

## Chief executive officers and voluntary environmental performance: Costa Rica's certification for sustainable tourism

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**Abstract.** This study evaluates whether the education, environmental expertise, and nationality of firms' chief executive officers (CEOs) are associated with greater participation and environmental performance in a voluntary environmental program implemented in a developing nation. Specifically, we collected data from the Certification for Sustainable Tourism (CST) program, a voluntary initiative aimed at promoting beyond-compliance environmental performance by hotels operating in Costa Rica. Our findings suggest that CEOs' level of formal education and environmental expertise appear to be significantly associated with higher corporate participation in voluntary programs and also with higher beyond-compliance environmental performance ratings. Contrary to conventional expectations, CEOs from industrialized countries (as opposed to developing countries) do not appear to show a statistically significant association with participation in the CST program and with higher beyond-compliance environmental performance.

### 1. Introduction

Environmental policy scholars and policy makers have long been interested in distinguishing among mechanisms that encourage environmental protection by the private sector (Winter and May, 2001; Andrews, 1998; Ostrom, 1998; Olson, 1965). Voluntary environmental programs that go further than regulatory orders and sanctions to promote "beyond-compliance" environmental practices by firms are becoming increasingly popular (Delmas, 2002). Concomitantly, there is increasing interest in identifying factors associated with participation and superior environmental performance in these programs (Khanna, 2001; Delmas and Terlaak, 2001; King and Lenox, 2000; Rivera and deLeon, 2004). To the extent that these programs foster improved environmental performance, they can supplement or replace the more traditional regulations, monitoring, penalties, institutional norms, and economic incentives that have been previously characterized as positively related with regulatory compliance (Tyler, 1990; Winter and May, 2001; Hoffman, 1999; Rivera, 2004; Khanna, 2001; Wheeler, 1999).

In developing countries, policy makers and officials from donor agencies have repeatedly stressed the importance of formal education and technical assistance to promote enhanced environmental protection by the private sector (Wheeler, 1999; Ascher, 1999). It has been argued that businesses would significantly improve their environmental performance if their managers were more educated and knew about innovative pollution prevention technologies that make their firms more competitive by being "green," that is, manifesting an environmental conscience (Porter and Van der Linde, 1995). By much the same argument, businesses run by managers

born in industrialized countries are also expected to display higher environmental performance as one way to highlight their competitive advantage (Christmann and Taylor, 2001; Wheeler, 1999). Foreign chief executive officers (CEOs) may be more likely to adopt proactive environmental efforts because of their increased awareness of international environmental requirements and easier access to environmental management information (Garcia-Johnson, 2000; Wheeler, 1999; Christmann and Taylor, 2001). Yet, there is scant empirical evidence that higher education, greater environmental management expertise, and CEO nationality are correlated with superior environmental performance by businesses operating in the developing world (Christmann and Taylor, 2001; Utting, 2002; Ascher, 1999; Andonova, 2003).

This study seeks to contribute to filling this gap by empirically evaluating whether CEOs' education, environmental expertise, and nationality are associated with enhanced participation and environmental performance in voluntary programs. Specifically, data were collected from the Certification for Sustainable Tourism (CST) program, a voluntary initiative aimed at promoting beyond-compliance environmental performance by hotels operating in Costa Rica. Our behavioral focus on top hotel managers builds upon and reinforces Rivera's (2001, 2002, 2004) earlier assessments of the competitive benefits and institutional pressures associated with hotel participation and environmental performance in the CST program.

Section 2 introduces the conceptual framework and develops a series of hypotheses about CEO characteristics and business environmental behaviors. Section 3 describes the dynamic of the Costa Rican hotel industry and CST program. The methodology and results are presented in Sections 4 and 5, respectively. Section 6 analyzes the results and a set of conclusions is offered in Section 7.

## **2. Conceptual framework: Chief executive officers and business environmental behavior**

Chief executive officers are typically responsible for making businesses' strategic choices, such as those that involve the selection of a firm's long-term environmental protection approach and tactics (Cordano and Frieze, 2000; Flannery and May, 2000; Hambrick and Mason, 1984; Hambrick and Abrahamson, 1995). CEOs also control the financial resources to implement strategic environmental management choices (Hambrick and Mason, 1984; Hambrick and Abrahamson, 1995). The power of the CEO over strategic environmental decisions is even more important in developing countries where most firms are small and thus the CEO's influence can be magnified and directly exerted over most managerial responsibilities (Hambrick and Mason, 1984; Chen and Hambrick, 1995).

Organizational psychology scholars have suggested that a person's background demographic characteristics can be important in predicting strategic choices because these traits are central to shaping the beliefs, values, attitude, and assumptions CEOs use to assess firms' competitive alternatives and their outcomes (Hambrick and Mason, 1984; Hambrick and Abrahamson, 1995; Wiersema and Bantel, 1992; Lasswell, 1948; Simon, 1947). Previous studies have found links between environmental concern and individuals' background demographic characteristics such as age,

gender, income, education, and academic expertise (Ewert and Baker, 2001; Cottrell, 2003; Kollmuss and Agyeman, 2002; Kellert, 1996; Dunlap and Van Liere, 1978). For example, earlier findings have suggested that environmental concern tends to be positively correlated with younger age, higher incomes, being female, higher formal education, and greater environmental expertise (Ewert and Baker, 2001; Cottrell, 2003; Kollmuss and Agyeman, 2002; Kellert, 1996; Smith, 1995).

