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Millennial Generation and Environmental Sustainability: The Role of Social Media in the Consumer Purchasing Behavior for Wine

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Abstract: In the coming years, social media technology will have a crucial role in environmental involvement and in encouraging sustainable behaviors in the wine industry. Sustainable development is becoming a crucial topic for many consumers. Also, in the wine industry much research has been carried out to decrease the environmental impact, with a particular focus on renewable energy use, greenhouse gas emissions, pesticides reduction, water and waste management, biodiversity, soil and landscape preservation. In recent years, social media technologies have gained increased attention for their potential to amplify environmental concerns and encourage sustainable behaviors among people. This study aims to study the role of social media in the consumer purchasing behavior for wine between the millennial and non-millennial generations. A total sample of 2597 Italian wine consumer responses were collected and a structured questionnaire was used to test our hypothesis. The main results show that the greater the import the consumer places on the product/process dimension of environmental sustainability, the higher the self-selection in market segments. This is true for both millennials and non-millennials. The results show the power of social media to increase sustainability awareness and consecutively influence the consumer's buying behavior for wine (higher price segment). From a marketing perspective, companies should improve their capacity to share and communicate their environmental activities through social media.

Keywords: environmental sustainability; buying behavior; market segmentation; price; social media; millennials; wine

1. Introduction

In the last decades, the European wine sector has experienced significant and rapid market changes, especially with a strong decline in consumption among traditional wine countries [1–3].

While price, grape variety, sensory properties, and brand are still considered the most important factors when purchasing a wine [4], new attributes like sustainability are growing in importance [5]. Sustainable production practices are becoming more and more important in the wine industry to create a positive image of the sector and a tool for wineries to be more productive and competitive [6–9]. However, sustainability claims do not yet have a positive appeal with the majority of consumers. One of the reasons might be because sustainable aspects of the production process are considered credence attributes that consumers cannot ascertain during the purchase or use of the product [3,9].

Nevertheless, the recent literature focused on the Italian wine sector shows how wines produced with a sustainable method (e.g., eco-friendly wines) can achieve a premium price compared to a common wine.

In fact, the potential benefits of adopting more sustainable practices include not only longer longevity of the company but also a greater consumers' willingness to pay [3] and appreciation for these products [5,10].

In order to choose sustainable wines, consumers need to understand better how the products that they buy address their environmental concerns [7]; therefore, one of the main challenges for marketers is to improve the communication of wineries' environmentally friendly practices to consumers.

Regarding this, in recent years, social media technologies have gained increased attention for their potential to amplify environmental concerns and encourage sustainable behaviors among people [11].

Today, the digital presence of companies on social media and the Web 2.0, apart being an additional sales channel [12], has the goal to promote their brand and communicate directly with new consumer segments. In particular in the food business, consumers use these technologies to share their pro-environmental attitude and encourage people to act [13]. So far, few studies have focused on the role of environmental beliefs in shaping consumer attitude and behavior towards wine [9,14].

This study aims to answer two main research questions: first, how do different wine environmental sustainability beliefs influence the wine buying behavior between millennial and non-millennial generations? Second, what is the role of social media, used for searching for information on wine, as moderator of the relationship sustainability-buying behavior in millennial and non-millennial generations?

The paper will be structured as follows: first, the theoretical background and hypothesis development will be presented in order to provide a clear definition of the relationship between wine sustainability and the social media phenomenon. Then the methodology with the questionnaire design will be outlined, followed by the findings of our study and the discussion. Finally, conclusions and implications for managerial strategy will be provided.

2. Theoretical Background and Hypothesis Development

2.1. Sustainability Aspects in the Wine Sector

Even if there is no universal definition, sustainable viti-viniculture has been defined by OIV (Organisation Internationale de la Vigne et du Vin) as the promotion of sustainability from an economic, as well as environmental, point of view and the enhancement of historical, cultural, and aesthetic aspects.

Even if the term sustainability is used on different scales in many contexts with very different objectives [15], this concept usually includes three-dimensional environmental, social and economic "pillars" [16]. However, today the majority of the sustainability programs in the wine sector developed a set of standards mainly for the environmental aspects [17–19].

As reported by Corbo et al. [16] and Santini et al. [20], Italian wineries' interest in sustainability issues is growing with a particular focus on renewable energy use, agrochemical use, greenhouse gas emissions (GHG), pesticides and fertilizers reduction, air and water quality, waste management, soil fertility management biodiversity, soil and landscape preservation, transportation, and eco-packaging.

In recent years, sustainability principles have been integrated into the entire wine production system. Particularly in New World wine-producing countries (South Africa, New Zealand, Australia and USA), there has been an increasing proliferation of wines labelled as sustainable [8,18,21,22]. Many wineries understand that being environmentally friendly has become a strategic business asset for differentiation [23,24].

