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Article

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GREEN PROCUREMENT THROUGH FOREST STEWARDSHIP COUNCIL (FSC) CERTIFICATION IN THE PRIVATE SECTOR. PERCEPTIONS AND WILLINGNESS TO BUY OF PRIVATE COMPANIES FROM ROMANIA

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Abstract

Companies can contribute to the achievement of the sustainability goals through their procurement function when they opt for green procurement. In the current paper, the authors focused on the procurement of Forest Stewardship Council (FSC) certified products. Having known that attitudes contribute to the definition of the individual's behavioral model and, thus, of her/his "green" choices, the aim of the paper was to investigate attitudes related to the procurement of FSC certified products by people in charge of private company acquisitions. Research results were based on a survey, with a sample of 214 private companies from Romania. Results of binary logistic regression analysis indicate that companies that perceive a positive impact of FSC products on forest protection and on company image are more likely to replace conventional wood products with FSC ones when they have a similar price. When FSC products are more expensive than the conventional ones, companies will be more likely to buy them when economic benefits are present, too. From a practical perspective, the findings bring to the forefront the fact that companies can be stimulated to select FSC products at similar price over conventional ones by highlighting the contribution of the former to forest protection and the image benefits that they can bring.

Keywords: green procurement; certification; forest stewardship council (FSC) certification; company perceptions; willingness to pay; willingness to replace.

JEL Classification: D22, M31, Q01, Q23

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Introduction

Companies can effectively reduce their environmental impact through their procurement function when they opt for green procurement. Not only that these companies green their activities through the use and commercialization of green products, but they can also span this effect to their suppliers by demanding them green products, and these, at their turn, can pass on the green preference to their suppliers, thus promoting sustainable development to a larger scale. Green procurement (or green purchasing) can be adopted both by private and public entities, in the latter case being named green public procurement. Green public procurement was defined as “a process whereby public and semi-public authorities meet their needs for goods, services, works and utilities by seeking and choosing outcomes and solutions that have a reduced impact on the environment throughout their whole life-cycle, as compared to conventional products/solutions. A procurement procedure will be considered as ‘green’ only if it has led to the purchase of a substantively ‘greener’ product and only if the environmental characteristics of this product go beyond what needs to be complied with on the basis of European or national environmental legislation.” (European Commission, 2007; PricewaterhouseCoopers, 2009). Many studies have shown that both organizational and individual consumers often prefer green products when they perceive benefits or find them at least equal to conventional products (Halalisan, Abrudan and Popa, 2018; Petrescu and Petrescu-Mag, 2015; Thompson et al., 2010). Consumer preference is a strong driver for companies to supply green products, which are thus stimulated to purchase or produce them. Green procurement can refer to any product or service with low environmental impact, from organic food or cotton to energy saving products. Among these, in the current paper, authors focused on Forest Stewardship Council (FSC) certified products.

The forest sector represents a key-player in the ongoing transition to a low-carbon economy which is facing disruptive challenges strongly connected to economic, societal, and environmental transformations that shape the relationship between the business sector, consumers, and the planet (World Business Council for Sustainable Development, 2019). Excessive deforestation clearly contributes to global warming (Ahmad et al., 2012) and that is why international agreements (e.g., the Paris Agreement on Climate Change of 2015, the Desertification Convention of 1994, the Convention on Biological Diversity of 1992) have taken the challenge to fight against deforestation and forest degradation. Public and private entities can act in different ways to achieve these goals, and one way is through their purchasing policies. This is where the Forest Stewardship Council (FSC) certification can play its role. Green (sustainable) procurement represents a specific target of the UN Sustainable Development Goals (SDGs) (agreed upon in 2015 by all 193 member states of the United Nations), namely “Ensuring sustainable consumption and production patterns”. Therefore, supporting forest certification is a key contributor to this. Forest certification schemes are acknowledged as an instrument of governmental procurement policies, mandatory requirements for awarding ecolabels, corporate social responsibility commitments, and a tool for proving the legality of wood timber origin (Paluš et al., 2017). At the EU level, voluntary scheme was agreed and it was titled the Forest Law Enforcement, Governance and Trade (FLEGT) action plan to fight illegal logging and associated trade. One main objective is to ensure that only legally harvested timber is imported to the EU. Regulation (EC) No 2173/2005 on the establishment of a FLEGT licensing scheme for imports of timber into the European Community and Regulation (EC) No 1024/2008 laying down detailed measures for the introduction of the scheme represent the legal framework for the scheme. To respond to the social and political changes that

affected the forest sector, it is worth mentioning that the European Commission presented, in 2013, a new EU forest strategy (COM (2013) 659) for forests and based on forests sector. This strategy represents the framework for forest measures and it is used to coordinate EU initiatives with Member States' forest policies.