The empirical research, however, has often been limited to samples of individual households, students, travelers, and members of environmental organizations and has not specifically considered corporate top managers (Kollmuss and Agyeman, 2002; Cordano and Frieze, 2000; Smith, 1995). Moreover, the evidence linking actual pro-environmental behavior and individual demographics has produced conflicting results (Kalof et al., 2002; Ewert and Baker, 2001; Cottrell, 2003; Kollmuss and Agyeman, 2002). To empirically address these gaps in the literature, we provide specific data to relate CEOs' level of formal education, academic field of study, and nationality (industrialized nation or developing nation) with participation and environmental performance in Costa Rica's CST program. We enumerate these categories below.

### *2.1. Formal education level*

Among demographic variables, formal education appears to be consistently correlated with enhanced environmental concerns (Ewert and Baker, 2001; Cottrell, 2003; Kollmuss and Agyeman, 2002; Smith, 1995; Hines et al., 1987). Individuals who are known to be more highly educated generally possess a superior ability to understand complex and uncertain problems, such as those affecting the environment, and thus display greater environmental awareness and concern (Ewert and Baker, 2001; Hines et al., 1987; Wiersema and Bantel, 1992). Empirical evidence also suggests that higher formal education is correlated with greater willingness to donate to environmental organizations, to engage in recycling, and to pay for certified environmentally friendly products (Smith, 1995; Kollmuss and Agyeman, 2002; Kellert, 1996).

Based on this reasoning, we propose that CEOs with higher levels of formal education can be expected to be more amenable to "beyond-compliance" (i.e., in excess of the extant environmental regulations) environmental practices and thus be more willing to participate in voluntary environmental programs that promote such practices (Ewert and Baker, 2001; Cottrell, 2003; Wiersema and Bantel, 1992; Hambrick and Mason, 1984). Higher levels of formal education are also associated with enhanced information processing abilities and receptivity to innovation, both key elements of beyond-compliance practices promoted by voluntary certification programs (Wiersema and Bantel, 1992; Smith, 1995; Cottrell, 2003). This discussion suggests the following hypotheses:

*Hypothesis 1: A firm's participation in voluntary environmental programs is positively correlated with the level of education of its CEO.*

*Hypothesis 2: A firm's environmental performance is positively correlated with the level of education of its CEO.*

## 2.2. *Academic major*

Behavioral research has also suggested that besides the level of formal education, different academic disciplines are distinctively correlated to a person's general perspectives, outlooks, values, beliefs, and motivations (Ewert and Baker, 2001; Smith, 1995; Wiersema and Bantel, 1992). Individuals also self-select into different disciplines based on their beliefs, values, personalities, and concerns (Ewert and Baker, 2001; Smith, 1995). Likewise, several empirical studies indicate that the type of academic major is linked to different levels of an individual's environmental concern and behavior (Ewert and Baker, 2001; Smith, 1995; De Young, 1996; Stern et al., 1995). Graduates majoring in environmental studies and biology appear to be more likely to show greater pro-environmental concerns than those individuals majoring in business, economics, and engineering (Smith, 1995; Ewert and Baker, 2001). Thus, CEOs with a degree in environmental studies can be expected to be more likely to adopt voluntary certification programs and pursue beyond-compliance environmental management strategies. These arguments propose the following hypotheses.

Hypothesis 3: *A firm's participation in voluntary environmental programs is positively correlated with the environmental management expertise of its CEO.*

Hypothesis 4: *A firm's environmental performance is positively correlated with the environmental management expertise of its CEO.*

## 2.3. *Industrialized country nationality*

Recent scholarly work has indicated that CEOs and managers from industrialized countries can be expected to be more aware of the heightened expectations about corporate environmental protection exerted by international environmental organizations, the media, and consumers in industrialized nations than their counterparts from developing countries (Christmann and Taylor, 2001; Neumayer, 2001; Wheeler, 1999). Empirical studies also suggest that top managers from industrialized nations have easier access to information about cost-efficient pollution prevention technologies developed to respond to industrialized countries' stringent environmental standards (Christmann and Taylor, 2001; Wheeler, 1999). Firms with CEOs from industrialized countries may also be subjected to increased oversight by local environmental groups and government agencies (King and Shaver, 2001). Hence, it can be expected that these CEOs would be more likely to endorse voluntary environmental programs and adopt proactive environmental efforts that improve their firms' "green" reputation (Christmann and Taylor, 2001; Garcia-Johnson, 2000). Drawing on this reasoning, the following hypotheses can be offered:

Hypothesis 5: *Firms with CEOs from industrialized countries are positively correlated with participation in voluntary environmental programs.*

Hypothesis 6: *Firms with CEOs from industrialized countries are positively correlated with higher environmental performance.*

### 3. The Costa Rican hotel industry

Costa Rica has become a popular tourist destination, largely in recognition of its political stability and an extensive system of environmentally sympathetic national parks and reserves that covers about 20% of that nation's territory (INCAE, 2002; Gentry, 1998; Cottrell et al., 2004; Stem et al., 2003). Tourist opinion surveys consistently show that visiting the tropical rain forests and observing biodiversity in flora and fauna are regarded as some of the most important reasons to visit Costa Rica by more than 85% of the tourists (INCAE, 2002; Rivera, 2002; Stem et al., 2003). Not surprisingly, then, hotels located on the buffer zones around the national parks own more than 70,000 acres of private reserves (Bien, 2000; Wildes, 1998).

