exists it must cover all employees in the firm. The fiscal advantages for employees are more interesting when the funds are frozen for at least five years. Financial participation therefore encourages a long-term commitment to the firm (Perotin and Robinson, 2003). This framework remains largely incentive-based and firms are free to choose whether they wish to implement a financial participation system, particularly in the case of ESO.

Most of the literature on financial participation examines its determinants, on the one hand, and the presumed consequences for economic and financial performance on the other. From an agency theory perspective, financial participation, and more specifically ESO, helps align the interests of employees and shareholders. The consequences of this are improvements in terms of moral hazards and effort aversion,

as well as a reduction in the need for directly supervising the employee's work (Pendleton 2006). Hence it appears that ESO would have a positive impact on economic and financial performance (Jones and Kato, 1992, 1995; Blasi et al., 1996; McNabb and Whitfield, 1998; Addison and Belfield, 2000, 2001; Kruse et al., 2010). Literature based on agency theory has emphasized the complementary relationship between ESO and other forms of employee involvement (Levine and Tyson 1990). Many empirical studies have revealed the existence of a complementary link, sometimes in specific conditions, between financial participation and other forms of employee involvement, which would have a positive effect on productivity and other performance indicators (Blinder, 1990; Doucouliagos, 1995; Jones and Pliskin, 1997; Poutsma, 2001; Perotin and Robinson, 2003; Dube and Freeman, 2010; Pendleton and Robinson, 2010). Another narrower and more recent field in the literature emphasizes the role that ESO could play in protecting investments in skills that are specific to the firm (Robinson and Zhang, 2005; Pendleton and Robinson, 2011). The starting point of this argument is that the firm's resources can be the basis of a competitive advantage providing competitors have difficulty copying them (Barney, 1991). Employees and their specific skills could constitute such resources (Coff, 1997). However, employee investments in the acquisition of specific skills represent a risk for them because these skills are, by definition, difficult to use in another firm. Blair (1995, 1999) suggests that the risks taken by employees are similar, to a certain extent, to those assumed by shareholders and that employees should consequently benefit from rights to residual incomes. By allowing this, ESO encourages employees to acquire skills that are specific to the firm and to use them. At the same time ESO would encourage employees to remain loyal to the firm, which would incite managers to invest in human capital.

The question that arises is whether ESO and involvement practices complement each other in protecting investments in human capital. Previous research on the question is rare and Pendleton and Robinson (2011), who highlight the link between ESO and human capital development, call to “*assess whether there is multiple complementarity between training, stock plans and other forms of employee voice mechanisms, given that the stock ownership literature has stressed the importance of employee participation in decisions for many years*” (p.452).

Consequently the aim of this study is to answer this question. This paper is organised as follows: First we develop the theoretical arguments linking ESO to preservation of investments in human capital. Highlighting the fact that non-contractual mechanisms (involvement practices) encourage investments in human capital as well leads us to question the complementary relationship between ESO and non-contractual mechanisms within a bundled practices approach. The hypotheses are tested using data from REPOSE survey with a sample of 1527 French establishments. The results are presented, followed by a discussion and conclusion.

THEORY AND HYPOTHESES

The “Europe 2020” strategy for growth launched in 2010 by the European Commission along the same lines as the Lisbon strategy, promotes public and private investment in research and 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 firms must invest in order to develop it. Defined by Becker in the 1960s as “*the knowledge, information, ideas, skills, and health of individuals*” (Becker, 1964 in Wright and McMahan, 2011, p.94), human capital is likely to constitute a source of sustainable competitive advantage. From a resource-based view, human capital can indeed be valuable, rare and inimitable and serve as the basis of the firm's strategy (Barney, 1991).

The literature regarding human capital distinguishes between two forms: general and specific human capital (Becker, 1964). The first is general in the sense it is usable in a variety of firms or different contexts and easily redeployed. The second form is specific to a firm and only of interest to it. It is therefore 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, who is at the origin of the concept of human capital, considers general and specific forms should be considered as two archetypes at the opposite ends of a continuum. Reality is often somewhere in the middle, between these two extremes (Stevens, 1996). Furthermore, there is not an airtight barrier between general and specific human capital (Lazear 2003) and

