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JOSEPH LANFRANCHI

joseph.lanfranchi@cee-recherche.fr

Centre d'études de l'emploi and LEM, Université Panthéon-Assas

SANJA PEKOVIC

sanja.pekovic@dauphine.fr

University Paris-Dauphine DRM-DMSP (CNRS UMR 7088)
and Centre d'études de l'emploi

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HOW GREEN IS MY FIRM?
WORKERS' ATTITUDES TOWARDS JOB, JOB INVOLVEMENT AND EFFORT IN ENVIRONMENTALLY-RELATED FIRMS

Joseph Lanfranchi[1], Sanja Pekovic

ABSTRACT

The implementation of environmental standards can be facilitated by motivating workers with pro-social preferences. Therefore, we study if employees working for firms achieving registration for environmental-related standards are more likely to display positive attitudes toward their job, to be actively involved in their jobs and to donate effort. Using a French matched employer-employee database, we find that these "green employees" report a significantly higher feeling of usefulness and equitable recognition at work. Besides, they are more likely to work uncompensated overtime hours. Finally, if the adoption of environmental standards is shown to have no direct influence on job involvement, we expose how it indirectly impacts job involvement through the mediation of employees' feeling of usefulness and equitable recognition at work.

Keywords: environmental-related standards; pro-social motivation; workers' attitudes and behavior.

JEL codes: Q50; J28.

[1] Corresponding author. Centre d'études de l'emploi, 29 promenade Michel Simon, 93166 Noisy-le-Grand Cedex, France, tel : (33) 1 45 92 69 72.

L'effet de la certification environnementale des entreprises françaises et l'implication de leurs salariés

Résumé

La décision de rechercher une standardisation environnementale peut être justifiée par la perspective de motiver les travailleurs lorsque ceux-ci possèdent des préférences pro-sociales. De ce fait, cet article étudie si les salariés travaillant pour des entreprises ayant obtenu la certification d'un standard environnemental démontrent plus fréquemment des attitudes positives vis-à-vis de leur emploi, sont plus impliqués dans celui-ci et décident d'entreprendre un don d'effort. Au moyen d'une base de données appariées employeurs-employés, nous montrons que ces « salariés verts » reportent effectivement des sentiments plus élevés d'utilité dans leur travail d'une part et de traitement équitable dans l'exercice de leur travail. En outre, ils sont également plus enclins à travailler des heures supplémentaires non compensées en salaire ou en repos. Finalement, si nos résultats montrent que l'adoption d'une standardisation environnementale n'a pas d'influence directe sur l'implication au travail, nous montrons en revanche qu'elle agit sur cette implication par la médiation du sentiment des salariés de l'utilité de leur travail et du traitement équitable perçu dans l'exercice de leur travail.

Mots-clefs : *normes managériales d'environnement; motivation pro-sociale; attitudes et comportement des travailleurs.*

INTRODUCTION[2]

In post-industrial societies, firms need both a legal right and a "social license" to operate. Therefore, in addition to the well-known profit maximization goal, entrepreneurs may invest in social responsibility, i.e. a firm may commit to implementing procedures and policies devoted to improving the well-being of employees, customers and any institution representative of the local community (Turban and Greening, 1997). Firms can meet the requirements of "social licensors" by adopting environmental-related standards because these standards will lead the firms to conduct business in a more socially responsible manner.

A growing body of literature has been concerned with the motivation for adopting environmentally-related standards (e.g., Grolleau et al., 2007a, b; Ambec and Lanoie, 2008) and their impacts on firm performance (e.g., Klassen and McLaughlin, 1996; Darnall et al., 2008). However, to date, scholars have neglected to study whether or how those standards impact employee outcomes. Therefore, this paper aims to fill this gap in the literature by examining how the utilization of environmental-related standards impacts employees' attitudes and behavior toward their employment relationship in terms of usefulness, equitable recognition, job involvement and effort at work.

A first rationale for suggesting a positive impact of environmental-related standards on employees' attitudes, job involvement and effort can be traced to Brekke and Nyborg's model (2007), which shows that workers who exhibit preferences that depend positively on the level of social welfare are ready to provide a form of labor donation to environmentally responsible employers. This labor donation could take the form of a lower reservation wage or a higher level of effort. Hence, one of the driving forces inducing firms to invest in environmental-related activities can be found in the desire to recruit pro-socially motivated applicants. Doing so ensures that a firm's employees are highly motivated and involved in their jobs. Therefore, green entrepreneurs may expect an advantage in labor productivity to compensate for the costs of environmental-related investments.

A second explanation derives from the moral prejudice that employees may face if their employer undertakes business policies that will damage their social reputations. According to social identity theory, individuals evaluate their self-image by comparing the main features of the social group to which they belong with the characteristics of other groups. Therefore, the employees of a firm that commits itself toward a better environmental performance should experience higher motivation, as they benefit from their employer's good reputation and image in the community[3]. As stressed by Akerlof and Kranton (2005), if a firm can inculcate a sense of common identity in its workforce, the firm may use such non-pecuniary incentives to induce its workers to invest high degrees of effort.

Finally, work reorganization induced by the adoption of environmentally-related standards may improve employees' attitudes, job involvement and effort through two channels. First,

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[3] For a survey of the evidence on individuals' concerns with employer image, see Bénabou and Tirole (2010).

work reorganization provides new working opportunities for employees, such as the opportunity to participate in the decision-making process, more autonomy and the opportunity to enhance one's skills and leadership, which may all lead to job enrichment and (most likely) job involvement. Second, an employer's commitment to environmental policies can be associated with greater attention to safety practices and a decrease in the number of environmental incidents. Employee's physical security belongs to a large set of valuable but non-pecuniary characteristics that can be expected to enhance the employee's feeling of being equitably recognized by his or her employer.

In all three cases, employers may expect that the implementation of environmental-related standards leads to a reduction in labor costs. In fact, feelings of equity and usefulness in one's job have been found to be associated with the likely determinants of worker productivity, such as lower levels of absenteeism (e.g., DeBoer et al., 2002) and job withdrawal (Donovan et al., 1997), lower risk of poor health (van Vegchel et al., 2005), higher morale (Bewley, 2007) and protection from psychological stress (Takaki et al., 2010). Similarly, job involvement has also been identified as a factor that increases employee effort and performance (Diefendorff et al., 2002).

As noted by Ambec and Lanoie (2008), it would be useful to explore empirically the effects of implementing environmental-related standards on labor costs. Although we cannot directly test this relationship, the first original contribution of this paper is an assessment of the likelihood that a firm will improve its labor efficiency. Hence, we investigate the effect of working for a firm registered to an environmental-related standard on the likely predictors of labor productivity. The second point of interest of our study comes from a matched employer-employee dataset, the *Organizational Change and ICT* Survey (COI 2006), which provides a representative sample of French private firms with more than 20 employees. Both employers and employees are interviewed. The former is interrogated with regard to firm practices, technological changes and organizational changes and the latter with regard to the work organization, the content of the employees' jobs, and their attitudes and opinions. Importantly, this large employer-employee database (7,700 firms and 14,369 randomly selected employees) provides information about the employers' adoption of environmental-related standards along with the employees' evaluations of their working conditions and job characteristics. Additionally, we control for a detailed set of worker, job and firm characteristics to properly isolate the effect of environmental-related standards on employees' attitudes, job involvement and effort. The utilization of French data has the further advantage of allowing us to analyze the consequences of implementing environmental-related standards in organizations outside the more extensively studied US and UK cases. From that point of view, France appears to be an interesting case for assessing the strength of environmental motivations because French voters showed their growing sense of concern about environmental questions in the 2009 European polls, where French voters elected the highest number of Green Party representatives in the European Parliament.