There are numerous forest certification schemes at global level, but the FSC and the Programme for the Endorsement of Forest Certification (PEFC) are those prevalent (Maesano et al., 2018). Within the present study the focus is placed only on FSC, judged to be the "gold" standard for wood-sourced from sustainable managed forests (Bowler, Castka and Balzarova, 2017). Founded in 1993, the FSC is a nongovernmental and not-for-profit organization committed to promote environmentally and socially sustainable forestry practices. For this, it developed a set of 10 principle and associated criteria (e.g., Tenure and use rights and responsibilities, Environmental impact, Maintenance of high conservation value forests), and it provides three types of certifications: "(a) the FSC Forest Management certification that allows companies that produce or sell forest products to demonstrate that they comply with FSC requirements; (b) FSC Chain of Custody certification is a tracking system where companies that use or sell forest products but do not grow and harvest trees to demonstrate that timber comes from a forest that is managed in accordance with the FSC principles and criteria; and (c) FSC Controlled Wood certification (applied to timber and non-timber forest products) helps manufacturers and traders to demonstrate that they do not source from illegal harvests, forests with violations of rights, forests with high conservation values, native forests that have been converted, or forests where genetically modified organisms are used" (International Trade Centre, The Forest Stewardship Council, 2011). Certified forests contribute to global sustainable development, to the mitigation of climate change (Martínez-Vega, Mili and Echavarría, 2016), and to the valorization of forest public amenity by observing strict forest management standards. The FSC certification can be found on many products, from paper, pulp, stationary products, to food, soil conditioners and substrates, and to solid wood, veneer, furniture or musical instruments and it is also given to forests (FSC, 2019).

There are no publicly available statistics concerning green procurement value by country at the EU level, nor about the purchase of the FSC products. Consequently, the only way to understand the FSC products market is to study company perceptions and intentions to purchase FSC products. To the authors' best knowledge, this is the first study that investigates Romanian business consumers' perceptions and willingness to use and pay for FSC products. Thus, the objectives of this study are: (i) To reveal Romanian business consumer behavior (actions and perceptions) related to FSC products procurement; (ii) To find out if business consumer' perceptions regarding the contribution of FSC products procurement on business profitability, social welfare, forest protection, and company image can predict business consumer willingness to replace conventional products with FSC certified ones under equal price conditions; (iii) To find out if business consumer' perceptions regarding the contribution of FSC products procurement on business profitability, social welfare, forest protection, and company image can predict business consumer willingness to pay higher price for FSC certified products. The research hypotheses are those presented below, and they were investigated according to the methods described in the Methodology section. a) Procurement managers (PA) have previously seen the FSC logo; b) They know the meaning of the FSC logo; c) They have intentionally purchased FSC certified products; d) PA are satisfied with FSC products; e) They consider

that the purchase of FSC certified products contributes positively to the profitability of the company; f) They consider that the purchase of FSC certified products contributes positively to social welfare; g) PA consider that the purchase of FSC certified products contributes positively to the protection of forests; h) They believe that the purchase of FSC certified products contributes positively to the company's image; i) PA are willing to replace the wood products without certification with those that have FSC certification when both have the same price; j) PA are willing to pay a higher price for FSC certified wood products; k) PA's willingness to replace the wood products without certification with those with FSC certification when both have the same price is positively influenced by the following perceptions that they hold: the purchase of FSC certified products contributes positively to the profitability of the company; the purchase of FSC certified products contributes positively to social welfare; purchasing FSC certified products contributes positively to forest protection; the purchase of FSC certified products contributes positively to the company's image; l) PA's willingness to pay a higher price for FSC certified wood products is positively influenced by the following perceptions: the purchase of FSC certified products contributes positively to the profitability of the company; the purchase of FSC certified products contributes positively to social welfare; purchasing FSC certified products contributes positively to forest protection; the purchase of FSC certified products contributes positively to the company's image.

