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Access as a Motivational Device: Implications for Human Resource Management*

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Abstract

This paper analyzes the employment relationship on the basis of the notion of access. We argue that the degree of access provided by a job is an incentive to activate the employee's self-actualization needs. We investigate the effect of access on the workers' performance through an agency model and provide a number of propositions with practical implications for personnel policies. Our results are consistent with the intuition emerged from the real business practice as well as with many of the arguments on the substitutive role between monetary and non-monetary incentives frequently reported in the literature.

Key words: Access, Agency Theory, Employment Relationship, Intrinsic Motivation

JEL classification: D80, L20, J20.

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1. Introduction

Do intrinsically motivated people always work harder? Should jobs be always enriched? Should the remuneration of challenging jobs be closely contingent on performance? These queries are among the most salient issues in the field of human resource management and are of primary concern in real business practice. Likewise, there is an increasing interest in understanding the economic fundamentals of work-related issues, which has led to the development of the economics of personnel as a new field of research¹.

Economic analysis has made important contributions to the study of the employment relationship. Its chief propositions come from agency theory. In the principal-agent model, one party (the employee) agrees to undertake an activity in the interest of the other (the employer) in exchange of remuneration. The employee is averse to hard work so that he is willing to shirk in the absence of incentives that align the interests of both parties. Given that the employee is assumed to be exclusively induced by the remuneration provided by the employer, the setting of the appropriate monetary rewards becomes the central issue when designing employment contracts².

The basic economic analysis of the employment relationship is then based on the general assumption that economic actions are performed by self-interested individuals purely motivated by monetary incentives. Unlike psychologists (see Deci, 1975 and Staw, 1976 among others), economists have not given much importance to the fact that an employee may work for something more than just a paycheck.³ As a result, intrinsic motivation tends to be absent from the formal economic analysis. Furthermore, it is rarely recognized that self-interest is not always material.

However, as we will show in this paper, the assumption that people only react to monetary incentives does not provide a rich enough picture of the human behavior to permit one to discuss the nature, consequences and economic outcomes of the employment relationship. Moreover, it may result in misleading implications thus

¹ Lazear (1995) overviews the most significant advances in this field.

² See Prendergast (1999) for a comprehensive survey of this literature.

³ Some clear exceptions to this are the works of Frey (1992,1994,1997a,b), Kandel and Lazear (1992), Kreps (1997) and Casadesus-Masanell (1999).

narrowing the relevance of economic analysis to the study of practical human-resources issues.

In this paper we analyze the provision of incentives at work on the basis that the employment relationship is not solely an exchange of work for money. Particularly, in addition to a salary, a job also gives *access* to a work experience, which, as discussed in Section 2 below, determines the potential for employee's human capital acquisition and for his social and professional recognition. Accordingly, we argue that the level of access defines the employee's opportunities for satisfying his self-actualization and achievement needs. Further, given that the firm has the ability to regulate access by way of a number of organizational decisions, access becomes a powerful mechanism to activate the worker's internal motivation. We analyze the economic consequences of our arguments on access through a model of agency enriched with a number of psychological and organizational considerations. To that effect, we extend the pioneering model of Kandell and Lazear (1992) on peer pressure in partnerships to the analysis of the effect of access and intrinsic motivation on employee's performance and job's design.

Our results and conclusions are consistent with much of the interdisciplinary research on the subject, as well as with the evidence emerging from the real business practice. They also provide a number of practical implications for personnel policies. First, in order to activate the individual's internal motivation, the job requires to reach a minimum value. Second, the positive effect of the employee's intrinsic motivation on effort decreases with the magnitude of monetary incentives. Third, the efficiency gains generated by the extension of job's access increase with the employee's level of perceived risk. Finally, the costs of selection are a consequence of granting access.

The paper is organized as follows. Section 2 discusses the concept and the motivating function of access. Section 3 analyzes the outcomes of considering the motivational role of access in the traditional principal-agent context. Section 4 presents some results of comparative statics and establishes a number of propositions. Section 5 identifies the costs incurred in the process of giving access. A conclusions section completes the paper.