The paper is structured as follows. Section 1 reviews the literature on the link between firms' pro-environmental behaviors and workers' attitudes. Section 2 presents the data and model specification. The results are provided and discussed in section 3. Section 4 concludes and suggests future directions and policy implications.

1. ENVIRONMENTAL-RELATED STANDARDS AND EMPLOYEES' ATTITUDES AND BEHAVIOR AT WORK

In this section, we review how the previous theoretical and empirical literature explains the link between the implementation of environmental-related standards and workforce attitudes and behavior.

In fact, the implementation of environmental-related standards represents a significant organizational change within a firm. It can be defined as a self-motivated effort at internalizing environmental externalities by adopting management practices that enable the firm to make continuous improvements in its production methods and environmental performance (Khanna and Anton, 2002). However, such a change may imply considerable investments and raises a rational question: *is it profitable to invest in such environmental-related standards?*

The Porter hypothesis offers a positive answer to this question. The hypothesis states that the different types of returns obtained from environmental innovations may compensate for their implementation costs. A recent survey by Ambec and Lanoie (2008) listed seven channels through which environmental-related standards may provide benefits to firms or reduce their costs: better access to markets, greater possibilities for product differentiation, commercialization of pollution-control technology and savings on regulatory costs, material energy and services, and capital and labor costs. Of particular interest for our research is the effect of working in an environmentally registered firm on the likely predictors of labor productivity and costs, such as employees' feelings of usefulness and equitable recognition and the levels of job involvement and work effort.

The positive impact of environmental-related standards on employee attitudes and behavior may be rationalized by at least two types of arguments. The first postulates that the implementation of environmental-related standards will help attract and motivate workers with pro-social preferences. The second identifies the indirect effects on employee outcomes caused by changes in work organization and the improvements in working conditions due to the registration to environmental-related standards. The following discussion will develop these two perspectives.

To help their workforce understand and commit to environmental issues, firm managers need to find strong motivational factors. Generally, the intrinsic motives that are likely to encourage employees have an ideological character. Hence, pro-social motivation, which we define as an individual's aspiration to have a positive impact on the well-being of other people and groups within society, may help to improve work commitment. For this reason, voluntary environmental-related initiatives may improve human resource management if the firm successfully attracts and motivates workers who share these values[4]. Our main theoretical reference for rationalizing this intuitive argument is Brekke and Nyborg's (2007) model, which shows that if workers have preferences that depend positively on the well-being of others, they are likely to self-select themselves to work in "green firms" and to work harder for environmentally responsible employers. Consequently, the benefits obtained from efficiently recruiting pro-socially motivated workers may outweigh the costs of environmental-

[4] Notably, Grolleau et al. (2007b) showed that ISO 14001 registration among French agro-food firms was mainly driven by the desire to improve human resource management.

related investments. From the workers' point of view, participating in an environmentally responsible firm's activities may enhance their feelings that their jobs are useful to the rest of the society and increase the rewards that they obtain from the job.

Similar to Brekke and Nyborg's model (2007), labor donation theory[5] postulates that the goals, alleged values and management practices of productive organizations help attract and motivate individuals who prefer to work for employers devoted to socially desirable objectives. Labor donation can take the form of a specific level of involvement in the firm's activity. If employers cannot perfectly control the effort level of their workforce, pro-social motivation ensures that their workers are more likely to work hard. This process is reminiscent of the fair wage-effort version of efficiency wage theory, where a worker's effort is exchanged for a fair compensation. However, in this case, the non-pecuniary benefits obtained from participating in environmental-related activities stimulate workers' job involvement. Besides, the large investment costs associated with the implementation of such standards act as a commitment on the part of the firm not to divert the employee donation of effort towards increasing its profits at the expense of social objectives. Therefore, environmental-related standards registration acts as a signal of costly, and hence credible, commitment and helps to screen and motivate pro-socially motivated workers.

Prior empirical evidence has shown that non-profit and public sector workers with pro-social motivations are more likely to accept lower wages (Narcy, 2011), donate their labor (as measured by unpaid overtime) (Gregg et al., 2011), be less absent (Lanfranchi and Narcy, 2010) and declare themselves significantly more satisfied at work (Benz, 2005; Lanfranchi and Narcy, 2008). Accordingly, this type of motivation, which is based on individual values, may generate benefits both for employees in terms of feelings of usefulness and for employers in terms of increased productivity.

Moreover, individuals also become involved in a given social group's activities whenever these activities are evaluated positively by society. According to social identity theory, individuals assess their social identity based on their adherence to various organizations, including the firm for which they work. However, these organizations develop their reputations in society through competition, comparison and judgments. In this case, an individual's identification with the organization is the process through which such evaluations are transformed into an evaluation of the individual's own personality. Therefore, employee attitudes and behavior in the workplace should be favorably influenced by a positive social perception of the employer's social performance. Hence, a firm's improved environmental performance may positively influence its employees' motivation and job involvement. Bénabou and Tirole (2010) review the evidence on how self-image concerns influence pro-social behavior in domains such as volunteerism, blood donation or participation in elections.

In the labor market context, there is some sparse evidence that seems to confirm employees' concerns regarding the social benefits generated by participating in their employers' activities. Hence, the International Social Survey Program (in 1989, 1997 and 2005) records that the largest increase in employees' work values is registered for the two following items: "In my work I can help other people" and "my work is useful to society" (Clark, 2009). In addition, in a study of Cornell University graduates, Frank (1996) indicates that personal

[5] Originally, the theory was put forward to explain how non-profit organizations that offer goods and services aimed at generating social benefits may successfully recruit workers who are ready to accept lower wages than those they could obtain in the private sector (Preston, 1989).

values affect the choice of employers and the level of reservation wages. The author's survey results show that 88 percent of the sampled graduates would prefer to work for the American Cancer Society rather than Camel Cigarettes, with an average compensating wage premium of approximately $24,000 per year. This finding confirms that individuals are likely to accept lower wages and thus allow the firm to balance the cost of its socially responsible operations. Additionally, Turban and Greening (1997) show a positive correlation between the ratings of a firm's Corporate Social Responsibility and its degree of attractiveness for workers. More in line with the precise topic of our study, Grolleau et al.'s (2012) empirical results show that if French firms have registered for environmental-related standards, they experience fewer difficulties in recruiting both professional and non-professional employees.