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 it belongs to, thus making it a specific risk. Employees can choose whether or not to use their human capital for the benefit of their employer and, if they leave the firm, they take it with them. Consequently, investments in training, aimed at developing human capital, are at the heart of a hold-up problem that concerns both the firm and employees (Blair, 1995 ; Ben-Ner et al., 2000). Contrary to general skills, specific ones cannot be deployed elsewhere and employees cannot use them to bargain with other firms as their value on the job market is too weak. Therefore employees can fear that their employer will try to capture all of the rents generated by the deployment of specific skills acquired through training. On the other hand, the employer can fear that employees will refuse training or will not use the skills acquired with the purpose of creating a competitive advantage for the firm. In this case the firm's investment in training would be a total waste. The situation would be the same if employees observe that their specific skills are not valued by the firm and leave to work for another organisation that paid more for their general skills. 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). This analysis needs to be extended because, as we have seen before, specific as well as general skills are capable of creating value for a firm. Consequently 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 in establishing contracts that specify the commitments of both the firm and the employee and define the way rents are shared. However, such contracts would be very complicated to write up, difficult to implement and costly as well (Williamson, 1979). Since this solution cannot easily be envisaged, two other possibilities exist for managing hold-up problems: ESO and involvement practices.

ESO can help manage hold-up problems linked to investments in human capital that are caused by opportunistic employees and firms by making employees residual claimants (Blair, 1995). If employees become shareholders in their firm, they benefit from residual control rights that limit employer opportunism and residual income that encourages involvement. Employees who hold shares in their firm via ESO plans benefit from the same rights to information and communication as other shareholders and are also entitled to vote in the annual general meeting. Moreover, French law provides for, in firms where employees hold more than a 3% interest, at least one employee representative on the board of directors. This right of access to information and capacity of expression consequently limits employer opportunism. ESO also limits employee opportunism by aligning employee interests with those of the firm, in keeping with the traditional agency theory perspective. By linking remuneration to corporate performance, employees are encouraged to improve their involvement in training and develop their efforts in convergence with the firm's objectives as this will have a positive impact on their remuneration. The risk of a free-rider taking advantage of other employees' efforts, as well as the tenuous link between these efforts and the financial performance of the firm, are limitations that have been often highlighted in this alignment of interests approach (Lazear, 1999; Oyer, 2004). However, these critiques need to be put into perspective. Indeed, it can be extremely difficult to determine the individual contribution of each employee to the global performance of a firm. In these conditions, it is preferable to use collective incentives (Kruse, 1996; Jones and Pliskin, 1997). Moreover, collective incentives such as ESO offer the advantage of inciting employee co-monitoring, which reduces the risks of free-riders (Freeman et al., 2010). ESO also 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. Empirical studies show that ESO is associated with lower employee turnover (Wilson and Peel, 1991; Buchko, 1993; Sengupta and al., 2007) as well as absenteeism (Brown and Fakhfakh, 1999; Fakhfakh, 2004). Considering this information, we can put forward the following hypothesis:

H1. A high level of training expenses is associated with the presence of ESO

Another possible solution is that involvement practices encourage a long-term relationship between the establishment and its employees as well as stronger performance (Huselid, 1995; Guthrie, 2001; Addison, 2005). Guthrie (2001) points to a link between the use of involvement practices, low employee turnover

and strong productivity. The type of practices that are thought to encourage employee involvement diverge depending on the study, but they all relate to a mode of operation that differs from the traditional Taylorist model with a centralised decision-making process and problem-solving at management level (Edwards and Wright, 2001). Referring to the typology elaborated in Marchington et al. (1992), McNabb and Whitfield (1998) emphasize employee involvement in their empirical study by distinguishing top-down communications from management to staff (traditional meetings between the manager and his/her team, team meetings with senior managers, company newsletters) and participative practices focused on the employee's capacity to make proposals (quality circles, other forms of team meetings designed to improve performance, procedures allowing employees to make individual proposals such as "suggestion boxes"). Reproducing the study of McNabb and Whitfield, Addison and Belfield (2000) also use this typology. Furthermore, as Boxall and Macky (2009) point out, the work of MacDuffie (1995) helps identify the link that exists between involvement and employee skills. MacDuffie (1995) reveals indeed that the success of high involvement work systems, which grant more independence and freedom of initiative to employees, requires having a staff capable of working in a team and solving problems. The necessary skills are more highly developed in these systems than in Taylorist models, which also means more spending on training. By encouraging employees and granting them more influence on decisions, involvement practices help reduce the hold-up problem linked to investments in training. This leads to the following hypothesis:

H2. A high level of training expenses is associated with the presence of involvement practices.

H2a. A high level of training expenses is associated with the presence of downward communication practices.

H2b. A high level of training expenses is associated with the presence of upward problem-solving practices.