In 2001, more than 1.1 million tourists visited Costa Rica, a four-fold increase since 1987 (ICT, 2002). This extraordinary rate of growth has made tourism the most important sector of the Costa Rican economy. In 2001, hotels and other tourism-related businesses generated about 45% of total foreign revenue produced by Costa Rica (ICT, 2002). During the last decade, more than one-third of the foreign direct investment to the country, about US \$1.2 billion, has been devoted to establishing hotels and related businesses (Rivera, 1998). Currently, about 2000 hotels are operating in the country. Remarkably, more than 75% of these hotels did not exist in the mid-1980s (INCAE, 2002; ICT, 2002). Most hotels are small (less than 16 rooms), offer basic services, and compete based on price and location close to national parks and beaches (Rivera, 2002). Large five-star luxury hotels represent less than 2% of all lodging facilities in the country (INCAE, 2002; ICT, 2002). The impressive evolution of the Costa Rican hotel industry is both cause and effect of the existence and growth of a national park system that is possibly the best managed in Latin America (Gentry, 1998). This symbiotic relationship is somewhat surprising for Costa Rica, a country that despite its outstanding environmental reputation has simultaneously experienced one of the highest deforestation rates in Latin America (Gentry, 1998).

In 1997, the Costa Rican Ministry of Tourism began organizing a voluntary environmental program for the nation's hotels, the Certification for Sustainable Tourism. This voluntary initiative was conceived as an incentive-based alternative to address the increased environmental problems generated by the boom of tourism and hotel facilities in Costa Rica (Lizano, 2001). The rapid growth of visitors and hotel investment in Costa Rica has led to significant environmental problems around the most popular parks and beaches. Hotel construction and operations, in particular, have been associated with the growing pollution of rivers and beaches, deforestation, and destruction of wetlands (Wildes, 1998; Weinberg et al., 2002; Stem et al., 2003).

The CST program was designed to ameliorate these ecological problems by certifying and monitoring the adoption of "beyond-compliance" environmental practices (Jones et al., 2001; Kozak, 2004). The CST certification process is carried out by third-party audit teams that assess hotel performance in four general areas of environmental management (see the description of environmental performance measures defined below). A National Accreditation Board that includes representatives of the Ministry of Tourism, environmental organizations, the local hotel trade association, and academic institutions is responsible for establishing the CST standards and overseeing the auditing process (Jones et al., 2001). Like the general quality ratings that

classify hotels from zero to five stars, the CST program rates hotel environmental performance by granting from zero to five “green leaves” for beyond-compliance performance. At the beginning of 2002, nearly 200 hotels were participating in the CST and 54 had received certification on a first-come, first-served basis.<sup>1</sup> Currently, analogous CST programs are being implemented in other Central American countries.

The underlying assumption of the CST program is that third-party certification of beyond-compliance environmental performance can allow participant hotels to gain a comparative advantage in terms of “greenness,” and this edge can be reflected in higher sales and/or price premiums from environmentally aware consumers that visit Costa Rica (Jones et al., 2001; Kozak, 2004). These financial benefits are expected to provide incentives that promote superior environmental performance by participant hotels. Indeed, a recent cross-sectional assessment of the CST program has suggested that hotel room price premiums are correlated with higher certified environmental ratings by this program (Rivera, 2002). Nonetheless, the causal nature of this correlation is not yet clear. Higher quality hotels that are more expensive may simply have more resources to adopt the CST standards (Rivera, 2004; Khanna, 2001). Rivera (2004) also suggests that hotel participation and higher environmental performance in the CST are linked to institutional pressures exerted by the government’s environmental monitoring and trade association membership.

#### **4. Methods**

##### *4.1. Data collection*

Following Dillman’s total design method (Dillman, 1978), we developed and pre-tested a survey questionnaire to gather information on CEO demographics and hotels’ basic characteristics. Results of a power analysis indicated that a sample of at least 138 observations was necessary to have an 80% chance of rejecting a false null hypothesis at 95% confidence (Cohen and Cohen, 1983).<sup>2</sup> Seeking to reach this minimum sample size, we interviewed two groups of hotels. First, we contacted and collected information from all 52 hotels that as of December 2000 had been audited and certified by the CST program. Second, we contacted a control group of 250 hotels. This control group was selected using stratified random sampling based on hotel geographic location.<sup>3</sup> Of the 250 control group hotels, 112 provided information.<sup>4</sup> Thus, from 302 hotels contacted, a total of 164 provided information during face-to-face interviews, yielding an overall 54.3% response rate. Data collected about hotel basic characteristics (e.g., size, location, quality rating, and ownership) was verified using archival information available at the Costa Rican Chamber of Tourism, the Ministry of Tourism, and the Costa Rican Association of Small Hotels.

##### *4.2. Data analysis*

To test the proposed hypotheses, a recursive two-stage technique was used that combines probit and ordinary linear regression models to control for self-selection bias in the evaluation of voluntary social behavior (Greene, 2000; Maddala, 1986).

This technique, originally developed by Heckman (1978), is the standard statistical methodology used to assess benefits of participation in voluntary environmental programs (Welch et al., 2000; Khanna and Damon, 1999; Hartman, 1988; Rivera, 2002). Controlling for self-selection bias is necessary because firms that anticipate higher benefits from joining a voluntary initiative are also expected to be more likely to participate (Heckman, 1978, 1979; Hartman, 1988; Maddala, 1986; Khanna and Damon, 1999). In other words, the decision to participate and its outcome are endogenous variables jointly determined by similar factors (Greene, 2000). Evaluations that do not consider the impact of self-selection bias are likely to overestimate the benefits of participation in voluntary programs (Greene, 2000; Khanna and Damon, 1999; Hartman, 1988; Maddala, 1986).