2.2. Wine Consumers and Sustainability

Increased competition in the international wine market brought industry stakeholders to find alternative strategies to increase sales and domestic consumption [3]. In Italy, in the last decades individual wine consumption has decreased due to the deep changes in the consumption model, especially among the segment of young adults [25], which is identified with individuals aged

between 18 and 35 (hereafter called "millennials"). However, in this age group, a larger share of individual under 24 are becoming wine drinkers compared to those aged between 25 and 34 years. Moreover, the category of young occasional wine drinkers is growing and directed towards high-quality and certified wines.

The wine industry is under pressure both from consumers and regulators to measure, reduce, and better communicate the environmental impact of winemaking [19,26]. At the same time, consumers are becoming more aware about the environmental consequences when purchasing products which have brought to a growing interest for sustainable wine products [9,16,24]. In recent years, many authors in the Italian marketing research community have been investigating the reasons behind the growing interest between wine consumers and sustainability [5,10,24,27]. Vecchio [3] studied the importance attached to the environmental attribute using experimental auctions, and found that consumers have a willingness to pay (WTP) for sustainability wine attributes. However, even if some studies [28] show that consumers like the idea of wine obtained using sustainable practices, it is still not clear what motivates this attitude.

As shown by previous research [9,13], in order to engage in pro-environmental action consumers need not be motivated by environmental concerns and believe that performing that behavior would actual address that positive output. As indicated by Menozzi, Sogari, and Mora [29], the more favorable the attitude and the perceived social pressure, the stronger the person's intention to perform that behavior should be. Based on this assumption, technologies such as social media should be helpful.

2.3. Social Media and Sustainability

Social media and Web 2.0 (e.g., Facebook pages, YouTube videos, Twitter accounts) are a low-cost internet marketing tools, highly accessible and scalable, and able to produce, distribute, and collect a broader quantity of knowledge without time and space limit. Social media facilitates the interaction between individuals and organizations, mostly made by small-to-medium companies [30]. In this way, users can contribute to enhance this knowledge, engage in dialogue with other people and influence their behavior [31].

Kanter and Fine [32] carried out one of the first studies focusing on the importance of using social media to increase interest in environmental measures with the final aim of better communicating sustainability issues. Even if not specifically directed towards the wine sector, their study shows how social networks can actively promote environmental awareness and a sustainable lifestyle. Also, the study of Ballew et al. [13] revealed that social media technologies might facilitate the communication of psychological and sociological or tangible factors (e.g., sustainability production program) to influence pro-environmental behavior.

Chen et al. [33] found that when information provided by blogs meet users' psychological needs, consumers are willing to engage in the so-called customer citizenship behavior, which refers to recommendation of the business to friends or family. Based on this assumption, the use of social media to convey messages about environmental sustainability, especially among the millennial generation, becomes also a proxy of word of mouth to increase visibility.

In fact, a recent research [34] showed that four Italian millennials out of 10 use social media such as Facebook and Twitter as a source for searching for information when buying products and they are attracted to the sustainability messages.

2.4. Hypothesis Development

To our knowledge, this study is one of the first ones which investigates the role of social media as a mediator between wine consumers' sustainability importance and wine buying behavior in millennial and non-millennial generations.

Our research hypotheses are based on the assumption that a positive environmental attitude is a personal factor which can influence a consumer's purchasing behavior of wine [9,35].

The conceptual model of the study (Figure 1) hypothesizes that:

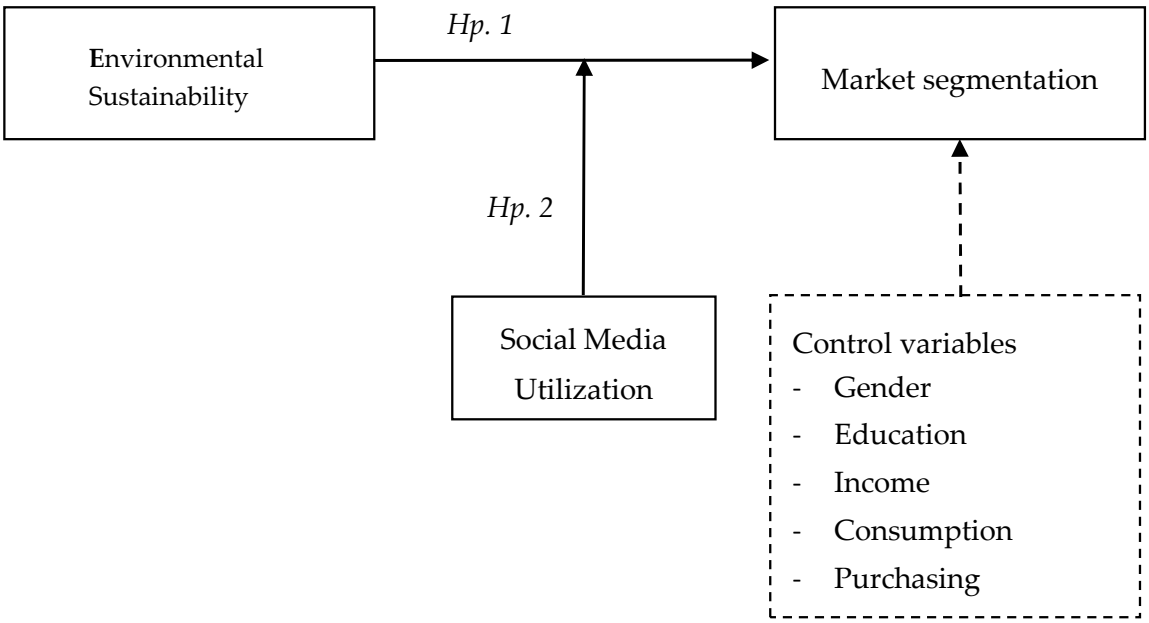

Figure 1. The conceptual model.

Hypothesis 1 (H1). *The importance of environmental sustainability to consumers is strongly related to wine purchasing market segmentation*.

Hypothesis 2 (H2). *The use of social media for searching for information about wine plays a crucial role in moderating the link between the importance of sustainability to consumers and price market segmentation*.

Significant differences between millennials and non-millennials are expected.

3. Methodology

3.1. Design of the Questionnaire

A total sample of 2597 wine consumers was used, of which 2202 responses were collected via an online survey and 395 responses off-line (administered in Italy between January and June 2016). A total of 1595 respondents were between 18 and 35 years old (millennial generation), and the rest between 36 and 88 years old (non-millennial generation). The sample size is consistent with other research conducted on these issues [5,10,36].

The use of the online questionnaire to collect data has some important limitations regarding the representativeness of the sample [37] and the risks of including multiple responses by the same subject [38], in addition to the introduction of bias due to the characteristics of those that use the internet [39]. However, the growth of internet use among many Italian citizens of different ages, regions and genders makes it possible to trust the online questionnaire tool and obtain a so-called convenience sample.

In order to test our hypotheses, a quantitative approach was used based on a questionnaire asking for consumers' purchase frequency, consumption frequency, average price for a bottle of wine, and whether they use social media to gather information on wine before buying the product. Moreover, participants were asked to provide the level of importance, when choosing a wine, of 15 attributes describing many aspects of environmental sustainability linked to the activities of wine producers. The questionnaire ended with four demographic variables about gender, age, income level, and level of education.

The dependent variable, market segmentation, refers to the price that consumers spend on average for a bottle of wine that they buy for themselves/their family, and it assumes five values: less than 5 €; between 5 and 10 €; between 10.01 and 25 €; between 25.01 and 100 €, and; more than 100 €. A segmentation approach generally recognized at the international level is one based on price/quality ratio [40]. In fact, price can be perceived as a sign of quality when choosing a product with intangible and credence qualities [41]. For this reason, the five values of the dependent variable reflect the five wine market segments, respectively: basic; popular premium; super-premium; ultra-premium, and; icon [42–44].

The independent variables of the study are represented by four multi-items constructs that group 15 attributes of environmental sustainability. The constructs were derived by a factorial analysis that shows high level of internal, discriminant, and convergent validity. The internal reliability has been examined by the Cronbach's α. All constructs have a Cronbach's α higher than 0.7, which is the threshold usually accepted by the literature [45]. The indicator highlights a high level of internal consistency for all the constructs. Items were factor-analyzed using maximum likelihood estimation and promax rotation. Standardized factor loadings vary between 0.63 and 0.93, all higher than the threshold of 0.5 suggested by literature [46]. Discriminant validity has been examined using two techniques: the square root of the average variance extracted (AVE) [47] and the cross-loadings. First, the values of the AVE square root for each construct are all higher than the correlation between the construct and each other [47]. Second, the factor loadings are higher than cross-loadings. These results indicate a satisfying discriminant validity. Finally, the convergent validity is assured by AVE values for each construct higher than 0.5 accepted in literature [47]. The evidence given by the validity and reliability measurements allows us to use the average score of the items in the following analysis.

3.2. Environmental Items Development

Even if environmental issues in the wine sector are complex and vary according to specific activities (e.g., the production method employed) and location, many authors indicate that environmental sustainability aspects should be mainly addressed to viticulture, winemaking, packaging, and distribution [26,48,49].

As remarked by [18], the analysis of environmental aspects is usually based on several stages: the production of the product from the farm to the winemaking process and all the other activities (packaging, distribution, etc.) which make the product available to consumers.

In our study, it is also assumed that when consumers buy wine, some aspects such as taste and traceability are associated with environmental concerns.