As both ESO and involvement practices can contribute to developing and protecting human capital it is interesting to analyse whether they are independent, redundant or complementary. Several empirical studies show that 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). The relationship between financial participation and other forms of participation is an important question in research on this field (Poutsma, Kalmi, Pendleton, 2006). Thus it would appear that, in certain conditions, there is a complementary relationship that has a beneficial effect on productivity and other performance indicators (Blinder, 1990; Doucouliagos, 1995; Jones and Pliskin, 1997; Poutsma, 2001; Perotin and Robinson, 2003; Pendleton and Robison, 2010). Financial participation and other involvement practices are complementary from a theoretical perspective. Indeed, involvement practices can be used to manage the risk of free-riders, a limitation for financial participation, as they encourage a more cooperative corporate culture (Weitzman and Kruse, 1990) but also because they lead to co-monitoring (Blair et al. 2000; Kruse et al. 2004; Conyon and Freeman 2004; Blasi et al. 2006). At the same time, the hope of financial gain linked to financial participation encourages employees to participate more in teams, 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). For MacDuffie, "bundling" work practices is critical in high performance work systems: "*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*" (1995, p.200). This point of view can also be found in the work of Ichniowski et al. (1997) as well as Appelbaum and Berg (2000). While the question of complementarity between ESO and involvement practices has been the object of many studies focused on the implications for productivity, there are very few that have examined the complementary dimension in terms of developing and preserving human capital. One of the rare studies on this point was conducted by Robison and Zhang (2005) and the results "*provide little evidence to support an ESO-based bundles solution to the protection of valuable human capital and instead re-emphasize the influential and independent role that ESO plays*" (p.482). However, with regard to the theoretical arguments that plead in favour of a complementary relationship between ESO and other involvement practices, we can put forward the following hypothesis:

H3. A high level of training expenses is associated with the use of bundles of practices combining ESO, downward communication practices and upward problem-solving practices.

DATA DESCRIPTION AND METHODOLOGY

Data

These theoretical hypotheses are tested using the French 2004-2005 REPOSE survey carried out by DARES (a department of the Ministry of Labour). 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 Employee Share Ownership, 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's employees. Indeed these situations correspond either to worker co-operatives or to companies financed by LBO where top management is a shareholder. This means that in the end, our sample consists of 1527 establishments. The REPOSE survey provides information mainly on labour organization, establishment changes, job management, employee representation, pay systems and conflicts. The data provides information on the level of training expenses, whether employees are covered by an employee share ownership plan, whether downward communication practices are used in the workplace and whether upward problem-solving practices are used.

Key variables

Human capital variables

As in previous studies (Robison and Zhang, 2005; Pendleton and Robinson, 2011), training is used as a proxy of the firm's investments in human capital. More precisely these investments are measured by the amount of training expenses in 2004. In the REPOSE survey there is a five-category question with each category corresponding to a share of training expenses (in percentage of the establishment's payroll): less than 1.5%, 1.5% to 2%, 2.1% to 3%, 3.1% to 4% and more than 4%. It is important to note that in 2004 French law required companies to spend at least the equivalent of 1.5% of their payroll on training.

Employee Share Ownership variables

One question offers an indication as to whether employees hold shares in their company. As it is a dichotomous variable, we do not have any information about the amount of capital held by employees. It is therefore impossible to know if they hold a small or substantial stake in the firm. The results of Pendleton and Robinson (2011) highlight that the level of employee participation in a share ownership plan has an influence on the probability of offering training. Except for employees working under fixed-term or temporary contracts, all personnel are covered by ESO plans. The conditions for acquiring shares are much more interesting than purchasing shares directly on the stock market. Employees hold shares in 13.4% of the establishments in our sample.

Involvement practices

Involvement practices include both downward communication and upward problem-solving. Downward communication practices consist in distributing a company newsletter to all employees and holding regular team briefings. These group briefing sessions are typically an opportunity for managers to convey information to employees about current events inside the company, its strategy and its results. About 82.6% of establishments use downward communication practices. Upward employee involvement is manifested in different ways: meetings in which employees can express their views, quality circles and suggestion boxes. From these three variables, another was constructed to observe if establishments use upward problem-solving practices. 58.3% of them do.

Control variables

First of all, it is obvious that training expenses are most likely related to training needs. A variable is included to control 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 in order 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. Other variables are typically associated with training. Trade union presence is also related to intensity of training (Green et al. 1999; Boheim and Booth, 2004; Hoque and Bacon, 2008), because it 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. One variable records the intensity of competition the establishment must cope with. Competition is considered intense if the establishment has weak or no freedom to set its sale prices. Establishment and firm size are controlled. Finally, dummies are included for the following sectors: wholesale and retail, transport and services, with industry serving as the reference.

