

UCLA

Recent Work

Title

Organizational Configurations for Sustainability and Employee Productivity: A Qualitative Comparative Analysis Approach

Permalink

<https://escholarship.org/uc/item/2rn3b77k>

Authors

Delmas, Magali A
Pekovic, Sanja

Publication Date

2017-04-01



UNIVERSITY OF CALIFORNIA, LOS ANGELES



UCLA

Institute of the Environment and Sustainability

Working Paper Series

**ORGANIZATIONAL CONFIGURATIONS FOR
SUSTAINABILITY AND EMPLOYEE PRODUCTIVITY:
A QUALITATIVE COMPARATIVE ANALYSIS
APPROACH**

MAGALI A. DELMAS AND SANJA PEKOVIC

April 2017

Organizational Configurations for Sustainability and Employee Productivity: A Qualitative Comparative Analysis Approach

Magali A. Delmas* and Sanja Pekovic†

Forthcoming *Business & Society*

Abstract

We propose a model that identifies the configurations of relations between environmental practices and other management practices that can improve employee performance, measured as labor productivity. To test our model, we use the qualitative comparative analysis (QCA) methodology, which allows us to demonstrate empirically how different configurations of management practices, including environmental practices, quality management systems, teamwork, and interorganizational relations, contribute to work systems in ways that increase labor productivity. Our results, based on data from 4,975 employees from 1,866 firms, show that environmental practices are associated with higher labor productivity only when they are combined with other management practices.

Keywords

green practices, labor productivity, qualitative comparative analysis (QCA), quality management, training

Introduction

An extensive literature analyzes the drivers of the adoption of proactive environmental strategies and practices (Darnall, Henriques, & Sadorsky, 2010; Henriques & Sadorsky, 1996; Sharma & Henriques, 2005), and the impact of these practices on corporate performance (McWilliams & Siegel, 2011; Orlitsky, Schmidt, & Rynes, 2003). However, the literature tends to examine environmental practices in isolation rather than taking a more holistic approach that investigates the relationships between environmental practices and other organizational practices. This approach fails to consider that firms that have adopted proactive environmental practices differ in many other organizational characteristics from those that have not adopted such practices (Eccles, Ioannou, & Serafeim, 2012), and could lead to mis-specified models that ignore the effect of complementary organizational mechanisms on both environmental practices and corporate performance (Christmann, 2000; Delmas, Hoffmann, & Kuss, 2011; McWilliams & Siegel, 2000).

Therefore, researchers need to open the organizational black box to understand how environmental practices interact with the organizational context in which they are implemented, and how this interaction affects performance (Branzei, Jennings, & Vertinsky, 2002; Delmas & Toffel, 2008; Marcus, 2005; Surroca, Tribó, & Waddock, 2010). For example, it is still unclear how environmental practices interact with human resources practices, which are key to implementing environmental practices as well as to firm performance (Delmas & Pekovic, 2013, 2016). This is why scholars have called for more research to understand how the adoption of environmentally responsible practices can affect employee performance (Ardichvili, 2013; Gond, Igalens, Swaen, & El Akremi, 2011; Jackson, Renwick, Jabbour, & Muller-Camen, 2011).

In this article, we explore how the adoption of environmental practices interacts with other management practices to influence employee performance. We focus on discovering configurations of environmental practices and other management practices that are more effective at improving employee performance. Specifically, we adopt labor

* Magali A. Delmas, Institute of the Environment & Anderson School of Management University of California, Los Angeles, La Kretz Hall, Suite 30, Los Angeles, CA 90095-1496, USA. Email: delmas@ucla.edu

† Sanja Pekovic, University of Montenegro, Podgorica, Montenegro. Email: pekovic.sanja@yahoo.fr

productivity as a reliable and widely used measure of employee performance (Dalton, Todor, Spendolini, Fielding, & Porter, 1980; Huselid, 1995; Samuelson & Nordhaus, 1989).

We argue that superior employee performance is the outcome of the adoption of environmental practices combined with other organizational practices, such as high-quality management systems, employee training, and/or high level of interpersonal contacts within the firm and with organizations outside of the firm. We discuss the ways in which configurations of organizational practices can facilitate knowledge sharing and learning, as well as employee motivation and commitment to the organization, and promote labor productivity.

The study of configuration focuses on arrangements of interconnected elements. Organizational configurations are defined as “any multidimensional constellation of conceptually distinct characteristics that commonly occur together” (Meyer, Tsui, & Hinings, 1993, p. 1175). In other words, configurations represent recurring patterns of how key “organizational variables ‘fit’ together to form an identifiable ‘whole’” (Walker, Ni, & Dyck, 2015, p. 41). However, the study of configurations presents a serious challenge for general linear methodologies given these methodologies’ assumption that effects are independently generated (Greckhamer, Misangyi, Elms, & Lacey, 2008). In this study, we use the qualitative comparative analysis (QCA) methodology to analyze how environmental management practices can be combined with other management practices to enhance labor productivity in addition to the impact of such practices in isolation. QCA allows the analysis of how elements of a configuration are connected to outcomes (Fiss, 2011; Ragin, 2006), and is based on the assumption that “organizations are best understood as clusters of interconnected structures and practices, rather than as modular or loosely coupled entities whose components can be understood in isolation” (Fiss, 2007, p. 1180). Since its first application in 1987, QCA has been applied in more than 750 publications (Marx, Rihoux, & Ragin, 2014). QCA is particularly useful for corporate social responsibility (CSR) research, as CSR is a multifaceted concept with areas of practices that consist of several issues. Indeed, researchers have started to use QCA to understand the drivers of the adoption of CSR practices and the impact of such practices on firm-level performance (Chappin, Cambré, Vermeulen, & Lozano, 2015; Crilly, Hansen, Pedersen, & Perrini, 2012; Halme, Lindeman, & Linna, 2012; Maggetti, 2014; Skarmeas, Leonidou, & Saridakis, 2014).

To conduct our analysis, we use survey data from 4,975 employees from 1,866 firms that allow us to measure employee training and teamwork, in addition to firm-level environmental management practices, management systems, and interfirm partnerships. Our results show that the adoption of environmental practices is associated with higher levels of labor productivity only when such practices are combined with configurations of quality management systems, teamwork, and interfirm partnerships. The adoption of isolated environmental practices alone is not associated with higher levels of labor productivity. These results highlight the importance of implementing configurations of practices to achieve enhanced performance.

Hypotheses

Proactive environmental practices seek to reduce the environmental impacts of operations beyond regulatory requirements (Sharma, 2000). They involve “anticipating future regulations and social trends and designing or altering operations, processes, and products to prevent negative environmental impacts” (Aragón-Correa & Sharma, 2003, p. 73).¹

Scholars have shown that the successful implementation of environmental practices requires their integration within existing organizational functions including, most notably, human resource management (Balzarova, Castka, Bamber, & Sharp, 2006; Daily & Huang, 2001; Renwick, Redman, & Maguire, 2013). Here we contend that organizational practices and environmental practices can work jointly to improve employee performance.

While we could use a number of measures to assess employee performance, such as turnover or absenteeism, we chose labor productivity, a crucial organizational performance outcome (Datta, Guthrie, & Wright, 2005). Labor productivity, defined as total output divided by labor inputs (Samuelson & Nordhaus, 1989), indicates the efficiency of a firm’s labor force.

We develop a framework that describes how configurations of organizational practices and environmental practices can enhance knowledge sharing and learning, employee motivation, and commitment to the organization, to boost labor productivity. Our framework combines environmental practices with human resources practices and other organizational practices such as training, quality management systems, teamwork and interfirm relations. We argue that such practices act in synergistic ways to affect employee performance when their combination allows employees to access different sources of knowledge throughout the different levels of the organization and beyond. Furthermore, the combination of these practices leads to enhanced employee commitment to the organization. Both enhanced knowledge and organizational commitment improve employee productivity. Our framework is portrayed in Figure 1 and our hypotheses are developed below.

Environmental Practices and Training

It has been demonstrated that investment in human resources via training can lead to labor productivity improvement (Koch & McGrath, 1996; Zwick, 2004). Here, we argue that environmental practices and training can reinforce each other's impact on labor productivity. First, environmental practices can increase the amount and effectiveness of training, leading to higher labor

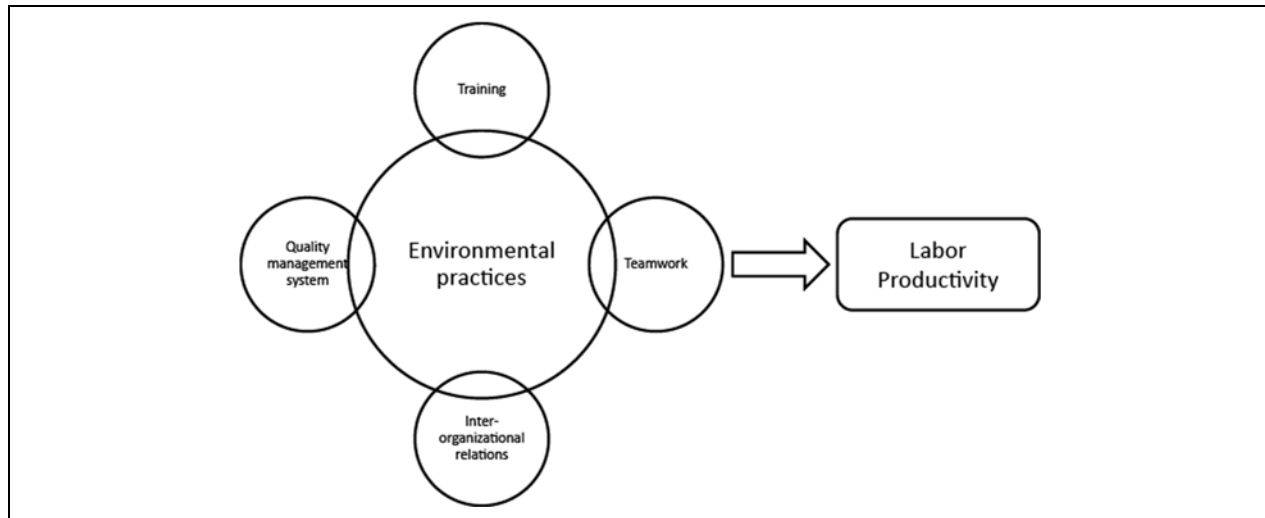


Figure 1. Configurations of environmental practices and other organizational practices for labor productivity.

productivity. Second, training can facilitate the understanding and effectiveness of environmental practices, which can lead to enhanced labor productivity.