In a study about business model and sustainability, Pucci and Zanni [27] categorized the environmental value for Italian wineries in two categories: "energy and emissions" and "soil and ecosystem". Based on this assumption, in our study we decided to indicate one construct as "Energy types and their use" due to the essential role of this aspect when considering environmental sustainability, and another, "Soil/Landscape preservation", according to the crucial role of the geographic location for the activities of the winery.

Based on the extensive literature review examined by the authors, a list of 15 relevant measures (items) about environmental sustainability aspects (Table 1), important when consumers choose wine, have been identified. From this list, four main constructs have been extrapolated: (1) Product/Process, (2) Supply chain, (3) Energy types and their use, (4) Soil/Landscape preservation.

Table 1. Dimensions of sustainability: constructs description and properties.

Measures	Item Description	Rotated Factor Load
Environmental Sustainability (Product/Process) $\alpha = 0.935$ AVE = 0.786	Please rate from 1 (not important) to 5 (very important) the importance you attribute, when purchasing wine, to each of the following activities put in action by wine producers	
	x1: No use of additives in the winemaking process	0.904
	x2: Taste closely linked to the location and highly typical	0.933
	x3: Traceability and ease of ending the wines produced	0.919
	x4: Minimization of use of synthetic fertilizers, herbicides, fungicides and pesticides	0.627
Environmental Sustainability (Supply chain) $\alpha = 0.946$ AVE = 0.840	Please rate from 1 (not important) to 5 (very important) the importance you attribute, when purchasing wine, to each of the following activities put in action by wine producers	
	x5: Reduction of the environmental impact of commercialization	0.917
	x6: Possession of environmental certifications	0.907
	x7: Environmentally friendly packaging	0.882
Environmental Sustainability (Energy types and their use) $\alpha = 0.938$ AVE = 0.744	Please rate from 1 (not important) to 5 (very important) the importance you attribute, when purchasing wine, to each of the following activities put in action by wine producers	
	x8: Rationing water use and wastewater purification	0.754
	x9: Reduction of greenhouse gases (CO_2, etc.)	0.811
	x10: Reduction of energy costs (electricity, water, gas, etc.)	0.900
	x11: Use of renewable energy sources covering more than 70% of the firm's energy requirements	0.879
	x12: Reuse of industry production scraps (biomass)	0.819
Environmental Sustainability (Soil/Landscape preservation) strategy $\alpha = 0.961$ AVE = 0.890	Please rate from 1 (not important) to 5 (very important) the importance you attribute, when purchasing wine, to each of the following activities put in action by wine producers	
	x13: Monitoring the biodiversity of the land via indicators of flora and fauna richness	0.891
	x14: Respect and protection of biodiversity in the countryside (land and ecosystem)	0.884
	x15: Protection of the landscape	0.881

Note: xi: item number.

3.3. Four Environmental Constructs

The first construct identifies the environmental sustainability of the product/process. It considers that no additives have been used in the winemaking process and also the reduction of agrochemical use, pesticide and fertilizer, particularly nitrogenous fertilizers, in the vineyard [18,50,51]. Also, traceability among all the stages has to be assured, and good sensory expectations of the product need to be satisfied if the wine is to be perceived as sustainable [23,52]. In a study Forbes et al. [6] revealed that New Zealand consumers think that sustainable practices would improve the quality of the wine.

The second construct is based on the environmental sustainability of others stakeholders of the supply chain (besides farmers and wineries), which can strongly influence the overall sustainability of the final product. For instance, the packaging process, the commercialization by retailers, and the presence of a certification body which certified that the product, followed environmentally sustainable production standards.

For instance, the production of glass and the mode of transport are two crucial aspects. For this reason, eco-friendly packaging (i.e., lightweight glass bottles which reduce transportation costs) have become a very important attribute [18], especially for younger generations. In addition, considering the little knowledge and awareness of sustainable agricultural production practices [8,53] and the difficulty in communicating complicated farming practices to consumers [54], the relative certification system behind every program is often present [9,18]. This tool reduces the information

asymmetry between producers and consumers and help to make informed purchase decisions [3,14]. Moreover, Delmas and Grant [55] showed that consumers valued eco-certification and they are willing to pay a price premium. However, as remarked also by Bazoche, Issanchou, Brouard, Maratray, and Ginon [54], environmental certifications alone does not add value if the product quality is poor. Moreover, a certification system is considered a tool to avoid the risk of "greenwashing" [56].

The third construct identified is related to the energy types and their use. Several measures can be taken in consideration to address energy use problems, among which recycling procedure of solid waste (biomass) and reduction of solid inorganic waste [50,57]. Moreover, considering that a large amount of energy is consumed in winemaking, it becomes crucial the use of alternative energy sources [18,26]. In a study on Canadian wineries, Berghoef and Dodds [50] included among environmental concerns the reduction in water use and the appropriate treatment of waste water. Finally, greenhouse gas emissions (carbon footprint) generated across the wine supply chain are an important indicator used to evaluate the environmental impact, especially in the context of global climate change [18,26,58,59].

