



Contents lists available at ScienceDirect

Food Policy

journal homepage: www.elsevier.com/locate/foodpol

Green consumption and peer effects: Does it work for seafood products?

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1. Introduction

Opinion surveys agree that consumers are increasingly concerned with the environmental impact of the products they consume. According to the Eurobarometer survey (European Commission, 2009), the French are particularly sensitive to this: when buying or using products, 78% are generally or fully aware of their environmental impact. This preoccupation leads 72% of them to be ready to buy environmentally friendly products even if they cost a little bit more (European Commission, 2011). Paradoxically, according to the 2011 Green Brands survey,¹ 78% of French people state: “the biggest challenge to purchasing green products or services is that they are too expensive”. Furthermore, 36% do not want to purchase these products at a higher price. In fact, only 20% declare to have recently bought environmentally friendly products marked with an environmental label (European Commission, 2011). What can explain consumer willingness to pay (WTP) a premium for a green product? Although environmental consciousness and socio-economic characteristics of consumers play a major role, social norms can also largely influence the products choices of consumers. The 2011 Green Brands survey shows that, second to packaging (30% of the respondents), word of mouth (i.e. family, friends) has the greatest impact on their likelihood to purchase green products (23%). The project self-image of buying environmentally friendly products seems positive across European consumers: “There is near unanimous agreement on the ethics of environmentally-friendly products. Across the EU Member States, 95% of respondents agree that using environmentally products is ‘the right thing to do’, 91% agree that buying environmentally-friendly products sets a good example and 80% agree that their family and friends would think it was a good thing if they used environmentally-friendly products.” (European Commission, 2013, p. 22). The purpose of our paper is to detect to what extent social circles can have an influence on the WTP a premium (through the effect of perceived influence of peers) for a specific green product: an eco-labeled seafood product.

The higher prices of green products may slow green consumption and partially explain the “attitude/behavior gap” underlined by Young

et al. (2010). However, such prices are essential to cover their production costs. Green products are generally more labor-intensive, produced on a smaller scale and/or involve more environmentally friendly technologies. Moreover, their higher price can also be used to signal their environmental friendliness to consumers (Mahenc, 2008). Budget constraints can thus limit green consumption, even that of the ecological aware consumer. In addition, consumer income plays an important role in the choice between green and standard products.

Previous literature on green consumer profile highlights a certain consistency in socio-economic characteristics.² First, gender appears to be a major determinant of consumer preferences. Women seem generally more likely than men to choose an eco-labeled product and to pay a premium for green products (Blend and van Ravenswaay, 1999; Brécard et al., 2009; Loureiro, 2003; Loureiro et al., 2002). It is worth noting that the men who are ready to buy green products at higher prices, are also willing to pay a larger premium than women (Carlsson and Johansson-Stenman, 2000; Dupont, 2004). Furthermore, women place more importance on environmental information than men (Bjørner et al., 2004; Teisl et al., 2008). Secondly, age affects consumer attitude towards green products. Many papers show that the younger the consumers are, the more ecological oriented they are likely to be (Brécard et al., 2009; Loureiro and Lotade, 2005; Salladarré et al., 2010; Srinivasan and Blomquist, 2009), whereas Johnston et al. (2001) highlight the reverse effect. However, paradoxically, older consumers trust label information more than younger consumers do (Teisl et al., 2008). The third main determinant of green consumption is the level of education, which, through a better comprehension of environmental issues, higher levels favor confidence in eco-information and green consumption (Teisl et al., 2008; Wessells et al., 1999). Among other highlighted socio-economic characteristics of green consumers, we can also cite the presence of dependent children, a small family size, confidence in certifying organizations, environmental involvement, interest in politics, regional affinities, people’s religious faith (Torgler and Garcia-Valiñas, 2007) and being in favor of equitable sharing (Stevens et al., 1994).

Beyond socio-economic characteristics, moral motivation and social

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¹ The 2011 Green Brands study surveys over 9000 people, including 1100 French people. It is conducted by WPP companies Cohn & Wolfe, Landor Associates and Penn, Schoen & Berland (see <http://www.cohnwolfe.com>, accessed 25/01/2012).

² see (Torgler and Garcia-Valiñas, 2007) or (Brécard et al., 2009) for details survey on the main determinants of pro-environmental attitudes.

<https://doi.org/10.1016/j.foodpol.2018.02.017>

Received 2 October 2013; Received in revised form 19 February 2018; Accepted 27 February 2018
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interaction influence pro-environmental behavior as well. Interestingly, Carlsson and Johansson-Stenman (2012) show how behavioral economics contributes to the understanding of pro-environmental behavior and to the analysis of environmental policy. Frey and Stutzer (2006) underline four types of moral motivations: pure and impure altruism, internalized norms, intrinsic motivations, and social norms. By using an altruism scale, based on Schwartz's model (Schwartz, 1977, 1970), Clark et al. (2003) and Kotchen and Moore (2007) demonstrate the positive impact of altruistic behavior on environmentally friendly consumption. Internalized norms and intrinsic motivations refer to individual's values that may bring him/her a "warm glow" when he/she acts in favor of environment protection. They could however be in conflict with extrinsic motivations, such as laws or financial incentives, leading to a "crowding-out effect" (Frey and Oberholzer-Gee, 1997). Social norms affect consumer behavior through the opinion of the other members of the social group concerning his/her behavior. Indeed, social norms could promote green consumption when the consumer thinks that such behavior is well thought-of, as shown in Section 2 synthesizing previous literature in this field. This idea is central to our paper, since we are attempting to highlight the role of perceived influence of peers in the existence of a positive WTP for an eco-labeled seafood product.

