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Title Page (WITH AUTHOR DETAILS)

Analysis of sustainable consumer behavior as a business opportunity

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Abstract

The purpose of this paper is to analyze how consumers incorporate sustainability issues into their buying behavior. This paper applies the Self-Organizing Map method to a sample of 223 consumers who answered a questionnaire based on their current behavior rather than the way they thought they ought to behave. The results of this study indicate that consumers incorporate the dimensions of sustainability, acting in a more socially responsible manner, when they have a perception of the effectiveness of their buying behavior. The identified segments can help firms develop sustainability strategies to align their sustainable strategic goals with the needs and behavior of consumers, thereby targeting potential socially responsible customers more effectively. The main conclusion is that the manufacturers should increase transparency regarding the product manufacturing and distribution processes and include the product traceability information on the label or through some other medium.

Keywords: Responsible; sustainability; environment; behavior; Self-Organizing Map.

Analysis of sustainable consumer behavior as a business opportunity

1. Introduction

The ecological footprint of global consumption is greater than the planet's total biocapacity. Therefore, incorporating sustainability considerations into corporate management is just as important as developing responsible consumer trends that balance considerations about environmental and social impact with the preferences and criteria of purchase decisions. As the final link in the value chain, consumers, through their buying behavior, can set trends and establish preferences while incentivizing, rejecting, or boycotting the purchase of products, brands, formats, or other attributes such as reputation, values, and ethical, social, and environmental considerations.

Consumers are being aware of the environmental impact of the products they buy (Kanchanapibul et al. 2014), primarily because of the way that marketing efforts have stressed the environmental dimension of sustainability (Chabowsky, et al. 2011; Choi and Ng, 2011; Mohr, et al. 2001; Roberts, 1995). Consumers, however, are being less aware of the social and environmental impact of the manufacturing and distribution processes behind the products they buy. The widespread—and somewhat intuitive—view is that there is a distinction between the environmental and social dimensions. According to this view, consumers who focus on environmental issues are considered separately from those who consider social and economic issues (Belz and Peattie, 2012). Yet responsible consumers consider environmental, social, and ethical criteria together when they purchase products (Forética, 2018). These criteria can be used to evaluate the intrinsic characteristics of the product, the manufacturing process, the place of origin, respect for human rights and the environment, and the commercial practices of the distributor.

The goal of this study was to investigate how consumers incorporate sustainability considerations into their buying behavior using data from self-evaluations of their perceptions of the effectiveness of their behavior and their beliefs. Self-evaluations of consumers' buying behavior are important because they provide insight into consumers' views and responses to issues related to these dimensions (Choi and Ng, 2011). Socially responsible consumers incorporate environmental, social, and economic considerations into their buying behavior. This process depends on the perceptions that consumers have regarding the effectiveness of their buying behavior and their beliefs.

The results of this study indicate that consumers incorporate the dimensions of sustainability, acting in a more socially responsible manner, when they have a stronger perception of the effectiveness of their buying behavior. The segments that were identified based on our analysis can help firms develop sustainability strategies to align their sustainable strategic goals with the needs and behavior of consumers, thereby targeting potential socially responsible customers more effectively.

This study advances our knowledge of sustainability in the consumer context and our knowledge of consumer social responsibility. It closes the gap between the number of studies of corporate social responsibility (CSR) and the number of studies of consumer social responsibility (Tae-Im and Stoel, 2017). The latter are less numerous than the former, according to the literature reviewed for this study. Furthermore, incorporating the dimensions of sustainability is uncommon in research on socially responsible consumer behavior. The differences between consumers who are more inclined toward the environmental dimension and those who are more inclined toward the social dimension have rarely been conceptualized or researched. Notable exceptions include Roberts (1995) and Webb, et al. (2008). Consumers' assimilation of these dimensions does not

rule out the fact that companies include these dimensions separately in their measures to evaluate the outcomes of their sustainability initiatives (Chabowsky et al., 2011).

The remainder of the paper is organized as follows. Section 2 presents a review of the literature on sustainability and responsibility in the consumer context. In section 3, we justify and formulate our hypotheses on socially responsible consumer behavior. Section 4 describes the sample and the self-organizing maps (SOM) approach. Section 5 presents and discusses the results of the SOM analysis. Finally, section 6 sets forth the conclusions, managerial implications, and limitations.

2. Sustainability and responsibility in the consumer context

Sustainability refers to an awareness of the long-term environmental and social impact of one's actions (Epstein, 2008). It comprises three dimensions: environmental (the planet), social (people), and economic (profit). All three are equally important, although the last two are contingent on the restrictions of the environmental dimension.

