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ABSTRACT

The Diffusion of Pay for Performance across Occupations*

In this paper the differences in the incidence of pay for performance plans between occupations in a sample of Spanish manufacturing establishments are analyzed. Our results show that there are significant differences between occupations in the incidence of individual, group and firm or plant pay for performance plans. The roles of establishment size, multinational ownership and the human resources management department in the incidence of pay for performance plans and their variability of use across occupations within the same firm are also studied. These factors are found to correlate to a greater use of pay for performance and, in most cases, this effect is homogenous across occupations.

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Introduction

The approaches to human resource management (hereafter HRM) and the employment practices adopted by employers change over time, as the circumstances that surround organizations evolve. In recent years, firms are facing an increasingly global and competitive business environment, as well as unpredictable and rapidly changing product markets. Hence, they need to look for HRM strategies that, on the one hand, are innovative and provide them with a source of competitive advantage and, on the other, leave scope for flexibility in order to adapt to changing circumstances. As a result, certain HRM practices are gaining popularity among employers. One of these practices is pay for performance (see Brown and Heywood, 2002), which is considered to improve organizational outcomes by enhancing employee motivation and identification with the objectives of the firm, and by promoting the sense of fairness among employees (see Pfeffer, 1998). Moreover, pay for performance also enables flexibility within the firm's reward system, making it easier to adapt to changing circumstances as required.

When designing their HRM systems, organizations have to decide not only which practices they are going to adopt, but also how they are going to implement them. One of the dimensions of the process of employment practices implementation concerns their diffusion among different occupational groups of workers. While there is extensive literature on the adoption of HRM practices by organizations, less effort has been made to discern and compare the application of these practices to different occupational groups of workers. Werner and Ward (2004) have already indicated the significance of developing this area of research. .Following a comprehensive review of the literature on compensation-related issues, they concluded that there are numerous topics within the field that require further study. In particular, they asserted that little research had addressed payment system differences between groups of employees

Despite being an underdeveloped issue, the diffusion of HRM practices among occupations has been indirectly tackled in the past. Hence, some studies assume that HRM practices are uniformly applied to the entire workforce within an organization (see, for example Huselid, 1995; or Snell and Dean, 1992). Other analyses focus on the examination of the implementation of these practices for a

certain occupation, wherein the "core" or largest occupational group within the organization is most frequently considered (see, for example, Batt, 2002; or Forth and Millward, 2004).

However, a body of research that advocates the differential application of HRM practices to different types of jobs has emerged in recent years. This stream of research maintains that the specific contributions of different groups of employees to the objectives of the firm result in variability in the application of HRM practices among them. Lepak and Snell (2002) highlight the importance of this line of argument when they point out that "in order to study strategic HR at an organizational level, however, researchers have tended to aggregate—both conceptually and empirically—all employees as though they were managed with a single (or at least dominant) HR configuration. While such aggregation adds parsimony, we would argue that doing so masks potentially important aspects of how different *employee groups* are managed strategically". Regarding the diffusion of pay practices, the existing literature focuses mainly on analyzing the consistency of wage levels across different types of jobs within companies. This literature suggests that employers apply a consistent pay standard to the entire workforce, paying either high or low wages to every occupation (see, for example, Groshen and Krueger, 1990; Bronars and Famulari, 1997; Cardoso, 2000; Gerlach and Stephan, 2006).

In light of recent developments in the field, the objective of this paper is to contribute to the analysis of the use of pay for performance systems, paying particular attention to their diffusion among groups of workers. Two questions are addressed in this regard.

First, to what extent does occupational category influence the implementation of pay for performance systems within establishments? Two streams of research that could contribute to an understanding of the implications of occupation for the use of pay for performance are identified. On the one hand, the best practices approach, the internal pay equity argument introduced by Bewley (1999), the positive effects brought by economies of scale and the bargaining theory support the existence of a significant connection in the application of variable pay across different types of jobs. From these models, it may be inferred that occupational status is not a significant determinant in the use of pay for performance. On the other hand, the line of research followed by authors such as Lepak and Snell (2002), Melian-Gonzalez and Verano-Tacoronte (2004 and 2006) and Lepak et al. (2007) provides evidence in favor of the idea that the use of HRM practices for different jobs depends on their

specific contribution to the objectives of the organization, which suggests that occupation certainly influences the adoption of pay for performance systems within establishments.

The second question concerns whether or not the use and variability of use between occupations of pay for performance are influenced by factors such as the size of the establishment, the presence of a human resource department and foreign ownership. Recent literature on the determinants of the use of pay for performance points to these variables as important determinants in its implementation. Thus far, research in the field has centered on analysis of the factors that determine the use of pay for performance for a particular occupation or for the whole workforce within an organization. We intend to go a step further and examine not only how the factors mentioned shape the use of pay for performance, but also if the effect of the establishment size, the existence of a HRM department and belonging to a foreign company vary across occupations within the same firm.

The analysis is based on a newly-created Spanish data set on HRM practices, which originated in a survey conducted in 2006 for a representative sample of Spanish manufacturing establishments. The data constitutes a unique source of information about a range of employment practices in Spanish organizations, and about pay for performance in particular. The major advantage of using this data set is that it contains information on the use of pay for performance for various occupational groups of workers within the same establishment. Our empirical strategy consists of studying the determinants of the use of any pay for performance, as well as three particular systems: pay linked to individual performance, group performance and plant or firm performance. The following occupations are considered: production workers, top executives, professionals, administrative workers, middle managers and sales employees.