The second perspective is related to the fact that the adoption of environmental-related standards may trigger other changes in the work organization and indirectly influence employee attitudes. In fact, similar to the use of high-performance work practices, the adoption of environmental-related standards may induce employer reorganizations that provide workers with opportunities to participate in the decision-making process, be more autonomous, enhance their skills, or improve their leadership. These new opportunities could be further associated with improvements in the balance between effort and rewards. For instance, Appelbaum et al. (2000) argue that the opportunity to participate in decision making helps to create trust between workers and supervisors and to produce intrinsic rewards. In turn, trust and intrinsic rewards are positively associated with higher commitment, job satisfaction and lower stress. However, employer reorganization may have conflicting effects on employee well-being because the reorganization process may often be associated with higher demands within the job and therefore, with the intensification of labor effort, which may negatively impact employee outcomes (e.g., Green, 2004).

In addition to these job design effects, environmental-related standards may have other indirect effects on overall feelings of equitable recognition and job involvement by impacting working conditions. Previous scholars have argued that work accidents, injuries, and bad working conditions result in decreased employee morale, organizational commitment and job satisfaction (Michael et al., 2005). Therefore, as the adoption of environmental-related standards improves the health and safety conditions of employees by mitigating pollution, reducing contact with hazardous materials and diminishing bad odors and noise, one may expect these standards to generate positive effects on the workers' feelings of being equitably recognized.

2. DATA AND MODEL SPECIFICATION

The survey

The data are extracted from the French *Organizational Change and ICT*'s (COI) 2006 survey[6]. This survey was created by the researchers and statisticians from the National Institute for Statistics and Economic Studies (Insee), the Ministry of Labor (Dares) and the Center for Labor Studies (CEE). This collaboration generated a large amount of knowledge and expertise, which has made it possible to put together questionnaires for the public administration, the private firms and their workforces.

[6] More details about the design and scope of this survey are available at www.enquetecoi.net. : Survey COI-TIC 2006-Insee-CEE/Treatments CEE.

Our sample for this study contains 7,700 private firms with 20 or more employees belonging to the private sector. This sample is representative of the population of French private firms from all industries except for agriculture, forestry and fishing. Each firm completes a self-administered questionnaire concerning its utilization of information technologies and work organization practices in 2006 and the changes that have occurred since 2003. The firms were also interrogated with regard to the economic goals of their organizational changes and the economic context in which those decisions were made.

Within each surveyed firm, randomly selected employees provided details about their personal socio-economic characteristics, the nature of their labor contracts, the characteristics and contents of their jobs, the work organization and their attitudes about their jobs. The original dataset included 14,369 employees, but we were unable to match 346 observations with their original employers. Furthermore, to obtain information about worker compensation, we merged the COI survey with another French administrative database, *Employer's annual declaration of payroll data* (DADS), which contained information on employee compensation. However, direct information on net wages was unavailable, and each individual worker was linked with the percentile of the country-wide wage distribution to which he or she belongs. Furthermore, we used the *Annual Enterprise Survey* (EAE) to obtain information about the export levels. Finally, after deleting additional firms and employees that did not provide all of the relevant information for our study, we are left with 11,600 usable observations.

The indicators of employee attitudes and effort

The employees' feelings about their employment relationships and reported job involvement are defined as the employees' attitudes toward or evaluations of a specific object (i.e., the job). The previous literature has measured these concepts with single indicators and/or a multiple items scale. Because our survey was not specifically designed to study these dimensions in detail, we do not have the set of questions necessary to construct a multiple items scale at our disposal. Therefore, we will focus on distinct binary indicators of worker attitudes.

The first indicator of employee attitude that we will study is called *USEFUL* and is intended to measure employees' feelings regarding the usefulness of their jobs. This indicator takes a value of 1 if the employee thinks that his or her work is useful to others and is particularly interesting in the context of pro-social motivation. We expect this indicator to help capture the degree to which one feels that his or her work aids society. Our second variable of interest is related to the feelings of equitable recognition in the employer-employee relationship: employees judge that they are equitably recognized by their employers by comparing their inputs and outcomes to an internal standard. Therefore, our second binary dependent variable, denoted *RECOGNITION,* captures this comparison and takes a value of 1 if the employee believes that his or her work is equitably recognized when the employee weighs what he or she brings to the firm against the benefits he or she receives.

Job involvement, originally defined by Lodahl and Kejner (1965) as the "degree to which a person is psychologically identified with his work," has frequently been measured on a scale constructed from a list of items. Because we cannot construct a classic job involvement scale, we choose to capture two psychological and behavioral dimensions of job involvement and employee effort. These two dimensions are measured using two binary variables, *IMPLICATION* and *COMPENSATION,* which are equal to 1 if the employee states that he or

she is heavily involved in his or her job and if the employee is compensated for his or her supplementary work hours, respectively. Agreeing to work compensation-free for supplementary hours can be viewed as a type of effort donation.

The measure of environmental-related standards

To understand whether environmental-related standards impact employee attitudes, job involvement and work effort, we use the variable denoted *STANDARDS,* which is a binary variable equal to 1 if the firm was registered in 2006 in accordance with one of the following standards: ISO 14001 standard, organic labeling or fair trade[7].

The empirical model

Because the same unobservable factors may impact both the employees' likelihood of working for an environmentally registered firm and the employees' attitudes, job involvement and effort, we apply a bivariate probit model to correct for endogeneity (Greene, 2003). The model relies on a simultaneous estimation approach in which the factors that determine the choice of working at a firm registered for an environmental-related standard are estimated simultaneously with the factors that explain the employees' attitudes and behaviors. The variables used in the estimation, their definitions and both the unweighted and weighted sample statistics are presented in Table 1[8].

Table 1. Definition of variables and sample statistics

Variable	Definition	Mean (std dev.)	Weighted mean
Dependent variables			
USEFUL	The employee's work is useful to others Dummy variable (=1 if yes)	0.91	0.90
RECOGNITION	The employee's work is equitably recognized Dummy variable (=1 if yes)	0.44	0.44
INVOLVEMENT	The employee is involved in his work Dummy variable (=1 if employee is very involved)	0.71	0.70
COMPENSATION	The employee is compensated for supplementary work hours Dummy variable (=1 if yes)	0.50	0.51

[7] Unfortunately, we cannot distinguish among these three standards because they were put together under the same survey question. However, because the implementation of these different types of standards entails similar pro-social objectives, we expect that their impacts on employee attitudes, job involvement and effort will be similar. Additionally, French firms primarily adopt ISO 14001, EMAS and 1.2.3. Environment.

[8] The weighted descriptive statistics correspond to a representative picture of the population of firms in 2006. However, sampling weights were not used in our econometric regressions.

