



Green buying behavior and the theory of consumption values: A fuzzy-set approach[☆]



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ABSTRACT

Using a consumer survey, this study examines whether consumption values can predict green buying behavior. The examination is based on the theory of consumption values and uses the fuzzy-set qualitative comparative analysis. The results show that the functional value is almost always necessary but is not sufficient by itself for predicting green buying. However, three “causal recipes” formed with the functional value are sufficient. These recipes use the emotional, conditional and social values combined individually with the functional value. Other three combinations of consumption values are also sufficient for predicting green buying. In contrast, the absence of the functional value is a sufficient condition for not green buying, as well as three other “causal recipes”. This finding can help marketing managers develop appropriate strategies. Further, this finding supports and clarifies the role of the theory of consumption values by taking advantage of the fuzzy-set qualitative comparative analysis.

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1. Introduction

Consumers have increasingly adopted sustainable lifestyles and sustainable consumptions of products and services that do not harm the environment and do not compromise the future (Oslo Symposium, 1994). Thus, new classes of consumers and products have emerged: green consumers (Webster, 1975) and green products (Ottman, Stafford, & Hartman, 2006). Therefore, companies need to understand who the green consumers are and what motivates their green buying behavior (Lin & Huang, 2012). In this way, companies can create and promote products that respond to their green consumers' needs through the use of green marketing activities (Peattie, 1992) that can result in better performance. For that reason, these topics have been the subject of many studies (e.g., Akehurst, Afonso, & Gonçalves, 2012; Bei & Simpson, 1995; Diamantopoulos, Schlegelmilch, Sinkovics, & Bohlen, 2003; Fraj & Martinez, 2006; Kim & Choi, 2005; Kilbourne & Pickett, 2008; Lin & Huang, 2012; Minton & Rose, 1997; Roberts, 1996; Webster, 1975). The values that influence the consumer's behavior are implicit criteria for making preference and evaluative judgments (Holbrook, 1996). Despite the importance of the knowledge about these values, no commonly accepted definition exists (e.g., Sánchez-Fernández & Iniesta-Bonillo, 2007). However, the evidence suggests that a multidimensional

conceptualization of the customer's values shows more predictive ability on the customer's repurchase intention than a one-dimensional approach (Leroi-Werelds, Streukens, Brady, & Swinnen, 2014).

Through a consumer survey, this study investigates which values influence the purchase of green products (*gpp*). The paper uses the theory of consumption values developed by Sheth, Newman, and Gross (1991) that is a multidimensional approach. This theory argues that five consumption values influence the consumer's behavior: functional, social, emotional, conditional, and epistemic values. Lin and Huang (2012) show that consumption values are significant in explaining the *gpp*.

Following a new analytical approach, this study proposes that the *gpp* does not depend only on consumption values individually but on combinations of consumption values. Therefore, the objective of the study is twofold: to identify the specific consumption values or combinations of consumption values that can better predict the *gpp* and to determine whether the consumption values or their combinations are the same or different when predicting no purchase of green products ($\sim gpp$). For this purpose, the study applies the fuzzy-set qualitative comparative analysis (fsQCA). The fsQCA is an appropriate approach to use for a complex configuration analysis (Ragin, 2000) because the approach identifies how the consumption values (causal conditions) combine to produce alternative paths (configurations) to achieve a similar solution (outcome), *gpp* or $\sim gpp$, and which configurations will be necessary or sufficient to achieve the outcome (Fiss, 2007). This type of qualitative comparative analysis (QCA) has important advantages over regression-based approaches (Woodside, 2013).

After the introduction, the study presents the literature review and causal propositions followed by the section on the method. The section

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with the results is next. The study concludes with a discussion on the findings and the limitations and suggestions for future research.

2. Literature review

2.1. Green consumer, green product, and green buying behavior

The green consumer, or ecologically conscious consumer, can be defined as a consumer that takes into account the public consequences of his or her private consumption or who tries to use his or her purchasing power to promote social change (Webster, 1975). Furthermore, these consumers' behavior reflects their attitudes and actions toward environmental protection (Fraj & Martinez, 2006). The terms “green product” or “environmental product” usually describe products that protect or enhance the natural environment, the conservation of energy, and the reduction or elimination of toxic agents, pollution, and waste (Ottman et al., 2006). Some types of environmentally friendly consumer goods are organic food, energy-saving lamps, energy efficient appliances, solar thermal heating systems, and “green” electricity (Welsch & Kuhling, 2011; Young, 2008). The *gpp* relates to the purchasing habits of green products (Lin & Huang, 2012; Schlegelmilch, Bohlen, & Diamantopoulos, 1996). The purchase of green products has different motivations (e.g., flavor, health benefits, or ecological footprint) (Wier, Jensen, Andersen, & Millock, 2008). The identification and understanding of this motivation is essential for a marketing strategy's definition and therefore to its success.