Environmental sustainability relates to natural environmental restrictions such as the water or energy supply or the availability of clean air. Social sustainability balances the protection of human rights and equal opportunities with the guarantee of economic sustainability in terms of profit and money supply, to name but two examples. The economic dimension is sometimes excluded from the definition of sustainability. It is considered an outcome or final effect (Chabowsky et al., 2011) and is merged with the social dimension (Singh, et al. 2008). All three dimensions are important when determining the success of a company through the triple bottom line accounting framework (Hubbard, 2009), and they affect the daily decisions of consumers. Accordingly, companies and consumers are required to look beyond their own interests to adopt a broader, all-round view of their businesses and their behavior, respectively.

The predominance of interest in the environmental dimension over interest in the other sustainability dimensions (Simpson and Radford, 2014) owes to several causes (Kilbourne and Thyroff, 2020). First, consumers' growing concern for the environment, which began in the 1970s, continued in the 1990s, and has become prominent once again in recent years, has been exploited by marketers to involve consumers in ecofriendly consumption, providing opportunities for consumers to express their concern for nature through their buying behavior and creating a more intense buying experience. Second, individuals are more capable of remembering purchases made with environmental awareness than those made with social awareness. In addition, they believe that they know more about the exploitation of their natural surroundings than they do about irresponsible company behavior. Information asymmetries make social justice seem outside the consumer's control, with related issues having to be resolved in other ways. Finally, the perception that consumers have of the greater power or vulnerability of nature or humankind might indicate their concern for the natural or social environment and their intention to purchase environmentally or socially responsible products. These differences in buying behavior are reflected by the fact that Fairtrade products are less well known than organic or recyclable products are.

In the 1990s, social well-being started to attract people's attention. Aspects related to social well-being are difficult to include in products and convey using basic marketing tools such as color, packaging, and content. The introduction of the concept of the stakeholder to the marketing literature (Ferrell, et al. 2010) has helped emphasize social aspects.

The importance and responsibility of the consumer in relation to general well-being was acknowledged by Webster (1975, p. 188), who defined a socially conscious consumer as one who "takes into account the public consequences of his or her private consumption or who attempts to use his or her purchasing power to bring about social change." Webster argues that socially

conscious consumers should be aware of social problems, believe that they can make a difference, and be active in the community.

Roberts (1993, p. 140) introduced the term *responsibility* and defined a socially responsible consumer as one who "purchases products and services perceived to have a positive (or less negative) influence on the environment or who patronizes businesses that attempt to effect related positive social change." This definition covers the dimensions of the environment and society.

Responsibility is defined as an intention to act based on the acknowledgment of one's own duty toward oneself and others (Schrader, 2007). Consumer responsibility is a controversial concept that has led to two streams of research driven by different expectations derived from the consumer's actions. On the one hand, certain scholars believe that action is the duty of consumers. Consumers have a duty to be well informed about environmental and social problems so that they can make better consumption decisions (i.e., more sustainable and more conscious) and actively change any buying habits that might have a negative impact on sustainability (Schrader, 2007). On the other hand, other scholars argue that the consumer experiences market pressure and often lacks the capacity to act because there are too many obstacles that must be overcome yet that lie out of his or her control (Moisander, 2007; Valor, 2008). Therefore, consumer responsibility is usually studied as a motivation derived from ethical or philanthropic concerns or as a personal or legal obligation with positive environmental and social consequences (Belz and Peattie, 2012).

Hoste and Zabkar (2016) affirm that economic behaviors are the basis of all responsible consumer behavior. In contrast, Carroll (1991) lists four types of consumer responsibility by considering the economic, legal, ethical, and philanthropic components of responsibility. Economic consumer responsibility relates to the consumers themselves. It refers to their own interests, needs, and desires and to the search for value in their buying behavior. According to Belz

and Peattie (2012), behaviors need not always be ethically motivated to positively affect the environment or society. Consumers are driven more by their own goals than by social or environmental concerns. They seek functional, emotional, and social value through their buying behavior (Green and Peloza, 2011; Sheth, et al. 1991). These values are usually stronger for environmentally responsible consumers than for socially responsible consumers.

Ethical responsibility is linked to the morality, norms, and values reflected in each consumer's purchases. Responsible consumption can take either a positive or a negative form. Positive responsible consumption means considering elements of CSR in purchase decisions, showing a preference for or rewarding certain products. Negative responsible consumption refers to refusing to purchase or boycotting irresponsible products or not consuming products from a certain outlet. Ethical responsibility in the consumer context can be measured by personal moral obligation because it predicts behavior as per the model described in the theory of planned behavior. According to Hoste and Zabkar (2016), moral obligation is stronger in socially responsible consumer behavior than it is in environmentally responsible consumer behavior.

The last two components of responsibility are legal and philanthropic consumer responsibility. Legal consumer responsibility refers to compliance with the rules and laws linked to sustainability such as purchasing energy efficient lightbulbs as stipulated by law or using products as per the manufacturer's instructions. Philanthropic responsibility refers to consumer responsibility based on purely philanthropic actions such as donating to sustainable causes.