In the first stage of the regression analysis, a probit model identifies variables significantly related to participation in the CST program (Maddala, 1986; Khanna and Damon, 1999). This probit model is also used to estimate the probability of participation for each hotel. In the second stage, an ordinary linear regression (OLS) models the environmental performance of hotels certified by the CST program. To control for self-selection bias, the OLS regression includes the probability of participation estimates calculated during the first stage of the analysis as one of its independent variables (Maddala, 1986; Khanna and Damon, 1999).

#### 4.3. Variable measurements

Variable metrics are described in the order in which they appear in the preceding theory section of this paper, beginning with dependent variables and following with independent ones. *Participation in the CST program*, the dependent variable for the probit model, was coded using a dummy variable equal to one for hotels enrolled in the CST program by December 2000 and zero otherwise. *Beyond-compliance environmental performance*, the OLS model dependent variable, was measured using percentage scores assigned by the CST program. The CST program has probably generated the first third-party database on beyond-compliance environmental performance for service sector firms operating in a developing country. It certifies hotels based on 153 beyond-compliance standards divided into four general areas of environmental protection that include: (1) management of surrounding habitat; (2) management of hotel facilities; (3) guest environmental education programs; and (4) cooperation with local communities (Jones et al., 2001).

Each CST standard assesses adoption of a specific environmental practice and contributes one to three points to the final CST certification score, depending on its level of importance assigned by the CST National Accreditation Commission. The final CST percentage score received by each hotel is calculated by computing the coefficient between its total adoption score for all CST standards and its maximum possible score, to yield percentage performance rates (Jones et al., 2001; Rivera 2002). Certification results and CST ratings can be accessed online at: <http://www.turismo-sostenible.co.cr/>.

Key independent variables were measured as follows. *Hotel CEO education* was measured using dummy variables to identify different ascending levels of formal education received: High School Degree, Some College, College Degree, and Graduate Degree. *Hotel CEO major in college and graduate school* was also identified by

creating discrete dummy variables for the following areas of specialization: Business Administration, Hotel-Tourism Management, Humanities, Environmental Management, and Social Sciences. *Manager nationality* was coded as one for CEOs from industrialized countries and zero for CEOs from Costa Rica and other developing countries.

Other CEO demographic characteristics used as control variables were measured in the following ways: *age* was quantified in years, *gender* was coded as a dummy (1: female, 0: male), and *income* was measured in annual earnings in US dollars. We also controlled for a variety of hotel basic characteristics used in previous assessments of the CST program (Rivera, 2002, 2004). *Foreign ownership (foreign investors)* was measured by a dummy variable equal to one for hotels with majority ownership by foreign investors and zero otherwise. *Hotel location* was classified using dummy variables for park, beach, and city hotels. Park and beach categories included those hotels situated within 10 miles of a national park or the beach, respectively. City hotels were those operating in the greater metropolitan area of the Costa Rican Capital (San Jose). *Multinational subsidiaries* were coded using a dummy variable equal to one for those facilities that were either owned or managed by an international chain of hotels and zero otherwise. *Hotel general quality (quality)* was measured using the number of Michelin-type “stars” (*not* CST “green leaves”) assigned to each hotel by the Costa Rican Ministry of Tourism based on international quality standards developed by Triple A, Mobil and Michelin.<sup>5</sup> *Hotel size (size)* was measured as the logarithm of the number of hotel rooms. *Trade association membership* was identified using a dummy variable equal to one for members of the main hotel industry association, the Costa Rican Chamber of Tourism, and zero otherwise.

## 5. Findings<sup>6</sup>

Frequency distribution and other descriptive statistics for CST participation, environmental performance, and CEO demographics are displayed in Table 1. About 41% of the hotels included in the sample participated in the CST program. The average environmental performance for hotels that have received third-party certification was 56.48% adoption of CST standards, with about 40% of the certified hotels showing higher environmental performance than this average. For the overall sample, about 53% of the hotel CEOs had a college degree and about an additional 5% held a graduate degree. These proportions increased for CST certified hotels to 80% CEOs with a college degree and an additional 14% CEOs with a graduate degree.

Table 2 provides the frequency distributions for the academic major pursued by CEOs and also their specific nationalities. Business administration (15%) and hotel-tourism management (11.88%) appear to be the most popular academic majors pursued by hotel CEOs with a college degree. Only about 6% of the CEOs with a college degree majored in environmental management. In graduate school, humanities becomes the area of study pursued by the largest percentage (2.44%) of hotel top managers, business administration is second highest (1.83%). None of the top managers pursued a graduate degree in environmental management studies. Approximately 70% of the hotel CEOs were from Costa Rica, about 25% from industrialized countries, and the remaining 5% originated from other countries in Latin America.