Finally, the fourth construct is about environmental sustainability of the soil/landscape preservation. Land use has a strong impact on the natural habitat. As remarked by Krätzig and Warren-Kretzschmar [15], one of the first steps of communicating sustainability is to draw attention to the changes that are occurring in the landscape as well as the need of preserve the flora and fauna richness. Pomarici et al. [48] identified soil management as one of the most critical activities for sustainability in the vineyard; while Forbes, Cullen, Cohen, Wratten, and Fountain [60] addressed the impact upon the environment with respect to loss of natural biodiversity.

3.4. The Moderating Variable: Social Media Utilization

The moderating variable, social media utilization, refers to the use of social media to gather on-line opinions and recommendations posted by other internet users (i.e., companies and consumers) before buying a bottle of wine. It is a dichotomous variable that assumes value "1" if the consumer uses the social media for these reasons and value "0" otherwise.

Wine is an information-sensitive product [12], and consumers are starting to look for information regarding its product quality, especially about its environmental sustainability [6]. Users in the wine industry use internet and, in particular, Web 2.0 technologies (social media) to communicate and share information [33,61].

As revealed by Thach [62], social networks have the influence to change the way consumers and wineries interact. In particular, in her study, the author highlighted the potential of using vlogs, which are online videos, to communicate and integrate the concept of Wine 2.0 into marketing strategies. Based on this assumption and the capacity of social media to directly influence social interest for even specific issues [32], wine vlogs can be useful to explain and show in a simple way what environmental practices have been adopted by the wineries. In their study, Wilson and Quinton [63] provide the first insight about the role of social media in the wine sector, specifically using Twitter to create value for wineries and retailers based on different target users. Higgins et al. [64], on the other hand, focused on the use of Facebook as a source of information on wine.

3.5. Control Variables

Demographic characteristics are used as control variables: the gender assumes value "1" if the respondent is male and "0" otherwise; the income is distinguished in three categories: if the respondent has an annual income less than 15,000 €; if the respondent has an annual income between 15,000 and 28,000 €, and; if the respondent has an annual income of more than 28,000 €. The education level is distinguished in three categories, namely, high school, university and other.

Although age is a control variable generally used in the consumer behavior studies [52,59], we decided not to include it because we are already analyzing two sub-samples characterized by different ages: millennials (18–35 years) and non-millennials (36–88 years).

Previous Italian studies suggest that the link between consumers' likelihood of caring for the environment and the purchasing behavior for wine (market segmentation) vary significantly according to socio-demographic characteristics [5,9,10]. Other studies suggested how the relationship between wine consumers and new technology is also strongly affected by socio-demographic characteristics [57]. For instance, Bruwer and Wood [12] indicated that well-educated and high-income males in the 35- to 44-year-old age group are more likely to be online buyers than other segments.

Two other control variables have been introduced: the purchase frequency and the frequency of consumption. They are represented by a five-mode scale: never; less than once a month; occasionally (three or four times a month); regularly (more than once a week, but not every day); every day [3,5,10].

4. Results

In Table 2 the correlations between of descriptive statistics and the variables are presented.

Table 2. Descriptive statistics and correlation.