2. Access as a motivational device

The firm basically grants access every time it offers an employment contract. Thus, in addition to a salary, any job provides its occupant with one workspace, where the employee interacts with people and equipment, is integrated into a number of procedures, workflows and routines and exercises a given decision-making capacity. In other words, it offers a work experience through which the employee develops a number of operational, contextual and intellectual skills that produces both general and specific human capital. Consequently, the degree of access determines the opportunities for human capital acquisition from the on-the-job experience.

The notion of access as provider of experiences is also present in Rifkin (2000). This author argues that the Internet will give rise to a radical change in the way firms do business, as shifts their primary role from suppliers of physical goods to suppliers of access to experiences. Thus, in a “weightless” economy products are becoming indistinguishable from services, while experiences (not things) are marketed and sold and consumers are increasingly gaining access instead of property.

By contrast Rajan and Zingales (1998) use the notion of access to analyze the source of power in organizations. They define access as “the ability to use, or work with, a critical resource. If the critical resource is a machine, access implies the ability to operate the machine; if the resource is an idea, access implies being exposed to the details of the idea; if the resource is a person, access is the ability to work closely with the person” (p. 388). The authors argue that an employee who is given access has the ability to create a critical resource: his specialized human capital, for which the firm has not an easy substitute. Consequently, the employee’s control over this critical resource is a source of power that makes himself valuable within the organization.

In any case, the concept of access becomes especially significant in our time where the physical capital is being replaced by the human capital as the main source of value creation. Moreover, the firm regulates the degree of access that it gives to its employees through the organization of the production, which act on the workspace through the description and design of jobs. For example, the level of access within the context of mass-production is substantially lower than that provided by a flexible organization of production. Under a traditional work organization each job has a narrowly specified description and tasks are sharply differentiated across jobs. By

contrast, flexible production systems imply new work practices such as job rotations, self-managing teams and quality circles, designed to create multi-faceted employees with abilities to solve problems under a variety of contingencies⁴. Similarly, the broader job space provided by the so-called High-Commitment Human Resources Management (Baron and Kreps, 1999), provides a richer work experience and in consequence, greater opportunities to acquire human capital.

The opportunity to acquire human capital is not the only source of value that comes from access. It may also produce informative signals that are valuable to the employee because they enhance his visibility and with it, affecting his status through additional social and professional recognition. To the best of our knowledge, the term *visibility* within the context of access, has not been treated in the literature. In some type of organizations, the informative value of the access can be particularly important. For example, let us think in terms of a young journalist who is hired by a big TV network to present the news broadcast. Or a young actress who for the first time obtains the starring role in a worldwide launching movie. Or a football player or coach who signs up with a leading club in the Premier League. In all these cases, the revaluation of the employee's status is a consequence of the visibility provided by the employment.

The value of the enhanced visibility largely depends upon the contracting firm. For example, when a recent Ph.D. is hired by a prestigious university the value of the signal is itself very high because it is recognized that in order to belong to this university the candidate must be particularly brilliant. In general, reputable organizations create high-value jobs because of the information they provide about the employees' competence to occupy such jobs. Paraphrasing Rajan and Zingales (1998), a firm's reputation undoubtedly is a critical resource and employees of good-standing organizations are given the ability to use, or work with, this critical resource. In the same way, firms use the promotion policy to increase the access of their employees. In general, the higher the position in the hierarchy the higher the visibility of the employee's performance and consequently the higher the opportunities to improve his professional standing. At the same time, the promotion up the vertical hierarchy also

⁴ Aoki (1988), Koike (1994) and MacDuffie (1995) among others, analyze the abilities acquired by the employees under a flexible production system and its implications for firm's performance.

implies new tasks and responsibilities and, therefore, enhances the opportunities to acquire more human capital.

Our argument at this point is that when an individual is given a larger access then he may feel an internal pressure to take advantage of the opportunity of self-actualization that the job offers. As a result, the individual is willing to put a higher effort on his work to extract the job's full potential. Further, it seems reasonable to assume that a broader access also requires more effort to make good use of the wider range of possibilities that the employment provides. In order to illustrate this idea, let us consider an example from the academic world. Let us assume that a research group is designed to include both young and prestigious senior researchers. As a result, a young fellow is in closing contact with reputable researchers and exposed to their ideas and intellectual discussions; in other words, he is given access. In this working environment, the junior researcher recognizes that the greater his personal effort, the more he can take advantage of the knowledge and experience of his senior colleagues. In the same way, the higher the visibility and the recognition he can achieve. He may also experience some disutility if he does not work enough to take full advantage of the learning opportunity that the employment offers. This disutility reflects the job's value that the young researcher could have acquired but which, because of his scant personal effort, is in fact squandered.