Table 1. Frequency distributions

Variable	Full sample		CST certified*	
	N	Percent	N	Percent
<b>Dependent Variables</b>				
CST participation				
Not enrolled	97	59.15%		
Enrolled	67	40.85%		
Total	164	100		
Environmental performance <sup>a</sup> (% of compliance with CST standards)				
0% to 20%			0	0%
>20% to 40%			10	19.23%
>40% to 60%			21	40.38%
>60% to 80%			16	30.77%
>80 to 100%			5	9.62%
Total			52	100%
Mean			56.48	(15.60) <sup>b</sup>
<b>Hotel CEOs' Demographics</b>				
Age				
20 to 29	26	16.05%	7	14.00%
30 to 39	58	35.80%	19	38.00%
40 to 49	38	23.46%	13	26.00%
50 to 59	26	16.05%	10	20.00%
60 or older	14	8.64%	1	2.00%
Total	162	100%	50	100%
Mean	41.36	(11.82)	41.06	(9.63)
Education				
High school	35	22.15	1	2.00%
Some College	31	19.62	2	4.00%
College	84	53.16	40	80%
Graduate school	8	5.06	7	14%
Total	158	100%	50	100%
Gender				
Female	49	30.43%	16	32.00%
Male	112	69.57%	34	68.00%
Total	161	100%	50	100%
Income (thousands US\$ per year)				
≤9	47	30.32%	4	8.16%
>9–15	35	22.58%	10	20.41%
>15–27	35	33.58%	14	28.57%
>27–39	12	7.75%	5	10.2%
>39–51	7	4.52%	3	6.12%
>51–56	18	11.61%	13	26.53%
Total	155	100%	49	100%
Mean	21.10	(15.28)	29.63	(17.63)

\*Certified hotels have been audited and received beyond-compliance environmental ratings by the CST. Hotels that enroll in the CST are certified on a first-come, first-served basis.

<sup>a</sup>Higher percentage indicates better hotel environmental performance (see text for details).

<sup>b</sup>Standard deviations are in parentheses.

Table 2. Frequency distributions, CEO's academic major and nationality

Variable	Full sample		CST certified*	
	N	Percent	N	Percent
<b>Major in College</b>				
Business administration	24	15.00%	11	22.0%
Environmental Management	10	6.25%	6	12.00%
Hotel-tourism management	19	11.88%	14	28.00%
Humanities	11	6.88%	7	14.00%
Social sciences	17	10.63%	4	8.00%
Other	10	6.25%	5	12.00%
No college degree	69	43.12%	3	4.00%
Total	160	100.00	50	100.00%
<b>Major in Graduate school</b>				
Business administration	3	1.83%	2	4.00%
Humanities	4	2.44%	4	8.00%
Other	1	0.61%	1	2.00%
No graduate degree	156	95.12%	43	87.00%
Total	164	100%	50	100%
<b>Nationality</b>				
From developing countries	122	74.85	38	74.51%
From industrialized countries	41	25.15	13	25.49%
Total	163	100%	51	100%
<b>Nationality: specific countries</b>				
<u>Developing countries</u>				
Brazil	1	0.61%		
Costa Rica	114	69.94%	36	70.59%
Colombia	1	0.61%		
Mexico	3	1.84%	1	1.96%
Nicaragua	1	0.61%		
Peru	1	0.61%	1	1.96%
Venezuela	1	0.61%		
<u>Industrialized countries</u>				
Belgium	1	0.61%	1	1.96%
Canada	4	2.45%	2	3.92%
Denmark	2	1.23%		
France	2	1.23%		
Germany	3	1.84%		
Holland	4	2.45%	2	3.92%
Italy	10	6.13%	1	1.96%
Spain	5	3.07%	2	3.92%
Switzerland	2	1.23%	1	1.96%
USA	8	4.91%	4	7.84%
Total	163		51	100%

\*Certified hotels have been audited and received beyond-compliance environmental ratings by the CST. Hotels that enroll in the CST are certified on a first-come, first-serve basis.

### 5.1. CST participation and CEO education and expertise

The probit regression models used to analyze the decision to participate in the CST are displayed in Table 3. Model 1 assesses the relationship between hotel CEO level of education and participation in the CST while controlling for hotel basic characteristics and other CEO demographics. This model correctly classifies 87.7% of the

Table 3. Probit regression models (dependent variable: Participation in the CST)

	<b>Model 1 (Demographics)</b>		<b>Model 2 (Major in college)</b>	
Constant	-3.424***	(0.912) <sup>a</sup>	-3.949***	(1.177)
Foreign investors	-0.330	(0.321)	-0.389	(0.340)
<u>Location:</u>				
City	-0.258	(0.394)	0.045	(0.425)
Park	0.607*	(0.332)	0.980**	(0.382)
Multinational subsidiary	0.449	(0.660)	0.412	(0.679)
Quality	0.330***	(0.107)	0.320***	(0.115)
Size	0.434**	(0.216)	0.589**	(0.252)
Trade association membership	0.430	(0.377)	0.640	(0.418)
<b>Managers' demographics</b>				
Age	0.007	(0.012)	0.004	(0.013)
Gender	0.274	(0.301)	0.277	(0.324)
Income	0.008	(0.010)	0.007	(0.010)
Nationality	0.228	(0.369)	0.435	(0.411)
<u>Education</u>				
High school			-0.163	(0.617)
Some college	-0.327	(0.386)	0.444	(0.488)
College	0.616*	(0.328)		
Graduate	1.254*	(0.703)	0.223	(0.731)
<u>Academic Major in College</u>				
Business administration			0.302	(0.561)
Humanities			1.433**	(0.710)
Hotel-tourism management			0.782	(0.611)
Environmental management			1.032	(0.742)
Social sciences			0.146	(0.629)
<i>N</i>	152		151	
-2 Log <i>L</i>	131.099		118.357	
$\chi^2$ for covariates	75.148***		86.815***	
Percent correctly classified	87.7		89.9	

<sup>a</sup>Standard errors are in parentheses; Chi-square probability:

\*  $p < 0.10$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$ .

participation decisions. The positive and significant coefficient ( $p < 0.1$ ) on CEO college and graduate levels of education supports the prediction of Hypothesis 1 that a firm's participation in voluntary environmental programs is positively related to the level of education of its CEO. The results of Model 1 do not suggest significant relationships between participation and other CEO demographic characteristics such as age, gender, income, and industrialized country nationality.