The adoption of environmental practices can affect the amount of training provided by organizations (M. Khanna & Anton, 2002). For example, one of the basic requirements for adopting the ISO (International Organization for Standardization) 14000 international management system standard is to provide job-appropriate employee training, and several authors have shown that ISO certification is an important determinant of training efforts within the organization (Blunch & Castro, 2007; Darnall, Henriques, & Sadorsky, 2008; Delmas, 2001; Ramus & Steger, 2000). Indeed, training is likely to be critical to the successful implementation of environmental practices (Daily & Huang, 2001). Training communicates the goals and priorities of environmental management practices and thus motivates and educates employees in environmental behaviors (Fernandez, Junquera, & Ordiz, 2003; Govindarajulu & Daily, 2004). Such training enables employees to gain competencies in environmental solutions and better identify pollution prevention opportunities, and empowers them to offer recommendations (Morrow & Rondinelli, 2002; Ramus & Steger, 2000; Rondinelli & Vastag, 2000; Toffel, 2000). These recommendations can be linked to time savings and efficiency, and improved employee productivity (Weber, 2008).

In addition, employee training on the goals and objectives of environmental practices facilitates the creation and dissemination of a shared environmental vision and can trigger changes in thinking about organizational norms that lead to higher employee commitment to the organization (Howard-Grenville, Bertels, & Lahneman, 2014). These shared mental models improve coordination and create a sense of common purpose among employees. Furthermore, because environmental training goes beyond the employee's task at hand, it helps the employee get a more holistic picture of the organization. Such training can therefore enhance what has been called "citizenship" performance, or "behaviors that go beyond task performance and technical proficiency, to support the organizational, social, and psychological context that serves as the critical catalyst for tasks to be accomplished" (Borman, 2004, p. 238). Enhanced citizenship performance can, in turn, increase employee productivity (MacKenzie, Podsakoff, & Fetter, 1991).

More generally, the adoption of environmental management practices can lead to a stronger employee identification with the organization they work for, and such identification may be translated into cooperative and citizenship-type behaviors (Jones & Hamilton Volpe, 2011) and increased employee organizational commitment (Brammer, Millington, & Rayton, 2010; Peterson, 2004). For example, when employees learn about the adoption of environmental practices, they are more motivated to engage in more general activities such as training, thus enhancing

the effectiveness of general training. Therefore training and environmental practices can reinforce each other to enhance both competencies and citizenship behavior, both leading to greater productivity.

Thus, we hypothesize that training and environmental practices can interact, and that the adoption of both environmental practices and training can be linked to greater employee commitment to the organization, and to greater knowledge. Accordingly, a configuration of environmental practices and training can effectively be associated with greater labor productivity.

Hypothesis 1: The combination of environmental practices and training is associated with greater labor productivity than environmental practices or training alone.

Environmental Practices and Quality Management Systems

Environmental practices bear similar features to other organizational capabilities, such as quality management systems (Delmas & Montiel, 2009), that have been shown to enhance workers' productivity (Naveh & Erez, 2004). Indeed quality management systems require the firm to improve the documentation of operating procedures, training, and corrective action related to quality, and a commitment to continuous improvement. Quality management systems emphasize attention to detail, and less product default and less rework, which increases labor productivity (Naveh & Erez, 2004).

To avoid the costly process of implementing different management practices, firms often prefer to adopt practices that have a similar structure to those that have already been implemented (Pekovic, 2010). Quality management systems, which require an organization-wide commitment to continuously improve the organization's process and product quality, are considered to have a comparable structure with environmental practices implemented through an environmental management system (Grolleau, Mzoughi, & Pekovic, 2007). For instance, both quality management systems and environmental management systems can be certified through the ISO through a similar certification process. Consequently, prior adoption of quality management systems is likely to decrease the cost of adopting green practices and facilitate the effective implementation of environmental practices (Darnall & Edwards, 2006; Delmas & Pekovic, 2015). Indeed, several authors have shown that firms that adopt a quality management system are more likely to adopt an environmental management standard (Delmas, 2001; King & Lenox, 2001; Kitazawa & Sarkis, 2000). Employees who have been trained with quality management systems can use their quality training to identify inefficiencies related to wasted materials and the environmental impact of processes (King and Lenox, 2002; Rothenberg, Pil, & Maxwell, 2001). In addition, employees who are trained to pay more attention to details, and who know how to identify root causes of quality problems, can more easily identify and eliminate hazardous practices and add safety precautions (Levine & Toffel, 2010). These safety precautions can help reduce occupational injuries, leading to improved labor productivity. Therefore, quality management systems and environmental practices can reinforce each other to improve labor productivity.

As suggested by Pil and Rothenberg (2003), better environmental practices can also lead to superior quality. Environmental practices include some complementary aspects to quality management systems that can enhance quality (Corbett & Kirsch, 2001). First, enhancing environmental performance involves root-cause analyses, data tracking efforts, and structured reporting and information evaluation systems analogous to those used to enhance quality, and may result in a shift in management orientation toward the tools and systems associated with quality management systems (Pil & Rothenberg, 2003). The level of technical and managerial sophistication required to attain environmental performance improvements may provide superior understanding and application of quality management practices (Pil & Rothenberg, 2003). Second, environmental practices can help firms detect and eliminate inefficiencies in resource use (King & Lenox, 2002; Rothenberg et al., 2001). Resource efficiency, achieved through environmental management practices, can enhance process and product quality (Pil & Rothenberg, 2003). Third, if employees feel more committed in organizations that have adopted environmental practices (Ambec & Lanoie, 2008), they might also be more committed to follow management quality procedures, therefore enhancing the effectiveness of quality management practices, and their effect on labor productivity.

Because of their different and complementary focus, quality and environmental practices are more likely to be associated with higher labor productivity when implemented together than when only one of these practices is implemented (Grolleau, Mzoughi, & Pekovic, 2013). We therefore hypothesize that quality management systems and environmental practices can enhance each other to promote labor productivity.

Hypothesis 2: Environmental practices combined with the adoption of quality management systems are associated with greater labor productivity, than environmental practices or quality management systems alone.

Environmental Practices, Teamwork, and Interfirm Relations

Scholars have shown that environmental practices alter the organization of the firm by requiring changes in employee attitudes, roles, and responsibilities that might indirectly influence employee performance outcomes (Florida & Davidson, 2001; Hart, 1995). Building on this line of reasoning, we argue that environmental practices are associated with improved interpersonal contacts within the firm through teamwork, and with organizations outside of the firm through interfirm partnerships. These enhanced interpersonal contacts may in turn increase labor productivity.

Teamwork. In his seminal work, Kotter (1982) describes how effective managers spend more than 80% of their time interacting with others, gathering and sharing information. Beyond general management, others have since investigated the importance of teamwork and its positive effect on employee productivity (Greve, Benassi, & Arne Dag, 2010; Luthans, 1988). Two main reasons explain why increased interpersonal contacts through teamwork in an organization can lead to improved labor productivity. First, interpersonal contacts increase employees' "social capital," defined as the ability to reach others, inside and outside the organization, for advice and problem-solving (Greve et al., 2010). Such social capital helps employees engage in knowledge transfer and leads to innovative ideas that improve productivity (Delmas & Pekovic, 2016; Hamilton, Nickerson, & Hideo, 2003). Furthermore, social capital also binds employees together to amplify knowledge, skills, and abilities, and results in enhanced productivity (Ployhart & Moliterno, 2011). Second, interpersonal contacts can promote employee job satisfaction and motivation, which in turn lead to increased productivity. Like any other social activity, work entails social needs and responses, such as the need for connection, cooperation, support, and trust (Cohen & Prusak, 2001). Organizations that facilitate teamwork provide an enhanced working environment that might lead employees to give more to the firm and increase their productivity, resulting in overall improved organizational productivity (Banker, Field, Schroeder, & Sinha, 1996; Batt, 2004; Huselid, 1995).

Most environmental management practices require a combination of different types of competencies that can be obtained by establishing cross-functional teams (Denton, 1999; Rothenberg, 2003) and by promoting collaborative work from employees of different hierarchical levels and functions (Oh'Eocha, 2000). Environmental practices, like those adopted through the ISO 14001 standard for example, have the demonstrated potential to transcend functional areas of the organization and integrate environmental considerations throughout the entire organization (Delmas, 2001), and to additionally encourage employees to work together in teams regardless of their placement within the organization (Arimura, Darnall, & Katayama, 2011).

A structure of existing teamwork will facilitate the implementation of teamwork associated with the adoption of environmental practices, but such practices will also most likely expand the breath and scope of the existing teamwork. Organizational teamwork in combination with environmental practices should lead to higher labor productivity as such combination will allow employees to increase the variety and richness of their interpersonal contacts by working across departments and allowing the development of relationships with workers outside of their own unit. We therefore hypothesize the following:

Hypothesis 3: Environmental practices combined with teamwork are associated with greater labor productivity than environmental practices or teamwork alone.

Interorganizational relations. The adoption of environmental practices can be associated with the adoption of stronger interfirm relations such as supply chain partnerships (Delmas & Montiel, 2009).