2.2. Values and consumer behavior

Within the context of environmental behavior, the literature does not address the consumption practices from the point of view of the values that guide the consumer's behavior (Kilbourne & Pickett, 2008). According to Schwarts and Bilsky (1987), values are concepts or beliefs about the desirable end states or behaviors that transcend specific situations, evaluate behaviors and events, and are ordered by relative importance. The values that influence the consumer's behavior are implicit criteria for making preference and evaluative judgments (Holbrook, 1996). The values also serve to guide actions, attitudes, judgments, and comparisons between specific objects and situations (Long & Schiffman, 2000). Therefore, considerable support exists for the role of values in the development of environmental beliefs, attitudes, and behaviors (Kilbourne & Pickett, 2008). Despite the importance of the knowledge about values, no commonly accepted definition exists (e.g., Sánchez-Fernández & Iniesta-Bonillo, 2007). However, the evidence indicates that the multidimensional conceptualization of the customer's values shows more predictive ability on the customer's repurchasing intention than the one-dimensional approach (Leroi-Werelds et al., 2014). According to Sheth et al. (1991), five values exist that determine behavior: functional, social, emotional, conditional, and epistemic values. Other authors question Sheth et al.'s (1991) approach and propose a different structure for the consumption values. For example, Sweeney and Soutar (2001) develop the PERVAL scale that is applied to durable goods. This approach eliminates the epistemic and conditional dimensions and separates the functional value into two dimensions: quality and price. Pura (2005) considers convenience and price as functional values and the social, emotional, epistemic, and conditional values by studying electronic directory services. However, Finch (2005) and Lin and Huang (2012) find that Sheth et al.'s (1991) consumption values influence the green consumer's behavior, thus giving support to the conceptualization of consumption values used in this research.

2.3. The theory of consumption values

The theory of consumption values developed by Sheth et al. (1991: 159) focuses on the consumption values that explain “why consumers

choose to buy or not to buy (or use or not use) a specific product, why consumers choose one product type over another.” This theory can be applied to different product categories like durable and nondurable consumer goods, industrial goods, and services (e.g., Lee, Lee, Kim, & Kim, 2002; Park & Rabolt, 2009; Williams & Soutar, 2009) and demonstrates an excellent predictive validity in more than 200 situations (Sheth et al., 1991). In the field of green marketing, Finch (2005) studies what motivates consumers to buy or not buy organic food, and Lin and Huang (2012) study the *gpp*.

The theory of consumption values has at its base three fundamental axiomatic propositions: the consumer's behavior is a function of various consumption values, the consumption values have different contributions in any purchase situation, and the consumption values are independent. Therefore, a decision can be influenced by any or all of the five consumption values. Each of these values has a different contribution in specific buying situations, each relates additively, and each has an incremental contribution.

2.3.1. Functional value

The functional value is what mainly causes the consumer's choice. This function refers to the perceived utility of a product or service to attain utilitarian or physical performances that results from attributes such as durability, reliability, and price (Sheth et al., 1991). Lin and Huang (2012) find that some consumers care enough about environmental degradation that they are willing to pay more for green products. In addition, a study by Bei and Simpson (1995) confirms that consumers ponder the price and quality when they buy recycled products. The functional value (price) influences the purchase of green products (Finch, 2005).

2.3.2. Social value

The social value refers to the perceived utility resulting from the product or service's association with one or more social groups, such as demographic, socioeconomic, and cultural (Sheth et al., 1991). The social value relates to approval and self-image improvement (Sweeney & Soutar, 2001) that influences the green consumer's behavior (Finch, 2005).

2.3.3. Emotional value

The emotional value refers to the perceived utility that results from a product or service that provokes feelings or affective states. Bei and Simpson (1995) report that 89.1% of their study's respondents feel that they are preserving the environment when they buy recycled products. This emotional value influences the green consumer's behavior (Finch, 2005; Lin & Huang, 2012).

2.3.4. Conditional value

The conditional value refers to the perceived utility that a product or service has as a result of a situation or set of circumstances (e.g., organic food in pregnancy). The product or service attains this value due to the situation: the presence of physical or social contingencies increase the functional or social value (Sheth et al., 1991). When the value is strongly linked to the product or service's use in specific contexts, the conditional value arises (Wang, Liao, & Yang, 2013). The conditional value influences the green consumer's behavior (Finch, 2005; Lin & Huang, 2012).

2.3.5. Epistemic value

The epistemic value refers to the perceived utility resulting from a product or service that stimulates the desire for knowledge and offers novelty (Sheth et al., 1991). Knowledge is recognized in consumer research as a characteristic that influences all stages of the decision process (Laroche, Bergeron, & Forleo, 2001). A further explanation for seeking novelty relates to gaining the skills to solve problems (Lin & Huang, 2012). The green consumer's behavior is influenced by epistemic value (Lin & Huang, 2012).

Table 1
Summary data for independent variables (conditions) and outcome.