Model 2 addresses Hypothesis 3 considering the link between CEO college major and participation in voluntary environmental programs. This model (also shown in Table 3) correctly classifies 89.9% of the hotel participation decisions. The coefficient on college major in environmental management suggests an insignificant relationship with participation in the CST program. This finding does not support the prediction of Hypothesis 3 that a firm's participation in voluntary environmental programs is positively correlated with the environmental management expertise of its CEO. Additionally, Model 2 results indicate that hotel CEOs with a major in the humanities are more likely to participate in the CST program ( $p < 0.05$ ). We originally intended to test Hypothesis 3 for graduate level expertise but the small number of managers with a graduate degree prevented the use of regression analysis for this purpose.

### *5.2. CST participation and CEO nationality*

Model 1 also tests the proposition of Hypothesis 5 that CEOs from industrialized countries are more likely to participate in voluntary environmental programs. The statistically insignificant coefficient on CEO nationality does not support this hypothesis. This somewhat surprising finding challenges previous claims, and suggests that further research is necessary to elucidate the relationship between CEOs nationality and participation in voluntary environmental programs in developing countries.<sup>7</sup>

### *5.3. Beyond-compliance environmental performance and CEO education and expertise*

Table 4 reports the findings of the OLS models used to test hypotheses about the association of hotel environmental performance and CEO education and nationality. The results of Model 3 indicate that a CEO's graduate education level (graduate degree) is positively and significantly related to his or her hotel's environmental performance ( $p < 0.05$ ). This finding supports the prediction of Hypothesis 2 that a firm's environmental performance is positively correlated with the education level of its CEO. The small number of CEOs with formal education below college graduate ( $n = 3$ ) prevented us from testing for differences between other education levels. Additionally, the results of Model 3 do not indicate significant associations between environmental performance and other CEO demographic characteristics such as age, gender, and income.

Model 4 incorporates different college majors pursued by CEOs to test Hypothesis 4. The positive and statistically significant ( $p < 0.05$ ) coefficient on environmental management major supports the prediction of Hypothesis 4 that a firm's environmental performance is positively correlated with the environmental management expertise of its CEO.

### *5.4. Beyond-compliance environmental performance and CEO nationality*

Model 3 also tests the prediction of Hypothesis 6 about the positive link between CEOs from industrialized countries and beyond-compliance environmental performance.

Table 4. OLS regression models (dependent variable: CST environmental performance)

	<b>Model 3</b>		<b>Model 4</b>	
	<b>(Level of education)</b>		<b>(Major in college)</b>	
Constant	26.870	(1.56) <sup>a</sup>	21.640	(1.10)
Foreign investors	1.146	(0.23)	-3.864	(-0.74)
<u>Location:</u>				
City	16.391***	(3.08)	14.862***	(2.98)
Park	6.588	(0.99)	11.657	(1.64)
Multinational subsidiary	-1.633	(-0.25)	-0.942	(-0.14)
Probability of participation	11.724	(0.53)	-10.719	(-0.42)
Quality	1.355	(0.45)	3.116	(0.90)
Size	-0.963	(-0.24)	6.004	(1.35)
Trade association membership	-1.724	(-0.26)	0.626	(0.10)
<b>Managers' demographics</b>				
Age	0.178	(0.65)	-0.093	(-0.33)
Gender	-1.292	(-0.29)	-3.908	(-0.87)
Income	0.097	(0.68)	0.132	(0.97)
Nationality	3.461	(0.60)	2.890	(0.54)
<u>Education</u>				
Graduate school	17.160**	(2.30)	14.637**	(2.06)
<u>Academic Major</u>				
Business Administration			-2.543	(-0.40)
Humanities			10.943	(1.49)
Hotel-tourism management			-5.600	(-0.95)
Environmental Management			20.343**	(2.09)
<i>N</i>	48		48	
<i>F</i> -Value	2.78***		3.02***	
<i>R</i> <sup>2</sup>	0.52		0.63	
Adj- <i>R</i> <sup>2</sup>	0.33		0.42	

<sup>a</sup>*t*-values are in parentheses; Prob: \**p* < 0.10; \*\**p* < 0.05; \*\*\**p* < 0.01.

The results do not support Hypothesis 6. The nationality coefficient does not appear to show a statistically significant association with beyond-compliance environmental performance.

## 6. Discussion

In general, the results from the regression models provide support for the argument that more highly educated CEOs are more likely to participate in voluntary environmental programs. Even more important, participant hotels run by CEOs with a graduate degree appear to be associated with higher beyond-compliance

environmental performance than hotels managed by CEOs with lower levels of formal education.