The paper is organized as follows: after the Introduction, the Introduction, the Literature review section presents to the readers the current status of the use of the FSC certification and the attitudes regarding it in different countries; the methodology describes the implementation of the survey and the data analysis methods; the Results and discussions section analyzes and comments these data and the Conclusions are synthesized in the last section.

1. Review of the scientific literature

Sustainable use of forest resources (Baumgartner, 2019; Soltani, Angelsen and Eid, 2014), along with that of water (Pahl-Wostl, 2019; Petrescu-Mag and Petrescu, 2010) or land (Aznar-Sánchez et al., 2019), is mentioned very often as a factor on which the well-being of both local communities and the society as a whole depends. Despite the conservation efforts and increased awareness on environmental, social, and economic functions of the forest, wooded land declines continuously. Evidence from literature (Allen and Barnes, 1985; Angelsen and Kaimowitz, 1999; Chaudhary, Uprety and Rimal, 2016) blames population growth, land conversion for agriculture and real estate, or other economic determinants such as increasing wood demand for fuels, furniture industry, or even biomass. It is estimated that deforestation is behind around 27% of forest loss, through the change of permanent land use for commodity production (Curtis et al., 2018). As posited by several authors (Ingalls et al., 2018; Liao et al., 2016), the global supply chains has a significant role in driving forest change which is not only substantial but also growing because of large-scale land acquisitions. At the European Union level, an increase of 9% of imports in primary timber raw material imports was observed between 2002 and 2011, while for the same period the exports of primary timber raw material increased with 40% (O'Brien and Bringezu, 2018). According to the latest statistical data available at the European Union level, in 2017, about 430 000 companies have been active in the wood industry in the EU-28; they represented one of five manufacturing enterprises (20%) in the entire EU-28 (Eurostat, 2019).

While Asia, Latin America, and Pacific report some of the highest deforestation rates in the world (Cuaresma and Heger, 2019; Casson and Obidzinski, 2002; Humphreys, 2016) several European countries (Romania, Ukraine) also appear in worrying statistics. Often associated with deforestation (Tacconi, 2012), illegal logging receives a substantial attention, it is a global issue, and precisely certification is the driver to combat this illegalities (Gavriliuț et al., 2016). China, Brazil, Russia, Indonesia, Papua New Guinea, India, Japan, Vietnam, the USA, and Poland are pointed to be the first 10 countries that consume illegal timber which represents 66.86% of the global illegal timber consumption (Zhang et al., 2016). As posited by Tacconi (2012), the illegal activities range from violations of community rights and forest management regulations, to corruption activities to obtain forest concession, or to activate in an illegal way within the forest goods production chain. Humphreys (2016) points out the fraudulent transfer pricing of criminal practices associated with logging. Hariohay et al. (2019) warn on the situation in Tanzania where illegal logging bring a high risk of disappearance of many species of animals and plants due to habitat loss caused by environmental degradation and deforestation.

While in countries from Asia, Africa or Latin America where this phenomenon is largely present report violence in relation with illegal logging, European countries resort to more sophisticated forms to disguise such activities. For example, Holzindustrie Schweighofer, an Austria company which processes around 40% of the Romania annual wood production, was accused in 2015 by the nonprofit Environmental Investigation Agency of the US (EIA) that it carried out illegal logging in Romania, and, thus, destroyed the Europe's last remaining virgin forests. Another method used by illegal loggers refers to fake stamps that are difficult to distinguish from the real ones after weeks weathering. In fact, the EIA estimates that around half of all logging in Romania is illegal (The Environmental Investigation Agency, 2017). However, there is a certain level of uncertainty about the extent of different forms of illegal logging.