The paper is structured as follows. The next section examines the theoretical arguments that shed some light on the diffusion of HRM practices and, specifically, on the diffusion of pay for performance for different occupational groups of workers. In the third section, the existing empirical literature on the diffusion of HRM practices across groups of workers is summarized. Then the lines of reasoning concerning the influence of firm size, HRM department and multinational company are reviewed. In section five, the data set used to perform our empirical analysis is described. The sixth

section presents the results of the empirical analysis, and the seventh section comprises a set of conclusions.

Theoretical approaches to the diffusion of pay for performance across occupations

Despite the fact that literature on the topic is scarce, we can gain an insight into the diffusion of HRM practices through the examination of related bodies of research. Hence, some theoretical approaches to HRM suggest that work practices are uniformly applied to the entire workforce within an organization. One of these is the *best practices approach*, which defends the universality of high-involvement practices (see Pfeffer 1998, among others). According to this literature, there is a set of practices whose adoption generates benefits for organizational performance irrespective of the particular characteristics of the firm; pay linked to performance is one such practice. From this perspective, it can be inferred that pay for performance will be homogeneously implemented across occupational groups of workers.

The argument of *internal pay equity* considered by Bewley (1999) also helps us to shed light on the diffusion of pay practices within establishments. The author holds that employees take their colleagues' pay into consideration when demanding their wages, which results in firms imposing internal equity pay structures. These structures consist of "both uniformity in the application of rules setting pay and a set of beliefs about fair relations between pay and its determinants" (Bewley, 1999:70), and result in enhanced employee morale.

An *economies of scale* point of view can also help us to understand the pattern of pay for performance use within establishments. The adoption of these systems implies the assumption of fixed costs in implementation. If they are applied to more than one group of workers, the fixed costs can be spread over more employees. Therefore, it is plausible to conclude that establishments may be more inclined to adopt a pay for performance scheme if they can apply them to various occupations. Similarly, establishments that have already carried out a pay for performance plan for an occupation will find it easier to extend it to other groups of workers (see Jirjahn and Stephan, 2004).

According to the *bargaining theories* of wage determination, if an organization generates rents and employees possess some bargaining power, they can fight for a share of those rents. As stated by

these theories, it is possible that the worker's power to appropriate firm rents leads to a high correlation in the level of wages between occupations. This may be due, for example, to the fact that the bargaining power of workers is uniform across job categories, or that employees band together in order to exert more pressure on the employer (see Groshen, 1991). A dimension of the bargaining theory that is relevant for our analysis is the influence that trade unions have on the implementation of pay for performance. It is often argued that trade unions oppose the discriminatory application of pay systems across employees, which suggests that they will favor the uniform adoption of pay practices for different occupations.

A contrasting perspective advocates the differential application of HRM practices to different groups of workers. This line of research maintains that the specific contributions of groups of employees to the objectives of the firm result in variability in the application of HRM practices within organizations. Among the existing studies in this field, the work of Lepak and Snell (1999) is worth mentioning. These authors made use of the human capital theory, the resource-based view of the firm and transaction costs economics to support the idea that the practices of HRM applied to a group of employees depend on the particular features of the group. Their argument may be explained as follows. The human capital of an organization can be classified according to their value and uniqueness to the firm, which results in the establishment of different employment modes within the organization, each of which is associated with a particular type of employment relationship. As a result, organizations apply specific HRM practices to each group of employees within the firm depending on the employment relationship established between the group and the employer. One of the dimensions of HRM that is specifically cited by Lepak and Snell (1999) concerns compensation issues. In line with this argument, Baron and Kreps (1999) defend the need to design appropriate compensation systems for the different occupational groups of workers present within organizations. The authors stated that the determination of the level, basis, distribution and form of compensation often involves formal job analysis and evaluation, because each job is characterized in terms of various common dimensions and distinctions, such as the types and complexity of knowledge required, the number of employees supervised, the amount of capital overseen, the type and unpleasantness of working conditions, and so on. Overall, this stream of research suggests that we

might find differences in the implementation of pay for performance across occupational groups of workers due to their different contributions to establishment performance and their specific attributes and functions within the organization.

Review of the empirical evidence on the diffusion of HRM practices across occupations

In this section, we summarize existing evidence of the diffusion of HRM practices across groups of workers. In order to gain more insight into the diffusion of pay practices in particular, considerable attention is paid to the research that has focused on the consistency of wage levels within organizations.

Lepak and Snell (2002) tested the proposition that HRM practices are differentially applied when managing employee groups due to their particular value and uniqueness to the firm. As they pointed out in a previous study (see Lepak and Snell, 1999), these particularities give rise to different HRM configurations across groups of workers. In order to test this assumption, the authors used data from 148 publicly traded companies in order to compare how HRM practices were used when managing groups of employees that contributed in different ways to organizational competitiveness. The results obtained showed that the implementation of HRM systems varied across groups, which reinforced the hypothesis that the value and uniqueness of a group of workers influence its HRM configuration.

Lepak et al. (2007) empirically tested how HRM systems are applied when managing two different groups of workers within firms. The authors distinguished between those workers that contribute directly to the execution of organizational objectives, who were referred to as *core employees*, and those that help them to achieve the objectives, who were described as *support employees*. The main purpose of this work is to verify whether the implementation of high-involvement HRM systems was always greater for core employees in comparison with support workers or, alternatively, if the relative use of this managerial approach between the two groups depended on the business strategy, the human resource philosophy and the industry sector to which the firm belonged. The authors found no evidence in favor of the first hypothesis, while their results

revealed that the industry sector influenced the use of high-involvement HRM systems for the two groups of workers in comparative terms.