These arguments show that the concepts of sustainability and responsibility can be incorporated into the consumer context. Sustainability is the foundation upon which responsible consumer behavior (environmental, social, and economic) is based. It is a manifestation of the consumer's concerns and interests and represents a behavioral component of consumption.

Consumer responsibility explains the consumer's intention (i.e., why the consumer acts responsibly). It is a manifestation of the consumer's cognitive, emotional, and social motivations and consumption processes. Consumer responsibility depends on a wide range of reasons and motivations for consumer behavior, and it cannot be described purely in terms of a behavior that has a positive social or environmental influence.

3. Socially responsible consumer behavior

Building on the definition of a socially conscious consumer (Webster, 1975), scholars developed numerous ways of measuring responsible consumer behavior (Belch, 1982; Mayer, 1976), in all cases grouping the environmental and social dimensions into the same construct. It was Roberts (1995) who separated these two dimensions and proposed a scale with two different dimensions (i.e., social and environmental) to measure responsible consumer behavior. Drawing upon that study and an extensive literature review, Webb et al. (2008) concluded that no measure provided an up-to-date way of measuring responsible consumer behavior because of the extent of the full range of social problems that existed at the time. They developed a new measure, called the Socially Responsible Purchase and Disposal scale, based on a definition of the socially responsible consumer as one who bases his or her purchases, use, and disposal of products on a desire to minimize or eliminate any harmful impact or maximize the long-term positive effect on society (Mohr et al., 2001). This definition was based on the concept of CSR defined by Petkus and Woodruff (1992). This concept was then included in the idea of socially responsible consumer behavior.

Three variables define socially responsible consumer behavior: perceived consumer effectiveness (Higueras-Castillo, et al. 2019; Nguyen, et al. 2016) or the perception that the consumer has of the effectiveness of his or her behavior; the consumer's beliefs about a given

company's CSR and capabilities (Pradhan, 2017). Perceived consumer effectiveness refers to the belief the consumer has that he or she can influence the resolution of social or environmental problems. The literature provides conclusive evidence of the positive relationship between perceived consumer effectiveness and ecologically conscious buying behavior (Cojuharenco, et al. 2016, Jaiswal and Kant, 2018; Wang and Chen, 2019; Zhao, et al. 2018). Therefore, we propose the following hypothesis:

H1: Perceived consumer effectiveness is positively related to socially responsible consumer behavior.

The consumer's beliefs about a given company's CSR and capabilities refer to the consumer's beliefs about the activities that companies engage in as part of their social obligations (Brown and Dacin, 1997). Beliefs about a company's capabilities relate to the ability that the company has to produce and distribute its products. Both beliefs influence the consumer's assessment of the company and, accordingly, assessment of its products, as well as the way the consumer identifies with the company (Palihawadana, et al. 2016). Sen and Bhattacharya (2001) found that consumers' beliefs about the concessions, if any, that the company makes between its CSR efforts and its capabilities play an important role in consumers' reactions to a company's CSR and products. When consumers believe that the relationship between CSR and corporate capabilities creates a win-win situation for both, consumers rate the CSR efforts of the company more positively (Morh and Webb, 2005) than when consumers believe that the CSR comes at the expense of other business capabilities (Biehal and Sheinin, 2007).

H2: Individuals who believe that CSR comes at the expense of other business capabilities are less socially responsible in their purchases than others who do not share this belief.

4. Sample and method

To analyze how consumers incorporate the dimensions of sustainability into their buying behaviors, we sent a questionnaire via online to consumers who were resident in Spain and who were over the age of 17 years. This questionnaire was sent between November 1 and 15, 2018. Respondents were consumers of conventional products or socially responsible products. A total of 223 consumers responded to the survey. They were advised that the goal of the study was to analyze the importance that each of them attached to social and environmental issues when purchasing products. Respondents were told to answer based on their current behavior rather than the way they thought they ought to behave. The data were gathered using Mohr et al.'s (2001) multidimensional scale, which was developed and validated to measure individuals' socially responsible consumption (see Appendix).

For the sociodemographic data, the age variable was built using the age ranges that define Generation Z, the millennials, Generation X, and the baby boomers. Depending on the historical, sociological, and cultural context in which each person is born and educated, the members of each generation have different buying behaviors (Diamantopoulos et al. 2003). Currently, millennials are in the labor market, making purchase decisions and changing the way the consumer market operates on numerous levels. Therefore, just as brands must understand and win over these individuals, manufacturers of socially responsible products must also do so to find their niche in the market.

Spain has a group of firms that are at the forefront of sustainability, with a sustainability score above the global and European average. The degree of CSR penetration among Spanish consumers is 62.6%. Furthermore, for Spanish consumers, CSR criteria are more important than market criteria when deciding whether a company is competitive (Forética, 2018). It is therefore

of interest to evaluate whether there exists a market of consumers who behave in a socially responsible manner.