Independent variables			
STANDARDS	Registered for ISO 14000, organic labeling or fair trade Dummy variable (=1 if registered in 2006)	0.27	0.13
QUALITY	Registered for ISO 9000, EAQF (Supplier Quality capability evaluation), etc. Dummy variable (=1 if registered in 2006)	0.58	0.41
JIT	The firm utilizes just-in-time methods Dummy variable (=1 if registered in 2006)	0.34	0.24
TEAM	The firm utilizes autonomous work groups or teams Dummy variable (=1 if registered in 2006)	0.50	0.34
STAND	The strategic importance of the standardization of processes and working methods is: STAND1 (very important) ***(ref)*** STAND2 (important) STAND3 (quite important) STAND4 (not important)	 0.17 0.60 0.21 0.02	 0.11 0.56 0.29 0.04
SIZE	Logarithm of number of employees (Continuous variable)	5.79	4.11
EXPORT	The export volume (€) (Continuous variable)	110002.9	15507.27
SEX	The employee is a women. Dummy variable (=1 if yes)	0.37	0.34
AGE	Age (Continuous variable)	40.06 (9.98)	40.74 (9.98)
AGESQ	Age Squared (Continuous variable)	1704.62 (6.72)	1763.45 (6.72)
SINGLE	The employee lives alone Dummy variable (=1 if yes)	0.24	0.23
EDUCATION	Employee has: EDU1 (primary or lower secondary degree) EDU2 (technical degree) ***(ref)*** EDU3 (general secondary or preparation for specialized secondary degree) EDU4 (superior-fist cycle degree) EDU5 (superior-first or second cycle degree, grande école, école de commerce, etc.)	 0.12 0.37 0.18 0.18 0.15	 0.12 0.35 0.18 0.17 0.18
SENIORITY	Number of years of seniority in the firm (Continuous variable)	12.67	10.73

OCCUPATION	Employee is:		
	OCC1 (management)	0.16	0.19
	OCC2 (middle-management)	0.25	0.26
	OCC3 (white collar workers)	0.19	0.19
	OCC4 (blue collar workers) ***(ref)***	0.40	0.36
HANDICAP	The employee has a health problem or disability preventing him or her from holding certain work posts or performing certain tasks at work	0.27	0.27
	Dummy variable (=1 if yes)		
PART-TIME	The employee has a part-time job	0.08	0.08
	Dummy variable (=1 if yes)		
CONTROL	The employee's work is controlled:		
	CONTROL1 (if controlled constantly)	0.22	0.20
	CONTROL2 (if controlled at least once a day)	0.14	0.15
	CONTROL3 (if controlled at least once a week)	0.14	0.15
	CONTROL4 (if controlled at least once a month)	0.10	0.11
	CONTROL5 (if controlled for occasionally, rarely or never) ***(ref)***	0.40	0.39
HDETER	Working times are defined:		
	HD1 (if defined by a firm without a possibility of modification)	0.63	0.62
	HD2 (possibility of choosing between different working hours)	0.21	0.21
	HD3 (if defined by employee) ***(ref)***	0.16	0.17
INCIDENT	The employee must address incidents alone	0.49	0.48
	Dummy variable (=1 if yes)		
INTERRUPT	The employee cannot interrupt his or her work for a moment if he or she wishes	0.17	0.18
	Dummy variable (=1 if yes)		
QUALIFICATION1	The employee thinks that he or she lacks certain skills to do his or her job correctly	0.40	0.42
	Dummy variable (=1 if yes)		
QUALIFICATION2	The employee does not use all of his or her skills in his or her job	0.49	0.51
	Dummy variable (=1 if yes)		
STRESS	The employee feels unable to cope with his or her work or is overloaded every day, at least once a week or at least once a month	0.50	0.50
	Dummy variable (=1 if yes)		
OBJECTIVE	The employee must reach precise targets	0.61	0.62
	Dummy variable (=1 if yes)		

HOW	The employee receives precise instructions on how he or she should realize his or her task Dummy variable (=1 if yes)	0.21	0.21
REPETITION	The employee almost never or never realizes different tasks Dummy variable (=1 if almost never or never)	0.26	0.26
CONSEC	The employee's mistake can provoke direct dangerous consequences for his/her or others' security Dummy variable (=1 if yes)	0.46	0.50
CONNEG	The employee's mistake can provoke other direct negative consequences (e.g., sanction, loss of wage, dismissal, loss of performance bonus, and impact on the quality of colleagues' work) for himself/herself or other employees Dummy variable (=1 if yes)	0.54	0.54
CONFIR	The employee's mistake can provoke negative consequences for the firm (e.g., financial consequences, negative image, and loss of clients) Dummy variable (=1 if yes)	0.28	0.28
UNCLEAR	The employee has not been clearly told what he or she must do in his or her job Dummy variable (=1 if yes)	0.34	0.33
HELPCHEF	The employee will be helped by his or her superior if he or she is overloaded with work Dummy variable (=1 if yes)	0.43	0.43
HELPCOL	The employee will be helped by his or her colleagues if he or she is overloaded with work Dummy variable (=1 if yes)	0.75	0.74
FAMILIAR	The employee uses the familiar "tu" when speaking to his or her superior Dummy variable (=1 if yes)	0.36	0.34
WAGE	***Net hourly wage***	9.16	9.99
	(Continuous variable)	(0.80)	(0.80)
ACTIVITY (for space reasons, we do not report the sample statistics for these variables)	The main activity of the firm (based on 9 industry dummy variables): consumption goods, intermediate goods and energy, equipment goods, trade, construction, financial and real-estate activities, agro-alimentary industry, services for firms and media, transport		
N		14,369	109,906

We denote Y_1 as our observed binary variable corresponding to whether the worker is employed in a firm registered for an environmentally-related standard, whereas Y_{2k}, $k=(1,...4)$,

correspond to the employees' observed feelings of usefulness and recognition (*USEFUL* and *RECOGNITION)* and job involvement and effort (*IMPLICATION* and *COMPENSATION),* respectively. These variables are defined as follows:

$$\begin{aligned} &Y_1 = 1 \quad if \quad Y_1^* > 0, \\ &Y_1 = 0 \quad otherwise. \end{aligned} \tag{1}$$

$$\begin{aligned} &Y_{2k} = 1 \quad if \quad Y_{2k}^* > 0, \\ &Y_{2k} = 0 \quad otherwise. \end{aligned} \tag{2}$$

Y_1^* and Y_{2k}^* are latent variables measuring respectively the unobserved gains for an employee working for a firm that is registered for an environmentally-related standard and the unobserved levels of the employee's feelings regarding the usefulness of his or her job, equitable recognition, job involvement and effort, respectively. We consider the following bivariate probit model:

$$\begin{cases} Y_1^* = \alpha_1 + \beta_1 X_1 + \delta Z_1 + \mu_1 \\ Y_{2k}^* = \alpha_2 + \beta_2 X_1 + \gamma Y_1 + \mu_2 \end{cases} \tag{3}$$

To properly identify the effects of working in environmentally registered firms on employee outcomes, our econometric model includes 1) a set of detailed firm characteristics to control for managerial, productive and organizational practices and 2) both worker- and job-specific controls. Furthermore, for reasons of proper identification, this vector of exogenous regressors X_1 is restricted to be identical in both equations. It contains the following sets of exogenous variables:

- Firm characteristics: registration for quality standards such as ISO 9000 (*QUALITY*), use of just-in-time production methods (*JIT*), autonomous work groups (*TEAM*), degree of standardization of processes or working methods (*STAND1-STAND4)*, size (*SIZE*) and dummies for the industry of the firm.
- Workers' socio-demographic characteristics: gender (*SEX*), age and age squared (*AGE* and *AGESQ*), marital status (*SINGLE*), level of education (*EDU1-EDU5)*, seniority (*SENIORITY)* and occupational dummies (*OCC1-OCC4)*.
- Job characteristics: the variables consist of part-time (*PART-TIME*), intensity of supervision (*CONTROL1-CONTROL5*), self-determination of working times (*HD1-HD3*), latitude to address incidents (*INCIDENT*) or interrupt the work at will (*INTERRUPT*), skill utilization (*QUALIFICATION1*), lack of required skills (*QUALIFICATION2*), workload (*STRESS*), normative demands in terms of targets (*OBJECTIVE*), precise instructions for task compliance (*HOW*), task variety (*REPETITION*), safety consequences of worker mistakes (*CONSEC*), other consequences of worker mistakes (*CONNEG*), negative consequences of worker mistakes for the firm (*CONFIR*), information about required behavior (*UNCLEAR*), net hourly wage (*WAGE*), and the availability of help from colleagues and supervisor in case of work overload (*HELPCOL* and *HELPCHEF*).

These sets of firm and worker characteristics are usually used in the literature respectively as the determinants of the decision to adopt environmental-related standards (Grolleau et al.,

2007b) and individuals' attitudes towards environmental-related issues (Torgler and Garcia-Valinas, 2007).

The vector of variable Z_1 represents the set of instrumental variables that usually guarantees the identification of the model and helps estimate the correlation coefficients (Maddala, 1983). According to Maddala, to identify the bivariate probit, we need at least one exclusion restriction, i.e., an additional instrumental variable, that explains the probability of working for a firm with environmental–related standards registration but that is not correlated with the employee's attitudes at work, job involvement or effort. However, Wilde (2000) states that in recursive bivariate probit models, each equation needs only include one varying exogenous regressor to achieve identification. Actually, Monfardini and Radice (2008) clearly state that in the absence of an exclusion restriction, the quality of the inference derived from the Wald test of the estimated correlation coefficient between the error terms of the two equations strongly deteriorates.

Therefore, in our case, we included one variable that can play the role of instrument. Actually, our instrumental variable measures the firm's exports (*EXPORT*). In fact, a firm's environmental and ethical responsibility is frequently unobservable, especially when this firm intervenes on international markets. From a signaling perspective, the firms that have distant customers may chose to strategically implement institutional devices such as quality and environmental-related standards as this type of registration renders a firm's investments visible to the public and demonstrates the firm's contribution to satisfying the customers' quality and environmental expectations. Cao and Prakash (2011) show that the degree of trade competition increases the likelihood that firms join ISO 9000 standard while Bellesi et al. (2005) and King et al. (2006) illustrated how firms with potential foreign customers were more likely to registered with ISO 14001 standard. Moreover, as indicated by Grolleau et al. (2012), there should be no influence of exports on workers' attitudes and behavior. Additionally, even if there is a positive effect of working in an exporting firm on well-being and involvement at work, this effect will probably be captured by measures of worker's human capital and compensation since it has been shown that human capital intensity and average wages in exporting firms are higher than in non exporting firms (e.g. Munch and Skaksen, 2008). Noteworthy, as indicated previously, we included variables measuring education levels, seniority and wage as control variables[9].

β_1, β_2, γ and δ are the slope coefficients, whereas α_1, α_2, μ_1 and μ_2 are the intercepts and the disturbance terms for the two equations, respectively. This set of coefficients is estimated using the Maximum Likelihood method.

The residuals of the two equations in (3) follow a normal bivariate law with zero means and a covariance matrix that can be written after the diagonal elements are normalized to 1 as follows:

$$\begin{pmatrix} \mu_1 \\ \mu_2 \end{pmatrix} \rightarrow N(0,\Sigma), \text{ where } \Sigma = \begin{pmatrix} 1 & \rho_{12} \\ \rho_{12} & 1 \end{pmatrix}$$

[9] Although it is not a proper test for the validity of the instrumental variables, it is worth noting that our proposed instrumental variable is not a significant determinant of employee attitudes, job involvement and work effort in a single equation probit model.

In estimating the model, we find that a bivariate probit model produces an estimation of ρ_{12} , the correlation coefficient between the disturbance terms. When ρ_{12} is significantly different from zero, a set of common unobserved factors simultaneously influences the environmental-related standards and the employees' attitudes, job involvement or effort indicators. In other words, the variable for environmental-related standards is endogenous in the second equation of system (3) above. We test the significance of ρ_{12} with a Wald chi-squared statistic.

3. RESULTS AND DISCUSSION

The results of the bivariate probit estimation are presented in Tables 2 and 3 along with the goodness-of-fit measures.

Workers choice equation

The results reported in Table 3 show that in the models explaining the employees' feelings of usefulness, receipt of equitable recognition and compensation for working supplementary hours, ρ_{12} is significantly different from 0. This finding indicates that the unobservable explanatory factors of these attitudes and behavior are correlated with the use of environmental-related standards. Therefore, Y_1 is endogenous, which confirms the utility of the bivariate probit model. In contrast, ρ_{12} is not significantly different from 0 in the employee job involvement model. Therefore, a simple univariate probit model in which ρ_{12} is constrained to equal 0 would also provide unbiased results. Nevertheless, implementing the bivariate probit model was necessary to check for the exogeneity of this variable.

We present in Table 2 the estimation results regarding the factors that influence an employee's preference to work for an environmentally-related registered firm. The results are similar for all four models. We present the results obtained in conjunction with the estimation of the employees' feelings regarding the usefulness of their jobs.

Table 2. Bivariate probit estimates of the determinants of environmental standards

		STANDARDS	
Variables		Estimate	z-value
Intercept		7.21*	1.74
STANDARD		-	-
QUALITY		1.09***	27.03
JIT		0.27***	8.68
TEAM		0.26***	8.53
STAND	STAND2	-0.03	-0.82
	STAND3	-0.05	-0.98
	STAND4	-0.25**	-1.99
SIZE		0.20***	18.71
EXPORT		4.90 10-7***	6.15

SEXE		0.06	1.59
AGE		-0.00	-0.26
AGESQ		0.00	0.22
SINGLE		-0.02	-0.57
EDUCATION	EDU1	-0.05	-1.05
	EDU3	-0.05	-1.10
	EDU4	-0.00	-0.99
	EDU5	0.05	0.84
SENIORITY		0.005***	2.49
OCCUPATION	OCC1	-0.00	-0.07
	OCC2	0.06	1.30
	OCC3	0.22***	4.34
CONTROL	CONTROL1	0.04	0.86
	CONTROL2	0.03	0.78
	CONTROL3	0.00	0.07
	CONTROL4	-0.02	-0.37
HDETER	HD1	0.04	0.81
	HD2	0.01	0.15
PART-TIME		0.05	0.75
CONSEC		-0.02	-0.07
CONNEG		0.06*	1.67
CONFIR		0.00	0.10
UNCLEAR		-0.05*	1.70
REPETITION		0.05	1.53
OBJECTIVE		0.05	1.62
HOW		-0.00	-0.13
STRESS		-0.07***	-2.43
FAMILIAR		-0.00	-0.04
INCIDENT		0.03	1.04
INTERRUPT		0.01	0.18
QUALIFICATION1		-0.01	-0.42
QUALIFICATION2		-0.02	-0.77
HELPCHEF		0.05	1.59
HELPCOL		0.03	0.89
WAGE		-0.00*	-1.68

(*), (**), (***) indicate parameter significance at the 10, 5 and 1 percent levels, respectively. Dummies for nine industries are included in both regressions but not reported for space reasons.