According to the latest data, 47.7% of total FSC certifications belongs to Europe, which sums up 93,058,228 ha and 696 certificates (at global level there are 195,170,660 FSC certified ha belonging to 84 FSC country members, and 1526 certificates) (The Forest Stewardship Council, 2017). Forest certification through the promotion of an economic, social, and environmental viable forest management has brought to the forefront innovative approaches with mutual benefits and interplay between public and private actors (Maesano et al., 2018; Secco et al., 2014), which has also aroused the interest of scientific community. A recent study has mapped the forest certification diffusion in Europe and it revealed that the FSC certified forests cover between 74% (Croatia; and the country has 0.00% of forest area covered by PEFC certification) and 0.01% (Austria; but the country has 69.15% of forest area covered by PEFC certification) of the country forest area (Maesano et al., 2018). Romania ranks on the 14th place among 32 surveyed countries with 33.33% of forest area covered by FSC certification (and 0.00% by PEFC certification) (Maesano et al., 2018). As long as the FSC certification provides incentives for producers to improve sustainable forestry practices and credible guarantee that the product that consumers purchase comes from "environmentally friendly" sources (Perera et al., 2008; Tikina and Innes, 2008), the investigation of how consumers and companies perceive FSC is of utmost importance towards a wider use of FSC (at enterprise and individual level).

In a study dedicated to Japan, it was revealed that forest enterprises choose FSC certification for various reasons and the main ones were its “international scheme” characteristic and its “credibility”; moreover, it was reported that certification was effective for “sustainable forest management”, which was another declared reason for choosing certification (Sugiura and Oki, 2018). In Brazil, associated economic expenditures were indicated as main obstacle towards certification (Humphries and Kainer, 2006). In a study conducted on the top 500 home-center retailers in the United States with the aim to ascertain their participation in certification, respondents answered that they entered the certified wood products market based on several reasons, such as an improved image of the company, customer demand, or the business owner commitment to environmental issues (Perera et al., 2008). In a survey applied to 417 forest management structures in Romania, intended to identify the perception of their managers regarding the reasons to adopt or to reject certification, it was found that economic and competitive advantages were indicated on the first place (Halalisan, Abrudan and Popa, 2018).

Existing research is dedicated to the main factors that motivate companies to adopt FSC standards and it also offers relevant information about how FSC certification counteracts the negative impacts of forestry activity and its role in biodiversity conservation (Kleinschroth, Garcia and Ghazoul, 2019; Trolliet, Vogt and Kleinschroth, 2019). However, there is a dearth of contributions dedicated to the perceptions and attitudes of companies. Among the few research in this regard, is the one that investigated consumers’ attitudes towards FSC certification in Italy (Testa et al., 2015) where it was showed that the higher the consumer's awareness on product’s superior environmental attributes is, the higher the probability that he/she will buy products with a reduced impact on the environment is. Thus, it was pointed out the need for well-designed certification schemes and communication instruments to avoid misleading the consumers. Based on a Discrete Choice Experiment survey applied in the Finnish retail outdoor decking material market on 231 participants, various consumer segments were identified; the low price-seeking consumers looked for PEFC certificates, while material-orientated consumers preferred FSC (Holopainen et al., 2017). O’Brien and Teisl (2004) estimated the USA respondents’ WTP for perceived improvements in the environmental quality of forest products, and they found that consumers are willing to pay for these products but changes in labeling policy may influence their willingness to pay; consequently, detailed labels are more beneficial for consumers (Teisl, 2003).

Having known that attitudes contribute to the definition of individual’s behavioral model and, thus, of her/his (un)sustainable choices (Testa et al., 2015), we investigated attitudes related to the procurement of FSC certified products of people in charge of company acquisitions. The relevance of this study on companies dedicated to green procurement, in particular to the purchase of FSC certified products, should be placed within the context of the need of the adoption of a preventive behavior of the companies in relation to goods and services that affect the quality of the environment (Grădinaru, 2010).