Melian-Gonzalez and Verano-Tacoronte (2004, 2006) argued that, contrary to the universalistic view proposed by the best practices approach to HRM, the system of HRM practices adopted by a firm depends both on external factors and on internal contingencies. More precisely, they pointed out that the practices listed by many authors as being beneficial for organizational performance were certainly used by firms, but they specified that the implementation of those practices might vary across jobs with different attributes. Using questionnaire information obtained from human resource managers in Spanish companies, they compared the application of best human resource practices for four groups of employees, which were classified according to their value and uniqueness to the firm. The results obtained showed significant differences among groups, which contradicts the universalistic approach to HRM. As for compensation systems, their results showed that the use of pay for performance was not uniform across types of jobs.

We now turn to the examination of studies that analyze the consistency of pay levels across groups of workers within organizations. Exploring United States data on wage structures taken from the Bureau of Labor Statistics, Groshen and Krueger (1990) found the existence of an important correlation among groups of workers. In particular, they assessed the salaries of nurses, food service workers, physical therapists and radiographers, concluding that if a hospital paid high wages to one of these groups in comparison with other hospitals, it would pay relatively high wages to the other occupations, and vice-versa.

Bronars and Famulari (1997) used data on white-collar workers from the Bureau of Labor Statistics in order to analyze variation in wages within and across establishments. In particular, two categories of employees were examined: professional employees, which include managers and administrators, and non-professional, referring to technical and clerical workers. The authors noted the existence of positive and significant correlation coefficients between the relevant occupational groups across establishments, which reinforces the predictions of team production theories.

Cardoso (2000) examined the uniformity of pay levels in Portuguese firms using information on well-defined and very contrasting occupations. The job categories chosen for the analysis were

computer systems analyst, telephone switchboard operator, secretary, janitor and chauffeur, which comprise a variety of tasks, different industries, typically male and female professions, blue and white collar occupations and various required qualifications. Controlling for workers' human capital characteristics, the hypothesis of the existence of a consistent pay level within firms was supported by the empirical results. Moreover, the author detected the existence of clusters of occupations whose wages were strongly connected. In particular, correlations were higher between similar occupations and between occupations that required lower skills, whereas the wages of more qualified workers did not usually match the pay policy of the firm.

A recent study by Gerlach and Stephan (2006) investigated the stability of wages among occupations and how the internal structure of pay was affected by the mechanism of wage determination using a German data set. The authors considered seven categories of workers that require different levels of qualification: trained office clerks, transport workers, storekeepers, millwrights, electricians, trained wholesale or retail salespeople, and mechanical engineers. Their results supported the consistency of wage policies within firms, even after controlling for occupational and firm characteristics.

The determinants of pay for performance

Previous research has shown that establishment size, the presence of a HRM department and belonging to a multinational company may be important determinants of the employer's decision to adopt pay for performance plans. Regarding the impact of establishment size, there is no consensus among researchers on the direction of its influence. On the one hand, the fixed costs of implementing a pay for performance scheme are spread over more employees when the establishment is large, supporting the idea that the likelihood of implementing such system will increase with the size of the establishment. Moreover, large establishments more frequently own or have access to the technology and knowledge necessary to develop pay for performance plans (see Long and Shields, 2005). On the other hand, monitoring worker effort is more complicated in large workplaces than in establishments of a smaller size, which might favor the adoption of schemes based on collective results, whereas those systems linked to individual performance are more likely to be implemented in small

establishments (see Belfield, 2007). We can expect, then, that the influence of the size of the establishment varies depending on the compensation system taken into account. Besides being influential in shaping the adoption of pay for performance, it is plausible to think that the impact of the size of the establishment varies across occupations. Hence, monitoring workers' effort could be more difficult for certain groups of workers than for others. As a consequence, it is possible that the effect of the size of the establishment on the adoption of pay for performance is stronger for some occupations.

In addition, the literature on HRM has found evidence in favor of the idea that the presence of a department dealing with HRM issues in an organization has a bearing on the implementation of HRM practices. In particular, the existence of a HRM department might facilitate the adoption of sophisticated practices such as pay linked to performance (see Shaw et al., 1993). Moreover, it could contribute to the success of pay for performance through the establishment of close employer-employee relationships. This prompts the conclusion that the use of contingent compensation schemes will be more likely in those establishments where a HRM department is present. The existence of a HRM department indicates that the establishment considers human resources to be a fundamental asset, as well as one of the determinants of its success or failure. Employers will design their pay policies in accordance with this philosophy. In other words, they will manage human resources groups, paying considerable attention to their particular features and contributions to organizational objectives. Consequently, we can expect that the influence of the HRM department is contingent on the occupation being taken into consideration.

Finally, as multinational companies operate in different countries, they can encounter diverse institutional settings. The fact that they operate in an international context facilitates the acquisition of the experience and resources needed to implement a wider range of practices, and makes it possible to develop more complex HRM systems. Moreover, certain practices employed in the parent firm are transferred to its subsidiaries (see Walsh, 2001). As a result, it is possible that foreign-owned companies spread the use of pay for performance among their branches, making the use of these systems more likely in comparison with domestically-owned establishments. Since multinational corporations encounter diverse institutional settings, they have access to extensive knowledge concerning HRM. Consequently, they may implement more sophisticated HRM systems, which could

consist of a differential adoption of HRM practices across occupational groups of workers. It is possible, then, that differences may be observed in the influence of the multinational variables on the use of pay for performance among occupations.