In general, the broader the access the more it enhances the job's value in terms of its increased potential for the individual's self-actualization. Though most people have some disposition to improve themselves, the intensity of this motivation may vary across individuals. Hence the intangible worth of access is determined by the strength of the individual's achievement needs. The need for achievement is particularly relevant for the analysis of economic behavior and has been the subject of a number of studies that investigate its relationship with some economic issues such as the entrepreneurship (Andrews, 1967) and the economic growth (McClelland, 1961). The pioneering works by Maslow (1954) and Argyris (1957) also remark the importance of the individual's need of self-actualization in motivating human behavior. Murray (1938) describes the achievement attitude as "the need to accomplish something difficult, to master, manipulate or organize physical objects, human beings or ideas. To do this as rapidly and as independently as possible. To overcome obstacles and attain a high standard. To

surpass oneself. To rival and outdo others. To increase self-regard by the successful exercise of talent” (p.164).

These self-actualization and achievement needs are at the core of the individual’s intrinsic motivation to work. Hence, people may behave rationally and self-interestedly when they work hard, even without a clear economic reward. Access becomes a crucial mechanism to activate this source of intrinsic motivation because of the opportunities it provides for personal fulfillment. Of course, access serves to improve (or just to maintain) the worker’s employability and it might be claimed that this would lead to higher expected monetary rewards in the future. However, a higher employability also increases the possibility of achieving a more creative or stimulating future employment, even though badly-paid. Indeed, as Frey (1997a) points out, very often the distinction between intrinsic and extrinsic motivation is not clear-cut and in most cases the two motivations come together.

In summary, the higher the potential value that the job offers and the higher the effort required to achieve it. Then, if an individual with certain interest for his self-actualization put a low effort into his work, he incurs in a disutility because of the value he fails to achieve. Many studies have confirmed that people experience feelings from what they do⁵. Conversely, we focus on the feelings that people experience from what they do *not* do.

3. An agency model with access and intrinsic motivation

Under an agency contract the agent (the employee) agrees to act in the interest of the principal (the employer). The agent must execute an effort $e \in [0, \bar{e}]$ to undertake the activity. The principal cannot observe the effort that the agent puts into the job and only observes the employee’s outcome. Let $q = e + x$ be the agent’s output where x is the random variable that stands for the state of the world. Assume that x is normally distributed with zero mean and variance σ^2 . The agent is then paid according to $R(q)$. We assume the agent has the following utility function with a constant absolute risk aversion coefficient denoted by r :

⁵ Also, people have feelings for those they work with (Rotemberg, 1994).

$$u = -\exp \{-r (R(q) - C(e) - P(\mathbf{a}, \mathbf{d}, e))\} \quad [1]$$

where $R(q)$ is the remuneration function, $c(e)$ is the agent's cost of undertaking the activity and $P(\mathbf{a}, \mathbf{d}, e)$ is the pressure function.

The employee's disutility increases with effort $c'(e) > 0$ at an increasing rate $c''(e) > 0$. Without loss of generality let us assume that $c(e) = e^2$. Let $R(q) = \mathbf{w} + \mathbf{b}(e + x)$ be the remuneration scheme offered by the principal, where \mathbf{w} is a fixed payment and \mathbf{b} is a commission rate ($0 < \beta < 1$). Finally, $P(\mathbf{a}, \mathbf{d}, e)$ is a function of the degree of access $\mathbf{a} \in [0, 1]$ and the parameter $\delta \geq 0$ that captures the strength of the individual's achievement attitude. Following Kandel and Lazear (1992) the pressure is expressed as

$$P = \mathbf{d} [\hat{e}(\mathbf{a}) - e]^2 \quad [2]$$

In this expression $\hat{e}(\alpha)$ represents the benchmark effort that enables the individual to exploit the full potential embedded in a job with access α . As argued above, we assume that high-access jobs are more demanding in terms of the level effort required to achieve the job's potential value, so that $\hat{e}' > 0$, $\hat{e}(0) = 0$ and $0 < \hat{e}(1) \leq \varsigma$. Beyond that, the results of the paper are applicable to all functional forms of $\hat{e}(\alpha)$, irrespective of the sign of the second derivative \hat{e}'' .⁶