2. Research methodology

The results of this study were obtained through a survey with a sample of 214 respondents. One county was randomly selected from each of the eight Romanian NUTS (Nomenclature of Territorial Units for Statistics) regions (Institutul National de Statistica,

2017). Between 25 and 27 companies from each county were randomly selected and included in the sample and they were contacted by phone to request their participation in the survey. In case of a positive answer, the questionnaire was sent by email, accompanied by two requests: that the questionnaire is answered by an employee in charge of deciding what products are purchased by the company and that the completed questionnaire should be returned to the sender within 24 hours. In case of no response, the company was contacted again twice: once by phone and once by email. The positive response rate was 38%. The questionnaire was constructed starting from questions used in FSC reports and several scientific papers that investigated individual consumer and company perceptions regarding the FSC certification (FSC, 2008, 2012, 2016; Halalisan, Abrudan and Popa, 2018; Sugiura and Oki, 2018). The first variable investigated in the study was the familiarity with the FSC logo. Its graphical representation was shown and people were asked if they have ever seen it. The second question tested the awareness regarding the meaning of the FSC logo, by allowing respondents to choose between the following answer options: “a) Financial efficiency; b) Forest protection; c) Children protection; d) Made of recyclable material; e) I cannot tell; f) Other. Please specify:”. Information regarding the FSC certification was provided at this point in the questionnaire to avoid misunderstanding and differences in its interpretation. Similarly to other studies (Petrescu et al., 2017), previous procurement of FSC certified wood products on purpose (an informed decision in favor of FSC products compared to non FSC ones) was tested and in case of a positive answer people were asked if they were satisfied with the decision taken. The following four questions investigated respondents’ perceptions of the contribution of procurement of FSC products to business profitability, social welfare, forest protection, and company image. Prior to the creation of the questionnaire, a focus group with 11 persons responsible in charge of the acquisitions in their company was organized. They were asked which were the most important drivers to the acquisition of FSC certified products. Business profitability and company image received the highest ratings and, therefore, they were included in the questionnaire. Social and environmental aspects were implicitly added because they are part of FSC core reasons for the existence of FSC certification. The next two questions referred to company willingness to replace uncertified with FSC certified wood products at the same price and willingness to pay a higher price for certified wood.

Binary logistic regression was performed twice using SPSS to test how company (i) “willingness to replace conventional products with FSC certified ones at the same price” and (ii) “willingness to pay higher price for FSC certified products” are influenced by company perception regarding the following variables: contribution of FSC products procurement on business profitability, social welfare, forest protection, and company image, on the one side, and, on the other side.


3. Results and discussion

3.1. FSC certification – awareness and perceptions

The current study revealed that one-third of respondents have seen the FSC logo on some products prior to the survey data and that only a small part of the sample has indicated the correct meaning of the FSC certification among the presented options (Table no. 1). This low awareness clearly indicates the need for information-education campaigns among

Romanian business consumers. Label and logos are effective informational shortcuts that consumers use in their decision-making process. It was observed that the use of environmental logos was related to their understanding (Grunert, Hieke and Wills, 2014), that consumers often relied on the information on the label (Petrescu-Mag et al., 2016) and that they had preferences regarding the way in which label information was presented (Petrescu et al., 2018). In Romania, very few companies have purchased FSC products on purpose, that is they specifically selected them among various options (Table no. 1). As a comparison, in China, a survey on private companies and individual consumers revealed that more than 80% of them had previously bought paper products with lower environmental impact (Ho, Dickinson and Chan, 2010). A positive aspect is that most of the Romanian buyers were satisfied with their decision. All positive impacts of FSC certification have gain rather low credibility among surveyed companies, with company profitability being the least trusted one, which calls for intensive information campaigns to raise awareness on possible economic benefits resulted from FSC products procurement. Willingness to pay a higher price for FSC certified wood products can be also considered low if we compared it with Chinese private companies' and individuals' willingness to pay more for green products: 79% of interviewed persons agreed to pay up to 22% more for them (Ho, Dickinson and Chan, 2010).