Using a self-organizing map (SOM) (Kohonen, 1982), which is an unsupervised training algorithm and a type of artificial neural network, we created a two-dimensional map of consumers based on the constructs in Mohr et al.'s (2001) scale. The primary advantage of SOM is that it reduces the dimensionality of the data so that similar data observations appear close to one another on the two-dimensional map. SOMs can be used to identify patterns in the data without requiring explicit knowledge of the relationships that exist among the data. They convert complex non-linear relationships into simple geometric connections in a lower dimension. SOMs therefore offer an effective method for identifying behavioral patterns. On the SOM, consumers with the same scores for a given construct appear close to one another, enabling the identification of different groups or clusters of consumers. This initial analysis can help identify the consumers who behave in a socially responsible manner and those who do not. Thus, a large amount of information can be summarized in a visual representation.

5. Results and discussion

In Table 1 we show the descriptive analysis of the sample to correctly understand the subsequent results. The description of questions used in this paper is shown in Appendix.

[Insert Table 1 here.]

A traditional way to test our hypothesis is using a correlation matrix of received answers. Thus, in Table 3 we show the Pearson correlations of different questions. From correlations, it is easily to detect questions related and non-related to sustainable consumer behavior.

[Insert Table 2 here.]

The results in Table 1 and Table 2 depict a consumer who is more aware of the environmental impact caused by the products that he or she consumes (Q2) than of the social and environmental impact caused by the manufacturing and distribution processes behind those products (Q1). The emphasis that marketing efforts have placed on the environmental dimension of sustainability and the difficulty the consumer faces to obtain information on social aspects (e.g., poor conduct by companies and social injustices) mean that consumers are biased toward the environmental dimension. However, when consumers are able to find information on other sustainability dimensions, they consider these dimensions in their purchase decisions (Q5). They also perceive that their buying behavior is effective at getting the manufacturers of the products they buy to apply sustainability criteria. Therefore, a consumer is more socially responsible when the perceived consumer effectiveness is greater (hypothesis 1).

The consumers in this study expressed a belief that companies use CSR as a way of creating a positive image. This positive image then allows companies to charge more for their products while reducing the quality of these products. The same consumers nonetheless also expressed a belief that high-quality sustainable products can be sold at a fair price. Thus, the results confirm hypothesis 2. Consumers become less socially responsible according to the extent to which companies apply CSR to create a positive image at the expense of other business capabilities. This finding is particularly relevant to Spanish companies that are at the forefront of sustainability because their products would be less likely to be bought by consumers who shared these beliefs.

Although correlations are a proper starting point, correlations assume linear relations among variables and they do not allow us to take a whole picture of received answers. Using SOM overcomes previous weaknesses. SOM is an artificial neural network approach, which reduces the dimensionality of the data and identify patterns in the data without requiring explicit knowledge

of the relationships that exist among the data. It means, with SOM is possible detect not only linear relations in data.

When using SOMs, it is common practice to present the results graphically. Several techniques can be used to do so. A typical approach is to apply an algorithm that enables the construction of groups of neurons or additional clustering within the map. It is particularly important to establish the number of groups that must be constructed. The literature presents several measures for setting the ideal number of groups (Kuo, et al. 2002). The Davies–Bouldin Index (1979) is one of the most commonly used. Applying this index and the K-means algorithm to the map yielded by the analysis provided the number of market segments presented in Figure 1.

[Insert Figure 1 here.]

Using the non-parametric Kruskal-Wallis test for multiple comparisons, we test the differences between the answers of groups because these were not normally and homogeneously distributed.

There was a significant difference in the average answers screened between the identified groups for all the questions, where the maximum observed P value is found in question Q13.

[Insert Table 3 here]

With the component plane presentation, we were able to represent on the map the values of each of the input variables using a color code based on numerical values (Figure 2). High values (i.e., where respondents agreed with the statements on the questionnaire) appear in red.

[Insert Figure 2 here.]

For each group of respondents, the maps in Figures 1 and 2 show the preferences and correlations between questions but this time not necessarily linear correlations as shown in Table 2. For example, the consumers in the bottom right part of the map in Figure 1 agreed with the

statements in items Q1 and Q2 (red) but disagreed with the item Q11 (blue). To provide a sociodemographic description of each of the five segments, we used contingency tables. The results are shown in Figure 1.

Most of the consumers in this study were women (64% vs. 35% men). In terms of age, 44% were aged between 34 and 57 years (Generation X), 28% were aged between 18 and 22 years (Generation Z), and 24% were aged between 23 and 33 years (millennials). The majority had received a university education (61%), and approximately a quarter had completed postgraduate studies (27%). Around half of the consumers in this study worked full time (51%), roughly one in five worked freelance (21%), 15% worked part time, and 13% were not working at the time of data collection.