As expected, the findings also suggest that hotels' environmental performance is positively correlated with the environmental management expertise of their CEOs. Yet, participation in voluntary programs does not appear to be significantly correlated with a college major in environmental management. Additionally, other CEO demographic characteristics such as gender and income were not significantly associated with either higher levels of participation or environmental performance.

A necessary question, then, is what is it about a CEO's higher formal education and expertise in environmental management that facilitates a positive association with beyond-compliance environmental performance? Previous conceptual work suggests that higher levels of formal education and environmental expertise *may* allow CEOs to better understand environmental management problems that are inherently complex and whose benefits are ambiguous (Hart, 1995; Russo and Fouts, 1997; Ewert and Baker, 2001; Wiersema and Bantel, 1992). This greater understanding is reflected in an enhanced awareness and concern for environmental issues that motivates managers to adopt more proactive environmental management practices, such as those involved in showing superior "beyond-compliance" environmental performance. More highly educated managers are also more receptive to organizational innovation, a key element of successful adoption of beyond-compliance practices promoted by voluntary certification programs (Hart, 1995; Russo and Fouts, 1997; Wiersema and Bantel, 1992; Hambrick and Mason, 1984).

However, to better understand our regression findings, in-depth follow up interviews were conducted with two non-overlapping groups of hotel top managers: The first group included all the CEOs ( $n = 8$ ) who had earned a graduate degree; the second group consisted of all the CEOs ( $n = 10$ ) who had a college major in environmental management. They were questioned about the main motivations and rationales for their decisions to enroll (or not to enroll) their companies in the CST.

Seven out of the eight CEOs with a graduate degree said that they had adopted the CST because they believed that proactively protecting the environment was a critical societal responsibility of their hotels, but also because they believed that proactive environmental management could contribute to improved financial performance. Regarding contributions to the hotel's finances, these managers specified that higher environmental performance certified by the CST could improve the "green" reputation of their hotels and thus attract a greater number of environmentally aware customers that visit Costa Rica. They also argued that some of the energy, water, and recycling management practices promoted by the CST helped their hotels to reduce costs. The one manager with a graduate degree whose hotel was not participating in the CST explained that it was his policy to comply with government regulations but that he believed that the CST was too costly with unrealistically stringent and complex standards for Costa Rica.

CEOs with a college major in environmental management also expressed a sense of environmental altruism. Six out of the ten CEOs who were educated in environmental management argued that the main reason to participate in the CST program was because proactive environmental protection was the "right thing to do." These six

managers also mentioned that they believed that beyond-compliance environmental protection was a critical element for the competitiveness of their hotels. Another manager, aside from the six above, said that being what he considered “the best ecologically managed” hotel in Costa Rica was the basis of the superior financial performance for his hotel. In his words:

*“At more than \$200 per night our hotel is one of the most expensive in Costa Rica and we are more than 95% booked for the whole year. . .our reputation as the best eco-hotel in the country attracts so many guests that we have to turn down the majority of potential customers.”<sup>8</sup>*

Three CEOs with environmental management majors had decided not to participate in the CST program. One of these CEOs believed that proactive environmental management was an important element of corporate social responsibility, yet, surprisingly, he said that his hotel was not participating in the CST because he did not know about the program. The other two managers argued that despite their pro-environmental protection inclinations, they considered that the CST program was too costly, biased in favor of big hotels, and too stringent given what they perceived to be the economic reality of Costa Rica.

Our findings also indicate that CEOs from industrialized countries do not appear to be significantly more likely to participate in voluntary programs than their counterparts from developing countries, and when enrolled in these initiatives are not more likely to show higher beyond-compliance environmental performance. These findings challenge the “conventional wisdom” that these CEOs are more environmentally aware and ready to transfer to host developing countries the more proactive environmental management practices that are the norm in industrialized nations (Wheeler, 1999; Christmann and Taylor, 2001; Garcia-Johnson, 2000). Yet, our results are consistent with the emerging empirical literature that indicates a lack of association between enhanced environmental performance and firms whose investors and/or parent companies are from industrialized countries (Pargal and Wheeler, 1996; Hettige et al., 1996; Aden et al., 1999; Dasgupta et al., 2000; Christmann and Taylor, 2001). We argue that the wide variety of approaches taken by the CEOs from industrialized countries operating hotels in Costa Rica explains this surprising result. To be sure, some of the hotels with the highest beyond-compliance environmental performance rankings are managed by CEOs from Europe, the USA, or Canada. Yet, CEOs from these nations also operate some of the hotels that show the lowest predicted probability of participation and some of the lowest certified environmental performance. CEO’s education and environmental expertise, rather than an origin from a developed country, appear to be the critical factors related to beyond-compliance environmental behavior.

## **7. Conclusions**

This analysis contributes to the public policy and environmental management literatures by increasing the understanding of how CEOs’ personal backgrounds

or characteristics are associated with pursuing corporate beyond-compliance environmental performance in a developing country. Previous research on environmental behavior and individual demographic characteristics has been mostly limited to samples of households, students, travelers, and members of environmental organizations and has not considered corporate top managers (Ewert and Baker, 2001; Cottrell, 2003; Kollmuss and Agyeman, 2002; Cordano and Frieze, 2000; Egri and Herman, 2000; Kellert, 1996; Smith, 1995).