The development of eco-labeled seafood products could partially respond to the overexploitation issue. Indeed, 90.1% of fish stocks are fully exploited, over-exploited, depleted or recovering (FAO, 2014). Seafood eco-labels, such as the Marine Stewardship Council (MSC) or Friends of the Sea, certify that the fishing activity preserves marine resources, minimizes its environmental impact and practices sustainable management. By delivering environmental information to consumers, fish eco-labeling could encourage consumers to turn towards eco-friendly consumption and, in this way, further support eco-friendly fisheries. Consumer guidelines can also reinforce the green consumption incentive. In France, about ten seafood guidelines are published; among them are the WWF, Greenpeace and the Nicolas Hulot Foundation. In 2010, French consumed on average 78.3 lbs per person (FranceAgriMer, 2012), in top five of fish consumption country in Europe (FAO, 2011). Despite a decrease in this consumption, it is estimated at 73.7 lbs per person in 2014 (FranceAgriMer, 2012) the France is fifth in fish import in values (behind Japan, US, China and Spain) (FAO, 2014) and two third of the French consumption is imported. In this context, valorization of the environmental attribute of fish products is an important issue. It is worth noting that consumers of eco-labeled seafood products present a similar profile to green consumers previously depicted, despite a lack of consensus concerning age effects. These consumers also pay attention to species, fresh or frozen forms, wild or farmed origins, and the geographical origin of the fish (Brécard et al., 2009; Johnston and Roheim, 2006; Johnston et al., 2001; Roheim et al., 2004; Salladarré et al., 2010; Wessells et al., 1999). Interestingly, Johnston and Roheim (2006) show that high overfishing encourages consumers to turn towards less exploited species, but that the eco-label alone is not enough to divert consumers from their most-favored species. Nevertheless, eco-labeling is an important tool for fishing industries in order to promote more sustainable fisheries, to protect endangered species and to benefit from the eco-labeled seafood premium (Deere, 1999). Although eco-labeled seafood demand has been widely studied in the last years, the originality of our research stems from the attention paid to the role of social interactions in consumer WTP a premium for eco-labeled seafood products.

In order to analyze perceived influence of peers on WTP for labeled seafood products, we used a propensity score-matching model, in line with Rosenbaum and Rubin (1983).³ The propensity score-matching model is a popular approach used to estimate causal treatment effects in

many research fields such as labor economics (Heckman et al., 1998), health economics (Harding, 2003) and education economics (Dearden et al., 2005). This method allows for highlighting the role played by a treatment on individuals. In our paper, we focus on the impact of having pro-label peers (the treatment) on the probability to be willing to pay a premium for a labeled seafood product. The basic principle consists in splitting individuals into two groups, a treated group and an untreated group. Obviously, we cannot observe for the same individual his/her WTP with and without treatment, since he/she belongs to only one group. Consequently, the method consists in identifying all relevant pretreatment characteristics (age, gender, etc.) which are similar between individuals without pro-label peers and individuals with pro-label peers. In this way, we can attribute the difference in WTP a premium for labeled products between treated and control groups to peer effects. We used original data from a French survey carried out on around 900 respondents by the RICEP⁴ in 2010. Beyond respondent attitude toward eco-labeled seafood products, traditional socio-economic characteristics and fish purchase criteria, the survey gives information about perceived influence of peers through a question concerning respondent perception of the peer attitude towards eco-labeled seafood products.

Using a Probit model, we show that the determinants of the respondents' WTP a premium for labeled seafood products are multiple. It depends of their attention paid to the production process (the geographical origin, wild versus farmed origin, the fishing technique and the degree of exploitation of the product) and their household income, but also the feeling that people from their circle would agree to pay a premium for such a product. Using a single and double bounded dichotomous choice model (with shift and anchoring), the estimation of the mean WTP highlights that price premium for labeled seafood products is between 9% and 12.5%. Using a propensity score-matching model, we confirm that the perception of being surrounded by people interested in eco-labeled fish increases the probability of the WTP a premium for a labeled seafood product.

We structured the remainder of the paper as follows. In Section 2, we survey previous literature dealing with peer effects in green consumption patterns. In Section 3, we introduce the database and the determinants of WTP. In Section 4, we estimate and analyze a propensity score model. Section 5 concludes the paper.

2. Peer effects and green consumption

Social interactions have been firstly highlighted in Veblen (1899) and Leibenstein's research (Leibenstein, 1950), which emphasized that consumers are aware of the consumption choices of others. Brock and Durlauf (2001) define social interactions as "the idea that the utility or payoff an individual received from a given action depends directly on the choices of others in that individual's reference group" (Brock and Durlauf, 2001, p. 235). Cowan et al. (1997) distinguish three types of reference groups susceptible to influence a consumer. The peer group includes similar consumers, regularly interacting among themselves, with whom the consumer would like to share consumption patterns. The contrast group encompasses consumers with whom the consumer would not like to interact and from whom he/she wishes to distinguish himself/herself. The aspiration group is the one with which the consumer does not regularly interact, but hopes to do so. Accordingly, a consumer may copy behaviors of consumers inside his/her peer and aspiration groups, whereas he/she may avoid demanding the same goods as his/her contrast group. In our study, we hypothesize that respondents regard "people from their circle" (as named in the survey) as belonging to their peer group, or possibly to their aspiration group.

Peer effects in green consumption can lead to new social norms, in

³ see Caliendo and Kopeinig (2008) for a detailed survey on propensity score-matching model.

⁴ Réseau d'information et de Conseil en Economie des Pêches is the French Network of Information and Advice in Economics of Fisheries.

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