These demographic data can be combined with the segmentation in Figure 1 to show the sociodemographic profile of each segment. By comparing Figures 1 and 2, we can describe the buying behavior of each segment. All consumers expressed a belief that companies use CSR to create a positive image. Furthermore, consumers in segments 1 and 3 reported that this approach leads companies to charge more while reducing the quality of their products.

Segment 1 is the smallest of all. It consists of consumers from Generation Z. When deciding what to purchase, they think about the environmental impact of the products they buy rather than the social *and* environmental impact of the company's manufacturing and distribution processes. They base their purchase decisions on price, quality, and convenience without thinking or worrying about sustainability issues. Although they perceive their buying behavior as ineffective at influencing the way that companies behave in terms of different sustainability dimensions, they do consider their buying behavior to be effective at exerting a positive influence on society. They

believe that companies can be socially responsible while manufacturing high-quality products at a reasonable price.

Segment 2 consists of consumers primarily from Generation Z as well as some millennials. When deciding what to buy, these consumers and those in segment 4 consider both the sustainability behavior of the manufacturers of the products they buy and the environmental impact of these products. Consumers in this group are the most convinced of the time and difficulty involved in making purchase decisions based on sustainability criteria. Consumers in segment 2 have greater belief than do consumers in segments 1 and 3 in the effectiveness of their buying behavior at changing the behavior of the manufacturers of the products they buy. They are also convinced of the effectiveness of their buying behavior at improving society. For these consumers, the positive image derived from companies' CSR does not make these companies more likely to charge more for their products while reducing their quality. These consumers are also those who believe the least that a socially responsible company can manufacture high-quality products at a reasonable price.

Segment 3 consists of millennials and consumers from Generation X. In their purchase decisions, consumers in segment 3 are those who attach the least importance to the sustainability behavior of the manufacturers of the products they buy and the environmental impact of the products. They decide what to buy based on the price, quality, and convenience of the products without worrying about sustainability criteria, although they have the necessary information to do so. Their loyalty to certain brands might be a reason for this tendency because the inertia of switching from a familiar brand makes it difficult to replace certain products with other more responsible alternatives. Moreover, not all products have a sustainable alternative that is available at the point of sale. These consumers do not consider the dimensions of sustainability in their

buying behavior because they do not perceive this behavior to be an effective way of modifying the behavior of companies and society. They believe that companies can manufacture high-quality products at a reasonable price.

The largest segment, segment 4, consists of consumers from Generation X. When deciding what to buy, the importance that these consumers attach to the environmental impact of the products and the social and environmental behavior of the company is greater than the average importance for the whole sample. They are more willing to make an effort to learn about sustainability criteria and to pay extra and sacrifice the quality of the product to apply these criteria in their purchase decisions. These consumers perceive the greatest effectiveness of their buying behavior on the behavior of companies and society, perceiving the social dimension as the most effective. Unlike the other segments, they strongly believe that companies need not reduce their capabilities to provide high-quality products, although they also believe that it is likely that they charge more than non-socially responsible companies. However, they are convinced that a company can be socially responsible and manufacture high-quality products at a reasonable price. This segment can be described as comprising socially responsible consumers.

Lastly, segment 5 also consists of consumers from Generation X. When deciding what to buy, these consumers are slightly more sensitive to the environmental impact of the products they consume than to other sustainability issues. To a greater degree than the sample average, they base their purchase decisions on price, quality, and convenience without worrying or thinking about the sustainability criteria of the manufacturers of the products they consume. They believe that purchase decisions based on the dimensions of sustainability are effective at changing companies' behavior. They believe that the environmental dimension is slightly less effective. They believe that companies with CSR practices need not reduce their capability to manufacture high-quality

products, but they believe that such companies are more likely to charge more than non-socially responsible companies do. They are the most convinced of all consumers that a company can be socially responsible and manufacture high-quality products at a reasonable price.

6. Conclusions, managerial implications, and limitations of the study

Based on this study, several conclusions may be reached. Regarding sustainability in the consumer context, the findings indicate that analyzed consumers have a slight predisposition toward the environmental dimension rather than the social dimension. Consumers have not fully incorporated the social dimension into their purchase decisions, displaying a greater concern for the environmental impact of the products they consume than for the negative consequences of the manufacturing and distribution processes on society and the environment. Consumers mistrust companies because of their beliefs about CSR, while information asymmetries prevent consumers from obtaining the necessary information about aspects that relate to the social dimension of sustainability. These are two of the factors that stop consumers from incorporating the social dimension into their purchase decisions. Consumers' beliefs about companies' CSR undermines the credibility of communications by these companies regarding socially responsible products, thereby creating mistrust in companies that sell this type of product. However, the perception that consumers have of the effectiveness of their behavior at changing society make them potential socially responsible consumers that can be targeted by companies that are committed to sustainability.