A list of variables and descriptive statistics can be found in table 1.

Table 1. Definition of variables and descriptive statistics

	Description	Mean	Standard deviation
<i>Training expenses</i>	Training expenses (in percentage of the establishment's payroll) (1-5)	2.760	1.292
<i>ESO</i>	Employees hold shares of the company (0,1)	0.134	0.341
<i>Downward communication (DC)</i>	Use of at least one of the following: company newsletter to all employees, regular team briefings (0,1)	0.826	0.379
<i>Upward problem-solving (UPS)</i>	Use of at least one of the following: briefing groups, quality circles and suggestion boxes (0,1)	0.582	0.379
<i>Skills acquisition less < 1 month</i>	A new employee needs less than 1 month to do his job as well as established employee. (0,1)	0.116	0.320
<i>Skills acquisition 1-6 months</i>	A new employee needs between 1 and 6 months to do his job as well as established employee. (0,1)	0.261	0.439
<i>Skills acquisition 6 months - 1 year</i>	A new employee needs between 6 months and 1 year to do his job as well as established employee. (0,1)	0.263	0.440
<i>Skills acquisition > 1 year</i>	A new employee needs more than 1 year to do his job as well as established employee. (0,1)	0.360	0.480
<i>Small firm</i>	Establishment belong to company with 20-49 employees (0,1)	0.418	0.493
<i>Medium firm</i>	Establishment belong to company with 50-199 employees (0,1)	0.266	0.442
<i>Quite large firm</i>	Establishment belong to company with 200-999 employees (0,1)	0.143	0.350
<i>Large firm</i>	Establishment belong to company with 1000 employees and more (0,1)	0.172	0.377
<i>Establishment size</i>	Establishment size (log of employees)	4.056	0.892
<i>One-site establishment</i>	The company has only one several establishment (0,1)	0.557	0.497
<i>Skills ratio</i>	Managers and engineers are the most numerous category of employees (0,1)	0.109	0.312
<i>Union representative</i>	There is at least one union representative in the establishment (0,1)	0.347	0.476
<i>Competition</i>	The flexibility of the establishment to set its sale price is low or zero (0,1)	0.727	0.445
<i>Industry</i>	The establishment operates in the industrial sector (0,1)	0.410	0.492
<i>wholesale and retail</i>	The establishment operates in the wholesale and sector (0,1)	0.220	0.414
<i>Services</i>	The establishment operates in the services sector (0,1)	0.282	0.450
<i>Transport</i>	The establishment operates in the transport sector (0,1)	0.088	0.283

Statistical methods

The aim of this paper is to analyse the relationship between training expenses, ESO and the use of non-contractual mechanisms (downward communication practices and upward problem-solving practices). As training expenses are an ordinal variable, we use ordered probit regression models. Our empirical approach is based on the study of Dube and Freeman (2010) regarding complementarity of shared compensation and decision-making systems.

In a first step we estimate the link between training expenses and three dependant variables: the fact that employees hold shares, the use of at least one downward communication practice (DC) and the use of at least one upward problem-solving practice (UPS). In a second step we replace the three dependant 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. The combination “ESO and UPS” was excluded from the regression because no establishment uses it. The combination “ESO only” is rare (around 1%) but it does not seem to be a problem in the regression models (the results are similar if we drop the variable from the regression). This methodology allows us to test the link between training expenses and the different bundles of practices that establishments can use to safeguard their investment. Table 2 presents the descriptive statistics of these mutually exclusive variables.

Table 2. Descriptive statistics.

	Mean	Standard deviation
ESO only	0.012	0.109
DC only	0.244	0.430
UPS only	0.034	0.181
ESO + DC	0.040	0.196
DC + UPS	0.463	0.499
ESO + DC + UPS	0.083	0.275