Statistics	Independent Variables					
	<i>gpp</i>	<i>soc</i>	<i>emot</i>	<i>cond</i>	<i>epist</i>	<i>funct</i>
Mean	5.2	2.6	5.1	4.9	5.1	5.3
SD	1.23	1.40	1.31	1.12	1.20	0.81
Minimum	1.0	1.0	1.0	1.0	1.0	1.0
Maximum	7.0	6.0	7.0	7.0	7.0	7.0
<i>Calibration values at</i>						
95%	6.800	5.000	7.000	6.500	6.550	6.500
50%	5.400	2.000	5.330	5.000	5.250	5.375
5%	2.600	1.000	2.602	2.950	2.650	4.000

Based on the literature review, this study proposes the following:

Proposition 1. Functional value is a necessary condition to predict the *gpp* because this value mainly affects the consumer's choice (Finch, 2005; Lin & Huang, 2012).

Proposition 2. Emotional, conditional, and epistemic values in different combinations are sufficient to predict *gpp*, but each one alone is not sufficient because the consumer's choice is influenced by different consumer values (Sheth et al., 1991). The emotional, conditional, and epistemic values jointly in different combinations predict the *gpp* (Finch, 2005; Lin & Huang, 2012).

Proposition 3. The presence or absence of the same consumption value, individually or combined, can either promote or inhibit green buying behavior because each consumption value has a different contribution in different buying situations (Sheth et al., 1991), particularly in buying or not buying green products (Finch, 2005; Lin & Huang, 2012).

3. Methods

3.1. Data collection

The target population of the study are consumers that live in Portugal, are over 18 years old, and have already bought green products. An online survey obtains a convenience and snowball sample of 197 responses. The online survey was sent by e-mail to students in executive courses at a Portuguese University and was also available on the Facebook page of a supermarket chain that sells biological products. The questionnaire was pre-tested through face-to-face interviews with a group of 20 participants recruited from the authors' circle of acquaintances to check the understandability of the questions. Data collection occurred in 2014. For the respondents, the sample comprises of 67% females, 62.4% 30 years old or younger, 48.7% undergraduates, 39.1% with a master's degree, and 64% with a net monthly income less than or equal to €1000, and 41% bought organic food, 42% bought energy efficient appliances, and 17% bought both.

3.2. Measures

The study adopts scales that the literature commonly uses. The survey uses a seven-point Likert scale with a range from strongly disagree (1) to strongly agree (7).

Green product purchasing behavior (*gpp*) uses five items adapted from Lin and Huang (2012) (e.g., I purchase the one less harmful to other people and environment; I have switched product for ecological reasons). To measure the five consumption values, the study uses scales from Lin and Huang (2012). The functional value (*funct*) uses eight items to cover the quality aspects (e.g., the green product has a consistent quality) and price aspects (e.g., the green product is reasonably

Table 2
Overview of necessary conditions.

Condition	Green Product Purchasing (<i>gpp</i>)			
	Presence (high)		Absence (low)	
	Consistency	Coverage	Consistency	Coverage
<i>Functional</i>	0.86	0.72	0.73	0.56
<i>~Functional</i>	0.47	0.65	0.63	0.81
<i>Social</i>	0.70	0.71	0.59	0.55
<i>~Social</i>	0.56	0.60	0.69	0.68
<i>Emotional</i>	0.78	0.79	0.60	0.56
<i>~Emotional</i>	0.57	0.61	0.77	0.76
<i>Conditional</i>	0.72	0.76	0.59	0.57
<i>~Conditional</i>	0.59	0.61	0.75	0.71
<i>Epistemic</i>	0.75	0.72	0.65	0.57
<i>~Epistemic</i>	0.55	0.63	0.68	0.71

Note: ~ represents the absence of a condition.

Calculations with the fsQCA 2.5 Software (www.fsqca.com).

priced) of the offer. The social value (*soc*) uses four items (e.g., buying the green product would help me to feel acceptable). The emotional value (*emot*) uses three items (e.g., buying the green product instead of conventional products would make me feel like a better person). The conditional value (*cond*) uses four items (e.g., I would buy the green product instead of conventional products when green products are available). The epistemic value (*epist*) uses four items (e.g., I like to search for the new and different). The internal reliability (Cronbach's alpha coefficient) of the measures is good (Nunnally, 1978): *gpp* ($\alpha = 0.90$), *funct* ($\alpha = 0.81$), *soc* ($\alpha = 0.92$), *emot* ($\alpha = 0.84$), *cond* ($\alpha = 0.80$), and *epist* ($\alpha = 0.97$).

3.3. Common method bias

Because the data are from a single source, the common method bias is a threat to the validity of the results (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). To assess the impact of this bias, the study uses Harman's single factor test. The results show that no single factor emerges from the analysis of all of the survey questions. The factor analysis' non-rotated solution produces seven factors with eigenvalues greater than 1.0 that account for 72% of the total variance, with the first extracted factor accounting for 29% of the variance in the data. These results suggest the absence of the common method bias.