Based on the findings of this study, we can make several recommendations for businesses. The first is for manufacturers to increase transparency regarding the product manufacturing and distribution processes. Another recommendation is the inclusion of product traceability information on the label or through some other medium. Doing so would provide customers with

information that can help their purchase decisions by enabling them to consider the dimensions of sustainability, thereby raising the credibility of the company's image. This image can be built by charging reasonable prices without reducing product quality and providing a price breakdown from raw materials to final price. Providing more information on the origin of the company's products, production processes, and impact on society and the environment, as well as details of the impact on the final price could turn CSR into one of the primary brand differentiators in the coming years.

Overall consumer behavior, as well as the behavior of specific segments, shows that socially responsible products have a place in the market. The largest segment consisted of socially responsible consumers, and two other medium-sized segments consisted of potential socially responsible consumers. Only the consumers in two of the segments seemed to be more inaccessible. In the case of segment 3, this was because the consumer profile was conventional, and, in segment 1, this was because of the consumers' sociodemographic characteristics.

The profile of analyzed socially responsible consumers differs from the profile of socially responsible consumers reported in prior studies. In the past, the age distribution of socially responsible consumers was found to follow a U-shaped curve, with younger and older consumers displaying a greater tendency to engage in socially responsible consumer behavior. Currently, however, our study shows that consumers in this age group display socially responsible behavior.

The first practical implication of this study is the need to raise awareness among millennials and consumers from Generation Z. The behavior of millennials ranges from that of potential socially responsible consumers to that of non-socially responsible consumers. Consumers from Generation Z do not display socially responsible behaviors. Awareness among potential socially responsible consumers such as millennials, who are willing to learn about the dimensions of sustainability so that they can incorporate these issues into their purchase decisions, can be raised

using information campaigns. Through these campaigns, public institutions and the communication media can provide information about the effects of these consumers' purchase decisions on the behavior of companies and about the importance of sustainable business because of its impact on the planet and people. This would allow consumers to differentiate between brands depending on their social and environmental responsibility and then share reviews of these brands with other like-minded users on social media. This could offer the ideal tool for younger groups of consumers.

Companies that do not engage in greenwashing practices should offer all stakeholders information that is suitable, relevant, reliable, jargon free, and easy to understand. They would thus enable consumers to find information and learn about different companies' CSR practices. For consumers from Generation Z, whose barrier is the lack of product recognition through the brand, companies with strong brands that are committed to sustainability should offer socially sustainable products so that these consumers link the brand value of conventional products to socially responsible products.

In terms of socially responsible consumer behavior, our analysis depicts a conscious, responsible consumer, as defined by Webb et al. (2008). This conscious consumer is well informed about the most basic variables such as quality, price, and guarantees, as well as other elements such as other users' reviews, the environmental and health impact of the product, the production process, the working conditions, and the raw materials used to manufacture the product. However, the availability and layout of this information together form a hurdle that the consumer must overcome.

Finally, this study has certain limitations. For example, the economic dimension was not considered in the analysis. Moreover, the variables that define general socially responsible

consumer behavior were also omitted. These limitations should be addressed in future research. Further studies should 1) analyze whether personal consumer values influence the purchase decisions of socially responsible consumers and 2) analyze the variables that define socially responsible behavior using the theory of planned behavior so that sustainable companies can effectively target the right customers with their strategies.

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Table 1. *Descriptive analysis*

Question	*Mean*	*Median*	*Mode*	*Standard deviation*	*Asymmetry*	*Kurtosis*
Q1	3.87	4	5	1.062	-0.629	-0.462
Q2	3.94	4	5	1.089	-0.889	0.130
Q3	2.82	3	3	1.241	0.209	-0.880
Q4	3.20	3	3	1.203	-0.167	-0.883
Q5	4.02	4	5	1.031	-0.995	0.481
Q6	3.45	4	4	1.089	-0.357	-0.480
Q7	4.11	4	5	0.953	-0.848	0.037
Q8	4.07	4	5	0.970	-1.101	1.116
Q9	4.17	4	4	0.878	-1.234	1.921
Q10	4.32	4	5	0.785	-1.372	2.625
Q11	1.80	1	1	1.079	1.253	0.617
Q12	2.17	2	1	1.136	0.639	-0.528
Q13	4.41	5	5	0.840	-1.675	3.145
Q14	3.61	4	4	1.041	-0.555	-0.205
Q15	3.87	4	4	1.029	-0.837	0.284

