

Review

Sustainability in the Beverage Industry: A Research Agenda from the Demand Side

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Abstract: Sustainability has become one of the most important challenges for the beverage industry over the last few decades. In fact, many producers have implemented environmental, social, or economic aspects of sustainability at several stages of their production process. One of the reasons that might explain this interest in sustainability is that consumers are changing their behavior to integrate sustainable and environmental considerations into their purchase behavior. Accordingly, some consumers' purchasing decisions are based not only on how well products satisfy their needs but also on how these products affect the environment or society at large. Within this context, designing appropriate interventions to fostering sustainable consumption requires deeper knowledge about its underlying determinants. In this paper, we focus on some of the most important challenges that might drive future research within this area.

Keywords: sustainability; beverages; consumer



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1. Introduction

The most accepted concept of sustainability defines it through the three overlapping principles of environmentally sound, economically feasible, and socially equitable production. Sustainable production comprises business practices that are sensitive to the environment (environmentally sound), responsive to the needs and interests of society at large (socially equitable), and economically feasible to implement and maintain (economically feasible) [1]. However, and despite its popularity, this term is frequently associated by producers and consumers with the environmental aspects of production only, neglecting other important issues, and every producer might have a different understanding of this term.

Within the beverage industry, sustainability can be considered as a strategy to differentiate firms or products in order to meet some market segment demands. In fact, many firms claim socially or environmentally friendly orientations when producing and marketing beverages, integrating sustainability into their communication strategy to reinforce their brand and market positioning. Presently, consumers not only make decisions based on how well products satisfy their needs but also how these products influence society at large. Consequently, many consumers have integrated sustainable and environmental considerations into their lifestyle choices. Through the adoption of sustainable practices, firms could obtain a competitive advantage and increase sales with clear product differentiation.

However, sustainability is also a needed strategy to guarantee the future development of the beverage sector. According to [2], most environmental consumption impacts are related to a few product categories. In fact, 70–80% of total impacts from domestic consumption relate to food and drink, housing (e.g., domestic energy use), and transport (e.g., leisure and holiday travel). Particularly, food and drink consumption have a significant eco-footprint due to, among other factors, the use of land, energy, water, and chemicals in production as well as pollution during the distribution system [3]. In this sense, the

challenge of sustainable development is to meet current demands without ruining future generations and the planet in the long term [4].

Accordingly, academic research has paid special attention to sustainable consumption in this industry, which may encompass a plethora of behaviors from consumer purchase of eco-friendly products to water use at home [5,6]. In the same line, [4,7] run systematic reviews aimed to analyze articles dealing with new trends in sustainable consumption practices. Most of the studies focus their attention on the food industry [8,9], while few studies analyze the beverage category, with the only exception of wine, which has received great interest among researchers [10]. Furthermore, as beer is the most consumed alcoholic beverage in the world [11], several authors have focused their attention on this beverage, identifying the rise of some trends (e.g., craft beer) regarding sustainability. For example, consumers' increasing attention to health-issues impulses breweries to expand their assortment to introduce non-alcoholic drinks in the market [11]. Moreover, craft beer consumption has been perceived by consumers as more sustainable [12]. In the same vein, some authors have focused their attention on organic food and beverages, given the increasing interest of consumers in this category [13]. Indeed, according to the forecasts from some international market research studies [14], the organic beverage market is estimated to reach \$181.78 billion by 2023 from \$99.76 billion in 2018.

Furthermore, designing appropriate interventions to fostering sustainable consumption requires deeper knowledge about the underlying determinants of consumer behavior [15]. The analysis of the drivers influencing sustainable consumption has been studied over the last decades from different disciplines such as environmental psychology [16] or (social) marketing [17]. Besides, the analysis of sustainable consumption from the demand side has been almost exclusively focused on the environmental dimension of the concept of sustainability. While environmental psychology has mainly focused on studying pro-environmental behaviors such as water/energy saving or recycling, it has been in the field of marketing where green purchase behavior has played a prominent role. Focusing on understanding the determinants of consumers' green purchase decisions, social marketers, public managers, and policymakers may be able to influence consumers' environmental mindset and behavior in the long term [18]. In fact, the beverage industry has incorporated several strategies to achieve a cost-effective transition to a circular economy and to combat climate-change-related risks to their operations. In this sense, [19] identified four types of managerial practices related to Circular Economy (CE) adoption at the product level that could be applied in the beverage industry: (i) Energy efficiency and usage of renewable sources of energy; (ii) Product and process optimization for resource efficiency; (iii) Product design for circularity; and (iv) Exploitation of waste as a resource.