Illustrating how differences in top corporate decision makers' characteristics are linked to beyond-compliance environmental performance is essential to improving the effectiveness of alternative incentive-based environmental policy instruments currently promoted in the developing world. Self-interested calculations aimed at preempting new mandatory regulations and reducing environmental monitoring by government agencies and environmental groups can explain the decision to participate in voluntary programs and the adoption of proactive environmental practices by a significant percentage of CEOs (Rivera and deLeon, 2004; Winter and May, 2001; Cashore and Vertinsky, 2000; Henriques and Sadorsky, 1996; Tyler, 1990). Yet, other motivations also seem to be important, particularly in developing countries characterized by a context of problematic regulations, poor government monitoring and enforcement capabilities, and a weak environmental community (Wheeler, 1999; Utting, 2002).

This study indicates that CEOs' level of formal education appears to be significantly associated with higher corporate participation in voluntary programs and also with greater beyond-compliance environmental performance ratings, more so than the more apparent income indicators or country of national origin. CEOs with expertise in environmental management also show a significant link with higher levels of beyond-compliance environmental performance. Contrary to the conventional wisdom (Wheeler, 1999; Christmann and Taylor, 2001; Garcia-Johnson, 2000), CEOs from industrialized countries do not appear to be more likely to participate in voluntary programs and also do not seem to be more likely to show higher beyond-compliance environmental performance.

In-depth follow-up interviews with CEOs who have had formal graduate education and those with majors in environmental management indicate that beyond-compliance environmental choices are motivated by ecological altruism and a belief that "it can pay to be green." Previous studies highlight a significant link between regulatory pressures and participation and higher environmental performance (Rivera, 2004; Winter and May, 2001; Cashore and Vertinsky, 2000; Henriques and Sadorsky, 1996; Tyler, 1990). Nevertheless, regulatory incentives—typically governmental regulations and monitoring—were not among the main motivations for beyond-compliance environmentalism mentioned by highly educated managers or those with expertise in environmental management.

Higher education and environmental expertise may increase a CEO's recognition in Costa Rica of the intrinsic value of nature and his/her perceived sense of ethical duty to protect it (Ewert and Baker, 2001; Cottrell, 2003; Wiersema and Bantel, 1992; Hambrick and Mason, 1984). Moreover, CEOs with higher education and environmental expertise can also be expected to be more aware of innovative technologies that lead to cost savings in the form of reduced waste, energy savings, and recycled

materials, again as a function of their educational experiences. Lastly, as part of their business acumen, these CEOs may also have a better understanding of how an enhanced “green” reputation, generated by superior certified beyond-compliance environmental performance, could generate differentiation advantage benefits in the form of price premiums and higher profit margins for their hotels.

Admittedly this study has presented a very small cross-sectional sample of CEOs, and was limited to one developing nation in a short time frame. Moreover, the study was exclusively focused on experience in the “green” hotel business. For this reason, our ability to generalize our findings to other policy arenas or nations is guarded at best. Future research should include longitudinal data to examine, in other industries and other countries, how CEO socio-demographic characteristics are related to beyond-compliance environmental performance.

Still, for policy makers this research indicates an environmental rationale for higher education, often graduate education, with environmental management training being especially salient. With the future of “command and control” environmental regulations increasingly giving way to “beyond-compliance” regimens, it would seem that formal higher education and environmental technical assistance would lay an important foundation.

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### Notes

1. Certification results and CST ratings can be accessed online at: <http://www.turismo-sostenible.co.cr/>.
2. We assumed in the power analysis that environmental performance, the independent variable of interest, had a ‘small’ effect size on the regression model (about 5% unique variance of the dependent variable explained).
3. No comprehensive list of all the hotels operating in Costa Rica was found. Thus, a sample frame list including 649 hotels was prepared. Sources of information consulted for building the sample frame included: Archival data available at the Ministry of Tourism, the Costa Rican Chamber of Tourism, and the Association of Small Hotels, the 2000 Costa Rican Phone Directory, and the most popular travel book guides to Costa Rica. The travel guides consulted were: *The New Key to Costa Rica* (Blake and Becker, 1998); *The Berkeley Guide to Central America* (Nystrom and Smith, 1996); *The Lonely Planet Guide: Costa Rica* (Rachowiecki, 1997); and *Fodor’s 99: Costa Rica Travel Guide* (Rockwood, 1999). Subsequently, we categorized the sample frame list into six geographic groups and randomly drew observations from each group to build a survey sample of 250 hotels.
4. A Pearson Chi-square statistic was used to test whether there was a difference in the geographic frequency distribution for respondents and non-respondents of the control group (Pedhazur and Schmelkin, 1991; Goodmann and Kruskal, 1972). This test indicated that respondent and non-respondent hotels did not differ significantly in terms of location ( $p < 0.05$ ).
5. Controlling for hotel quality is important because of previous evidence in the literature suggesting a link between a firm’s general quality standards and its environmental performance standards (Khanna, 2001; Lyon and Maxwell, 1999; Arora and Cason, 1996).

6. Following the practice used by empirical studies that rely on small sample sizes we used a  $p < 0.1$  criteria to determine the statistical significance of our findings. This practice has been widely accepted for studies implemented in developing countries, given that the power of the statistical tests is positively affected by the number of observations (Pedhazur and Schmelkin, 1991: pp. 198–203 and 388).
7. We thank one of the anonymous reviewers for highlighting the need for additional research to elucidate the nature of the relationship between CEO nationality and participation in voluntary programs.
8. *Source*: personal interview with the CEO of one of the hotels with the highest certified environmental performance in Costa Rica, Costa Rica December 2000. Authors explicitly agreed to keep hotel and manager names confidential.

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