Source: Compiled by the authors

Table 2. *Correlations Matrix*

	Q1	*Q2*	*Q3*	*Q4*	*Q5*	*Q6*	*Q7*	*Q8*	*Q9*	*Q10*	*Q11*	*Q12*	*Q13*	*Q14*
Q2	0,719													
Q3	-0,238	-0,227												
Q4	-0,262	-0,134	0,321											
Q5	0,145	0,202	-0,129	-0,017										
Q6	0,096	0,094	-0,385	-0,346	0,272									
Q7	0,120	0,161	-0,210	-0,246	0,284	0,265								
Q8	0,178	0,133	-0,278	-0,282	0,255	0,364	0,454							
Q9	0,181	0,225	-0,235	-0,306	0,258	0,248	0,431	0,670						
Q10	0,215	0,202	-0,273	-0,220	0,392	0,366	0,453	0,539	0,622					
Q11	-0,249	-0,192	0,336	0,295	-0,291	-0,323	-0,427	-0,493	-0,561	-0,548				
Q12	-0,123	-0,084	0,180	0,261	-0,198	-0,134	-0,255	-0,231	-0,280	-0,336	0,340			
Q13	0,161	0,160	-0,023	0,005	0,249	0,081	0,211	0,062	0,188	0,322	-0,227	-0,091		
Q14	0,071	0,039	0,048	0,233	0,079	-0,077	0,073	0,060	0,016	-0,018	0,120	0,094	0,317	
Q15	0,207	0,137	-0,172	-0,240	0,189	0,271	0,275	0,218	0,269	0,380	-0,364	-0,292	0,160	-0,305

All p values are significant at 0.01

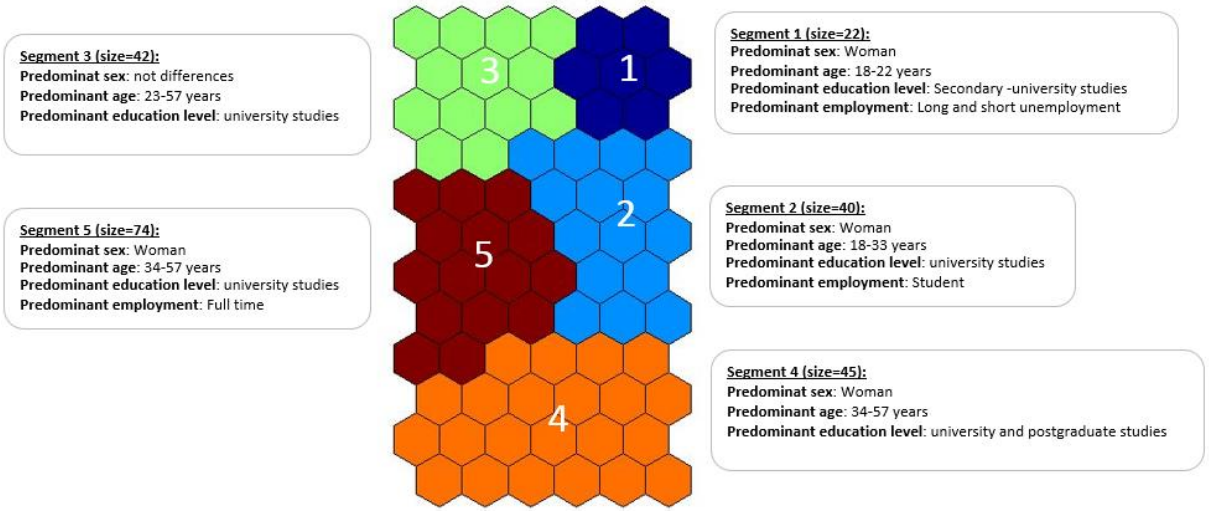
Source: Compiled by the authors

Tabla 3. *Non-parametric analysis*

Code	*Q1*	*Q2*	*Q3*	*Q4*	*Q5*	*Q6*	*Q7*	*Q8*	*Q9*	*Q10*	*Q11*	*Q12*	*Q13*	*Q14*	*Q15*
χ_2	68,759	63,918	53,921	51,291	42,783	39,207	66,396	78,980	82,152	58,670	99,164	46,632	9,751	17,899	38,728
p-value	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,045	0,001	0,000