In any case, sustainable beverage purchase behavior is still not well understood in academia, especially if we consider the concept of sustainable consumption as a whole [17]. In this paper, we focus on some of the challenges that may drive future research on this area. Particularly, we focus our attention on alcoholic (wine and beer) and non-alcoholic beverages (water, milk, and juices), as they represent a huge market share among sustainable beverages.

2. From Green to Sustainable Consumption

When an individual makes a purchase decision there is a possibility that it contributes to a more or less sustainable consumption pattern, since all purchasing actions have ethical, waste, resource, and community impact implications. Green purchase behavior refers to "purchasing and consuming products that are benign toward the environment" [20] (p. 190), which might contribute to a sustainable consumption pattern [21]. Green purchase behavior is seen as a complex form of consumption both intellectually and morally as well as in practice. As [22] points out, when individuals consider buying in an environmentally responsible way, they face an increasingly complex decision-making process. On the one hand, this type of behavior involves difficult motivational conflicts because there is usually a conflict between the self-interested benefits of consumers and environmental protection

related to collective goals. On the other hand, there are normally external barriers to green purchase, which arise from the political, economic, or cultural circumstances in the market and society [22]. For example, eco-friendly products are frequently seen as an expensive option and making sustainable consumer choices involves a fair amount of effort such as garnering information [23]. In addition, many consumers do not consider environmental aspects as a primary element when they make a purchase decision. In such situations, only when they perceive that the product achieves a certain level of product performance, “green” characteristics of the product may determine product choice [18]. In addition, research has shown that there is now a “typical” green consumer that is involved with environmental issues in all sorts of purchasing situations, especially when it comes to different contexts/environments [24] and/or (high/low) purchase product involvement [25]. Consequently, designing strategies to achieve a behavioral change toward sustainability becomes a challenging task.

However, as [17] highlights, sustainable consumption implies not only choosing “green” products but also reducing consumption and considering the full consumption cycle. While prior research in the beverage sector has mainly focused on understanding consumers’ initial product choices, far less attention has been given to the reduction of consumption and the full consumption cycle (e.g., product usage or disposal), due presumably to the fact that reusing or recycling available products has lower environmental benefits than changing purchasing behavior [26].

Regarding the reduction of consumption from an environmental point of view, only a few studies about bottled water usage and intentions to reduce its consumption have been carried out so far [27,28]. Even though bottled water consumption may be considered in the beverage sector one of the products that are contributing the most to several environmental problems such as pollution, water wastage, and climate change [27]. In addition, regarding the full consumption cycle, it should be also taken into account that the beverage product life cycle is short. In this way, while for durable goods (e.g., household appliances, clothes . . .) consumers’ post choice behaviors such as product usage (e.g., product maintenance) or product life extension (e.g., re-use) have an important impact on the sustainability of consumption, for commodity goods, disposal (e.g., recycling) is crucial. For example, [18] finds a high correlation between eco-friendly purchase and disposal decisions, being the environmental awareness of consumers a predominant predictor of disposal decisions. In any case, the available academic studies on beverage disposal are scarce to date and further research may shed light on this regard.