4. Qualitative comparative analysis

The QCA is a technique that uses the set theory approach to explore how causal conditions jointly (as configurations) link to the outcome of interest (Fiss, 2011). The QCA presents several advantages relative to most traditional statistical techniques. For instance, QCA does not consider some basic assumptions that underlie most statistical techniques: permanent causality, uniformity of causal effects, unit homogeneity, additivity, and causal symmetry (Rihoux & Ragin, 2009: 9). Furthermore, QCA has ability to unravel the complex causal structures such as equifinality, multifinality, conjunctural causation, and asymmetric causality (Basedau & Richter, 2014). Equifinality concerns with the fact that different equally effective configurations of conditions may lead to the same outcome, multifinality reflects the phenomenon where identical conditions may lead or contribute to different outcome, conjunctural causation relays the idea that causal configurations of conditions can be jointly either necessary and/or sufficient to achieve the outcome while their constituents conditions might be neither sufficient or necessary, and asymmetric causality means that the explanation for the outcome is not the logical opposite of the explanation for the absence of the outcome (Basedau & Richter, 2014; Rihoux & Ragin, 2009).

This study applies the fsQCA technique to analyze data by using the fsQCA 2.5 software (www.fsqca.com). The study conducts two different analysis. The first explores which conditions lead consumers to the

Table 3
Truth table with logical remainders for the outcome (*gpp*).

	<i>soc</i>	<i>epist</i>	<i>emot</i>	<i>cond</i>	<i>funct</i>	<i>Number</i>	<i>Consistency</i>
1	1	1	0	1	1	2	0.96
2	1	0	1	0	1	5	0.95
3	0	1	1	1	1	2	0.94
4	1	1	0	1	0	1	0.94
5	0	0	1	0	1	2	0.94
6	0	1	1	1	0	1	0.93
7	1	1	0	0	1	1	0.92
8	1	1	1	1	0	5	0.91
9	1	0	1	1	1	5	0.91
10	1	1	0	0	0	1	0.91
11	0	0	1	1	1	2	0.91
12	1	0	1	1	0	1	0.91
13	1	1	1	1	1	27	0.90
14	0	1	1	0	0	1	0.90
15	1	0	1	0	0	2	0.90
16	0	1	0	1	1	1	0.89
17	0	0	0	1	1	1	0.89
18	1	0	0	0	1	1	0.89
19	0	1	1	0	1	3	0.89
20	0	1	0	0	0	6	0.82
21	0	1	0	0	1	4	0.81
22	0	0	0	0	1	12	0.79
23	1	0	0	0	0	9	0.77
24	0	0	0	0	0	9	0.74
25	1	1	1	0	1	0	
26	1	1	1	0	0	0	
27	1	0	0	1	1	0	
28	1	0	0	1	0	0	
29	0	1	0	1	0	0	
30	0	0	1	1	0	0	
31	0	0	1	0	0	0	
32	0	0	0	1	0	0	

outcome of purchasing a green product. The second analyzes the conditions that lead consumers to not purchase a green product. The two approaches are as follows:

Model 1: $gpp = f(\text{funct}, \text{soc}, \text{emot}, \text{cond}, \text{epist})$.

Model 2: $\sim gpp = f(\text{funct}, \text{soc}, \text{emot}, \text{cond}, \text{epist})$.

The symbol (\sim) represents the absence of the outcome ($\sim gpp$) or of the condition (e.g., $\sim \text{emot}$ or $\sim \text{soc}$).

4.1. Calibration

The study calculates an index (score) for each construct before calibrating the variables by performing the average of the corresponding indicators. The fsQCA springs from the concept of set membership, and thus the data analysis using this technique requires a transformation of the original data. The original data with both causal conditions and the outcome are transformed into a set of membership scores that can range from a zero (full exclusion from a set) to one (full inclusion) (Ragin, 2008).

The study establishes three different anchors that are necessary to calibrate the data: an anchor to define the full non-membership, an anchor to define the full membership, and a crossover point. These three quantitative anchors are specified following the calibration process used in Woodside (2013): the original value that covers 95% of the data values is set as the point of full membership, the original value that covers 50% of the values is set as the crossover point, and the original value that covers 5% of the values is set as the point of full non-membership. Table 1 contains the three original values for calibrating each condition and the outcome as well as the descriptive statistics.

4.2. Analysis of necessary conditions

The fsQCA analysis starts by testing if any of the five causal conditions can be considered as necessary to the outcome or the absence of

the outcome (Schneider & Wageman, 2010: 404). A causal condition is considered necessary if it is always present (or absent) when the outcome is present (or absent) (Rihoux & Ragin, 2009).