From this perspective, $\hat{e}(\alpha_0)$ can be interpreted as an indirect measure of the highest opportunities for self-actualization provided by an employment with a degree of access α_0 . Assuming some positive achievement attitude $\delta > 0$, lower levels of effort, $e < \hat{e}(\alpha_0)$, result in neglected opportunities for self-actualization and consequently the employee internalizes some utility losses. Therefore, the model recognizes the firm's ability to activate the employee's motivation for achievement through its decisions on access (α), which indirectly determines the benchmark effort/value of the employment $\hat{e}(\alpha)$. Similarly, the greater the personal interest for self-realization, the higher the pressure felt by the individual. In other words, a larger δ amplifies the employee's opportunity losses.

⁶ We could assume that the benchmark effort increases with access either at an increasing rate ($\hat{e}'' > 0$) or at a decreasing rate ($\hat{e}'' < 0$). For example, one possible formulation of $\hat{e}(\mathbf{a})$ could be given by $\hat{e} = \mathbf{a}^\lambda$ with $\lambda > 1$ representing the former case and with $0 < \lambda < 1$ the latter.

Pressure enters into the utility function as a minus because it represents the psychological cost of the unsatisfied need for achievement provided that $\delta > 0$. Note that $\delta = 0$ is the underlying assumption in the traditional agency model. Further, the functional form of $P(\cdot)$ in [2] should reflect the fact that the individual may experience disutility when deviating from $\hat{e}(\cdot)$ in either direction. Thus, reduced effort causes the loss of self-regard felt by the individual from failing to take advantage of an opportunity for personal fulfillment. By contrast, effort above $\hat{e}(\cdot)$ may indicate an insufficient level of access that causes employee's frustration because he feels he is wasting his career.

In our model, the pressure depends both on the strength of the individual's psychological characteristics and on the opportunities for achievement that the job offers. This formulation is consistent with the psychological view that the effect of personality depends on the particular context of behavior (Mischel, 1968). That is, both person (δ) and situation variables (the degree of access α) influence the employee's behavior.

On the other hand, this way of modeling is adapted from the Kandel and Lazear's (1992) pioneering analysis of peer-pressure in partnerships. However, unlike those authors' interpretation, in our presentation the pressure is self-imposed rather than social. This pressure arises without the need for team monitoring and it is only necessary that the individual feels a certain internal drive for his own growth and personal development. In this respect, we consider that individuals are exclusively motivated by selfish considerations –both monetary and non-monetary-, and not necessarily committed to any social norm or ethical standard⁷.

Incorporating the earlier formulation into [1], the certainty equivalent for a risk averse agent is given by

$$U = w + be - e^2 - (1/2)kb^2 - d[\hat{e}(a) - e]^2 \quad [3]$$

To simplify notation $r\sigma^2 = k$. Then, k represents the level of perceived risk by the agent.

As in most of the literature, the employer is assumed to be risk neutral. Thus his certainty equivalent of effort e is given by the expected outcome less the employee's expected remuneration:

$$V = e - (w + be) \quad [4]$$

⁷ See Casadesus-Masanell (1999) for an analysis of the effect of social norms and ethical standards.

In this context, given that the principal cannot observe the agent's effort e , the agent chooses the level of effort that maximizes his utility. The first-order condition for employee's utility maximization implies the agent's incentive compatibility constraint:

$$e = \frac{\mathbf{b} + 2d\hat{e}(\mathbf{a})}{2(1+d)} \quad [5]$$

The principal should maximize his expected utility by choosing the remuneration parameters \mathbf{b} and ω , as well as the degree of access \mathbf{a} . Further, he has to take into account the consequences of the contract he offers on agent's decisions, which requires the inclusion of the agent's incentive compatibility and participation constraints in the principal's problem below

$$\begin{aligned} \max_{\mathbf{a}, \mathbf{b}, \omega} V &= (1 - \mathbf{b})e - \omega \\ \text{s.t.} \\ U &= \omega + \mathbf{b}e - e^2 - \frac{1}{2}k\mathbf{b}^2 - d[\hat{e}(\mathbf{a}) - e]^2 \geq U_0 \\ e &= \frac{\mathbf{b} + 2d\hat{e}(\mathbf{a})}{2(1+d)} \end{aligned} \quad [6]$$

The participation constraint states that the contract must allow the employee to achieve a level of expected utility at least as great as U_0 , which is the utility he would get from working elsewhere. Without loss of generality we assume that $U_0 = 0$.