Given the imperative of sustainable consumption in the beverage sector, it is critical to understand what factors contribute to this type of behavior. Most of the studies focused on explaining sustainable consumption in this sector have analyzed these determinants independently on the beverage category (e.g., juice, wine, beer, milk, and so on) since the factors that influence purchasing decisions of each category may be different and therefore also the role of environmental issues in the purchase choice. For example, as [10] point out, consumer’s wine choice is more complex than other products because it is one of the most differentiated products on the market. Wine consumers must deal with a large amount of information on wine labels (e.g., country of origin, region of products, grape variety, or brand) that are important drivers for purchase decisions. Besides, due to sustainable wine production (i.e., wine with sustainability characteristics), current certifications indicate new characteristics for consumers to be evaluated, making the purchasing decision even more complex. Furthermore, compared to other alcoholic beverages, wine is perceived as being more natural, reflecting a sense of agricultural seasonality and linked closely to a rural way of life [13], which are elements highly linked to the concept of sustainability. Hence, research to date has mainly focused on identifying how sustainability characteristics influence wine purchase decisions and other beverages have been virtually neglected. Nevertheless, it must be pointed out that studies on sustainable beer consumption have significantly increased over the last years [29,30]. In fact, beer is the most consumed

alcoholic beverage in the world [11], and sustainability might constitute an important trigger to foster beer consumption.

3. Research Trends on Sustainability in the Beverage Industry

Several studies have analyzed the factors influencing the purchase of sustainable beverages from different perspectives: (i) the willingness to pay a premium price for sustainable products; (ii) the packaging of sustainable products; (iii) the distribution of sustainable products and fair trade; and (iv) Factors influencing the purchase of sustainable beverages.

3.1. Willingness-to-Pay for Sustainable Beverages

Most of the studies to date have mainly addressed sustainable beverage consumption analyzing intentions of willingness to pay (WTP) premiums for organic products. Accordingly, a recent review of the literature on this topic concludes that further work needs to be done in a real market context using, for example, household panel data [10]. This has relevance for studies on environmental issues since it is well known that there is usually an inconsistency or gap between intention to purchase eco-friendly products and actual purchase behavior [31]. In addition, regarding the characteristics of sustainable products, literature has focused primarily on production as a key element when consumers make their green purchase decisions. Thus, there has been a great deal of research lately on consumer preference and WTP for organic wine [13]; organic beer [29]; organic milk [32], or organic fruit juice. Importantly, it seems that there is still some confusion among consumers with the “organic” term and, in some cases, they consider organic products not to be environmentally friendly [23]. Most consumers associate “organic” only with being chemical-free and they are unfamiliar with organic farming standards and practices. Therefore, it comes as no surprise that personal health has been shown as a more important driver for organic food and beverage purchase by consumers than concerns for the environment [33].

3.2. Sustainable Packaging

Packaging is of special concern to some type of beverages such as juice, water, or beer, as they are the main beverage contributions to the packaging fraction [34]. However, as far as we know, only very few studies have addressed packaging as an important element for green purchasing decisions in the beverage sector [18]. From a consumer perspective, the use of packaging in commodity products transcends beyond its functional role (e.g., conserving the quality and freshness). In fact, consumers also consider the design, the image, and ease of packaging to correctly identify the product [35]. In this sense, [36] examines the factors that influence consumers’ product purchasing behavior and their recycling behavior with respect to sustainable packaging. Their results evidence that variables such as gender, environmental awareness, or attitude towards green purchasing are factors that differentiate consumers that consider environmentally friendly packaging important and consumers that consider packaging as unimportant when making product purchase decisions. Therefore, environmental strategies should intend to make the most of this product attribute, and research in the beverage sector should be focused on which features of sustainable packaging are the most preferred by consumers rather than how this packaging is disposed of.

3.3. Distribution and Fair Trade

Regarding the distribution of beverages, increased attention has been given recently to local products as local food and drinks shoppers are driven by environmental (short supply chains) as well as community (economic and social) concerns [37]. A paradox between organic vs. local products may arise at this point as [23] wonders: “what is better for the planet buying organic quinoa grown in Peru or a non-organic alternative produced locally? My guess, would be the latter”. Although further research is needed to understand consumer’s opinion in this regard, the current discussion suggests that when

organic food is not produced locally, it loses authenticity. Thus, for many consumers, food miles rather than organic labels are the representation of sustainability [38]. However, it is worth mentioning that local food production seems to be more related to the social (e.g., the creation of a consumer-farmer relationship based on trust) and the economic (e.g., economic benefits for regional economies) dimensions of sustainability than the environmental one [39]. Even some studies [40] raise doubts about local food to be better for the environment than non-local food. Either way, only a few studies have been carried out to date on consumer perception about locally produced products, with the exception of wine [41,42].