Table 2 presents the results of the fsQCA test of the necessity of the conditions relative to both the outcome (*gpp*) and its absence ($\sim gpp$). A condition or combination of conditions is “almost always necessary” if the consistency score exceeds the threshold of 0.80 (Ragin, 2000). The *functional value* is an “almost always necessary” condition because the function’s consistency score is 0.86 and is above the required threshold.

4.3. Analysis of sufficient conditions

A causal condition is sufficient to cause the outcome when, for each case, the set membership value of the causal condition does not exceed the set membership value for the outcome (Fiss, 2011; Ragin, 2000: 235). This study reports the fsQCA results from the analysis of sufficiency by using different presentational forms: tabular (truth table, see Table 3), numerical (see measures of fit in Fig. 1), and graphical (see Fig. 2) (Schneider & Wagemann, 2010: 404).

The analysis of sufficient conditions involves three steps: construction, reduction in the number of rows, and the analysis of the truth table (Mas-Verdú, Ribeiro-Soriano, & Roig-Tierno, 2015; Ragin, 2008). This study chooses the intermediate solution because this solution only includes simplifying assumptions that correspond to the theoretical expectation (i.e., easy counterfactuals). However, the study presents both intermediate and parsimonious solutions and their respective formulas (see Fig. 1) as suggested in the literature (Schneider & Wagemann, 2010).

Fig. 1 shows that the intermediate solution for *gpp* is informative because the consistency value is equal to 0.75, and the solution coverage is equal to 0.87, both of which surpass the minimum values acceptable for an informative solution (Ragin, 2008; Woodside, 2013). The intermediate solutions produce six configurations that comply with the threshold of 0.8 recommended by Ragin (2008). This result means that six different combinations of consumption values exist that lead to the *gpp*. The configuration with higher coverage (0.7) and higher consistency (0.85) is the *funct*emot* (the symbol * represents the logical operator AND), which means that a combination of *functional values* and *emotional values* is a sufficient condition for the *gpp*. A more detailed analysis of the configurations shows that none of the five conditions is, by itself, a sufficient condition for the occurrence of the *gpp*. However, the combinations of the five conditions achieve sufficiency. This type of condition is called an INUS condition, that is, “an *insufficient* but *necessary* part of a condition, which is itself *unnecessary* but sufficient for the result” (Mackie, 1965:245): $\text{funct*emot} + \text{funct*cond} + \text{funct*soc} + \text{soc*emot} + \text{soc*epist} + \text{emot*epist} \rightarrow gpp$.

The comparison of intermediate and parsimonious solutions for the outcome indicates that only the core conditions are present in all of the six configurations because the “core conditions are those that are part of both parsimonious and intermediate solutions” (Fiss, 2011: 403).

The graphical form that the study uses to present the fsQCA results is the X–Y plot. Due to space limitations, this study only presents the different X–Y plots for the *funct*emot* causal configuration. Typically, small-N applications show these plots to map the consistency and coverage of the solution or a specific configuration, and to identify the individual cases. This study with a large-N application (+ 50 cases; Greckhamer, Misangyi, & Fiss, 2013) is the first to use X–Y plots to profile consumers regarding three socio-demographic characteristics: gender, age, and income (see Fig. 2). For instance, the X–Y plots A, B, and C show that consumers with a high set membership in the *gpp* and a high set membership in the *funct*emot* are mainly females (69%) less than 30 years old (54%) with a net monthly income of less than or equal to €1000(59%).