Interorganizational relations present shared meaning, commitment, and norms of reciprocity that enable understanding and knowledge transfer among various actors (Gulati, 1995; Youndt, Subramaniam, & Snell, 2004). One of the main reasons that firms participate in interorganizational relations or partnerships is to access "know-how," important information and capabilities belonging to their alliance partners (Hamel, 1991; Kale, Singh, & Perlmutter, 2000; T. Khanna, Gulati, & Nohria, 1998). The interactions between the individual members of the partner organizations is an effective mechanism to transfer or learn "sticky" and tacit knowledge across the organizations (Marsden, 1990; von Hippel, 1988). Interorganizational relations can enhance social capital and provide access to rich and diverse sets of information (Koka & Prescott, 2002). Social capital coming from interorganizational relations—in a similar fashion to social capital stemming from intrafirm interpersonal relations—helps employees engage in knowledge transfer, and leads to innovative ideas that improve productivity.

Since environmental issues often transcend firm boundaries, the engagement of firms in interfirm relations along with environmental practices allows employees to not only connect with a variety of individuals outside of the organization, but permits exchanges that may transcend the organization's profit maximization objectives to include issues related to the environmental impacts to the community. Such interactions might lead to improved social capital for the employees as well as enhanced social identity and commitment to their organization. That is to say, employees

engaged in both interorganizational relations and environmental practices might be better able to assess the organization's role in its social and environmental context, and feel more empowered to participate in its success by being more productive. We therefore hypothesize the following:

Hypothesis 4: Environmental practices combined with interorganizational relations are associated with greater labor productivity than environmental practices or interorganizational relations alone.

In conclusion, we have described several potential configurations of environmental practices with other management practices that could lead to increased labor productivity. Our focus here was to describe a subset of configurations that included environmental practices while the empirical analysis contains all potential configurations of management practices such as those that omit environmental practices.

Data

To test our hypotheses, we combined several data sources. We used data from the French Organizational Changes and Computerization's (COI) 2006 survey.² The COI survey is a matched employer–employee dataset on organizational change and computerization from the National Institute for Statistics and Economic Studies (INSEE) and the Ministry of Labor, and the Center for Labor Studies (CEE). Each firm in the sample filled in a self-administered questionnaire about information technologies and work organizational practices in 2006 and changes that have occurred in those areas since 2003, as well as the goals driving decisions to implement organizational changes and the economic context in which those decisions were made. Within each surveyed firm, employees were randomly selected and asked about their personal socioeconomic characteristics, as well as about their job and position within the organization. The survey benefited from a high response rate of 86%, and it contains 7,700 firms that are representative of the population of French firms from all industries except agriculture, forestry, and fishing. The original dataset includes 14,369 employees.

To obtain information on employee value-added activities, we merged the COI survey results with another database, called the Elaboration of Enterprise Annual Statistics from 2008 (ESANE). This database results from a mandatory survey conducted by the French Ministry of Industry to collect data on firm characteristics such as business activities, size, and location. We used a sample comprising 80,000 enterprises.

To obtain information about the adoption of environmental proactive practices, we merged the COI data with the Community Innovation Survey (CIS). The CIS was administered by the French INSEE over the period 2006–2008; the survey is based on the Organisation for Economic Co-Operation and Development (OECD) Oslo Manual. Firms answered questions regarding innovations they had introduced within the previous 3 years. The questionnaire was sent to 25,000 firms and brought another very high response rate at 81%. The CIS survey is mandatory for firms with 250 or more employees, bringing more important representation of these firms. Because of the data merges, our sample includes observations for 4,975 employees from 1,866 firms.

Measures

Labor productivity. Drawing on prior research (Salis & Williams, 2010), we measure labor productivity as the logarithm of firm's value added, divided by the number of employees. Value added was measured in 2008 and is recorded in the ESANE database; the number of employees is obtained from the COI database. Note that our dependent variable, labor productivity, was measured in 2008, but all the independent variables were measured in 2006 to help control for reverse causality.

Environmental practices. To measure a firm's adoption of proactive environmental practices, we construct a variable that sums the following items: The firm has adopted innovative practices to (a) reduce resource and/or material per unit of production; (b) reduce energy use; (c) reduce firm's CO₂ "footprint" (total CO₂ production); (d) replace materials with less polluting or hazardous substitutes; (e) reduce soil, water, noise, or air pollution; and (f) recycle waste, water, or materials.

Quality management system. We include a binary variable representing the adoption of the international quality management system standard ISO 9000 by the firm.

Training. To measure employee training, we sum three indicators of employee training: *customer training*, *quality training*, and *general training*. Each training indicator is the sum of the following items: (a) supervisor/

quality/general training received, (b) employee received training in the last 3 years, (c) duration of the last training received, (d) training led to a certificate, (e) employee obtained training certificate, and (f) number of trainings received. The training scale received a Cronbach's alpha of .71, which is considered satisfactory (Churchill, 1979). Note employee training is measured as reported by the employee, which has been shown to be more reliable measure, than when reported by the firm (Barron, Berger, & Black, 1997).

Teamwork. To assess employee involvement in teamwork, we use the sum of three indicators. The first indicator, *employee relations*, is based on the following information: employee works regularly with (a) supervisor, (b) subordinates, (c) colleagues from the same firm, (d) different departments, and (e) people outside the firm. The second indicator, *employee interactions*, consists of the following: employee discusses firm matters with colleagues inside the firm (frequently coded 3, occasionally coded 2, and never or almost never coded 1); employee is part of a working group such as a project, problem-solving, pilot or brainstorming group; and, employee attends meetings. The third indicator, *employee contribution*, is based on the following items: employee participates in work task assignment (frequently coded 3, occasionally coded 2, and never or almost never coded 1); and employee helps colleagues with work tasks (frequently coded 3, occasionally coded 2, and never or almost never coded 1). The teamwork scale proves to be reliable with a mean standardized Cronbach's alpha coefficient of .72, which is considered satisfactory (Churchill, 1979).

Interorganizational relations. To measure interorganizational relations, we summed three indicators: *customer relation*, *supplier relation*, and *external partner relations*. The *customer relation* indicator consists of one item: (a) the firm studies client expectations, behavior, or satisfaction. The *supplier relation* indicator includes three items: (a) the firm selects suppliers via formal tender, (b) the firm has a long-term relationship with certain suppliers, and (c) the firm contracts with certain suppliers to deliver goods or services according to a fixed deadline. The *external partner relation* consists of two items: the firm has established research and development (R&D) collaborations with (a) private businesses or laboratories; or (b) the Center for National Scientific Research, universities, or other public organizations. The interorganizational relations scale proves to be reliable with a mean standardized Cronbach's alpha coefficient of .69, which is considered satisfactory (Churchill, 1979).

No problem of multicollinearity was detected among main variables (Appendix A). The variables used in estimation and some descriptive statistics are provided in Table 1.

QCA

We use the QCA methodology to analyze the distinct combination of organizational practices and their relationship with labor productivity. We employ QCA because of the ability of this technique to provide suitable means to accommodate complex complementarities and nonlinear relationships among constructs (Ragin, 2000; Rihoux & Ragin, 2009; Short, Payne, & Ketchen, 2008; Soda & Furnari, 2012; Woodside, 2010). QCA is a method developed by Ragin (1987), and it is a means of analyzing the causal contribution of different configurations of conditions to an outcome of interest.

As described by Woodside (2010), multiple regression analysis (MRA) "is more than just a statistical tool—the method shapes thinking and theory crafting" (p. 463). MRA estimates whether or not the influence (i.e., the effect size) of each hypothesized independent variable associates significantly with a dependent variable after separating out the influence of other independent variables in an equation involving two or more independent variables—a "net effects" estimation approach to research. Instead, researchers may want to study causal complexity in a way that requires unpacking the information that is usually conflated in correlations (Ragin, 2008) and examining how factors combine rather than compete to create the outcome (Fiss, 2007). QCA offers a means to addressing how sets of organizational elements in combination produce joint effect on performance. As indicated by Ganter and Hecker (2014), instead of disaggregating cases into a number of independent variables, the QCA approach conceptualizes them as combinations of attributes presented by their set memberships. QCA starts from the premise that causation is not easily unraveled because (a) outcomes of interest rarely have any single cause, (b) causes rarely operate in isolation from each other, and (c) a specific causal attribute may have different and even opposite effects depending on context (Greckhamer et al., 2008). In QCA, important causal relations, necessity and sufficiency, are indicated when certain set relations exist: With necessity, the outcome is a subset of the causal condition; with sufficiency, the causal condition is a subset of the outcome (Legewie, 2013).

Table 1. Definition of Variables and Sample Statistics.

Variable	Description	<i>M</i>	<i>SD</i>	Minimum	Maximum
Labor Productivity ^a	Logarithm of valued added per employee	4.13	0.79	-2.40	7.69
Teamwork ^b	Employee works regularly with (a) supervisor, (b) subordinates, (c) colleagues from the same firm, (d) different departments, and (e) people outside the firm; employee discusses different issues with colleagues inside the firm (3) frequently, (2) occasionally, (1) never or almost never; employee is part of a working group such as a project, problem-solving, pilot or brainstorming group; employee attends meetings; employee participates in work task distribution (3) often, (2) sometimes, (1) never or almost never; and employee helps colleagues with work tasks (3) often, (2) sometimes, (1) never or almost never.	8.53	3.09	1.00	15.00
Interorganizational Relations ^b	The firm studies client expectations, behavior, or satisfaction; the firm selects suppliers via formal tender; the firm has a long-term relationship with certain suppliers; the firm contracts with certain suppliers to deliver goods or services according to a fixed deadline; the firm has established research and development collaborations with (a) private businesses or laboratories and (b) the Center for National Scientific Research, universities, or other public organizations.	3.83	1.62	0.00	6.00
Training ^b	Supervisor/quality/general training received, employee received training in the last 3 years, duration of the last training received, training led to a certificate, employee obtained training certificate, and number of trainings received.	7.87	5.29	0.00	25.00
Environmental Practices ^c	The firm has adopted innovative practices to reduce resource and/or material per unit of production; reduce energy use; reduce firm's CO ₂ "footprint" (total CO ₂ production); replace materials with less polluting or hazardous substitutes; reduce soil, water, noise, or air pollution; and recycle waste, water, or materials.	2.67	2.36	0.00	6.00
Quality Management System ^b	Certified with the ISO (International Organization for Standardization) 9000 quality management system standard	0.73	0.44	0.00	1.00

^aVariables retrieved from the Elaboration of Enterprise Annual Statistics (ESANE) database.