Besides, buying fairly traded products is another way to consume sustainably. Fair Trade is defined as: “an initiative for small farmers and wage workers in the South, who have been restrained in their economical and/or social development by the conditions of trade (‘disadvantaged’)” [43] (p. 2). So, this type of trade relations focuses on the social and economic dimensions of sustainability. Fairtrade beverage purchasing is growing in the last years. For example, according to [44] data, Fairtrade alcohol was the biggest growth of all the monitored sectors in the UK, with shoppers spending 34% more on this over 2017. However, academic studies focus on consumers’ perceptions; preferences and willingness-to-pay for Fairtrade drinks are almost non-existent. Future research should therefore gain a deeper understanding of consumers’ attitudes and their buying habits regarding this type of product.

3.4. Determining Factors of Sustainable Consumption

Several studies have shown that the purchase of sustainable beverages (or green purchase behavior) can be influenced by a plethora of factors. These factors can be categorized into the following underlying causes [16]: (i) personal capabilities, (ii) psychological determinants (e.g., attitudes, beliefs or norms), and (iii) contextual forces and habits. The following explanation, however, should be treated with caution since, as aforementioned, studies usually ask for purchase intentions (e.g., WTP) in unrealistic scenarios and results can be overestimated regarding actual behavior. Furthermore, wine has been the main subject of previous studies, so it cannot always be extrapolated to other beverage products.

3.4.1. Personal Capabilities

In general, previous studies [42,45,46] have shown that the typical organic drink consumer is female, highly educated, upper-middle-class income, and lives in urban areas. In the case of purchasing local wine, it seems to be different. Ref. [47] found that men paid more for wine with a lower distance traveled than women in Germany, and [42] shows that people living in a rural area were more prone to buy local wine in the US. Regarding age, studies revealed mixed results. For example, while [48,49] find that younger consumers had higher attitudes toward sustainable wine, [46,50] find older people to have higher WTP and probability for buying wine with sustainability characteristics respectively. Furthermore, some other studies have not found any differences in terms of sociodemographic factors for intention to buy organic milk [51] or for WTP for organic wine [41]. In summary, it seems there are conflicting results regarding the impact of personal capabilities on sustainable beverages purchase. This highlights the need for further research.

Furthermore, it should be highlighted that sensory acceptance constitutes one of the main choice criteria for consumers [52], which is forcefully reliant on cultural backgrounds, as well as previous sensory exposure to a specific food product [53]. Besides, the market for functional, natural, and non-alcoholic beverages is steadily increasing all over the world [54], because of the increasing consumer awareness of the importance of healthy nutrition.

3.4.2. Psychological Determinants

A well-established theoretical framework that has often been applied in food and drink studies to analyze the psychological determinants of sustainable consumption is the

Theory of Planned Behavior [55]. According to this theory, the most immediate predictor of behavior is an intention to engage in the behavior (i.e., a motivation or plan) and intentions are, in turn, predicted by attitudes (i.e., mental disposition and feeling about the environment), perceived behavioral control (i.e., ability to perform the behavior) and subjective norms (i.e., social pressure). Focusing on attitudes, studies on wine with sustainability features and organic milk reveal a close relation between attitudes and purchase behavior [56,57]. However, food organic research has also shown that although individuals declare to have high positive attitudes toward the environment or organic products, it does not necessarily translate into actual purchase behavior [58]. In the environmental literature, this is generally known as the “attitude-behavior gap” and it has been found not only for green purchase behaviors but also for other pro-environmental behaviors [59]. Among the reasons that might explain this inconsistency, environmental researchers suggest the use of constellations of behaviors (i.e., index), the overestimation of attitudes in survey studies due to social desirability, the measurement of general environmental attitudes instead of specific attitudes to the behavior and the intensity of attitudes [11,49]. Future studies in the beverage sector should consider these aspects.