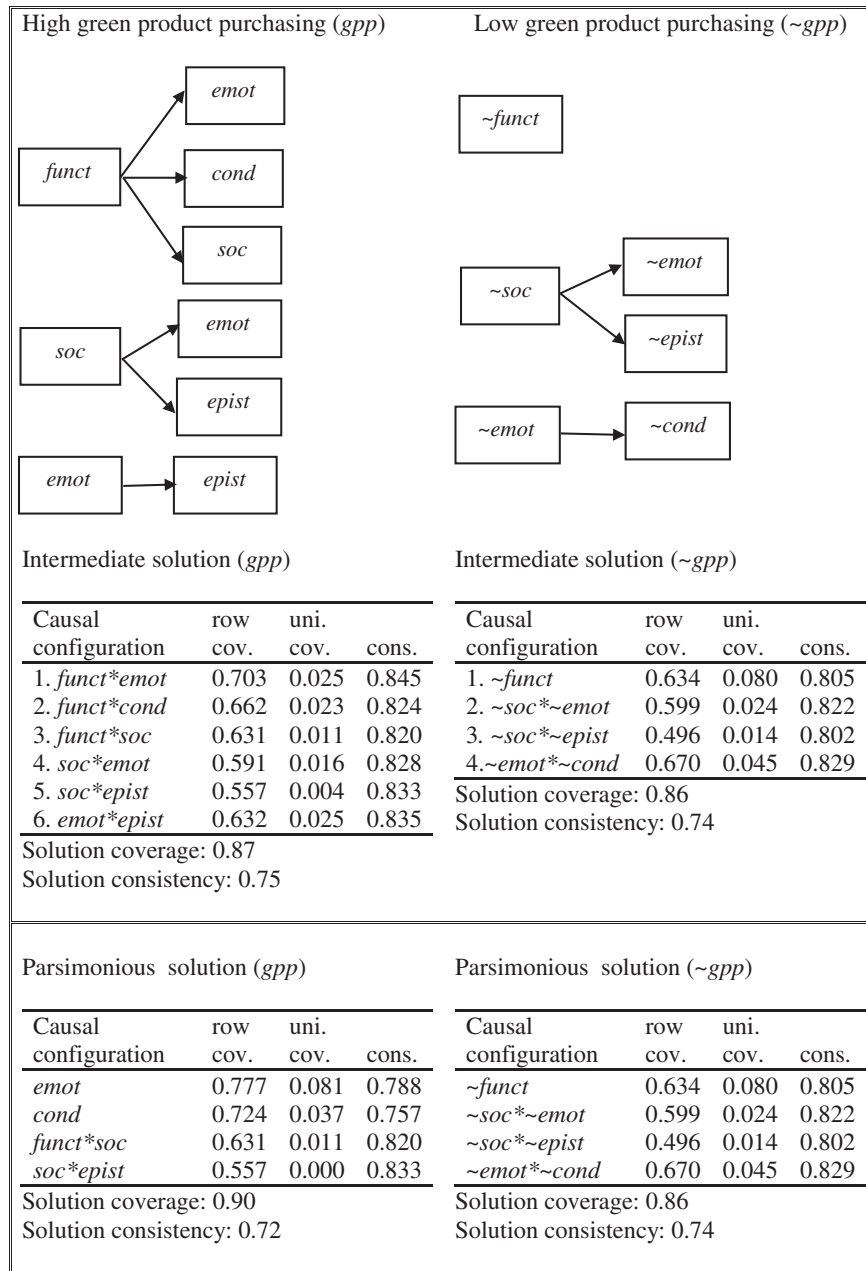


Fig. 1. Results of the intermediate solutions for high green product purchasing (*gpp*) and low green product purchasing (*~gpp*).

4.4. Analysis of the absence of the outcome

The analysis of the second model also uses the fsQCA to explain which conditions lead consumers to the *~gpp*. Applying the same frequency threshold and a similar consistency threshold to the second model results in a different pattern of causal configurations for the absence of the outcome (see Fig. 1). The intermediate solution for the absence of the outcome (*~gpp*) is informative, with a solution consistency value of 0.74 and a solution coverage of 0.86. This solution produces four configurations and all of them comply with the consistency threshold of 0.8 (Ragin, 2008). Fig. 1 shows that causal asymmetry occurs, that is, the outcome configurations that lead to the *~gpp* are not the mirror opposites of the outcome configurations. Furthermore, the first condition *~funct* is by itself a sufficient condition for the *~gpp*, which does not happen for the *gpp*. The second and third causal configurations are the

negation of the fourth and fifth causal configurations for the outcome, respectively. The *~emot** *~cond* does not correspond to the negation of a causal configuration of the *gpp*. Four out of the five conditions present in the causal configurations are INUS conditions. Furthermore, all of the conditions present in the four configurations are core conditions, because the intermediate solution is equal to the parsimonious one.

4.5. Robustness checks

The robustness checks of the fsQCA results are of greater concern in the large-N applications than in the small-N ones (Fiss, Sharapov, & Cronqvist, 2013). Several studies using the fsQCA perform robustness checks by changing the consistency and frequency thresholds. However, the QCA literature recognizes that apparently small changes in the