Data and Variable Description

The data was gathered in 2006 through personal interviews with managers in Spanish manufacturing plants with fifty or more employees, and represents a unique source of information about a range of human resource practices in Spanish firms. Information was collected at the plant level, as this is the unit at which decisions about the implementation of the practices of interest are taken. Furthermore, knowledge of the issues included in the questionnaire is expected to be greater at plant level and, as a consequence, the data obtained should be more reliable.

The process of development of the data base was as follows. Once the objectives and scope of our study were defined, and in order to properly design the questionnaire, a thorough examination of the literature related to the purpose of the project was carried out. With the information gathered, a first draft of the questionnaire was drawn up jointly by the members of the research group and the firm in charge of the fieldwork. The questionnaire was pre-tested in nine plants and then modified in several ways to come up with its final version.

The final version of the questionnaire consists of 152 questions grouped in the following eight sections: General Characteristics of the Plant and the Firm, HRM, Payment Systems, Work Organization, Human Resource Outcomes, Human Resource Function, Other Groups of Workers and Characteristics of the Plant Manager. The data was drawn from personal interviews with one of the managers at the plant. It was thought that questions should be addressed to the general manager or to the human resource manager. In practice the human resource manager was the figure most frequently interviewed.

The range of potential respondents for the purposes of the survey comprised all Spanish manufacturing establishments which had fifty or more employees in 2005. The aim was to obtain a sample of one thousand units, in order to arrive at conclusions that could be extrapolated to the entire Spanish manufacturing industry. After stratification by sector, size and location, a random selection of

workplaces was obtained from the Spanish Central Directory of Firms (Directorio Central de Empresas, DIRCE) of the Spanish National Statistics Institute (Instituto Nacional de Estadística, INE), using data from 2005.

The interviews with those managers that agreed to answer our questionnaire were performed by specially-trained professionals in computer-assisted telephone interviews (CATI). The establishments were first approached by letter or email, indicating the goals of the survey and including a copy of the questionnaire. The final sample comprises 1,001 establishments, which matches expectations regarding the size of the data set and yields a response rate of 34.1 per cent. The distribution of the establishments sampled across industrial sectors and size intervals is described in Table 1.

As dependent variables, we consider the general use of pay for performance as well as three particular schemes: pay based on individual performance, pay based on group performance and pay based on plant or firm performance. The pay for performance variables capture whether most of the employees of the occupation under consideration received pay linked to performance in 2005. Since the dependent variables are dichotomous, logit models are used.

Our sample contains information on the use of pay for performance for six occupational groups of workers, which are representative of the hierarchical structure of a typical manufacturing establishment: production workers, top executives, professionals, administrative employees, middle managers and sales workers. For the purposes of our study, the data for the six occupations is pooled.

Two groups of variables are included in the regressions as explanatory factors. The first set comprises the six dummies that make reference to the occupational group. The production workers category is taken as a reference in the analysis. In addition, three variables that represent significant establishment features are accounted for. These variables are the size of the establishment, membership of a multinational corporation and the presence of a specific department dealing with HRM. The size of the establishment is represented by three dummies: Small size (which takes value one if the establishment has between 50 and 99 employees, and zero otherwise), Medium size (which takes value one if the establishment has between 100 and 499 employees, and zero otherwise) and

Large size (which takes value one if the establishment has 500 or more employees, and zero otherwise).

Prior to estimating the equations of interest, we examine the incidence of pay for performance for each occupational category of workers (see Table 2). In the first column, we observe that sales employees is the group that most frequently receives pay for performance (63.0 per cent of workplaces), followed by top executives (54.9 per cent of workplaces), middle managers (44.0 per cent of workplaces) and professional workers (42.4 per cent of workplaces). Production workers (31.0 per cent of workplaces) and administrative workers (25.0 per cent of workplaces) close this classification. The use of pay for performance based on individual output reproduces the same pattern, with sales workers occupying the top position (49.3 per cent of workplaces) and administrative workers coming in last place (14.2 per cent of workplaces). With regard to the implementation of pay for group performance, the ranking of employees receiving this type of compensation changes in relation to the previous scheme. The top executives' occupation shows the highest frequency of pay for performance use (15.3 per cent of workplaces). Our data reveals that the percentage of workplaces using group performance pay is quite similar for each occupation, with figures that vary between the 15.3 per cent for top executives and the 11.4 per cent for sales workers. The administrative workers category is an exception in this regard, displaying a very low diffusion of this type of scheme (6.9 per cent of workplaces). As far as plant or firm pay for performance is concerned, it may be noted that the use of this system is greater for high-hierarchical occupations and diminishes for workers lower on the hierarchical scale. Hence, top executives are the occupation with the highest incidence of this pay for performance scheme (27.2 per cent of workplaces), followed by professionals (17.7 per cent of workplaces), middle managers (16.2 per cent of workplaces) and sales workers (14.0 per cent of workplaces). At the lower end of the classification are administrative workers (10.2 per cent of workplaces) and production workers (9.7 per cent of workplaces). An observation that is worth mentioning is the similar pattern followed by professional workers and middle managers regarding the use of the various schemes of pay for performance.

Results and Discussion

In what follows, the results of the empirical analysis are described. Tables 3 to 6 present the results of the estimated regressions for the general use of pay for performance as well as the three particular systems analyzed. Each table includes four models: the first one accounts for the occupational dummies and the establishment characteristics as explanatory variables, and the other three models include the interactions between the occupational variables and the size of the establishment (Model 2), belonging to a multinational company (Model 3) and the HRM department (Model 4). We have chosen to include the interaction terms of each variable separately in order to facilitate the interpretation of the results and avoid a potential problem of multicollinearity that may bias the estimated coefficients.