Table 3. Bivariate probit estimates of the effect of environmental standards on employee's attitudes, job involvement and effort

		USEFUL		RECOGNITION		IMPLICATION		COMPENSATION	
Variables		Estimate	z-value	Estimate	z-value	Estimate	z-value	Estimate	z-value
Intercept		1.23	0.26	-0.15***	-4.52	-9.41***	-2.64	6.99**	2.05
STANDARD		0.75***	2.38	0.37***	2.77	0.25	1.57	-0.40***	-2.58
QUALITY		-0.14	-1.12	-0.08*	-1.85	-0.09*	-1.85	0.02	0.39
JIT		-0.02	-0.46	-0.05*	-1.78	0.00	0.02	0.10***	3.53
TEAM		-0.12***	-2.77	-0.02	-0.90	-0.01	-0.49	-0.02	-0.71
STAND	STAND2	-0.02	-0.49	0.00	0.05	0.01	0.37	-0.03	-0.97
	STAND3	0.02	0.43	-0.04	-1.07	0.03	0.68	-0.06	-1.47
	STAND4	-0.11	-0.94	-0.04	-0.46	0.17*	1.83	0.03	0.24
SIZE		-0.04*	-1.76	-0.03***	-2.98	-0.03**	-2.12	0.01	1.13
SEXE		-0.11***	-2.65	-0.21***	-6.71	0.13***	3.98	-0.08***	-2.71
AGE		0.01	1.22	-0.01	-0.63	0.01	1.28	0.01	1.12
AGESQ		-0.00	-0.70	0.00	1.06	-0.00	-1.68	-0.00*	-1.95
SINGLE		-0.03	-0.71	-0.03	-0.92	-0.04	-1.36	-0.02	-0.85
EDUCATION	EDU1	-0.14***	-2.75	-0.01	-0.02	0.01	0.30	-0.11***	-2.76
	EDU3	0.02	0.43	-0.05	-1.40	0.05	1.37	-0.02	-0.51
	EDU4	0.11**	1.97	0.08*	1.84	0.07*	1.70	-0.06	-1.53
	EDU5	0.06	0.80	0.07	1.39	0.03	0.50	-0.14***	-2.74
SENIORITY		0.001	0.08	-0.009***	-4.69	-0.005***	-2.70	0.003**	2.13
OCCUPATION	OCC1	0.12	1.43	0.44***	7.84	0.51***	8.34	-0.56***	-10.03
	OCC2	0.17***	3.14	0.20***	5.15	0.32***	7.97	-0.16***	-4.45
	OCC3	0.09	1.53	0.01	0.22	0.16***	3.78	-0.05	-1.18
CONTROL	CONTROL1	-0.08*	-1.86	-0.13***	-3.99	-0.03	-0.81	0.03	0.94
	CONTROL2	-0.10**	-2.16	-0.03	-0.72	-0.09***	-2.21	0.02	0.50
	CONTROL3	0.00	0.01	-0.03	-0.81	-0.01	-0.31	-0.01	-0.21
	CONTROL4	0.05	0.76	-0.03	-0.71	-0.02	-0.35	-0.01	-0.36

HDETER	HD1	-0.04	-0.72	-0.20***	-4.93	-0.29***	-6.07	0.15***	3.61
	HD2	-0.03	-0.47	-0.13**	-2.98	-0.20***	-4.01	0.28***	6.35
PART-TIME		0.00	0.03	0.04	0.86	-0.33***	-6.87	0.05	1.13
CONSEC		0.07*	1.85	-0.03	-1.12	0.01	0.37	0.12***	4.23
CONNEG		-0.03	-0.85	-0.13***	-4.40	0.01	0.40	0.03	0.87
CONFIR		0.11***	2.52	0.00	0.08	0.09***	2.68	-0.01	-0.44
UNCLEAR		-0.10***	-2.64	-0.22***	-8.34	-0.03	-1.22	-0.11***	-4.37
REPETITION		-0.20***	-5.48	0.01	0.35	-0.22***	-7.46	-0.11***	-3.95
OBJECTIVE		0.02	0.46	-0.07***	-2.78	0.17***	6.25	0.01	0.28
HOW		-0.22***	-5.43	0.06*	1.9	-0.21***	-6.65	-0.12***	-3.84
STRESS		0.15***	4.65	-0.17***	-6.83	0.21***	8.15	0.07***	2.93
FAMILIAR		0.08**	2.15	0.04	1.41	0.10***	3.63	-0.02	-0.73
INCIDENT		0.06*	1.91	-0.03	-1.23	0.10***	3.73	0.07***	2.87
INTERRUPT		-0.09***	-2.30	-0.08***	-2.39	-0.05	-1.49	0.05	1.41
QUALIFICATION1		0.10***	2.92	-0.07***-	2.88	0.00	0.19	0.09***	3.60
QUALIFICATION2		-0.04	-1.17	-0.41***	-16.19	-0.14***	-5.48	-0.01	-0.46
HELPCHEF		0.11***	3.00	0.26***	9.82	0.14***	5.28	0.11***	4.29
HELPCOL		0.07*	1.81	0.08***	2.75	0.00	0.06	0.16***	5.65
WAGE		0.01***	3.08	0.01***	4.14	0.00*	1.94	0.00	1.29
Marginal Effects of STANDARD		0.071**	1.97	0. 03***	2.80	0.03	1.50	-0.04**	-2.68
Average Treatment Effects of STANDARD		0.11***	2.36	0.13***	2.87	0.08	1.60	-0.15***	-2.68
Likelihood ratio		-8327.4698		-12223.332		-11517.041		-12523.013	
WaldChi2(36)		3340.46***		3729.89***		3697.39***		3411.07***	
Rho (Wald test of rho=0 Chi2(1))		-0.47** (4.42)		-0.18** (4.91)		-0.14 (2.21)		0.23*** (5.52)	
Number of observations		11 602		11603		11603		11 603	
Number of workers in registered firms		3 304		3 304		3 304		3 304	

(*), (**), (***) indicate parameter significance at the 10, 5 and 1 percent levels, respectively. Dummies for nine industries are included in both regressions but not reported for space reasons. Estimation of the variance of coefficients is robust to the fact that the error term is not identically distributed.