Table no. 1: Company preferences and actions related to FSC certified products

Variable	% out of the total sample
He/she previously saw the FSC logo 	29.9
Awareness regarding the meaning of the FSC logo	7.9
Previous procurement of FSC certified wood products on purpose	4.7
Satisfaction with the decision of certified wood products procurement	3.3 (70% out of those who bought)
FSC positively contributes to business profitability	24.8
FSC positively contributes to social welfare	33.2
FSC positively contributes to forest protection	42.5
FSC positively contributes to company image	42.1
Willingness to replace uncertified with FSC certified wood products at the same price	48.6
Willingness to pay a higher price for FSC certified wood products	34.1

3.2. Willingness to replace conventional wood products with FSC certified ones and to pay higher price for FSC certified products

The first regression analysis tested how well four perception variables can predict business consumer's "willingness to replace conventional wood products with FSC certified ones" when they have the same price. The Omnibus Tests of Model Coefficients which shows how well the model performs, generated a highly significant value ($p < 0.005$) and a chi-square value of 139.512 with 4 degrees of freedom. The values obtained through the Hosmer and Lemeshow Test support the model, too, with a good fit revealed by a p value greater than 0.05 ($p = 0.397$). The Cox & Snell R Square and the Nagelkerke R Square values show that between 47.9% and 63.9% of the variability in the willingness to replace conventional wood products with FSC certified ones is explained by this set of variables.

The variables that contribute significantly to the predictive ability of the model are the “Perceived positive impact of procurement of FSC products on forest protection” and the “Perceived positive impact of procurement of FSC products on company image” and they have a good predictive capacity. The “Perceived positive impact of procurement of FSC products on business profitability” and the “Perceived positive impact of procurement of FSC products on social welfare” did not have predictive power (Table no. 2).

Table no. 2: Results of the first binary logistic regression analysis

Independent Variable	Dependent Variable	B	S.E.	Wald	df	p	OR
Perceived impact of procurement of FSC products on business profitability	Willingness to replace conventional wood products with FSC certified products at the same price	-0.136	0.715	0.036	1	0.849	0.873
Perceived impact of procurement of FSC products on social welfare		-0.191	0.674	0.081	1	0.777	0.826
Perceived impact of procurement of FSC products on forest protection		2.256	0.626	12.963	1	0.000	9.541
Perceived impact of procurement of FSC products on company image		3.315	0.572	33.637	1	0.000	27.517
Constant		-2.188	0.319	47.096	1	0.000	0.112

Notes: B = Regression Coefficient; S.E. = Standard Error; Wald = Wald Statistic; df = degree of freedom; p = Significance; OR = odds ratio.

Companies that perceive a positive impact of FSC products on forest protection and on company image are more likely to replace conventional wood products with FSC ones when they have a similar price. The perceived impact of procurement of FSC products on company image is very important in the choice of FSC products because the odds of a company being willing to replace conventional with FSC products are 27.517 times higher for companies who perceive FSC products as having a positive impact on company image compared to companies which do not see such an effect (Table no. 2). As a consequence company appreciation for FSC products and of their suppliers which commercialize them has paramount importance in company choice of FSC products. The odds that a company replaces conventional with FSC products is 9.5 times higher when that company perceives a positive effect of its green procurement on forest protection compared to companies that do not perceive such an effect, all other factors being equal (Table no. 2). This behavior indicates that forest protection plays an important role in companies’ procurement decisions, thus indicating that environmental protection matters and they have at least some environmental oriented behavior.

From a practical perspective, these results imply that companies can be stimulated to select FSC products at similar prices over conventional ones by highlighting the contribution of the former to forest protection and the image benefits that they can bring (Petrescu, 2002).

The prediction of companies’ willingness to pay a higher price for FSC certified products through the perceived impact of FSC products procurement was made by running again binary logistic regression. The Omnibus Tests of Model Coefficients, which shows how well the model performs, generated a highly significant value ($p < 0.005$) and a chi-square

value of 199.677 with 4 degrees of freedom. The values obtained through the Hosmer and Lemeshow Test support the model, too, with a good fit revealed by a p value greater than 0.05 ($p=0.518$). The Cox & Snell R Square and the Nagelkerke R Square values show that between 60.7% and 84.5% of the variability in the willingness to pay a higher price for FSC certified products is explained by the perceived impact of FSC products procurement on business profitability, on forest protection, and on company's image. Therefore, these three variables contribute significantly to the predictive ability of the model and they should be the ones used in marketing campaigns to increase companies' willingness to pay for FSC certified products. The "Perceived positive impact of procurement of FSC products on social welfare" does not have predictive power on "willingness to pay a higher price for FSC certified products" (Table no. 3).