No.	Variables	[1]	[2]	[3]	[4]	[5]	[6]			
[1]	Market segmentation	1.000								
[2]	Gender	0.094	1.000							
[3]	Income (<15,000 €)	−0.128	−0.179	1000						
[4]	Income (15,000 < x < 28,000 €)	0.035	0.115	−0.640	1000					
[5]	Income (>28,000 €)	0.122	0.101	−0.565	−0.273	1000				
[6]	Education (High School)	−0.016	0.083	0.037	0.031	−0.079	1000			
[7]	Education (University)	0.015	−0.092	−0.056	−0.026	0.097	−0.931			
[8]	Education (other)	0.003	0.021	0.050	−0.015	−0.048	−0.195			
[9]	Consumption (Freq.)	0.156	0.208	−0.136	−0.001	0.172	−0.038			
[10]	Purchasing (Freq.)	0.183	0.134	−0.127	0.018	0.139	−0.050			
[11]	Product/Process	0.345	−0.000	−0.087	0.022	0.086	−0.018			
[12]	Supply chain	0.175	−0.046	0.017	0.002	−0.024	−0.037			
[13]	Energy types and their use	0.176	−0.059	−0.011	0.024	−0.012	0.023			
[14]	Soil/Landscape preservation	0.199	0.003	−0.054	0.046	0.018	0.008			
[15]	Social Media Util.	0.216	0.036	−0.073	0.003	0.089	−0.050			
	Mean	2.425	0.592	0.569	0.236	0.194	0.506			
	Std. Dev.	0.909	0.492	0.495	0.425	0.396	0.500			
	Min	1	0	0	0	0	0			
	Max	5	1	1	1	1	1			
No.	**Variables**	**[7]**	**[8]**	**[9]**	**[10]**	**[11]**	**[12]**	**[13]**	**[14]**	**[15]**
[7]	Education (University)	1000								
[8]	Education (other)	−0.177	1000							
[9]	Consumption (Freq.)	0.032	0.015	1000						
[10]	Purchasing (Freq.)	0.063	−0.034	0.597	1000					
[11]	Product/Process	0.029	−0.030	0.189	0.152	1000				
[12]	Supply chain	0.045	−0.020	0.034	0.039	0.490	1000			
[13]	Energy types and their use	−0.025	0.004	0.004	0.046	0.416	0.482	1000		
[14]	Soil/Landscape preservation	−0.006	−0.005	0.085	0.087	0.426	0.416	0.653	1000	
[15]	Social Media Util.	0.033	0.045	0.171	0.217	0.046	−0.008	0.004	0.049	1000
	Mean	0.458	0.036	3.330	2.656	3.411	3.064	2.857	2.990	0.496
	Std. Dev.	0.498	0.186	1.017	0.916	1.083	1.121	1.119	1.208	0.500
	Min	0	0	1	1	1	1	1	1	0
	Max	1	1	5	5	5	5	5	5	1

N = 2597. Correlation coefficients greater than 0.039 in absolute value are statistically significant at 95%.

The variance inflation factor (VIF) was run to test for multicollinearity among the variables. The mean VIF equal to 1.58 is acceptable and well below the cut-off value of 10.0 recommended by the literature [65].

Table 3 presents the results of the ordered logistic regression distinguishing the two consumer samples: millennials and non-millennials. In the first model (Model A), the control variables and main effects were entered. In models B, C, D, and E interactions were entered.

Table 3. Results of ordered logistic regression.

Variables	Model A		Model B	
	Non-Millennials	**Millennials**	**Non-Millennials**	**Millennials**
Gender	0.673 ***	0.014	0.682 ***	0.007
Income (15,000 < x < 28,000 €)	−0.031	0.342 ***	−0.033	0.332 ***
Income (>28,000 €)	0.051	0.525 ***	0.057	0.521 ***
Education (High School)	−0.369	0.005	−0.380	0.050
Education (University)	−0.159	−0.139	−0.167	−0.099
Consumption (Freq.)				
[2]	1.581 ***	1.133 ***	1.583 ***	1.110 ***
[3]	1.006 **	0.852 ***	0.995 **	0.842 ***
[4]	1.121 **	1.041 ***	1.114 **	1.020 **
[5]	0.485	0.671 *	0.476	0.626 *
Purchasing (Freq.)				
[2]	0.011	0.095	0.043	0.093
[3]	0.451	0.196	0.488	0.199
[4]	0.440	0.398 *	0.467	0.411 *
[5]	0.886 *	1.231 *	0.920 *	1.203 *
Product/Process	0.448 ***	0.559 ***	0.362 ***	0.457 ***
Supply chain	0.688 ***	−0.556 ***	0.683 ***	−0.554 ***
Energy types and their use	−0.398 ***	0.536 ***	−0.393 ***	0.538 ***
Soil/Landscape preservation	−0.115	0.339 ***	−0.115	0.322 ***
Social Media Util.	0.577 ***	0.640 ***	−0.036	−0.166
Social Media X Product/Process			0.172	0.239 ***
Social Media X Supply chain				
Social Media X Energy type				
Social Media X Soil/Landscape				
Cut 1	1.413 ***	1.923 ***	1.127 **	1.573 ***
Cut 2	4.076 ***	4.561 ***	3.784 ***	4.205 ***
Cut 3	5.983 ***	6.683 ***	5.700 ***	6.342 ***
Cut 4	8.425 ***	9.512 ***	8.154 ***	9.194 ***
Pseudo R^2	0.121	0.134	0.122	0.136