Regarding the use of any pay for performance (see Table 3), the coefficients for the occupational dummies are all highly significant and, with the exception of the administrative workers category, of a positive sign. The high significance of the results supports the idea that occupation is a relevant determinant of pay for performance use. The sign of the coefficients indicates that, with the exception of administrative employees, the remaining occupations have a higher probability of receiving pay for performance in comparison with production workers. In order to gain more insight into the influence of the occupational variables, Wald tests of equality between pairs of occupations were carried out. The first column of Table 7 displays the results of the tests corresponding to the general use of pay for performance. As may be observed, the statistics are mostly highly significant, which reinforces the hypothesis that the implementation of pay for performance schemes varies across groups of workers. Sales workers is the occupation with highest use of pay for performance, followed by top executives. On the other hand, the administrative workers group is the one with lowest adoption of pay for performance. Finally, there are no significant differences in the adoption of pay for performance between professionals and middle managers.

Looking at the second set of explanatory variables included in Table 3, the analysis reveals that the use of pay for performance is higher in establishments of medium and large size in comparison with small plants, which is in line with previous analyses (see Foss and Laursen, 2005; or Barth et al. 2008). This finding supports the argument that large establishments have the resources

needed to develop and manage pay for performance systems, and that they can spread the costs of implementation across a higher number of employees. Regression results identify a positive and highly significant effect of the multinational variable, which is consistent with the idea that foreign-owned companies have a tendency to resort to the types of compensation schemes under study. Finally, the HRM department variable also correlates positively and significantly with the use of pay for performance, supporting the hypothesis that the presence of a department dealing with HRM promotes the adoption of pay for performance plans.

The inclusion of the interaction terms (models 2, 3 and 4) do not substantially change the results displayed in model 1. However, two interesting outcomes are worth noticing regarding the influence of the top executives' occupation. First, model 2 shows that top executives are more likely to receive pay for performance in medium and large plants than in establishments of a small size. Second, in addition to the positive effect exerted by the top executives and the multinational variables, we observe that it is more likely that this occupation would receive pay for performance in establishments belonging to a multinational corporation in comparison with domestically-owned companies.

Turning to the examination of the results obtained for pay linked to individual performance, we observe that they are similar to those obtained for the use of any pay for performance; both in the models with and without interactions (see Table 4). The occupational dummies are highly significant and, with the exception of administrative workers, of a positive sign. Turning to the results of Table 7, the differences between occupations are statistically significant with the exception of the pair, professionals-middle managers. Sales workers are the employees that are most likely to receive pay linked to individual performance, followed by top executives. In this case, the difference between the coefficients of both occupations is higher in comparison with the use of any pay for performance plan. A significant difference with the results of pay for performance of any kind is that, in the case of individual pay for performance, the likelihood of adopting this particular scheme increases in medium-sized establishments in comparison with those of a small size, whereas its use in large plants is not statistically different from its adoption in small establishments. However, when the first set of

interactions (Model 2) is included, the interaction coefficients between the top executive and the size dummies emerge again as positive and statistically significant.

Regarding the use of pay linked to group results (see Table 5), the coefficients obtained for the professional and sales occupations are not statistically significant. Top executives and middle managers display a higher probability of pay for group performance in comparison with production workers, and the opposite occurs for administrative workers. The Wald tests show that the differences between administrative workers and the other categories are significant. This backs up the idea that the pattern of adoption of pay for performance for this occupation differs notably from the other groups. In addition, the comparison between top executives and sales workers is also statistically significant, whereas for the other occupational pairs the null hypothesis of coefficient equality cannot be rejected. As expected, the use of this system of pay increases with the size of the establishment, membership of a multinational corporation and the presence of a HRM department. Moreover, none of the interaction terms emerges as a significant determinant in our estimated equations.

As far as plant or firm performance is concerned, the results do not differ substantially from the ones that have already been described (see Table 6). The major finding regarding this pay scheme is related to the occupational dummies. In this case, top executives are the group with a higher probability of receiving pay linked to plant or firm performance, whereas sales workers are the employees with a lower probability of perceiving this type of pay for performance. This result is related to the findings of O'Shaughnessy (1998), who found support for the fact that the effort of CEOs is more directly connected with the performance of the organization and, consequently, it is more likely that they receive pay linked to firm performance than workers at lower levels in the hierarchy. With the exception of the pairs constituted by middle managers and top executives, professionals and sales workers, the other differences between coefficients are statistically significant.

Conclusions

In this study, we have analyzed the diffusion of pay for performance systems across occupational groups of workers using a Spanish sample of manufacturing establishments. Taking advantage of the exhaustive information on pay for performance contained in the data set, we have

been able to examine the influence of occupational category on the use of pay for performance and pay based on individual, group and plant or firm results, as well as the incidence of the size of the establishment, belonging to a multinational corporation, and the presence of a human resources department.

The empirical analysis has revealed some interesting facts regarding the relationship between occupational status and the use of pay for performance. First, occupation is a significant factor in explaining the incidence of pay for performance. Second, there are notable differences in the diffusion of these systems among production workers, top executives, professionals, administrative workers, middle managers and sales workers. These results match the findings of Melian-Gonzalez and Verano-Tacoronte (2004 and 2006), Lepak and Snell (2002) and Lepak et al. (2007), who suggested that employers apply specific HRM practices to each occupational group of workers according to their different contributions to the objectives of the organization. Therefore, the argument of consistency across groups of workers found in the literature on wage levels seems not to apply to pay for performance.