^bVariables were retrieved from the Organizational Changes and Computerization (COI).

^cVariables retrieved from the Community Innovation Survey (CIS) database

Transforming Data Into Fuzzy Sets

Our analysis takes advantage of the fuzzy-set QCA or fsQCA, which allows membership scores in the interval between (0) and (1). In fsQCA, both dependent and independent variables are presented using fuzzy-set scores (Ragin, 2009). The fsQCA requires substantiation of the method of “calibration,” that is, the transformation of original data to a scale over the interval (0, 1) (Ragin, 2008). In addition, fuzzy sets complement QCA by providing an intuitive tool to translate categorical concepts into measurable conditions, drawing on the notion that cases can hold degrees of membership in a given set. Thus, fsQCA allows for differentiation: Based on empirical knowledge “qualitative anchors” are defined to determine when a case is “fully in” (1) a given set, when it is “neither in nor out” (0.5), and at which point a case is “fully out” (0) of a set (Ragin, 2008, p. 30). Specific criteria must be set for three memberships in fuzzy-set calibration. For the full nonmembership, crossover point, and full-membership thresholds, we use, respectively, 10th, 50th, and 90th percentiles to transform the original variable into a fuzzy set. Our variables are converted to fuzzy-set membership scores using the Stata programs developed by Longest and Vaisey (2008).

The Truth Table

In a first stage of the analysis, the QCA approach produces a “truth table”: a table of configurations that describe the data in a more “synthetic” way. The truth table is presented in Appendix B. It presents the different combinations of practices that produce high performance or best fit.

QCA utilizes Boolean algebra and the logic of Boolean algorithms for performing holistic comparisons (Kogut, MacDuffie, & Ragin, 2004; Kogut & Ragin, 2006; Ragin, 1987, 2000; Ragin, Mayer, & Drass, 1984). The basic features of Boolean algebra (Kogut & Ragin, 2006; Ragin, 1987, 2000) are (a) the use of binary data; (b) combinatorial logic, for example, a logic that does not view causes in isolation but always in the context of the presence or absence of other causally relevant conditions; (c) the application of Boolean algebra operators to express this combinatorial logic; and (d) Boolean minimization to reduce these expressions of causal complexity. The introduction of a consistency measure assesses the degree of conformity with necessity/sufficiency hypotheses. Necessary conditions are those that always precede an outcome so that the outcome is a subset of the condition. Sufficient conditions are those that cause an outcome to occur but do not always precede an outcome so that the condition is a subset of the outcome. From the truth table, consistency and coverage scores may be calculated to assess the importance of a particular combination of causal conditions. Consistency equals the proportion of condition covered by the outcome. Ragin (2008) suggests that gaps in the upper range of consistency are useful for establishing a consistency threshold and that the threshold below 0.75 indicates substantial inconsistency. Thus, we adopt a cutoff value of 0.80 for judging a correspondence with necessity/sufficiency hypotheses as sufficient. The coverage gives us information on the empirical relevance of the condition in view. We further report raw and unique coverage measures.

Raw coverage measures the extent to which the configurations account for the outcome (Ragin, 2008). Coverage is akin to effects size in statistical hypothesis testing (Woodside & Zhang, 2012). Unique coverage measures the proportion of memberships in the outcome explained solely by each individual configuration (Ragin, 2008).

Results

Table 2 presents the results of the QCA regarding the influence of our variables on labor productivity. Black circles indicate the presence of a condition; white circle indicate the absence or negation of causal conditions; and blank spaces indicate the irrelevance of a condition.

The solution table for the whole sample, presented in Table 2, exhibits four solutions achieving sufficient consistency. As our results show, no condition alone is sufficient to account for labor productivity, which means that configurations of management practices are associated with labor productivity rather than management practices independently.

Configuration 1 suggests that firms that have adopted a quality management system, and have invested in training and environmental practices, are members of the set of highly productive firms. For firms in Configuration 1, other management practices are irrelevant.

Configuration 2 suggests that firms that have adopted environmental practices and a quality management system, and have invested in teamwork are also considered as highly productive firms. For firms in Configuration 2, the effects of other management practices on labor productivity can be ignored.

Table 2. QCA Output.

Group	Path no.	Name of construct					Coverage		Consistency	Solution	
		Teamwork	Interorganizational relations	Training	Environmental practices	Quality management system	Raw	Unique		Coverage	Consistency
All sample	1			●	●	●	0.31	0.012	0.80	0.52	0.71
	2	●			●	●	0.40	0.054	0.74		
	3		●		●	●	0.35	0.025	0.74		
	4	●	●	●		●	0.28	0.056	0.82		
Manufacturing sector	1	●	○	●	●	○	0.025	0.008	0.85	0.28	0.83
	2	○	●	●	●	●	0.23	0.23	0.84		
	3	●	●	○		○	0.04	0.013	0.84		
	4	●	●		○	○	0.032	0.002	0.83		
Service sector	1	●		●	●	●	0.18	0.024	0.84	0.35	0.78
	2		●	●	●	●	0.18	0.020	0.84		
	3	●	●			●	0.31	0.15	0.80		
Big firms	1		●		●	●	0.44	0.108	0.74	0.55	0.70
	2	●			●	●	0.38	0.054	0.74		
	3	●	●	●		●	0.30	0.058	0.82		
Small firms	1	○		●	●	●	0.151	0.045	0.80	0.22	0.78
	2		●	○	●	●	0.174	0.07	0.84		

Note. Black circles “●” indicate the presence of causal conditions. White circles “○” indicate the absence or negation of causal conditions. The blank cells represent “not significant for solution” condition. QCA = qualitative comparative analysis.

Configuration 3 suggests that the joint influence of interorganizational relations, environmental practices, and a quality management system leads to superior labor productivity while other conditions are irrelevant.

Finally, Configuration 4 indicates that firms with high investment in teamwork, interorganizational relations, and training, and that have adopted a quality management system are highly productive. For firms in Configuration 4, the remaining causal conditions are irrelevant for labor productivity.

Table 2 includes coverage and consistency indices for each configuration and for the solution as a whole. The results are confirmed for 70% of all firms. All the raw and solution coverage values in Table 2 (when looking whole sample results) are mainly above 30%, indicating that the most effective configurations explain a large proportion of labor productivity.

The results based on the whole sample indicate that no management practice alone is sufficient for firms to reach high levels of productivity, but that combinations of practices are superior. Interestingly, environmental practices are always associated with quality management systems to produce superior labor productivity and therefore appear to provide complementary effects on performance. This is not the case of training, teamwork, and interorganizational relations, which can be perceived as substitutes as each of these can be combined with environmental practices and quality management systems to produce superior performance. In other words, investing in one of these practices decreases the value of investing in the other one. Firms can invest in training, teamwork, or interorganizational relations but do not need to invest in these together if they have adopted environmental practices and quality management systems. Last, one configuration does not include environmental practices but teamwork, interorganizational relations, and training with quality management system. This could indicate that the combination of teamwork, interorganizational relations, and training acts as a substitute for environmental management practices.

Robustness Tests

We evaluate four additional versions of the model to investigate the robustness of this parsimonious solution for different sectors and firm sizes. For the sample of manufacturing firms, the solution table exhibits four solutions achieving sufficient consistency (Table 2). All causal paths consist of combinations of conditions. Configuration 1 indicates that high levels of teamwork, training, and environmental practices result in high labor productivity. In addition, Configuration 1 suggests that the presence of interorganizational relations and quality management system is not important in situations where other forms of capital are present. Configuration 2 indicates that the joint influence of interorganizational relations, training, environmental practices, and quality management standards leads to superior labor productivity even though other conditions are irrelevant. Configuration 3 implies that a high level of teamwork and interorganizational relations has significant influence on labor productivity. Moreover, Configuration 3 suggests absence or negation of training and quality management system in this particular situation. Configuration 4 indicates again that the presence of high teamwork and interorganizational relations can drive superior labor productivity even though other conditions are irrelevant.

The raw coverage for the single causal paths ranges from 0.02 to 0.23 and presents the percentage of the cases associated with the outcome. For instance, according to the raw coverage, Solution 1 accounts for 31% of the cases associated with the outcome. All four configurations have a unique coverage that exceeds the value of 0 and refers to the individual contributions of each found configuration to explain variance in productivity.

Turning to the sample of service firms, the findings suggest that three causal paths can be considered empirically important (Table 2). Configuration 1 combines extensive teamwork, training, environmental practices, and a quality management system. Configuration 2 refers to the combination of important investment in interorganizational relations, training, environmental practices, and a quality management system while the effects of other constructs can be ignored. Configuration 3 presents the combination of extensive teamwork, interorganizational relations, and a quality management system as an optimal structure for improved labor productivity.

The total consistency is 0.78. According to the raw coverage, previous configurations range from 18% to 31% cases associated with the outcome.

We also performed the analysis on the sample of big firms (Table 2).³ We find three combinations of causal conditions that consistently lead to superior performance. Configuration 1 combines interorganizational relation, environmental practices, and a quality management system to produce superior labor productivity. The effects of other constructs can be ignored. Configuration 2 suggests that teamwork, environmental practices, and a quality management system are necessary conditions for enhanced labor productivity. In Configuration 3, improved labor productivity is a combination of teamwork, interorganizational relations, training, and a quality management system.