Another theory widely used in organic food and drink literature has been the Norm Activation Model (NAM) [60]. This model states that pro-environmental behavior (e.g., purchasing organic beverages) depends mainly on the activation of personal norms, which reflect feelings of moral obligation to behave in a certain manner. For example, [61] find that people with strong personal ecological norms used “organic production” and the “EU-BIO-Label” as additional criteria during their milk decision purchase. Moreover, as an extension of the NAM model, [16] proposed the Value-Belief-Norm theory of environmentalism (VBN), which states that pro-environmental personal norms are influenced by values (i.e., general goals that serve as guiding principles in life) and beliefs. As [10] review points out, environmental values and beliefs on environmental protection are important motivators for buying sustainable wine. Additionally, values reflecting the need for living a hedonistic life have been also found to be an important precursor of belief systems that influence the purchase of organic wines [62]. Apart from the variables included in these models, other psychological factors such as trust, knowledge, or self-identity have been used in past studies to explain organic beverage purchases. Trusts in the retailer selling [63] and in winery [64] are considered important factors influencing consumers’ behavioral intentions to purchase organic wine. The same result was found for organic milk purchase behavior when trust in farmers is analyzed [53]. In this last study conducted in Italy, it was also found that self-identity as a green consumer influenced consumers’ intentions to buy organic milk. Furthermore, studies reveal that knowledge can play a significant role in motivating the purchase of organic food [37]. However, while consumer environmental knowledge seems to influence the willingness to buy environmentally friendly wines [65], greater knowledge about wine culture seems to be related to a lower willingness to pay a premium value [66].

3.4.3. Contextual Factors and Habits

Although the above psychological factors play an important role in understanding sustainable purchase decisions in the beverage sector, contextual factors and habits might constraint or incentive this relationship. Among the contextual factors studied in the past, the price has been observed to be one of the main characteristics of the product when a consumer buys organic wine or milk [13,49,67]. The influence of price on buying behavior may be positive when high prices signal quality and status for consumers, or negative when high prices mean that a sacrifice must be made [68]. In this sense, research has shown that price is perceived as a barrier toward organic milk purchase, especially for consumers with budget constraints, and consumers often overestimate the price level of this type of milk when there is a lack of knowledge about it [68]. In the case of sustainable wine, some studies reveal that the higher the increase in price, the lower the probability of purchase [41]. Although, other studies [69] show that medium-high priced wines with

sustainability characteristics are preferred over lower-priced wines when information is given to the consumer through organic certification labels. In addition, the origin of wine and availability (close to consumers' homes) are other contextual factors moderating the transformation of attitudes into purchase behavior [10]. The taste of wine or milk is also considered an important motivator during the decision-making process [61,70]. In the case of milk, interestingly, those consumers that think organic products are intensively tasted are less willing to pay a premium for organic milk [69]. Finally, being stuck in a routine (habits) of purchasing behavior seems to also play a major role in sustainable beverage purchasing decisions for both wine and milk [50,71].

As can be seen above, previous work has been limited to analyzing cognitive and contextual factors and there is virtually no research focused on the affective component of attitude and emotions related to sustainable beverage consumption. Notwithstanding the existence of authors suggesting that these factors may play an important role as drivers of involvement in organic food purchase [72]. Future studies on the emotion topic are therefore required in the sustainable beverage sector.

4. Conclusions

The goal of this paper has been to review some of the papers that address sustainability in the beverage sector from the demand side. A deeper understanding of the drivers that determine sustainable consumption is needed to foster sustainable practices in the beverage industry. Although several managerial practices have been identified in the beverage industry in the context of the circular economy [19], it is mandatory to identify the responsibility for sustainable practices among consumers and firms (e.g., packaging recycling).

Particularly, future research should gain a deeper understanding of consumers' attitudes and their buying habits regarding sustainable beverages. From personal characteristics to the effect of emotions, attitudes, and lifestyles, more research is needed to understand the drivers that motivate consumers to buy sustainable beverages. Furthermore, it would be very interesting to know not only how these variables drive consumers' behavior but also whether there are differences among different beverages within the industry, as the consumer might act differently depending on the product. Finally, previous work has been almost limited to the environmental dimension of sustainability to explain sustainable consumption in the beverage sector. Future research therefore should be more focused on the social and economic dimensions of sustainability for improving regional economies.

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