Table 3. *Cont.*

Variables	Model C		Model D		Model E	
	Non-Millennials	**Millennials**	**Non-Millennials**	**Millennials**	**Non-Millennials**	**Millennials**
Gender	0.713 ***	0.009	0.664 ***	0.012	0.670 ***	0.001
Income (15,000 < x < 28,000 €)	−0.020	0.342 ***	−0.030	0.325 ***	−0.031	0.327 ***
Income (>28,000 €)	0.047	0.535 ***	0.049	0.508 ***	0.050	0.526 ***
Education (High School)	−0.368	0.032	−0.370	0.078	−0.358	0.017
Education (University)	−0.164	−0.124	−0.156	−0.083	−0.143	−0.149
Consumption (Freq.)						
[2]	1.563 ***	1.098 ***	1.580 ***	1.073 ***	1.574 ***	1.124 ***
[3]	0.996 **	0.812 ***	1.002 **	0.818 ***	1.004 **	0.859 ***
[4]	1.145 ***	1.001 ***	1.105 **	1.013 ***	1.103 **	1.050 ***
[5]	0.518	0.632 *	0.464	0.610 *	0.460	0.674 *
Purchasing (Freq.)						
[2]	0.053	0.120	0.007	0.111	−0.005	0.089
[3]	0.500	0.226	0.441	0.209	0.429	0.180
[4]	0.438	0.433 *	0.447	0.424 *	0.439	0.371
[5]	0.904 *	1.267 *	0.902 *	1.162	0.886 *	1.229 *
Product/Process	0.433 ***	0.554 ***	0.448 ***	0.549 ***	0.449 ***	0.537 ***
Supply chain	0.380 ***	−0.679 ***	0.682 ***	−0.542 ***	0.678 ***	−0.545 ***
Energy types and their use	−0.390 ***	0.546 ***	−0.345 ***	0.328 ***	−0.391 ***	0.529 ***
Soil/Landscape preservation	−0.091	0.334 ***	−0.111	0.314 ***	−0.054	0.181 ***
Social Media Util.	−1.213 ***	−0.237	0.868 **	−0.832 ***	0.956 ***	−0.385
Social Media X Product/Process						
Social Media X Supply chain	0.598 ***	0.281 ***				
Social Media X Energy type			−0.098	0.518 ***		
Social Media X Soil/Landscape					−0.115	0.355 ***
Cut 1	0.593	1.539 ***	1.545 ***	1.313 ***	1.594 ***	1.411 ***
Cut 2	3.269 ***	4.187 ***	4.207 ***	3.952 ***	4.256 ***	4.046 ***
Cut 3	5.212 ***	6.319 ***	6.117 ***	6.123 ***	6.166 ***	6.199 ***
Cut 4	7.733 ***	9.144 ***	8.564 ***	9.027 ***	8.618 ***	9.072 ***
Pseudo R^2	0.131	0.137	0.121	0.142	0.121	0.139

Note: * $p < 0.1$ ** $p < 0.05$, *** $p < 0.01$.

Regarding the main effects which significantly influence wine purchasing behavior, results show that the increase of the consumers' importance attribute to the "Product/Process" dimension of environmental sustainability increases the self-selection likelihood in market segments with higher positioning in both generations. This can be easily explained by the great importance given to the overall quality of the final product when choosing a wine (taste, safety, etc.).

By contrast, the "Supply chain" construct has a positive effect on non-millennials and a negative one for millennials. Conversely, the dimension "Energy types and their use" positively affects for younger consumers, but negative for older ones. Finally, the dimension "Soil/Landscape preservation" has significant and positive effect only for the millennial generation.

Differences among these three environmental sustainability constructs can be explained by the different meaning given by consumers. For instance, younger people, who have grown up in a period in which the topic of limited natural resources is highly debated by the media, give more value in energy issues and biodiversity preservation. Moreover, older consumers are less familiar with the issues of water consumption, the concept of water footprint and other indicators which are fairly recent terms [7] and can create confusion. In particular, the different effect of the "Supply Chain" construct could be explained by the different consumer behavior of Italian millennials who often drink wine with company (at home with friends, or during events and tastings at local or wine bars); for young Italians wine is more than a consumer product, it becomes an experience associated with lifestyle and relaxation [66]. In some cases, they are not the shopper, so at the beginning they could be less influenced by some variables that are important in the store connected with the supply chain (friendly packaging, certification, reduction of the environmental impact of commercialization).

The use of social media in both groups inspires consumers to choose higher price ranges (Model A). In particular pertaining to millennials, the use of social media to search for information and opinions about wine has an amplifying effect. Findings show that the greater the importance to the dimensions "Product/Process", "Energy types and their use" and "Soil/Landscape preservation", the higher the average price spent for the product (Models B, D and E).

This conclusion corroborates previous scholars' findings [10,53], which show how additional information from green wineries increase the consumer's sensitiveness and involvement to environmental issues, which likely facilitate the purchase and the willingness to pay for sustainable products, especially for the younger generation.

On the other hand, social media acts as a real moderator in the case of the dimension "Supply chain" (Model C). In this case, social media positively moderate the negative tendency linked to the dimension "Supply chain" and market segmentation for millennial consumers, while merely amplify this relationship in non-millennials. This might be explained by the fact that compared to non-millennials who rely more on subjective knowledge and experience when buying a wine [66], the young generation trust more in social media, especially when receiving messages on certification label and eco-friendly packaging.