The total solution (all combinations of conditions) has a consistency of 0.70 and coverage of 0.55, indicating that 70% of cases in the outcome have one of these combinations and the solution accounts for 55% of all cases with a finding of state action. The raw coverage for the single causal paths ranges from 0.30 to 0.44.

We conducted the same analysis on the sample of small and medium enterprises (SMEs).⁴ The results in Table 2 suggest that in the SMEs sample, two different combinations can lead a firm to achieve superior labor productivity. With solution consistency of 0.80, Configuration 1 is the combination of high level of training, environmental practices, and a quality management system that can drive a firm to achieve superior labor productivity. The remaining causal conditions are unrelated for SMEs' labor productivity. The Configuration 2 has 0.84 solution consistency and indicates that improved labor productivity in SMEs is obtained when a firm invests in interorganizational relations, environmental practices, and a quality management system. The effects of other constructs can be ignored. The overall solution consistency and coverage are 0.78 and 0.22, respectively.

Overall, these results are consistent in showing superior performance for a combination of management practices with environmental management. In most cases, environmental practices are combined with quality management systems, thus indicating complementarity between these practices. However, training, teamwork, and interorganizational relations tend to be combined with environmental management one or two at a time, thus indicating potential substitutability between these practices.

QCA Versus Structural Equation Modeling (SEM) and Ordinary Least Squares (OLS)

While QCA has been mostly used on small samples, our large sample allows us to compare our QCA results to more traditional approaches using SEM and OLS regression. The results of the SEM specification, provided in Appendices C and D, show a significant direct effect of teamwork, interorganizational relations, and environmental practices on labor productivity, and significant correlations of these variables, but it does not provide information about the joint effect of specific configurations. The results of the OLS specification, provided in Appendix E, are consistent with those of SEM, namely teamwork, interorganizational relations, and environmental practices show significant direct impact on labor productivity while quality management system is insignificant. However, training is significant. We tested interaction effects between these variables and found that the interaction between the adoption of environmental practices and teamwork was significant. The other interactions were insignificant. However, this approach did not allow us to identify combinations of interactions simultaneously because of collinearity issues. Therefore, both SEM and OLS provide only a partial account of the configuration of management practices.

Discussion

In summary, these results show that the adoption of environmental practices alone is not sufficient to influence labor productivity. Different types of management practices must interact with environmental practices to create a best-fit configuration that is associated with high labor productivity. We argue that such interaction facilitates the development of both employee knowledge and experience, and favors the alignment of employee values and interests with those of the firm. Our results indicate that there is a variety of configurations of management practices associated with superior labor productivity. Our results also show that firms do not need to adopt all practices simultaneously but that specific configurations of two or three practices might be sufficient for high labor productivity.

In our sample, we find that environmental practices and quality management practices are always combined for higher labor productivity, confirming their complementary relation. We argued that the structured mechanisms for environmental improvements and for quality improvements both require employee involvement and participation, and can help organizations improve their internal operations and efficiency. Furthermore, environmental improvements can enhance quality and vice versa. Indeed resource inefficiencies can enhance quality, and quality processes should lead to leaner operations, which should result in more efficient employees. Research had documented that firms often adopted both environmental practices and quality management systems (Delmas, 2001; King & Lenox, 2001; Kitazawa & Sarkis, 2000); however, to our knowledge, no research had yet identified the synergy between their joint adoption and labor productivity. This finding confirms the argument made by Hahn, Pinkse, Preuss, and Figge (2016) that firms can achieve complementarities or synergies between activities that might seem contradictory such as instrumental initiatives and moral initiatives such as quality management and environmental practices.

Furthermore, we observe the presence of only one of the following practices (teamwork, interorganizational relations, or training) in combination with environmental practices to predict higher labor productivity. This indicates that these practices are substitutes to each other, as usually we observe the presence of one or two practices but rarely of all three practices simultaneously. Substitutable practices, means that firms invest in one practice (training) to the detriment of other practices (teamwork) because investing in both of them is too costly or because investing in one of

them decreases the relative value of investing in the other one. Training, teamwork, and interorganizational relations contain some similar characteristics, such as enhanced interpersonal contacts and heightened dissemination of a shared vision, which can trigger changes in thinking about organizational norms, lead to increased social capital, and result in higher employee commitment to the organization. It is therefore plausible that such practices can be substituted when combined with environmental practices to enhance labor productivity.

The business and society literature has only recently recognized the strategic importance of human resources (Andersson, Jackson, & Russell, 2013), and paid little attention to the relationship between CSR and employee performance. In contrast, the human resource management and organizational behavior literatures have devoted most of their attention to understanding how the development of human capital within the firm influences organizational outcomes such as labor productivity (Datta et al., 2005) but have not focused much on CSR (Delmas & Pekovic, 2013; Morgeson, Aguinis, Waldman, & Siegel, 2013). In other words, the business and society and human resource literatures have developed as two separate bodies of research and that there is a need for more systematic research linking both strands of literature. In this article, we bridge these literatures and demonstrate how environmental management interacts with other practices such as innovative human resource management practices (i.e., training, teamwork, and relations beyond the organization) to influence organizational performance, particularly labor productivity.

The concept of configuration of practices has been used in other domains (Ichniowski & Shaw, 2003; Sun, Aryee, & Law, 2007). In particular, the strategic perspective on human resources research emphasizes bundles of human resource practices, often referred to as high performance work systems (HPWS), high-involvement work systems, and high-commitment work systems, in examinations of the effects of human resource management on employee and organizational outcomes (Wright & McMahan, 1992). A burgeoning body of strategic human resource management research has shown that the use of systems of human resource practices intended to enhance productivity (MacDuffie, 1995). Our configuration analysis is not only enriched but also complicated by the need to consider multiple levels of analysis. Interorganizational relations and the adoption of environmental practices and quality standards occur at the firm level. However, as our model confirms, an understanding of the way such practices lead to firm-level performance must incorporate constructs at the level of the individual and relations among individuals. These findings support the idea that there is a need to modify the scope and nature of human capital management processes to include a broader firm perspective. Our study merges both individual and firm-level perspectives and goes beyond the human resource literature.

Our analysis of configurations of management practices was made possible with the QCA methodology, which is built around the analysis of a truth table that delineates various combinations of conditions linked to the presence/absence of an outcome. QCA describes a combination of conditions in a configuration that constitutes a sufficient condition to produce a given outcome of interest (Ragin, 2008; Rihoux & Ragin, 2009). Accordingly, QCA allows the organization of multiple interdependent cause–effect relationships into a coherent framework to explain organizational performance (Ganter & Hecker, 2014; Short et al., 2008). This approach allowed us to account for complex interaction effects between different management practices (rather than the isolated effect of each practices) to obtain a more complete picture concerning their effects on labor productivity. In this sense, analyzing causal relations in terms of set-theoretic relations entails a number of further explanatory features facilitating a better understanding of organizational strategies and outcomes. Therefore, using QCA, we were able to identify the multidimensionality and complexity of the relationships driving improved performance. Recently, several studies have started to use QCA in the field of Business and Society. Some articles used QCA to analyze the determinants of the adoption of CSR practices and of environmental and social performance. For example, Crilly and colleagues (2012) analyze interactions between the internal organization and external environment to explain the adoption of CSR practices. Halme, Lindeman, and Linna (2012) study how institutional and organizational CSR practices contribute to environmental and social performance. Chappin and colleagues (2015) show that interplay between a firm's internal and external environment influences the internalization of environmental practices. Maggetti (2014) analyzes firm-level organizational factors that explain participation in multistakeholder agreements establishing principles against money laundering. Walker et al. (2015) study how configurations of external environments, firm organizations, and strategies explain corporate environmental performance. Other articles use QCA to investigate the relationship between different types of CSR practices and corporate performance. For example, Garcia-Castro and Francoeur (2014) analyze the relationship between stakeholder investments and firm performance taking into account interdependencies between stakeholder groups. Ni, Egri, Lo, and Lin (2015) investigate CSR patterns associated with financial performance in Asia. Skarmas et al. (2014) look at how consumer skepticism is contingent on a combination of complex antecedent conditions. However, no study has yet analyzed the relationship between configurations of CSR practices and other management practices to influence labor productivity.

The findings of this study have important managerial implications. They indicate interdependencies among multiple levels of strategy that firms can learn how to manage. Our analysis also points out a potential heightened role for human

resources in advancing environmental sustainability. Currently, only a small percentage of human resource departments are responsible for creating environmental sustainability strategy (Society for Human Resource Management, 2011). Environmental sustainability is still within the purview of corporate strategy, health and safety, and/or the regulatory departments. However, a better integration of environmental sustainability issues in the fabric of the organization can enhance employee engagement and productivity.

Our research is not without limitations. First, while our analysis by sector and by size of the company is robust with the analysis of the whole sample, it highlights slightly different combinations of practices. This indicates that the performance of configurations of practices could be contingent on the firm environment or its formal organizational structure. Further research should investigate configuration of practices in these different environments. For example, our analysis was restricted to the French context, and we were therefore limited in identifying specific external market and regulatory conditions. As scholars have identified international institutional differences regarding the implementation of environmental practices, future research could explore similar questions using a contingency approach in an international setting (Aragón-Correa & Sharma, 2003; Delmas & Montes-Sancho, 2011). Second, in our analysis, we evaluated the interdependence of different forms of management practices rather than causality links between these. Further research could undertake a dynamic analysis to understand the steps of the development of the engaged organization. It is possible, for example, that some organizations start with environmental innovation while others open their organizations through interorganizational relations. Further research could also investigate how the characteristics of the engaged organization influence other organizational performance variables, such as voluntary turnover, innovation, or profit. Third, we focused on environmental practices but further research could look at the complementarity between environmental practices, social practices, governance practices, and innovative human resources practices. Indeed, recent work shows significant and positive correlations between environmental, social, and governance scores (Cavaco & Crifo, 2014; Hirigoyen & Poulain-Rehm, 2015). It would be interesting to know whether firms need to invest in all these practices or if some combinations of practices are associated with superior environmental and financial performance. Finally, we focused on labor productivity but other employee performance measures could be used (Dyer & Reeves, 1995). For example, further research could study how configuration of practices affect turnover, absenteeism, or job satisfaction.