The reported marginal effects are computed for the average worker of the population and the respective standard errors are evaluated with the delta method. The average treatment effects and standard errors are computed using a bootstrap with 500 simulations.

We first notice that our instrumental variable export is positively associated to firm's probability to implement environmental-related standards. Then, among the firm characteristics, the use of the ISO 9000 quality standard, just-in-time production and autonomous work teams or groups have a positive and significant impact on the use of environmental-related standards. Previous experiences with similar processes and standards helped the organizations incur lower additional costs because of "learning-by-doing" (e.g., through the overlap of documentation) and scale economies (Grolleau et al., 2007a). Not surprisingly, if the standardization of production processes and working methods is not a strategically important issue for a firm, the likelihood of implementing environmental-related standards will decrease. Generally, the size of a firm's financial resources is the primary determinant of its likelihood of adopting environmental-related practices (e.g., Grolleau et al., 2007a). Our results imply that the larger the firm is, the more likely it is to adopt environmental-related standards. We also controlled for nine sectors of activities and defined a reference as the sector of trade (not reported in Tables 2 and 3). Similar to the literature, we find that the probability of adopting environmental-related practices is stronger in some industries, particularly the equipment, intermediate goods and energy sectors.

In term of the workers' socio-demographic characteristics, we notice that age, marital status and education have no influence on firm's probability to adopt environmental standards. Also, our results display some weak evidence that women are more attracted to firms registered with environmental-related standard than men, confirming previous findings that they have greater environmental concerns (e.g. Torgler and Garcia Valinas, 2007). On the other side, seniority is negatively associated with firm's decision to implement environmental standards. Furthermore, white-collar employees are more likely to work for firms that have registered for environmental-related standards than blue-collar employees. The other occupational categories have no effect on the probability of working for environmentally registered firms.

Employees' attitudes, job involvement and effort equations

The main goal of our study is to assess the influence of environmental-related standards on employee attitudes, job involvement and effort levels. The estimated effects of environmental-related standards on employees' feelings regarding the usefulness of their jobs and whether their work is equitably recognized, their job involvement and their effort levels are reported in Table 3. The results display a mixed picture.

We find that the use of environmental-related standards positively impacts the employees' feelings that their jobs are useful and that their work is equitably recognized. In fact, employees seem to appreciate working for a firm whose stance on environmental and social issues accords with their own feelings on these subjects. Hence, the choice of investing in environmental-related standards appears to have positive effects on workers' attitudes and motivation. The belief that one's job is useful to others is likely to fuel an employee's intrinsic motivation, while the feeling of being equitably recognized prevents any disincentive effect created by the employee's aversion to inequity.

The argument that environmental-related standards improve job involvement and effort is only partially supported, as our results indicate that adherence to environmental-related standards has a positive but insignificant impact on job involvement. However, its negative impact on employee compensation for overtime hours suggests that employees' willingness to donate supplementary efforts is related to their environmental concerns. Based on this

finding, we can interpret supplementary work effort as a type of labor donation. Additionally, to measure the quantitative importance of the decision to implement environmentally-related standards, we can first assess (at the mean of the employee population) its impact on the probability that an average employee reports a positive job attitude, greater job involvement and increased effort at work. In our case, the marginal effect is computed as the difference between the probabilities that the average employee of the population reports a positive attitude, greater job involvement and increased effort at work when working in an environmentally registered firm and when working in a non-green firm. Furthermore, we also calculated the average treatment effect of environmental-related standards, which are evaluated as the difference between these probabilities averaged over the whole sample of employees. These figures are reported in the last two rows of Table 3.

Our findings show that if the average worker were employed in an environmental registered firm, he or she would have a 7% and 3% higher probability of feeling useful and being equitably recognized at work, respectively, than the workers employed in a non-green firm. Furthermore, although adherence to environmental-related standards does not significantly influence employees' self-reported levels of job involvement, it appears to decrease the likelihood that the average worker obtains compensation for his or her supplementary working hours by 4%. The figures are larger for the evaluation of average treatment effects. In this case, the probability of feeling that one's job is useful, that one is being equitably recognized and that one will not be compensated for overtime work will increase by 10%, 14% and 15%, respectively, for the workers employed in an environmental-related firm.

Several versions of the model have been estimated to investigate the robustness of these results. More precisely, considering that large firms are known to be more generous on various aspects of compensation, we used different forms of the variable size (continuous form without logarithm and categorical form) and we obtained results that support the previous findings. Also, if we substitute logarithm of sales or assets for the size indicator, we also find similar findings with in addition a positive and significant effect of environmental-related standards on the workers' job involvement. Additionally, we integrate in our model the firm's profit as an indicator of firm's economic performance and once again, the new results are consistent with previous ones. Finally, we also questioned how our results are dependent on the choice of our instrumental variable. For that purpose, we included two dummy variables intended to measure to what extent the workers have chosen to participate in relational activities within the firm. The first dummy measures whether the worker joined a sport, cultural or social association within the firm while the second identifies the workers who chose not to join any of these associations. We argue that if the worker chose to take part in the activities of an association within the firm, then his or her behavior can be interpreted as an indication of his or her taste for involvement in social activities as it has been shown to be true in France. The use of this supplementary instrumental variable does not affect our initial findings.

Employee attitudes may channel the relationship between the environmental-related standards and the job involvement of employees

As our findings reveal that environmental-related standards have no *direct* influence on the degree of the employees' reported job involvement, we want to investigate whether there are specific channels through which adherence to environmental standards registration may *indirectly* impact the employees' job involvement. More precisely, as our results indicate that environmental-related standards are positively associated with employees' feelings of

usefulness and of being equitably recognized at work, we will try to understand whether these two indicators could act as significant stimulants of job involvement.

This alleged influence can be grounded in previous research in the organizational literature that has shown that positive employee feelings and emotions have positive effects on various employee outcomes, such as higher levels of task activity, work performance and job achievement (e.g., Staw et al., 1994). Though we are not aware of a direct test of the relationship between employees' beliefs in the utility of their jobs and the extent of their job involvement, previous research has studied the effect of public service motivation on employee attitudes and behavior at work. Public service motivation can be defined as an individual's motivation to help produce benefits for the public at large. Several studies have shown that if such motivation exists, both nonprofit and public sector employees are more involved in and efficient at their jobs (Moynihan and Pandey, 2007; Leisink and Steijn, 2009). We do not know of equivalent results in the private sector, but we hypothesize that private sector employees motivated by pro-social preferences may behave in a similar manner. Furthermore, the effect of fairness on employee commitment and effort has been empirically confirmed both in laboratory experiments and survey analyses (e.g., Meyer et al., 2002; Fehr and Schmidt, 2006; Fehr et al., 2009).

To verify empirically the role of employees' feelings of usefulness and of being equitably recognized at work as indirect channels in the linkage between environmental-related standards and the employees' job involvement, we use a multivariate probit model. Similar to the bivariate probit model, the multivariate probit model relies on a simultaneous estimation approach in which the factors that determine the environmental-related standards registration, the employees' feelings regarding the usefulness of their jobs or their feelings of being equitably recognized are estimated simultaneously with the factors that explain the probability of high employee job involvement.