As far as the comparison among occupations is concerned, we have identified certain patterns of pay for performance implementation. Sales workers constitute the group with a higher coverage of pay for performance, followed closely by top executives. The sales workers occupation is also highly related to the incidence of pay for individual performance. A valid explanation for this finding may be that this group carries out tasks that are usually easy to measure in individual terms, so it is likely that they are rewarded with pay based on individual performance. On the other hand, top executives stand out as an important determinant of pay based on plant or firm performance. This result might be indicative of their strong impact on organizational performance, which makes it desirable to link their compensation to company results. Finally, and with the exception of administrative workers, those groups that can be classified as white collar (i.e.. top executives, professionals, middle managers and sales workers) are, in general, more likely to receive pay for performance in comparison with production workers or blue collar workers. This outcome supports the existence of clusters of occupations, white collar versus blue collar, which receive similar compensation systems (see Cardoso, 2000).

In addition to the significance of the occupational variables, the findings confirm the important role played by the size of the establishment, belonging to a multinational company and the presence of a HRM department as determinants of pay for performance use. Hence, the three variables exert a positive and highly significant effect on the use of any of these kinds of pay plans. The only exception to this outcome is observed in the use of pay for individual performance, which is not significantly different in large establishments as compared with in plants of a small size. Finally, the inclusion of the interaction terms between the occupational dummies and the three establishment features in the empirical analysis reveals that, in general terms, the influence of size, belonging to a multinational company and the presence of a HRM department do not vary across occupations. However, an interesting result concerning the effect of the interaction terms is that top executives are more likely to receive pay for performance and, in particular individual pay for performance, in medium and large establishments, as well as in plants that belong to a foreign-owned company.

To sum up, this study has served various purposes. First, it has pointed to the relevance of analyzing the similarities and differences in the implementation of HRM practices across occupations. Second, it has broadened the scope of study of pay for performance by making it possible to compare the diffusion of several pay for performance schemes across occupations. Finally, it has contributed to the literature on the determinants of pay for performance using an approach to the question that has not been adopted in previous research. Further investigation is clearly required in order to broaden the understanding of occupational differences in pay for performance diffusion, so we hope this work serves to launch research on this topic and, more generally, on the diffusion of HRM practices across occupations.

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Tables

Table 1: Size and sector distribution of the establishments in the sample

MANUFACTURING SECTOR	50 to 99 workers	100 to 499 workers	500 workers or more	TOTAL
Food, Beverages and Tobacco	75	70	11	156
Textile Industry, Wearing Apparel, Leather and Footwear	44	24	1	69
Wood and Cork	14	20	0	34
Paper, Editing and Graphic Design	32	31	6	69
Chemical Industry	29	47	4	80
Rubber and Plastic Products	29	34	5	68
Non-metallic Mineral Products	53	50	5	108
Metallurgy and Fabricated Mechanical Products	85	63	6	154
Machinery and Mechanical Equipment	39	34	2	75
Electrical, Electronic and Optical Products and Equipment	31	36	4	71
Transport Equipment	15	37	8	60
Other Manufacturing Industries	38	18	1	57
TOTAL	484	464	53	1001

Table 2: Percentage of establishments using pay for performance for the different occupations

	Pay for performance for the majority of workers in the occupation	Pay for individual performance for the majority of workers in the occupation	Pay for group performance for the majority of workers in the occupation	Pay for plant or firm performance for the majority of workers in the occupation
Production workers	31.0	18.2	11.5	9.7
Top executives	54.9	32.8	15.3	27.2
Professionals	42.4	24.7	13.7	17.7
Administrative workers	25.0	14.2	6.9	10.2
Middle managers	44.0	25.0	14.5	16.2
Sales workers	63.0	49.3	11.4	14.0

Table 3: Determinants of pay for performance use, logit regressions

VARIABLES	MODEL 1	MODEL 2	MODEL 3	MODEL 4
Constant	-1.429***	-1.358***	-1.415***	-3.404***
	(.091)	(.116)	(.098)	(.208)
Top executive	1.032***	.781***	.955***	1.409***
	(.098)	(.144)	(.111)	(.242)
Professional	.505***	.444***	.523***	.815***
	(.098)	(.147)	(.112)	(.266)
Administrative	-.322***	-.339**	-.355***	.078
	(.105)	(.160)	(.123)	(.319)
Middle manager	.558***	.556***	.561***	.819***
	(.100)	(.149)	(.115)	(.274)
Sales worker	1.399***	1.369***	1.426***	.816***
	(.111)	(.162)	(.124)	(.304)
100 to 499 employees	.413***	.293*	.413***	.447***
	(.064)	(.149)	(.064)	(.088)
500 employees or more	.547***	.385	.546***	.735***
	(.136)	(.308)	(.137)	(.159)
Multinational	.712***	.714***	.663***	.810***
	(.073)	(.073)	(.165)	(.086)
HR Department	.315***	.312***	.313***	.819***
	(.071)	(.071)	(.071)	(.2199)
Top executive x Medium size	-	.447**	-	-
		(.203)		
Top executive x Large size	-	.869*	-	-
		(.473)		
Professional x Medium size	-	.068	-	-
		(.202)		
Professional x Large size	-	.486	-	-
		(.441)		
Administrative x Medium size	-	.048	-	-
		(.217)		
Administrative x Large size	-	-.073	-	-
		(.450)		
Middle manager x Medium size	-	.015	-	-
		(.206)		
Middle manager x Large size	-	-.107	-	-
		(.433)		
Sales worker x Medium size	-	.089	-	-
		(.228)		
Sales worker x Large size	-	-.413	-	-
		(.509)		
Top executive x Multinational	-	-	.464*	-
			(.249)	
Professional x Multinational	-	-	.081	-
			(.254)	
Administrative x Multinational	-	-	.167	-
			(.275)	
Middle manager x Multinational	-	-	.260	-
			(.256)	
Sales worker x Multinational	-	-	-.102	-
			(.278)	
Top executive x HR Department	-	-	-	-.123
				(.248)
Professional x HR Department	-	-	-	-.134
				(.275)
Administrative x HR Department	-	-	-	-.033
				(.334)
Middle manager x HR Department	-	-	-	-.298
				(.285)
Sales worker x HR Department	-	-	-	-.466
				(.395)
Chi-squared	590.15***	604.15***	596.73***	383.17***
Pseudo R2	0.0816	0.0836	0.0825	0.0828
N	5310	5310	5310	5288