The resulting equilibrium contract $\{\hat{e}_\alpha^*, \beta_\alpha^*, \omega_\alpha^*\}$ is shown in Table 1, together with the effort the agent actually executes e^* , which is computed by introducing the optimal values \mathbf{b}_α^* and \hat{e}_α^* into the agent's incentive compatibility constraint. The total certainty equivalent $W = V + U$ of the relationship is shown in the last column. Table 1 also reports the results obtained under the standard agency contract and those of under the assumption of perfect observability of effort.

[Table 1 about here]

The results in Table 1 reveal that the employer should set an access coefficient that determines a benchmark effort equal to the efficient effort ($\hat{e}_\alpha^* = 1/2$). Concerning the remuneration parameters, the employer sets a smaller variable commission ($\beta_\alpha < \beta_s$) and a higher fixed payment ($\omega_\alpha > \omega_s$) than those offered in the standard agency contract.

The immediate effect of this compensation schedule is the reduction of the agent's risk costs.

Further, provided that $\delta > 0$ the effort the employee executes is higher ($e_\alpha > e_s$). Though the first best is never attainable because of the unobservability of the effort, giving access reduces the inefficiency of the standard model of agency ($W > W_a > W_s$). Finally note that as δ approaches ∞ (0) the solution becomes the first best (the standard model): the employee executes the efficient effort $e = 1/2(e = e_s)$, the maximum total welfare would be achieved $W = 1/4$ ($W = W_s$), and the principal might eventually remove the monetary incentive $b=0$ (increase to $b=b_s$).

4. Comparative statics and implications

In this section we perform an analysis of comparative statics in order to obtain a number of propositions with clear practical implications for human resources policies.

Proposition 1. *Employees with positive achievement attitude ($d > 0$) will put a lower level of effort into a low-value job than those employees with no needs of achievement ($d = 0$).*

According to the agent's incentive compatibility constraint in expression [5] above, when access $\alpha = 0$ and $\hat{e}(0) = 0$ then $e = b / [2(1+d)]$.

The intuition behind Proposition 1 is straightforward: with a lack of access any effort exerted by an intrinsically motivated employee is doubly onerous. On the one hand, he feels the “physical” cost of the effort. On the other hand, the psychological cost caused by the dissatisfaction of working in a job that does not give him any opportunity to fulfil his expectations. By contrast, employees without any internal urge to excel themselves - as assumed in the standard model of agency- only incur the physical cost of their work experience.

Proposition 2. *The higher the individual's achievement attitude the higher his effort, provided that the value of the job reaches a minimum level.*

From [5], it is easy to see that

$$\frac{\partial e}{\partial d} = \frac{2\hat{e}(a) - b}{2(1+d)^2} > 0 \text{ only if } \hat{e}(a) > \frac{b}{2} \quad [7]$$

The proposition highlights Frey's (1994) reasoning that the more interesting a task is for the agents, the higher is their intrinsic motivation to perform well. For the same reason, hidden, narrow and repetitive work, such as might be the typical monotonous and routine job of a traditional production line, would not arouse such motivation.

Proposition 3. *The setting of high monetary incentives can undermine or "crowd out" the power of the employee's intrinsic motivation*

A look at expression [7] above shows that the positive effect of the internal motivation on effort decreases with the extrinsic incentives (β). Consequently, if the firm sets high-powered extrinsic incentives it does not exploit the potential embedded in the intrinsic motivation. The trade-off between extrinsic incentives and internal motivation can also be confirmed in the determination of the optimal commission b_a^* by noting that it decreases with the agent's internal motivation ($\partial b_a / \partial d < 0$).

Our results are then consistent with the arguments on the substitutive role of both kinds of incentives (Frey 1997b; Kreps, 1997). In this respect, employees in high-value jobs should not be provided with extensive monetary incentives since it can lead to lessened levels of effort and lower net profits for the employer.