Table no. 3: Results of the second binary logistic regression analysis

Independent Variable	Dependent Variable	B	S.E.	Wald	df	p	OR
Perceived impact of procurement of FSC products on business profitability	Willingness to pay higher price for FSC certified products	3.950	0.993	15.827	1	0.000	51.928
Perceived impact of procurement of FSC products on social welfare		0.344	0.812	0.180	1	0.672	1.411
Perceived impact of procurement of FSC products on forest protection		1.998	0.785	6.482	1	0.011	7.374
Perceived impact of procurement of FSC products on company image		3.855	0.823	21.952	1	0.000	47.207
Constant		-5.306	0.877	36.636	1	0.000	0.005

Note: B = Regression Coefficient; S.E. = Standard Error; Wald = Wald Statistic; df = degree of freedom; p = Significance; OR = odds ratio.

Companies that perceive a positive effect of green procurement (in this case, FSC products) on business profitability, forest protection, and company image are more likely to pay a higher price for them. The odds of a company being willing to pay a higher price for FSC certified products are 51.928 times higher for companies who consider that these purchases improve their business profitability compared to companies that do not see such an effect, all other factors being equal (Table no. 3). Financial benefits were also often found by other studies to be relevant in companies' choice of green procurement (Appolloni et al., 2014). Company image is again important for business decision-makers, as the results show that the odds that a company buys FSC products are 47.207 times higher when it perceives positive consequences on company image compared to companies that consider that such an effect does not exist. A positive fact is that concern for the environment is relevant again in purchasing decisions: companies that consider that FSC procurement contributes to forest protection are 7.374 times more likely to pay a higher price for FSC products compared to companies that do not believe that such environmental benefit exists. In the case of this sample, social motives were not capable to influence companies in their decision related to green procurement for any of the tested situations – same price and higher price. Taking into account that social aspects have an important role in the FSC certification procedure, further investigation is needed to understand which are the ways to make it relevant for potential buyers of FSC products. Future research should also focus on how much more companies are willing to pay for FSC products and under which conditions.

Conclusions

Forest certification schemes in general and the FSC certification, in particular, continue to grow both in terms of certified forest area and as a force in sustainable forest management (Rickenbach and Overdevest, 2006). Therefore, green procurement through the acquisition of FSC certified products has the potential to become a relevant market factor.

The result of the binary logistic regression indicates, as expected, the high importance of business profitability when the price is involved in purchasing decisions, thus calling for a careful justification of this high price in front of business consumers. Company image plays an important role in buying decision in both situations (replacing conventional products with FSC certified ones at the same price and paying higher price for the latter), therefore, the role of the customers and other stakeholders related to business consumers is the cornerstone in determining the later to decide in favor of green procurement. Through their demand oriented towards FSC products, these customers are the driver that can make a company to buy or produce FSC products. As a consequence, marketing actions aiming to stimulate the acquisition of FSC products must target not only companies but their customers, too.

Based on these results, NGOs interested in forest protection and other actors with similar interests should frame the price of FSC certified products as a source of business profitability, forest protection, and image enhancement. For example, they can show how better image increased customer loyalty for companies who opted for green procurement.

The results should be viewed in the context of their limitations. Thus, given the fact that the results rely on self-declared perceptions, an attitude-behavior gap is usually present (Vermeir and Verbeke, 2006) and affects companies' decisions compared to declared willingness to act in real settings.

Efforts to promote the role and necessity of forest protection and FSC certification, as well as their environmental, social and economic benefits, are highly needed to maintain or create the company motivation to adopt a green behavior. Studies have shown that environmentally conscious behavior usually brings a future gain and not an instant personal one (Kaufmann, Panni and Orphanidou, 2012) and in this context, future benefits (such as higher future profits, increased demand, health benefits, or ethical satisfaction) provided to current and potential buyers of green products must be high enough in order to compensate for the lack of immediate benefits. An encouraging result highlighted by this study is that when companies believe they can make a contribution to forest protection, this perception is an incentive for them to purchase FSC certified products even if they have to pay a higher price. This study demonstrated that awareness on the need to protect the forest exists and it represents the foundation on which sustainable behavior of business actors can be built and enhanced.

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