*** p<0.01, ** p<0.05, * p<0.10

Note: Standard errors in parentheses

Table 4: Determinants of pay linked to individual performance, logit regressions

VARIABLES	MODEL 1	MODEL 2	MODEL 3	MODEL 4
Constant	-1.957***	-3.245***	-1.907***	-1.944***
	(.106)	(.206)	(.116)	(.143)
Top executive	.799***	.500***	.675***	.593***
	(.111)	(.169)	(.130)	(.188)
Professional	.391***	.317*	.365***	.350*
	(.114)	(.173)	(.134)	(.195)
Administrative	-.308**	-.315	-.358**	-.079
	(.127)	(.192)	(.152)	(.212)
Middle manager	.396***	.462***	.319**	.428**
	(.116)	(.174)	(.138)	(.200)
Sales worker	1.528***	1.477***	1.530***	1.553***
	(.118)	(.175)	(.135)	(.197)
100 to 499 employees	.252***	.148	.252***	.252***
	(.072)	(.176)	(.072)	(.072)
500 employees or more	.061	-.344	.057	.059
	(.152)	(.410)	(.152)	(.152)
Multinational	.793***	.765***	.596***	.764***
	(.076)	(.077)	(.188)	(.077)
HR Department	.180**	.177**	.179**	.162
	(.081)	(.081)	(.081)	(.149)
Top executive x Medium size	-	.483**	-	-
		(.229)		
Top executive x Large size	-	.935*	-	-
		(.516)		
Professional x Medium size	-	.072	-	-
		(.235)		
Professional x Large size	-	.684	-	-
		(.527)		
Administrative x Medium size	-	-.000	-	-
		(.261)		
Administrative x Large size	-	.170	-	-
		(.597)		
Middle manager x Medium size	-	-.146	-	-
		(.239)		
Middle manager x Large size	-	.180	-	-
		(.537)		
Sales worker x Medium size	-	.086	-	-
		(.242)		
Sales worker x Large size	-	.114	-	-
		(.571)		
Top executive x Multinational	-	-	.464*	-
			(.249)	
Professional x Multinational	-	-	.081	-
			(.254)	
Administrative x Multinational	-	-	.167	-
			(.275)	
Middle manager x Multinational	-	-	.260	-
			(.256)	
Sales worker x Multinational	-	-	-.102	-
			(.278)	
Top executive x HR Department	-	-	-	.286
				(.208)
Professional x HR Department	-	-	-	.056
				(.216)
Administrative x HR Department	-	-	-	-.320
				(.242)
Middle manager x HR Department	-	-	-	-.043
				(.222)
Sales worker x HR Department	-	-	-	-.036
				(.222)
Chi-squared	434.14***	447.25***	440.44***	439.91***
Pseudo R2	0.0717	0.0738	0.0727	0.0726
N	5284	5284	5284	5284

*** p<0.01, ** p<0.05, * p<0.10

Note: Standard errors in parentheses

Table 5: Determinants of pay linked to group performance, logit regressions

VARIABLES	MODEL 1	MODEL 2	MODEL 3	MODEL 4
Constant	-2.792***	-2.853***	-2.839***	-2.905***
	(.142)	(.188)	(.155)	(.197)
Top executive	.326**	.371	.326**	.184
	(.137)	(.227)	(.165)	(.274)
Professional	.188	.267	.298*	.366
	(.140)	(.230)	(.165)	(.263)
Administrative	-.571***	-.558**	-.578***	-.209
	(.164)	(.277)	(.200)	(.307)
Middle manager	.248*	.351	.331**	.422
	(.141)	(.232)	(.168)	(.269)
Sales worker	.011	.134	.109	.272
	(.165)	(.271)	(.195)	(.319)
100 to 499 employees	.297***	.354	.297***	.299***
	(.095)	(.222)	(.095)	(.095)
500 employees or more	.733***	1.045***	.732***	.736***
	(.167)	(.366)	(.167)	(.167)
Multinational	.349***	.352***	.512**	.351***
	(.097)	(.097)	(.221)	(.097)
HR Department	.608***	.608***	.606***	.741**
	(.119)	(.119)	(.119)	(.197)
Top executive x Medium size	-	-.044	-	-
		(.294)		
Top executive x Large size	-	-.213	-	-
		(.506)		
Professional x Medium size	-	-.073	-	-
		(.298)		
Professional x Large size	-	-.432	-	-
		(.525)		
Administrative x Medium size	-	.037	-	-
		(.354)		
Administrative x Large size	-	-.373	-	-
		(.609)		
Middle manager x Medium size	-	-.065	-	-
		(.300)		
Middle manager x Large size	-	-.803	-	-
		(.542)		
Sales worker x Medium size	-	-.230	-	-
		(.355)		
Sales worker x Large size	-	.028	-	-
		(.593)		
Top executive x Multinational	-	-	.007	-
			(.298)	
Professional x Multinational	-	-	-.391	-
			(.311)	
Administrative x Multinational	-	-	.013	-
			(.351)	
Middle manager x Multinational	-	-	-.282	-
			(.309)	
Sales worker x Multinational	-	-	-.347	-
			(.370)	
Top executive x HR Department	-	-	-	.177
				(.290)
Professional x HR Department	-	-	-	-.223
				(.281)
Administrative x HR Department	-	-	-	-.461
				(.338)
Middle manager x HR Department	-	-	-	-.218
				(.287)
Sales worker x HR Department	-	-	-	-.330
				(.349)
Chi-squared	141.75***	145.93***	145.22***	145.96***
Pseudo R2	0.0362	0.0373	0.0371	0.0373
N	5248	5248	5248	5248