Proposition 4. *People with weak needs for achievement react more intensively to the monetary incentives than those with a strong internal urge to excel themselves.*

From $\frac{\partial e}{\partial b} = \frac{1}{2(1+d)} > 0$ we see that the increase of the level of effort generated by increasing monetary incentives is smaller as the higher is the individual's internal motivation.

Proposition 5. *The efficiency gains generated by the introduction of access increase with the agent's level of perceived risk.*

This follows from $\frac{\partial (W_a - W_s)}{\partial k} > 0$. The riskier the employee's perception of the environment the more costly are monetary incentives and the more profitable is broadening access to extract effort through intrinsic motivation.

Intuitively, in a dynamic and uncertain environment knowledge can quickly become obsolete. In such a context, the broader access granted by the firms with high

commitment work organization systems provides the employee some degree of security by offering the possibility to update his knowledge and to maintain his level of employability.

5. Access and the cost of selection

For the present we have highlighted the implications of giving access for the design and the outcome of the employment relationship. Particularly we have shown the increase of the employee's effort as a consequence of the motivational effect of access. However, one important research question still remains: is always in the employer's interest to give access? Is there any cost associated to access? If so, which is the nature and the amount of such costs? In this section we further examine all these issues.

Let us suppose one employer recruiting an employee. The employer cannot directly observe the type δ of the employee, i.e. the individual's psychological characteristic δ constitutes his private information. Assume there are only two possible values for δ : $\delta_1 = 0$ and $\delta_2 = \bar{a} > 0$. In the following, we will call motivated the employees of type 2 and *apathetic* the employees of type 1. The employer has to decide which employment contract offers to the candidate. On the one hand, he can propose the standard agency contract with restricted access and the standard remuneration schedule $\{0, \beta_s, \omega_s\}$ reported in Table 1. Alternatively, he can offer an employment with access and with the remuneration parameters corresponding to a type 2 employee with $\delta_2 = \bar{a}$ $\{1/2, \beta_a, \omega_a\}$.

Proposition 6. *The standard agency contract self-selects workers: it only attracts apathetic workers and keeps the motivated ones away.*

If the employer offers a standard contract and the employee is of type 1, the relationship will result in the standard agency outcome (U_1, V_1) , as reported in the top left square in Table 2. In contrast, the standard contract would derive a negative utility (U_2) for an employee of type 2, even though he would execute a lower effort than that of the apathetic worker, i.e. $e_2 < e_1$. The motivated employee would never accept such a contract and the employer's utility becomes $V_2 = 0$.

[Insert Table 2 about here]

Proposition 7. *From the perspective of the employee, access is always welcome both from the motivated workers and from the apathetic workers.*

Unlike the previous case if the employer offers $\{1/2, \beta_\alpha, \omega_\alpha\}$ both employee types are willing to accept the contract since $U_3 > 0$ and $U_4 = 0$ in Table 2. Moreover, it is preferable to the standard contract since $U_3 > U_1$ and $U_4 > U_2$.

The employer makes the highest profits (V_4) and extracts the highest level of effort ($e_4 > e_1 > e_3 > e_2$) when he offers $\{1/2, \beta_\alpha, \omega_\alpha\}$ and the worker is of type 2. Nevertheless, if the worker is of type 1 he makes lower profits than by offering a standard contract ($V_4 > V_1 > V_3$). Therefore, the employer would be willing to offer $\{1/2, \beta_\alpha, \omega_\alpha\}$ only if he is able to distinguish between the two types of workers. In other words, the determination of δ becomes crucial when granting access. The absence of employee's self-selection stated in Proposition 7 obliges the employer to invest in selection tasks in order to identify the worker's type.

Given that the intensity of the achievement attitude may vary substantially across individuals, procedures to measure the individual strength of this attitude occupy a central role in the selection procedures.⁸ This reasoning is also coherent with the value that firms with high-access practices attach to hire employees who exhibit a high capacity and willingness to learn (Baron and Kreps, 1999). Note that with the standard contract selection is irrelevant because employees self-select ($U_2 < 0$).

Proposition 8. The maximum cost an employer should incur in the selection procedure is given by the difference between the utility he achieves by giving access to a motivated employee and that obtained with a restricted-access contract, that is:

$$V_4 - V_1 = \frac{k^2 \bar{d}}{(1+2k)[1+2k(1+\bar{d})]} \quad [8]$$

A look at [8] reveals that the higher the employee's perceived risk and the higher the motivation the firm is looking for, the more is the firm willing to spend in the selection tasks.