In conclusion, in both the business and society and human resource management literatures, there has been growing interest in understanding how human resource systems contribute to organizational effectiveness. However, cross-fertilization of these literatures has been limited. QCA allowed us to analyze complex interaction effects between environmental practices and several other management practices on labor productivity. Our results suggest that several configurations of management practices are associated with improved labor productivity rather than specific isolated forms of practices. Our results emphasize the importance of practice accumulation and deployment decisions. These bundles of configurations might also be difficult to imitate by competitors because of the complex interdependencies between multiple organizational levels, therefore, enhancing firm competitive advantage.

Appendix A

Pearson Correlation Coefficients.

	Labor productivity	Teamwork	Interorganizational relations	Training	Environmental practices	ISO 9000
Labor productivity	1.00	—	—	—	—	—
Teamwork	.14	1.00	—	—	—	—
Interorganizational relations	.16	.14	1.00	—	—	—
Training	.09	.31	.16	1.00	—	—
Environmental practices	.17	.09	.32	.13	1.00	—
Quality management system	.09	.07	.37	.15	.27	1.00

Note. ISO = International Organization for Standardization.

Appendix B

Truth Table Analysis.

Set	Teamwork	Interorganizational relations	Training	Environmental practice	Quality practices	Number of best fit	Degree of consistency
1	0	0	1	1	1	39	0.86
2	0	1	0	1	1	85	0.84
3	0	1	1	1	1	51	0.86
4	1	0	0	1	1	154	0.82
5	1	0	1	1	1	66	0.86
6	1	1	0	1	1	234	0.84
7	1	1	1	0	1	93	0.84
8	1	1	1	1	1	213	0.85

Appendix C

Measurement Paths.

Measurement paths	Unstandardized regression weight	SE	Critical ratio	Standardized regression weight	P value
Teamwork					
Employee relations	2.06	0.08	25.44	0.68	***
Employee interaction	1 (fixed)			0.51	
Employee contribution	1.35	0.06	22.89	0.50	***
Interorganizational relations					
Customer relation	2.11	0.08	25.869	0.56	***
Supplier relation	1 (fixed)			0.57	
External partner relation	1.35	0.05	27.06	0.64	***
Training					
Customer training	1.03	0.11	9.72	0.39	***
Quality training	1.12	0.13	8.65	0.28	***
Supervisor training	1 (fixed)			0.41	
IT training	1.27	0.14	9.25	0.31	***

Note. IT = information technology.

*** $p < .001$.

Appendix D

Results of the Structural Model.

Antecedent variable → Consequent variable	Regression weight	SE	Critical ratio	p value	Standardized regression weight
Quality Management System → Labor Productivity	-0.07	0.03	-2.15	0.03	-0.04
Teamwork → Labor Productivity	0.23	0.04	5.36	***	0.14
Interorganizational Relations → Labor Productivity	0.27	0.04	7.01	***	0.17
Environmental Practices → Labor Productivity	0.03	0.00	5.97	***	0.09
Training → Labor Productivity	0.01	0.05	0.25	0.80	0.01
Controls					
Size → Labor Productivity	0.00	0.00	-12.79	***	-0.29
Production → Labor Productivity	0.00	0.00	11.28	***	0.25
Wage → Labor Productivity	0.00	0.00	1.00	0.32	0.01
Working Hours → Labor Productivity	0.01	0.00	5.97	***	0.06

*** $p < .001$.

Appendix E

OLS Regression Model.

	Labor productivity				
Interorganizational Relations	0.05*** (6.30)	0.03*** (2.82)	0.05*** (6.31)	0.05*** (6.30)	0.05*** (6.34)
Teamwork	0.03*** (7.78)	0.03*** (7.71)	0.03*** (5.57)	0.03*** (7.77)	0.03*** (7.77)
Training	0.01*** (2.18)	0.01*** (2.18)	0.01** (2.18)	0.00 (0.54)	0.01*** (2.18)
Environmental Practices	0.04*** (8.50)	0.01 (0.97)	0.05*** (3.45)	0.03*** (3.50)	0.03*** (3.22)
Quality Management System	0.01 (0.52)	0.02 (0.76)	0.01 (0.51)	0.01 (0.57)	-0.01 (-0.26)
Environmental Practices × Interorganizational Relations		0.01*** (2.47)			
Environmental Practices × Teamwork			-0.00 (-0.39)		
Environmental Practices × Training				0.00 (1.36)	
Environmental Practices × Quality Management System					0.01 (1.01)
Constant	3.54*** (87.74)	3.60*** (76.42)	3.53*** (67.84)	3.56*** (81.11)	3.55*** (83.30)
Observations	4,975	4,975	4,975	4,975	4,975
R ²	.06	.03	.03	.06	.06

Note. OLS = ordinary least squares.

*, **, and *** indicate parameter significance at the 10%, 5%, and 1% levels, respectively.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The authors disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: The authors made the following statement about financial support: Sanja Pekovic gratefully acknowledges the financial support from the AFNOR “Performance des Organisations” endowment in collaboration with the Paris-Dauphine Foundation.

Notes

1. For simplicity, we use environmental practices in place of proactive environmental practices for the remainder of the article.
2. More details about the design and scope of this survey are available on www.enquetecoi.net: Survey COI-TIC 2006-INSEE-CEE/Treatments CEE.
3. As defined by the European Commission, big size firms represent firms with more than 250 employees.
4. As defined by European Commission, small and medium enterprises represent firms with less than or equal to 250 employees.

References

- Ambec, S., & Lanoie, P. (2008). When and why does it pay to be green. *Academy of Management Perspective*, 23, 45-62.
- Andersson, L., Jackson, S. E., & Russell, S. V. (2013). Greening organizational behavior: An introduction to the special issue. *Journal of Organizational Behavior*, 34, 151-155.
- Aragón-Correa, J. A., & Sharma, S. (2003). A contingent resource-based view of proactive corporate environmental strategy. *Academy of Management Review*, 28, 71-88.
- Ardichvili, A. (2013). The role of HRD in CSR, sustainability, and ethics: A relational model. *Human Resource Development Review*, 12, 456-473.
- Arimura, T. H., Darnall, D., & Katayama, H. (2011). Is ISO 14001 a gateway to more advanced voluntary action? The case of green supply chain management. *Journal of Environmental Economics and Management*, 61, 170-182.
- Balzarova, M. A., Castka, P., Bamber, C. J., & Sharp, J. M. (2006). How organizational culture impacts on the implementation of ISO 14001:1996—A UK multiple-case view. *Journal of Manufacturing Technology Management*, 17, 89-103.

- Banker, R. E., Field, J. M., Schroeder, R. G., & Sinha, K. K. (1996). Impact of work teams on manufacturing performance: A longitudinal field study. *Academy of Management Journal*, *39*, 867-890.
- Barron, J. M., Berger, M. C., & Black, D. A. (1997). How well do we measure training? *Journal of Labor Economics*, *15*, 507-528.
- Batt, R. (2004). Who benefits from teams? Comparing workers, supervisors and managers. *Industrial Relations*, *43*, 183-212.
- Blunch, N. H., & Castro, P. (2007). Enterprise-level training in developing countries: Do international standards matter? *International Journal of Training and Development*, *11*, 314-324.
- Borman, W. C. (2004). The concept of organizational citizenship. *Current Directions in Psychological Science*, *13*, 238-241.
- Brammer, S., Millington, A., & Rayton, B. (2010). The contribution of corporate social responsibility to organizational commitment. *International Journal of Human Resource Management*, *18*, 1701-1719.
- Branzei, O., Jennings, P. D., & Vertinsky, I. (2002). *A knowledge-based view of environmental performance in different cultural contexts: Canada, Japan, and China*. Academy of Management Conference (Organizations and the Natural Environment Division, Academy of Management, Denver, CO).
- Cavaco, S., & Crifo, P. (2014). CSR and financial performance: Complementarity between environmental, social and business behaviours. *Applied Economics*, *46*, 3323-3338.
- Chappin, M. M. H., Cambré, B., Vermeulen, P. A. M., & Lozano, R. (2015). Internalizing sustainable practices: A configurational approach on sustainable forest management of the Dutch wood trade and timber industry. *Journal of Cleaner Production*, *107*, 760-774.
- Christmann, P. (2000). Effects of “best practices” of environmental management on cost advantage: The role of complementary assets. *Academy of Management Journal*, *43*, 663-680.
- Churchill, G. A. (1979). A paradigm for developing better measures of marketing constructs. *Journal of Marketing Research*, *16*, 64-73.
- Cohen, D., & Prusak, L. (2001). *In good company. How social capital makes organizations work*. Boston, MA: Harvard Business School Press.
- Corbett, C. J., & Kirsch, D. A. (2001). International diffusion of ISO 14000 certification. *Production and Operations Management*, *10*, 327-342.
- Crilly, D., Hansen, M., Pedersen, E., & Perrini, F. (2012). Faking it or muddling through? Understanding decoupling in response to stakeholder pressures. *Academy of Management Journal*, *55*, 1429-1449.
- Daily, B. F., & Huang, S. (2001). Achieving sustainability through attention to human resource factors in environmental management. *International Journal of Operations & Production Management*, *21*, 1539-1552.
- Dalton, D. R., Todor, W. D., Spendolini, M. J., Fielding, G. J., & Porter, L. W. (1980). Organization structure and performance: A critical review. *Academy of Management Review*, *5*, 49-64.
- Darnall, N., & Edwards, D. (2006). Predicting the cost of environmental management system adoption: The role of capabilities, resources and ownership structure. *Strategic Management Journal*, *27*, 301-320.
- Darnall, N., Henriques, I., & Sadorsky, P. (2008). Do environmental management systems improve business performance in an international setting? *Journal of International Management*, *14*, 364-376.
- Darnall, N., Henriques, I., & Sadorsky, P. (2010). Adopting proactive environmental strategy: The influence of stakeholders and firm size. *Journal of Management Studies*, *47*, 1072-1094.
- Datta, D. K., Guthrie, J. P., & Wright, P. M. (2005). HRM and labor productivity: Does industry matter? *Academy of Management Journal*, *48*, 135-145.
- Delmas, M. A. (2001). Stakeholders and competitive advantage: The case of ISO 14001. *Production and Operation Management*, *10*, 343-358.
- Delmas, M. A., Hoffmann, V. H., & Kuss, M. (2011). Under the tip of the iceberg: Absorptive capacity, environmental strategy and competitive advantage. *Business & Society*, *50*, 116-154.
- Delmas, M. A., & Montes-Sancho, M. (2011). An institutional perspective on the diffusion of international management system standards: The case of the environmental management standard ISO 14001. *Business Ethics Quarterly*, *21*, 103-132.
- Delmas, M. A., & Montiel, I. (2009). Greening the supply chain: When is customer pressure effective? *Journal of Economics & Management Strategy*, *18*, 171-201.
- Delmas, M. A., & Pekovic, S. (2013). Environmental standards and labor productivity: Understanding the mechanisms that sustain sustainability. *Journal of Organizational Behavior*, *4*, 230-252.
- Delmas, M. A., & Pekovic, S. (2015). Resource efficiency strategies and market conditions. *Long Range Planning*, *48*, 80-94.
- Delmas, M. A., & Pekovic, S. (2016). Corporate sustainable innovation and employee behavior. *Journal of Business Ethics*. doi:10.1007/s10551-016-3163-1
- Delmas, M. A., & Toffel, M. W. (2008). Organizational responses to environmental demands: Opening the black box. *Strategic Management Journal*, *29*, 1027-1055.
- Denton, K. D. (1999). Employee involvement, pollution control and pieces to the puzzle. *Environmental Management and Health*, *10*, 105-111.
- Dyer, L., & Reeves, T. (1995). HR strategies and firm performance: What do we know and where do we need to go. *International Journal of Human Resource Management*, *6*, 656-670.
- Eccles, R. G., Ioannou, I., & Serafeim, G. (2012). *The impact of a corporate culture of sustainability on corporate behavior and performance* (Working Paper No. 17950). National Bureau of Economic Research. Retrieved from <http://www.nber.org/papers/w17950.pdf>