FINDINGS

Table 3 reports the estimates of two models. The results in the first column correspond to the model where ESO, downward communication practices and upward problem-solving practices are the three independent variables. In the second column the independent variables are the different bundles designed using ESO and other involvement practices. The first model reveals that ESO and involvement mechanisms are linked to the level of training expenses, all other aspects being equal. Furthermore we can note that this link is stronger and more significant with upward problem-solving practices. Downward communication practices and ESO have relatively similar coefficients with an almost identical level of significance. Not surprisingly, the need to train new employees is associated with the level of training expenditures. However, there is no link with the skills ratio and therefore the fact that engineers and managers represent the largest category of employees. This may seem surprising, but this finding converges with the results of previous studies on the subject (Pendleton and Robinson, 2011). This tends to show that the human capital firms develop is not linked to a single category of personnel that would be the same across all companies (engineers, for example), but can, according to the organisation's business, be workers, employees or others. We can also note that establishments with large numbers of employees also have higher training expenses than others. However, there is no link with the size of the firm, which leads us to believe that training policy depends more on the establishment's characteristics than those of the company. Similarly, the results confirm existing studies that show the presence of a union is positively associated with establishment's training efforts.

Table 3. Determinants of training expenses; ordered probit coefficients

	Model 1	Model 2
ESO	0.321**	
Downward communication (DC)	0.340***	
Upward problem-solving (UPS)	0.455***	
ESO only		0.057
DC only		0.132
UPS only		-0.073
ESO + DC		0.499**
DC + UPS		0.682***
ESO + DC + UPS		1.012***
Skills acquisition less < 1 month	Ref.	Ref.
Skills acquisition 1-6 months	0.047	0.034
Skills acquisition 6 months -1 year	0.256*	0.240
Skills acquisition > 1 year	0.304**	0.292*
Small firm	Ref.	Ref.
Medium firm	0.111	0.122
Quite large firm	0.133	0.143
Large firm	0.186	0.188
Establishment size	0.189***	0.186***
One-site establishment	0.063	-0.071
Skills ratio	0.109	0.117
Union representative	0.167*	0.167*
Competition	0.131	0.138
Industry dummies	Yes	Yes
F	9.17***	9.59***
N	1527	1527

*Significant at 10% level; **Significant at 5% level; ***Significant at 1% level.

In the second column we test different combinations of practices. First, it is remarkable to observe that there is no link between importance of training expenses and 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 downward communication, upward problem-solving practices are more closely linked to the level of training expenses than ESO. Finally, the strongest link can be observed when a complete combination is used, or “ESO + DC + UPS”. The results for the control variables are similar to the first model. The second model therefore points to a gradual process, 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 considered as a means to manage potential hold-up problems associated with training expenditures, it is only effective when it is associated with involvement practices.

CONCLUSION

Investments in human capital are at the heart of a hold-up problem because either the employer or the employees can try to appropriate the rents produced by these expenses (Blair, 1995; Ben-Ner et al. 2000). Our results provide empirical support for each of our three hypotheses. In keeping with our theoretical background, they reveal that ESO, just like involvement practices, can reduce hold-up problems. These results also underline the complementary nature of ESO and involvement practices. Indeed, the use of a single category of practices (ESO, downward communication, upward problem-solving) is never linked to level of training expenses while, on the contrary, a link does exist when ESO is associated with involvement practices. In this sense our results diverge from those of Robinson and Zhang (2005) who do not confirm an ESO-based bundle solution as a means of protecting investments in human capital and emphasize the specific role of ESO.

Beyond the observation that ESO is only effective in protecting investments in human capital if it is associated with involvement practices, the results of model 2 also shed light on a progressive approach. The “complete” combination (ESO + downward communication + upward problem-solving) is more significantly linked to training expenses and has a higher coefficient than less elaborate combinations (including only two categories of practices). Thus, the greater the investment in human capital, the more the firm relies on a multitude of practices to encourage employees to invest in 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. They come to the conclusion 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. Like any cross-sectional study there is a potential for reverse causality. The theoretical framework suggests that investments in human capital can be preserved using bundles of practices associating ESO and involvement practices, but it is also possible to envisage that investments in training are a necessary consequence of a choice on the part of 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. Furthermore, case studies would be useful in understanding the reasons managers implement ESO and how they try to protect investments in human capital. Finally, our study measures the presence or absence of ESO, but this offers no indication as to the share in the firm's capital held by employees. Yet the characteristics of a share-holding plan would have a strong influence on the nature of its effects. Thus the results of Pendleton and Robinson (2010) show that plans in which a majority of employees take part have an independent effect on productivity, while plans involving a minority of employees must be associated with involvement practices to have an effect on productivity. It would therefore be interesting to have more information in addition to REPOSE survey in order to refine our analysis of the complementarity nature of ESO and involvement practices. The challenge for future research would be to work with more precise information regarding employee share ownership plans in order to understand more fully the extent to which they can prevent hold-up problems linked to the development and protection of human capital.

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