⁸ According to Antonides (1996), the most important instrument to measure the need for achievement is the *Thematic Apperception Test*.

6. Conclusions

Currently many firms are seeking to build their competitive advantage on the basis of the excellence of their human resources. This strategy has led to the increased saliency of new systems for work organization and human resource management amongst the firms operating in the USA and the EU throughout the 1990s (Osterman, 2000; ILO, 1999). A crucial consequence of such organizational innovations is the rise in the degree of access that firms give to their employees. In this paper we have argued that this practice activates a different motivation from the purely monetary. Particularly, a broad-access job allows the employee to satisfy his self-actualization needs by offering a chance to update his human capital and/or to increase his professional standing.

Through an agency model we have showed that there are efficiency gains to be achieved by increasing access to intrinsically motivated individuals. Additionally, we have showed that high-access jobs should not be paid with extensive variable payments because of the existence of a trade-off between monetary and non-monetary incentives. Likewise, the agent's personal characteristics are crucial to get the results that the model anticipates. The risk of giving access to the wrong candidate –i.e. to a non-motivated employee, constitutes the essence of the costs associated to the task of recruiting and personnel selection. These findings highlight the complementarities between (i) the design of the workplace and the employee's compensation, and among (ii) these two and the selection process. On the other hand, they justify the central role played by the selection procedures in those firms that adopt high-commitment human resources practices.

In summary, the paper has confirmed many of the arguments about the trade-off between intrinsic and monetary incentives. Additionally, we have formulated a number of propositions about personnel policies that are subject to be tested empirically, which justifies further research.

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Table 1. Summary of results

	$\hat{e}(\mathbf{a})^*$	e^*	\mathbf{w}^*	\mathbf{b}^*	W^*
First best contract	0	$e = 1/2$	1/4	0	1/4
Standard Agency Contract	0	$e_s = \frac{l}{2(1+2k)}$	$\mathbf{w}_s = \frac{2k-1}{4(1+2k)^2}$	$\mathbf{b}_s = \frac{l}{(1+2k)}$	$W_s = \frac{l}{4(1+2k)}$
Agency contract with access	1/2	$e_a = \frac{l+2kd}{2[l+2k(1+d)]}$	$\mathbf{w}_a = \frac{2k-1+4k^2d(1+d)}{4[l+2k(1+d)^2]}$	$\mathbf{b}_a = \frac{l}{1+2k(1+d)}$	$W_a = \frac{l+2kd}{4[l+2k(1+d)]}$
		$e > e_a > e_s$	$\mathbf{w} > \mathbf{w}_a > \mathbf{w}_s$	$\mathbf{b}_s > \mathbf{b}_a > \mathbf{b}$	$W > W_a > W_s$

Table 2. The decision of broadening or restricting access.

	$\delta_1 = 0$	$\delta_2 = \bar{\alpha} > \delta_1$
Standard contract $\{0, \beta_s, \omega_s\}$	$e_1 = \frac{I}{2(I+2k)}$	$e_2 = \frac{I}{2(I+2k)(I+\bar{d})}$
	$U_1 = U^0 = 0$	$U_2 = -\frac{\bar{d}}{4(I+2k)^2(I+\bar{d})} < 0$
	$V_1 = \frac{I}{4(I+2k)}$	$V_2 = \frac{I-2k(\bar{d}-I)+\bar{d}}{4(I+2k)^2(I+\bar{d})}$
Access contract $\{1/2, \beta_\alpha, \omega_\alpha\}$	$e_3 = \frac{I}{2[I+2k(I+\bar{d})]}$	$e_4 = \frac{I+2k\bar{d}}{2[I+2k(I+\bar{d})]}$
	$U_3 = \frac{k^2\bar{d}(I+\bar{d})}{[I+2k(I+\bar{d})]^2} > 0$	$U_4 = U^0 = 0$
	$V_3 = \frac{I+2k[I-2\bar{d}(-I+k+k\bar{d})]}{4[I+2k(I+\bar{d})]^2}$	$V_4 = \frac{I+2k\bar{d}}{4[I+2k(I+\bar{d})]}$

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