Compared with our previous bivariate model, in this model, we add a third equation in which the reported level of employees' job involvement (Y_{23}) is explained by their feelings about the usefulness of their jobs and their recognition at work, respectively (Y_{21} and Y_{22}). We consider the following multivariate probit model:

$$\begin{cases} Y_1^* = \alpha_1 + \beta_1 X_1 + \delta Z_1 + \mu_1 \\ Y_{2k}^* = \alpha_2 + \beta_2 X_1 + \gamma Y_1 + \mu_2 \ , \ k = 1,2 \\ Y_{23}^* = \alpha_3 + \beta_3 X_1 + \gamma Y_{2k} + \mu_3 \end{cases} \qquad (4)$$

where X_1 and Z_1 represent the vector of exogenous variables and the set of instruments that we used previously in the bivariate probit model, respectively. Additionally, we include an instrumental variable Z_2 that explains the probability that an employee feels his or her work is useful and equitably recognized but should not be correlated to the error term of the employee's job involvement equation. For this purpose, we use the variable *HANDICAP,* which indicates whether the employee has a health problem or disability preventing him or her from holding certain work posts or performing certain tasks at work. This variable accounts for the fact that disabled employees are less likely to believe that they are useful to others and that they are equitably recognized (Stone and Colella, 1996). In fact, previous scholars have found that disability is linked to lower average pay, job security, training and participation in decisions (Schur et al., 2009). Additionally, disabled employees are often employed in part-time, low-status jobs that offer little chance for advancement (Braddock

and Bachelder, 1994). Therefore, as Schur et al. (2009) argued, "these differences contribute to the more negative evaluations of firm treatment by employees with disabilities, and their lower levels of company loyalty."

As for the bivariate probit model, we assume that the residuals in (4) are distributed as follows:

$$\begin{pmatrix} \mu_1 \\ \mu_2 \\ \mu_3 \end{pmatrix} \rightarrow N(0,\Sigma), \text{ where } \Sigma = \begin{pmatrix} 1 & \rho_{21} & \rho_{31} \\ \rho_{21} & 1 & \rho_{32} \\ \rho_{31} & \rho_{32} & 1 \end{pmatrix}$$

We will evaluate whether unobserved covariates jointly determine the outcomes of interest with a likelihood ratio (LR) test of the joint condition: $\rho_{21} = 0$, $\rho_{31} = 0$ and $\rho_{32} = 0$. LR tests have been shown to be appropriate when testing for exogeneity while simultaneously estimating bivariate probit models (Monfardini and Radice, 2008). A similar reasoning is used here in the multivariate case.

Results of the Multivariate Probit Model

A summary of the results of the multivariate probit estimation is presented in Table 4. Our discussion will focus on the respective impacts of the employee's feelings of being useful and equitably recognized on reported job involvement. Even if they are not reported in the table, we note that the effects of the control variables are similar to those obtained with the bivariate probit model. As expected, our instrumental variable *HANDICAP* negatively impacts the employees' feelings of being useful and equitably recognized at work[10].

Table 4. Multivariate probit estimates of the relationship between environmental standards, employee's attitudes toward job and employee's job involvement

Variables	USEFUL		RECOGNITION		IMPLICATION	
	Estimate	Marginal effects	Estimate	Marginal Effects	Estimate	Marginal Effects
STANDARD	0.64*** (2.60)	0.061** (2.08)	-	-	-	-
USEFUL	-	-	-	-	0.71*** (2.57)	0.202*** (2.82)
LR test of joint nullity of correlation coefficients: chi2(3) = 9.03**						
STANDARD	-	-	0.39*** (3.01)	0.033*** (3.02)	-	-
RECOGNITION	-	-	-	-	0.70** (2.22)	0.093** (2.52)
LR test of joint nullity of correlation coefficients: chi2(3) = 6.38*						

(*), (**), (***) indicate parameter significance at the 10, 5 and 1 percent levels, respectively. The obtained results are based on 200 random draws for the multivariate probit model. The marginal effects are computed for the average employee of the population. Z-statistics in parentheses

[10] The results are available from the authors upon request.

The main findings support the hypothesis that environmental-related standards indirectly affect employee job involvement through the channels of employees' feelings of being useful and equitably recognized at work. Actually, the results indicate that there is a positive and statistically significant correlation between the employees' feelings of usefulness at work and their job involvement (results summarized in Table 4, rows 2 and 3) as well as between the employees' feelings of being equitably recognized at work and their job involvement (Table 4, rows 5 and 6). The calculations of the marginal effects show that the implementation of environmental-related standards raises the likelihood that the average employee feels that his or her job is useful to others by 6%. In turn, these feelings raise the probability of being involved in the job by 20%. Also, the use of environmental-related standards raises the likelihood of feeling equitably recognized by 3%, this last feeling further improves the probability of being involved in the job by 9%. Based on these findings, we bring to light two indirect mechanisms that permit environmental-related standards to enhance employee job involvement.

4. CONCLUSION

An increasing number of private firms are making considerable voluntary investments in environmental-related standards. One of the rationales for these implementations is that firms may anticipate savings on production costs and, more specifically, on labor costs. However, the previous evidence on this assumption only provided some indirect indications that firms may improve their abilities to recruit and motivate their workforce (e.g., Turban and Greening, 1997; Grolleau et al., 2012).

To fill a gap in the literature, this paper attempts to investigate the effect of environmental-related standards on three specific dimensions of human resource management. More precisely, using a representative employer-employee dataset of French private firms with more than 20 employees, we investigate the relationship between environmental-related standards and employee attitudes, involvement in the job and effort. The employees' attitudes are measured by their feelings regarding their usefulness to others, their feelings that their work is equitably recognized, while their job involvement and effort are respectively measured by the self-reported employees' involvement and the absence of compensation for supplementary work hours. Our estimation results unambiguously show that firms' registration for environmental-related standards is associated with higher feelings of usefulness to others and feelings of being equitably recognized among the employees. The findings related to job involvement suggest that, although employees do not claim to be significantly more involved in their jobs, "green workers" are more likely, *ceteris paribus*, to work uncompensated for supplementary work hours than non-green workers.

Additionally, we test an alternative model in which the effects of the environmental-related standards on employee job involvement are conveyed through the employees' feelings of usefulness to others and/or the employees' feelings that their work is equitably recognized because the links between standards and employees attitudes have been well established. The results indicate that the employees' feelings of usefulness to others and the employees' feelings that their work is equitably recognized act as two indirect channels through which environmental-related standards enhance the employees' job involvement.

However, our study is only a first step toward an assessment of the labor productivity gains of environmental-related standards registration. Future research should develop supplementary indicators to assess the effects of environmental-related standards on absenteeism,

health and safety issues and resignations. Such inquiries could shed new light on issues that might improve firms' overall business performance.

In addition, it will be important to provide direct empirical evidence of the association between labor cost reductions and the implementation of environmental-related standards. Another research avenue would be to study whether standardization has long-term benefits, beyond environmental performance, and helps green firms survive in competitive markets.

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