- Fernandez, E., Junquera, B., & Ordiz, M. (2003). Organizational culture and human resources in the environmental issue. *International Journal of Human Resource Management*, *14*, 634-656.
- Fiss, P. C. (2007). A set-theoretic approach to organizational configurations. *Academy of Management Review*, *32*, 1180-1198.
- Fiss, P. C. (2011). Building better causal theories: A fuzzy set approach to typologies in organization research. *Academy of Management Journal*, *54*, 393-420.
- Florida, R., & Davidson, D. (2001). Gaining from green management: Environmental management systems inside and outside the factory. *California Management Review*, *43*, 64-84.
- Ganter, A., & Hecker, A. (2014). Configurational paths to organizational innovation: Qualitative comparative analyses of antecedents and contingencies. *Journal of Business Research*, *67*, 1285-1292. doi:10.1016/j.jbusres.2013.03.004
- Garcia-Castro, R., & Francoeur, C. (2014). When more is not better: Complementarities, costs and contingencies in stakeholder management. *Strategic Management Journal*, *37*, 406-424.
- Gond, J.-P., Igalens, J., Swaen, V., & El Akremi, A. (2011). The human resources contribution to responsible leadership: An exploration of the CSR–HR interface. *Journal of Business Ethics*, *98*, 115-132.
- Govindarajulu, N., & Daily, B. F. (2004). Motivating employees for environmental improvement. *Industrial Management & Data Systems*, *104*, 364-372.
- Greckhamer, T., Misangyi, V., Elms, H., & Lacey, R. (2008). Using qualitative comparative analysis in strategic management research: An examination of combinations of industry, corporate, and business-unit effects. *Organizational Research Methods*, *11*, 695-726.
- Greve, A., Benassi, M., & Arne Dag, S. (2010). Exploring the contributions of human and social capital to performance. *International Review of Sociology*, *20*, 35-58.
- Grolleau, G., Mzoughi, N., & Pekovic, S. (2007). Chemical firms' registration for the responsible care program and the ISO 14001 standard: A comparative approach. *Economics Bulletin*, *12*, 1-13.
- Grolleau, G., Mzoughi, N., & Pekovic, S. (2013). Is business performance related to the registration of quality and environmental-related standards? *Environmental and Resource Economics*, *54*, 525-548.
- Gulati, R. (1995). Social structure and alliance formation patterns: A longitudinal analysis. *Administrative Science Quarterly*, *40*, 619-652.
- Hahn, T., Pinkse, J., Preuss, L., & Figge, F. (2016). Ambidexterity for corporate social performance. *Organization Studies*, *37*, 213-235.
- Halme, M., Lindeman, S., & Linna, P. (2012). Innovation for inclusive business: Intrapreneurial bricolage in multinational corporations. *Journal of Management Studies*, *49*, 743-784.
- Hamel, G. (1991). Competition for competence and inter-partner learning within international strategic alliances. *Strategic Management Journal*, *Summer Special Issue*, *12*, 83-103.
- Hamilton, B. H., Nickerson, J. A., & Hideo, O. (2003). Team incentives and worker heterogeneity: An empirical analysis of the impact of teams on productivity and participation. *Journal of Political Economy*, *111*, 465-497.
- Hart, S. L. (1995). A natural-resource-based view of the firm. *Academy of Management Review*, *20*, 986-1014.
- Henriques, I., & Sadorsky, P. (1996). The determinants of an environmentally responsive firm: An empirical approach. *Journal of Environmental Economics and Management*, *30*, 381-395.
- Hirigoyen, G., & Poulain-Rehm, T. (2015). Relationships between corporate social responsibility and financial performance: What is the causality? *Journal of Business and Management*, *4*, 18-43.
- Howard-Grenville, J., Bertels, S., & Lahnenman, B. (2014). Sustainability: How it shapes organizational culture and climate. In B. Schneider & K. M. Barber (Eds.), *The Oxford handbook of organizational climate and culture* (pp. 257-274). Oxford, UK: Oxford University Press.
- Huselid, M. A. (1995). The impact of human resource management practices on turnover, productivity, and corporate financial performance. *Academy of Management Journal*, *38*, 635-672.
- Ichniowski, C., & Shaw, K. (2003). Beyond incentive pay: Insiders' estimates of the value of complementary human resource management practices. *Journal of Economic Perspectives*, *17*, 155-180.
- Jackson, S. E., Renwick, D. W., Jabbour, C. J. C., & Muller-Camen, M. (2011). State-of-the-art and future directions for green human resource management: Introduction to the special issue. *Zeitschrift für Personalforschung*, *25*, 99-116.
- Jones, C., & Hamilton Volpe, E. (2011). Organizational identification: Extending our understanding of social identities through social networks. *Journal of Organizational Behavior*, *32*, 413-434.
- Kale, P., Singh, H., & Perlmutter, H. (2000). Learning and protection of proprietary assets in strategic alliances: Building relational capital. *Strategic Management Journal*, *21*, 217-237.
- Khanna, M., & Anton, W. R. (2002). Corporate environmental management: Regulatory and market-based incentives. *Land Economics*, *78*, 539-558.
- Khanna, T., Gulati, R., & Nohria, N. (1998). The dynamics of learning alliances: Competition, cooperation and relative scope. *Strategic Management Journal*, *19*, 193-210.
- King, A. A., & Lenox, M. J. (2001). Lean and green? An empirical examination of the relationship between lean production and environmental performance. *Production and Operations Management*, *10*, 244-256.
- King, A. A., & Lenox, M. J. (2002). Exploring the locus of profitable pollution reduction. *Management Science*, *48*, 289-299.
- Kitazawa, S., & Sarkis, J. (2000). The relationship between ISO 14001 and continuous source reduction programs. *International Journal of Operations & Production Management*, *20*, 225-248.