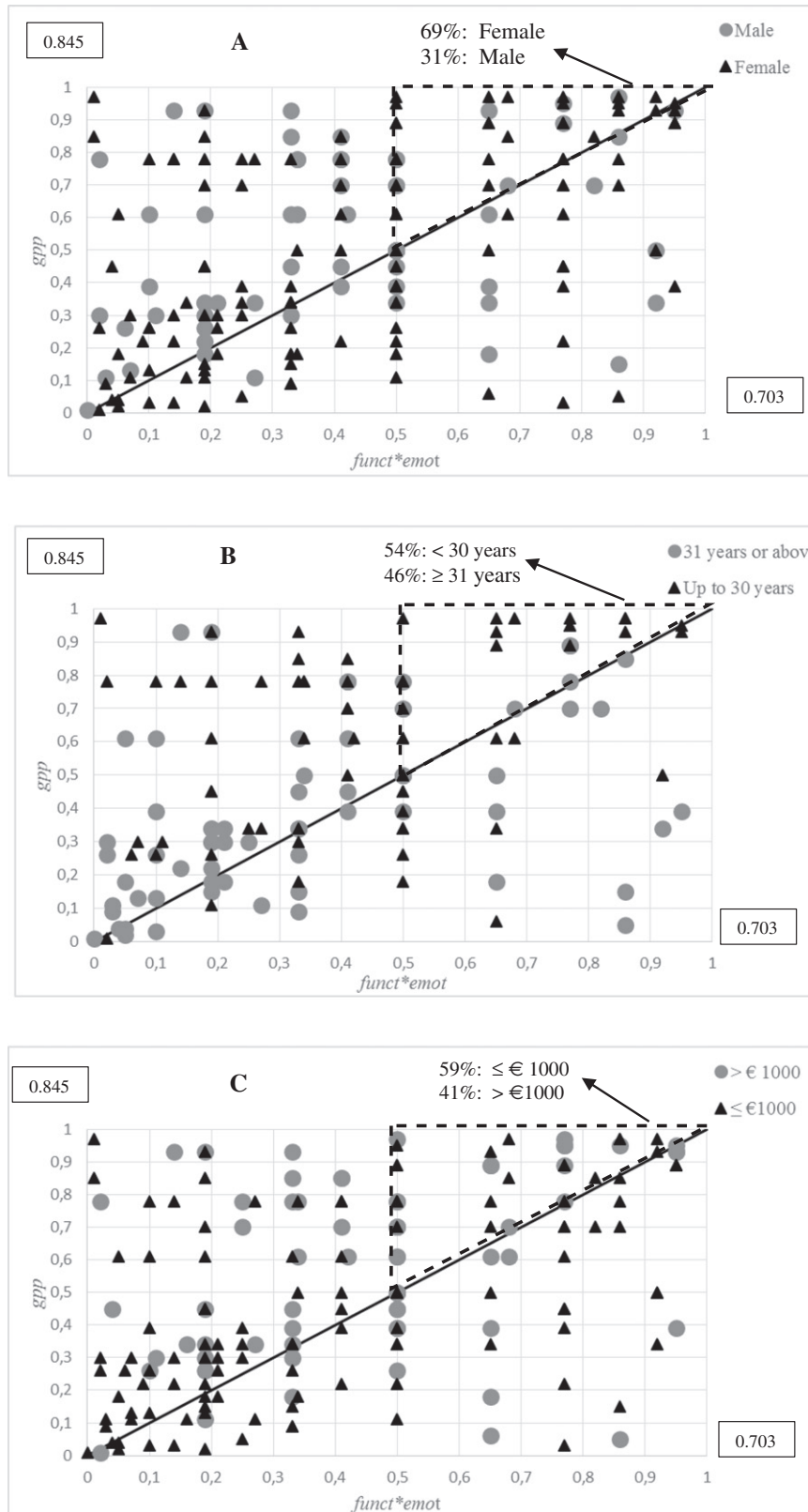


Fig. 2. X-Y plot for the *funct*emot* causal configuration.

consistency and frequency thresholds can produce significant changes in the resulting solutions (Skanning, 2011).

To test robustness, this study uses two alternative approaches suggested in recent studies (Fiss et al., 2013; Ordanini, Parasuraman, & Rubera, 2014). The first approach consists of performing a regression

analysis using the solutions obtained by the fsQCA (Fiss et al., 2013). The results for model 1 show that the first and fifth causal configurations of the initial solution predict the outcome. In the case of model 2, the results show that the first, second, and fourth causal configurations of the initial solution predict the outcome.

The second approach consists in analyzing the sensitivity of the findings to three socio-demographic characteristics: gender, age, and income (cf. [Ordanini et al., 2014](#)). For each causal configurations of the solution, we test the difference between the consistency measures for male versus female, younger (≤ 30 years) versus older (> 30 years) consumers, and lower ($\leq \text{€}1000$) versus higher ($> \text{€}1000$) monthly income by using a Mann–Whitey U test. The results for the solution of model 1 show that none of the differences is statistically significant. The lack of significance suggests that the causal configurations are robust across gender, age, and income. The results for the solution of model 2 show that for all socio-demographic characteristics statistically significant differences exist for the first configuration (\sim func).

5. Discussion and conclusions

Six different combinations of consumption values exist that lead to green purchasing that provide evidence that not all consumers are alike and that a complex interaction between the consumption values exists ([Finch, 2005](#)). This global solution explains 87% of the gpp , and the functional value is an almost always necessary condition for the gpp that gives partial support to [Proposition 1](#). The functional value that is the main cause of the behavior ([Sheth et al., 1991](#)) is sufficient for the gpp when combined with the emotional, conditional, or social values. However, the presence of functional and emotional values is the configuration that shows the highest consistency (0.845) and (coverage = 0.703). In addition to aspects such as desirables price and quality (functional value), the companies' offer has to provoke positive feelings in the consumers (emotional value), such as contributing to the preservation of the environment; or has to create special circumstances that lead to purchase (conditional value), such as promotional campaigns for the purchase of efficient electric appliances, that should point to the positive impact on the environment, or has to demonstrate an association with social consequences or a coherent image with the consumer reference groups (social value). Two other configurations are sufficient for the gpp : social value combined with emotional or epistemic values. The strong association of reference groups or social consequences of the company's offer, together with feelings and emotional states or perceptions of the novelty of the offer, contribute by itself for the gpp . Further, the emotional value combined with the epistemic value also predicts by itself the gpp . The results support [Proposition 2](#). The emotional, conditional, and epistemic values that are significant for the gpp in [Lin and Huang \(2012\)](#) and [Finch \(2005\)](#) are, in this research, sufficient conditions for the gpp but only when combined with the other values.