*** p<0.01, ** p<0.05, * p<0.10

Note: Standard errors in parentheses

Table 6: Determinants of pay linked to plant or firm performance, logit regressions

VARIABLES	MODEL 1	MODEL 2	MODEL 3	MODEL 4
Constant	-3.263***	-3.245***	-3.369***	-3.404***
	(.147)	(.206)	(.172)	(.208)
Top executive	1.304***	1.258***	1.404***	1.409***
	(.135)	(.227)	(.171)	(.242)
Professional	.704***	.673***	.850***	.815***
	(.141)	(.241)	(.180)	(.266)
Administrative	.050	-.004	.119	.078
	(.156)	(.271)	(.202)	(.319)
Middle manager	.576***	.557**	.755***	.819***
	(.146)	(.250)	(.185)	(.274)
Sales worker	.442***	.567**	.532***	.816***
	(.162)	(.271)	(.205)	(.304)
100 to 499 employees	.445***	.448*	.445***	.447***
	(.088)	(.241)	(.088)	(.088)
500 employees or more	.735***	.552	.76***	.735***
	(.159)	(.435)	(.159)	(.159)
Multinational	.808***	.808***	1.084 ***	.810***
	(.086)	(.086)	(.228)	(.086)
HR Department	.656***	.652***	.656***	.819***
	(.111)	(.111)	(.111)	(.2199)
Top executive x Medium size	-	.025	-	-
		(.289)		
Top executive x Large size	-	.434	-	-
		(.537)		
Professional x Medium size	-	-.018	-	-
		(.305)		
Professional x Large size	-	.496	-	-
		(.550)		
Administrative x Medium size	-	.051	-	-
		(.340)		
Administrative x Large size	-	.286	-	-
		(.595)		
Middle manager x Medium size	-	.021	-	-
		(.315)		
Middle manager x Large size	-	.076	-	-
		(.567)		
Sales worker x Medium size	-	-.136	-	-
		(.344)		
Sales worker x Large size	-	-.971	-	-
		(.777)		
Top executive x Multinational	-	-	-.249	-
			(.284)	
Professional x Multinational	-	-	-.400	-
			(.296)	
Administrative x Multinational	-	-	-.174	-
			(.320)	
Middle manager x Multinational	-	-	-.492	-
			(.304)	
Sales worker x Multinational	-	-	-.225	-
			(.340)	
Top executive x HR Department	-	-	-	-.123
				(.248)
Professional x HR Department	-	-	-	-.134
				(.275)
Administrative x HR Department	-	-	-	-.033
				(.334)
Middle manager x HR Department	-	-	-	-.298
				(.285)
Sales worker x HR Department	-	-	-	-.466
				(.395)
Chi-squared	380.57***	386.65***	383.90***	383.17***
Pseudo R2	0.0823	0.0836	0.0830	0.0828
N	5288	5288	5288	5288

*** p<0.01, ** p<0.05, * p<0.10

Note: Standard errors in parentheses

Table 7: Wald tests: chi-squared values

	ANY	INDIVIDUAL	GROUP	PLANT OR FIRM
Sales worker - Top executive	11.51***	45.38***	3.91**[a]	37.56***[a]
Sales worker – Professional	68.28***	103.19***	1.21[a]	3.17*[a]
Sales worker – Administrative	225.59***	216.01***	10.11***	5.91**
Sales worker – Middle manager	58.40***	98.24***	2.13[a]	0.78[a]
Top executive – Professional	30.99***	15.37***	1.08	26.72***
Top executive – Administrative	176.71***	88.26	32.23***	88.27
Top executive – Middle manager	23.99***	14.32***	0.34	35.95***
Middle manager - Professional	0.31	0.00	0.19[a]	0.99[a]
Middle manager - Administrative	72.30***	32.72***	25.85***	13.25***
Professional - Administrative	66.08***	33.28***	22.51***	21.75***

*** p<0.01, ** p<0.05, * p<0.10

Note: Table 7 displays the results of the tests of coefficient equality obtained in the first model of tables 3 to 6. In each cell, we test the null hypothesis that the coefficient of the first occupation equals the coefficient of the second occupation versus the alternative hypothesis that the coefficient of the first occupation is higher than the coefficient of the second occupation. In the cells with a superscript, we test the null hypothesis versus the alternative hypothesis that the coefficient of the second occupation is higher than the coefficient of the first occupation.