- Koch, M. J., & McGrath, R. G. (1996). Improving labor productivity: Human resource management policies do matter. *Strategic Management Journal*, 17, 335-354.
- Kogut, B., MacDuffie, J. P., & Ragin, C. (2004). Prototypes and strategy: Assigning causal credit using fuzzy sets. *European Management Review*, 1, 114-131.
- Kogut, B., & Ragin, C. (2006). Exploring complexity when diversity is limited: Institutional complementarity in theories of rule of law and national systems revisited. *European Management Review*, 3, 44-59.
- Koka, B. R., & Prescott, J. E. (2002). Strategic alliances as social capital: A multidimensional view. *Strategic Management Journal*, 23, 795-816.
- Kotter, J. E. (1982). *The general management*. New York, NY: Free Press.
- Legewie, N. (2013). An introduction to applied data analysis with qualitative comparative analysis. *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research*, 14(3), Article 15. Retrieved from <http://www.qualitative-research.net/index.php/fqs/article/view/1961>
- Levine, D. I., & Toffel, M. W. (2010). Quality management and job quality: How the ISO 9001 standard for quality management systems affects employees and employers. *Management Science*, 56, 978-996.
- Longest, K. C., & Vaisey, S. (2008). Fuzzy: A program for performing qualitative comparative analysis (QCA). *Stata Journal*, 8, 79-104.
- Luthans, F. (1988). Successful vs effective real managers. *Academy of Management Executive*, 2, 127-132.
- MacDuffie, J. P. (1995). Human resource bundles and manufacturing performance: Organizational logic and flexible production systems in the world auto industry. *Industrial and Labor Relations*, 48, 197-221.
- MacKenzie, S. B., Podsakoff, P. M., & Fetter, R. (1991). Organizational citizenship behavior and objective productivity as determinants of managerial evaluations of salespersons' performance. *Organizational Behavior and Human Decision Processes*, 50, 123-150.
- Maggetti, M. (2014). Promoting corporate responsibility in private banking: Necessary and sufficient conditions for joining the Wolfsberg Initiative against money laundering. *Business & Society*, 53, 787-819.
- Marcus, A. (2005). Research in strategic environmental management. In S. Sharma & J. A. Aragón-Correa (Eds.), *Corporate environmental strategy and competitive advantage* (pp. 27-49). Cheltenham, UK: Edward Elgar.
- Marsden, P. V. (1990). Network data and measurement. *Annual Review of Sociology*, 16, 435-463.
- Marx, A., Rihoux, B., & Ragin, C. (2014). The origins, development, and application of Qualitative Comparative Analysis: The first 25 years. *European Political Science Review*, 6, 115-142.
- McWilliams, A., & Siegel, D. S. (2000). Corporate social responsibility and financial performance: Correlation or misspecification? *Strategic Management Journal*, 21, 603-609.
- McWilliams, A., & Siegel, D. S. (2011). Creating and capturing value: Strategic corporate social responsibility, resource-based theory, and sustainable competitive advantage. *Journal of Management*, 37, 1480-1495.
- Meyer, A. D., Tsui, A. S., & Hinings, C. R. (1993). Configurational approaches to organizational analysis. *Academy of Management Journal*, 36, 1175-1195.
- Morgeson, F. P., Aguinis, H., Waldman, D. A., & Siegel, D. S. (2013). Extending corporate social responsibility to the human resource management and organizational behavior domains: A look to the future. *Personnel Psychology*, 66, 805-824.
- Morrow, D., & Rondinelli, D. A. (2002). Adopting environmental management systems: Motivations and results of ISO 14001 and EMAS certification. *European Management Journal*, 20, 159-171.
- Naveh, E., & Erez, M. (2004). Innovation and attention-to-detail in the quality improvement paradigm. *Management Science*, 50, 1576-1586.
- Ni, N., Egri, C., Lo, C., & Lin, C.-Y. (2015). Patterns of corporate responsibility practices for high financial performance: Evidence from three Chinese societies. *Journal of Business Ethics*, 126, 169-183.
- Oh'Eocha, M. (2000). A study of the influence of company culture, communications and employee attitudes on the use of 5S for environmental management at Cooke Brothers Ltd. *TQM Magazine*, 12, 321-330.
- Orlitsky, M., Schmidt, F., & Rynes, S. (2003). Corporate social and financial performance: A meta-analysis. *Organization Studies*, 24, 403-441.
- Pekovic, S. (2010). The determinants of ISO 9000 certification: A comparison of the manufacturing and service sectors. *Journal of Economic Issues*, 44, 895-914.
- Peterson, D. K. (2004). The relationship between perceptions of corporate citizenship and organizational commitment. *Business & Society*, 43, 296-319.
- Pil, F. K., & Rothenberg, S. (2003). Environmental performance as a driver of superior quality. *Production and Operations Management*, 12, 404-415.
- Ployhart, R. E., & Moliterno, T. P. (2011). Emergence of the human capital resource: A multilevel model. *Academy of Management Review*, 36, 127-150.
- Ragin, C. C. (1987). *The comparative method: Moving beyond qualitative and quantitative strategies*. Berkeley: University of California Press.
- Ragin, C. C. (2000). *Fuzzy-set social science*. Chicago, IL: The University of Chicago Press.
- Ragin, C. C. (2006). The limitations of net-effect thinking. In B. Rihoux & H. Grimm (Eds.), *Innovative comparative methods for policy analysis: Beyond the quantitative-qualitative divide* (pp. 13-41). New York, NY: Springer.
- Ragin, C. C. (2008). *Redesigning social inquiry: Fuzzy sets and beyond*. Chicago, IL: The University of Chicago Press.

- Ragin, C. C. (2009). *Configurational comparative methods: Qualitative comparative analysis (QCA) and related techniques* (Edited volume, with Benoît Rihoux). Thousand Oaks, CA: SAGE.
- Ragin, C. C., Mayer, S. E., & Drass, K. A. (1984). Assessing discrimination: A Boolean approach. *American Sociological Review*, *49*, 221-234.
- Ramus, C. A., & Steger, U. (2000). The roles of supervisory behaviors and environmental policy in employee “ecoinitiatives” at leading edge European companies. *Academy of Management Journal*, *43*, 605-626.
- Renwick, D. E., Redman, T., & Maguire, S. (2013). Green human resource management: A review and research agenda. *International Journal of Management Reviews*, *15*, 1-14.
- Rihoux, B., & Ragin, C. C. (2009). Introduction. In B. Rihoux & C. C. Ragin (Eds.), *Configurational comparative methods: Qualitative comparative analysis (QCA) and related techniques (applied social research methods)* (pp. 12-25). Thousand Oaks, CA: SAGE.
- Rondinelli, D., & Vastag, G. (2000). Panacea, common sense, or just a label? The value of ISO 14001 environmental management systems. *European Management Journal*, *18*, 499-510.
- Rothenberg, S. (2003). Knowledge content and worker participation in environmental management at NUMMI. *Journal of Management Studies*, *40*, 1783-1802.
- Rothenberg, S., Pil, F. K., & Maxwell, J. (2001). Lean, green, and the quest for superior environmental performance. *Production and Operations Management*, *10*, 228-243.
- Salis, S., & Williams, A. M. (2010). Knowledge sharing through face-to-face communication and labor productivity: Evidence from British workplaces. *British Journal of Industrial Relations*, *48*, 436-459.
- Samuelson, P. A., & Nordhaus, W. D. (1989). *Economics* (13th ed.). New York, NY: McGraw-Hill.
- Sharma, S. (2000). Managerial interpretations and organizational context as predictors of corporate choice of environmental strategy. *Academy of Management Journal*, *43*, 681-697.
- Sharma, S., & Henriques, I. (2005). Stakeholder influences on sustainability practices in the Canadian forest products industry. *Strategic Management Journal*, *26*, 159-180.
- Short, J. C., Payne, G. T., & Ketchen, D. J. (2008). Research on organizational configurations: Past accomplishments and future challenges. *Journal of Management*, *34*, 1053-1079.
- Skarmeas, D., Leonidou, C. N., & Saridakis, C. (2014). Examining the role of CSR skepticism using fuzzy-set qualitative comparative analysis. *Journal of Business Research*, *67*, 1796-1805.
- Society for Human Resource Management. (2011). *Advancing sustainability: HR's role* (A research report by the Society for Human Resource Management, BSR and Aurosoorya). Retrieved from <http://www.shrm.org/research/surveyfindings/articles/pages/advancingsustainabilityhr%E2%80%99srole.aspx>
- Soda, G., & Furnari, S. (2012). Exploring the topology of the plausible: Fs/QCA counterfactual analysis and the plausible fit of unobserved organizational configurations. *Strategic Organization*, *10*, 285-296.
- Sun, L. Y., Aryee, S., & Law, K. S. (2007). High-performance human resource practices, citizenship behavior, and organizational performance: A relational perspective. *Academy of Management Journal*, *50*, 558-577.
- Surroca, J., Tribó, J. A., & Waddock, S. (2010). Corporate responsibility and financial performance: The role of intangible resources. *Strategic Management Journal*, *31*, 463-490.
- Toffel, M. (2000). Anticipating greener supply chain demands: One Singapore company's journey to ISO 14001. In R. Hillary (Ed.), *ISO 14001: Case studies and practical experiences* (pp. 182-199). Sheffield, UK: Greenleaf.
- von Hippel, E. (1988). *The sources of innovation*. New York, NY: Oxford University Press.
- Walker, K., Ni, N., & Dyck, B. (2015). Recipes for successful sustainability: Empirical organizational configurations for strong corporate environmental performance. *Business Strategy and the Environment*, *24*, 40-57.
- Weber, M. (2008). The business case for corporate social responsibility: A company-level measurement approach for CSR. *European Management Journal*, *26*, 247-261.
- Woodside, A. (2010). *Case study research: Theory, methods and practice*. London, England: Emerald.
- Woodside, A., & Zhang, M. (2012). Identifying x-consumers using causal recipes: “Whales” and “jumbo shrimp” casino gamblers. *Journal of Gambling Studies*, *28*, 13-26.
- Wright, P. M., & McMahan, G. C. (1992). Theoretical perspectives for strategic human resource management. *Journal of Management*, *18*, 295-320.
- Youndt, M. A., Subramaniam, M., & Snell, S. A. (2004). Intellectual capital profiles: An examination of investments and returns. *Journal of Management Studies*, *41*, 335-362.
- Zwick, T. (2004). Employee participation and productivity. *Labor Economics*, *11*, 715-740.

Author Biographies

Magali A. Delmas (PhD, HEC School of Management, Paris, France) is a professor of management at the University of California, Los Angeles (UCLA) Anderson School of Management and the Institute of the Environment and Sustainability. She is the director of the Center for Corporate Environmental Performance. Her research interests are primarily in the areas of business strategy and corporate sustainability. She has published more than 70 articles, book chapters, and case studies in these areas.

Sanja Pekovic (PhD, Paris-EST) is assistant professor at the University of Montenegro and associate researcher at the Université Paris-Dauphine, PSL Research University, Paris. She is conducting research on quality and environmental management, the economics of innovation, corporate social responsibility, and applied econometrics. Her work has appeared in international journals such as the *Ecological Economics*, *Environmental and Resource Economics*, *Journal of Business Ethics*, *Journal of Production Economics*, *Journal of Organizational Behaviour*, *Long Range Planning*, *Resource and Energy Economics*,