Four configurations are sufficient to predict the $\sim gpp$, which is also evidence that not all consumers are alike. This global solution explains 86% of the $\sim gpp$. For some consumers, the absence of the functional value is a sufficient condition for the $\sim gpp$, that is, if the core of the offer is not acceptable, they do not buy. Two configurations are the inverse of the ones for the gpp : the absence of social value combined with the absence of emotional or epistemic values is sufficient for the $\sim gpp$ that shows the relevance of these combined conditions. The absence of emotional value combined with the absence of the conditional value is also a sufficient configuration for the $\sim gpp$. These findings support [Proposition 3](#).

In order to get a closer "case orientation," the study examines specific cases of the $func^* emot$ causal configuration for the gpp (high set memberships in gpp and high set membership in the configuration), as an example, using the respondents' socio-demographic characteristics in X - Y plots ([Fig. 2](#)). This analysis helps marketing managers to identify who and what motivates green buying behavior, which is relevant to develop marketing strategies. Additionally, when analyzing all of the configurations for gpp , the study finds that although the respondents in the sample are mostly female (67%) and young people (62.4%), in the configurations that include the epistemic value, these characteristics are more blurred (female: 60%; young: 53%). This finding

suggests that men and older consumers have more interest in the new and different aspects of the product. In these configurations, less buyers of organic products (9%) exist compared with energy efficient appliances buyers (25%). This finding suggests that the demand for information relates more to appliances. The respondents that bought organic food are more present in the configurations that contain functional value. This result suggests a greater concern with quality ([Wier et al., 2008](#)). For the $\sim gpp$, the analysis highlights the prevalence of women (80%) in the configuration of the \sim social combined with the \sim emotional conditions compared with 61% of women in the \sim functional configuration. This finding shows the importance of quality and price for the decisions by men and the importance of social and emotional aspects for the decisions of women.

Based on these results, marketing managers who want to attain gpp should develop and promote green products of good quality that meet the consumers' expectations and desires by appealing to the consumer's emotional side, the social consequences, and the desire for knowledge and novelty. For example, in their communication strategies, managers should try not only to convey the characteristics of the products but also other product specifications such as design or some innovation associated with the product. Alternatively, managers could also inform consumers on the positive impact of reduced energy consumption on the environment or the health benefits from organic food.

The findings support the equifinality and the asymmetric nature of the green buying behavior showing that there are several pathways for green buying behavior and that the causal conditions or configurations that lead to green buying are different from the ones that lead to not green buying ([Finch, 2005](#); [Lin & Huang, 2012](#)). The findings also demonstrate the usefulness of the fsQCA to the study of complex causal relations and to test, for the first time, the theory of consumption values.

This study contributes to the theory by consolidating the use of the theory of consumption values to explain green buying behavior, presenting new results that help to clarify not only the individual role of the consumption values but also their interrelation to predict green purchasing behavior, offering different explanations for the gpp based on the existence of alternative paths to the outcome, and showing that the consumption values or their combinations that explain the gpp are not necessarily the same for the $\sim gpp$. Methodologically, this research contributes by demonstrating the advantages of the fsQCA method over regression-based methods to predict the outcome variable, showing the suitability of survey data in a large-N QCA, disclosing more recent robustness tests, and illustrating the socio-demographic profile of the consumers in a pathway for the gpp for a closer "case orientation." The managerial contributions of the study rely on the identification of which and how consumption values influence the gpp and $\sim gpp$ and on the socio-demographic classification of the consumers (cases) that best matches the defined conditions of the gpp and $\sim gpp$. With this knowledge, marketing managers are better able to define and improve customer acquisition strategies (e.g., to segment consumers based on the combinations of consumption values and to develop a communication strategy emphasizing, for example, the health benefits or the contribution to a better environment) and to develop product offerings that best meet the consumer's needs (e.g., packages made by recycled material with information about their carbon footprint).

5.1. Limitations and future research

This study has limitations. The respondents are mostly women that are young with a low income that can affect the conclusions of the study. In the future, analyzing a higher number of cases that are more diverse in their characteristics and green buying behavior would increase the validity of the results. Another line of research that deserves attention is the study of green purchasing motivations through the theory of consumption values by product categories because the literature

suggests that differences exist, and this kind of information is relevant to marketing strategies.

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