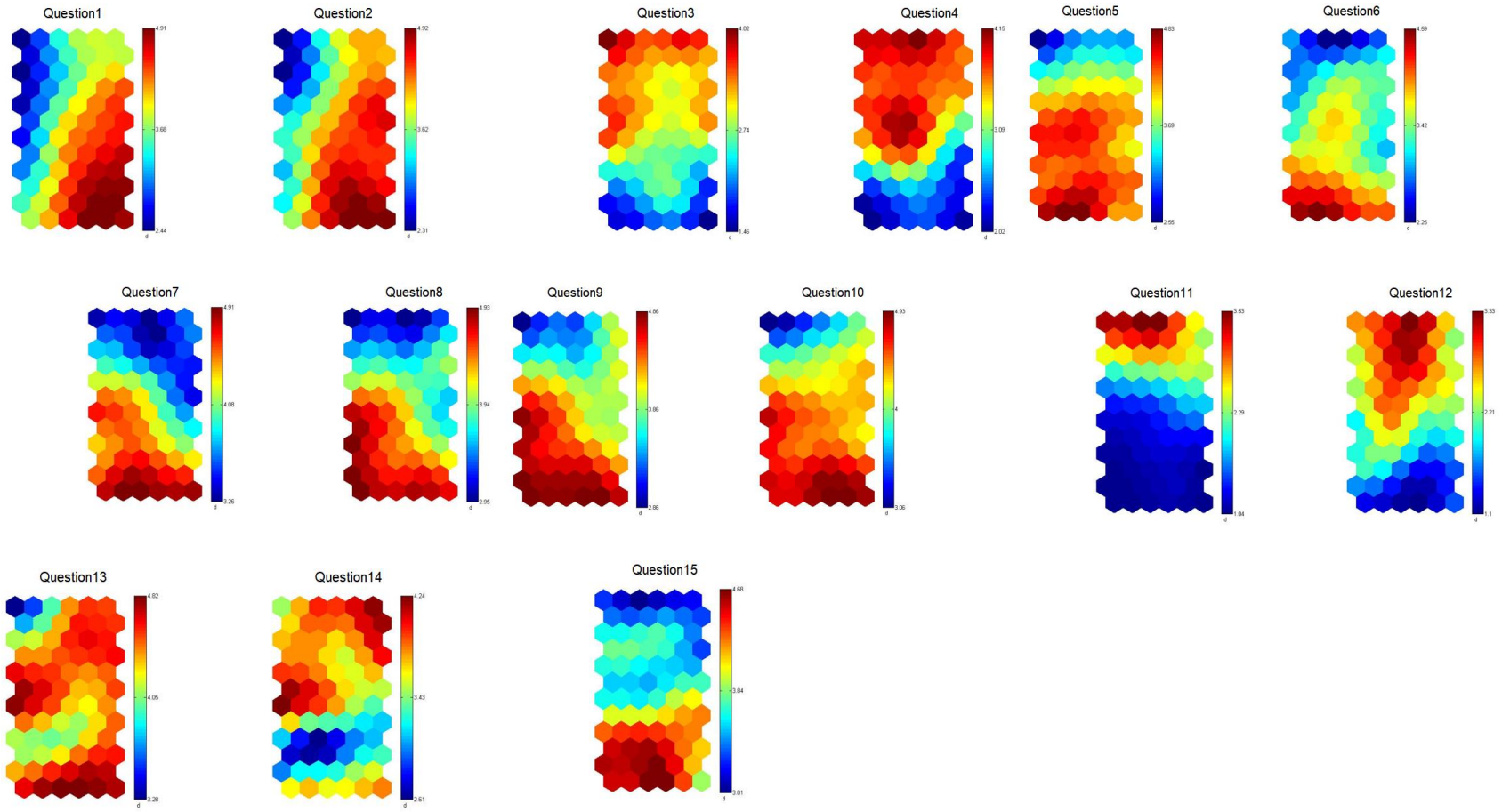
Source: Compiled by the authors

Figure 1. *Self-organizing map of customer segments*



Source: Compiled by the authors

Figure 2: *Component maps for each questionnaire item*



Source: Compiled by the authors

Appendix

Questionnaire items used to collect data on the research variables

Code	Question
Think about the role that the following situations play in your purchase decisions	
Q1	The way companies behave toward suppliers, employees, distributors, the local community, and the environment
Q2	The environmental impact of products
Self-evaluation of the consumers' CSR behavior (choose one of the following options)	
Q3	I base my purchase decisions on quality, price, and the convenience of products or services. I don't worry about sustainability or think about it in my purchase decisions.
Q4	I think these issues are important, but it's too hard, and it takes too much time if I use them to make my purchase decisions.
Q5	When it's easy to do so, I use information about these issues in my purchase decisions.
Q6	I strive to learn about these issues, and I am willing to pay more or compromise on the quality of the product to consider these issues in my purchase decisions.
Perceived consumer effectiveness (PCE) of consumers' behavior in terms of sustainability (1 = strongly disagree; 5 = strongly agree)	
Q7	What I purchase affects the whole country's environmental problems.
Q8	All consumer behavior can affect how companies treat their suppliers, employees, and distributors.
Q9	All consumer behavior can affect how companies behave toward the community
Q10	All consumer behavior can have a positive effect on society because of the purchase of products sold by socially responsible companies.
Q11	Given that consumer behavior cannot affect the way companies treat their suppliers, employees, and distributors or the community or society, what I do does not matter.
Buyers' beliefs about CSR and the company's ability to act responsibly (1 = strongly disagree; 5 = strongly agree)	
Q12	Buyers' CSR reduces companies' ability to provide high-quality products.
Q13	CSR is a way for the company to create a positive image.
Q14	Socially responsible companies are more likely to have higher prices than others.
Q15	A company can be socially responsible and make high-quality products at a fair price.
Socioeconomic variables	
Q16	Gender
Q17	Age
Q18	Education
Q19	Employment situation

Source: Adopted of Webb et al. (2008)