Considering that millennials' preferences for wine are strongly influenced by marketing added-value campaigns [67], communication about environmental activities using social media has a greater impact than for the older cohort. This might be explained by the fact that the young generation is more curious and has grown up in a period where new wine aspects such as environmental sustainability issues have gained great importance when choosing a product [10].

In fact, as shown by Von Borgstede and Andersson [57] in their study on individual differences in relation to information behavior, the greater personal norms favoring recycling are, the more prone the consumers will be to searching for environmental information. This assumption may be easily generalized to other environmental problems (e.g., water reduction or GHG emissions) which help to enhance the attention on sustainability issues and the willingness to search for more information by consumers. In this case, the role of social media is crucial to help users obtain more information quickly and easily.

Table 4 shows the summary of the signs for the significant variables and interactions.

Table 4. Summary of the signs for the significant variables and interactions.

Variables	Non-Millennials	Millennials
Main effects		
Product/Process	+	+
Supply chain	+	−
Energy types and their use	−	+
Soil/Landscape preservation		+
Moderations		
Social Media X Product/Process		+
Social Media X Supply chain	+	+
Social Media X Energy types and their use		+
Social Media X Soil/Landscape preservation		+

When analyzing control variables, our findings revealed that gender is significant and positive only in the category of non-millennials, while the income level is significant and positive for millennials. In particular, the effect significantly increases when we move from one category (income between 15,000 and 28,000 €) to the higher one (annual income of more than 28,000 €). Regarding the purchasing effect, respondents who buy wine every day (category 5) are few (n = 33), which makes this effect irrelevant.

The frequency of consumption is significant for both categories (millennials and non-millennials). Moreover, for both categories, the effect on the dependent variable decreases as the frequency of consumption increases. This change is probably due to a specific target of consumers. For instance, drinkers who consume expensive wines are aficionados, professionals or consume wine in special occasions (e.g., birthday, party, etc.). On the other hand, consumers that consume more frequently tend to buy wines with lower prices.

It is reasonable to think that older wine drinkers have a greater budget to spend on wine than young people under 35 years of age and, therefore, the income variable is affecting this latter group more. With regard to the gender effect, if in the past wine was seen as mainly a male beverage, in recent years more and more females are becoming wine aficionados.

In contrast with other studies [5,10], control variables such as education and purchasing frequency have no statistically significant effects.

5. Conclusions, Implications and Limitations

5.1. Conclusions

This study advances existing research of the influence of environmental sustainability on the wine buying behavior by distinguishing between millennials and non-millennial generations. In particular, it extends previous studies in analyzing the moderating role of social media use.

The results show the power of social media to increase sustainability awareness of the wine industry and, consecutively, its influence on the consumer' buying behavior with regard to wine (higher price segment). Technology—social media utilization, in this case—plays a role for all consumers perhaps because since previous studies new technologies have had an adequate amount of time to be adopted by wine consumers of any age.

In particular, even if some studies [68,69] indicate no difference for environmental involvement between millennials and non-millennials, our results showed that when focusing on specific issues of environmental sustainability, significant differences exist. In particular, the young generation is more sensitive to energy issues (e.g., use of renewable energy) and less to the possession of environmental certification by the winery.

As remarked also by Pomarici et al. [7], our results confirm that environmental involvement by consumers could be increased through the provision of information about the environmental commitment of the winery.

Even if the aim of this study was not to investigate the willingness to pay for green wine, many studies [5,20,70] confirmed that considering environmental issues when choosing a wine is a strong predictor of consumers' intention to pay a premium price. Moreover, based on the results of Sogari et al. [5], which show how the willingness to pay for sustainable wine is strongly influenced by the price range paid on average for wine, our findings suggest that consumers in the segment of high price and who pay attention to environmental issues might also be more likely to pay a higher premium price for green wine.

5.2. Implications and Limitations

From a marketing perspective, our study has several implications for wineries. First, wineries should strongly consider the use of social media to communicate and share positive environmental sustainable practices in order to increase their visibility and image and build the brand towards potential customers.

Second, the implementation and, consecutively, the promotion of sustainable wine programs through social media, should be encouraged, especially the development of tailor-made strategies to reach out to different target consumers groups (e.g., the segment of the young consumers, which is recently of great interest among wine producers) [1]. This will also facilitate the positive change in consumer behavior of paying more for wine and being more aware of environmentally sustainable practices. However, as a first step, wineries should start giving consumers the ability to buy the wine online on their websites while consumers are searching for information about sustainable practices.

Today, most of the tools used to communicate the sustainable practices in the Italian wine market are through the use of a certification logo covering environmental, social, and economic aspects of vineyards and wineries. However, this strategy should be also supported by posting eco-friendly messages on social media as a reminder to potential consumers.

Although this study offers a useful insight into the role of social media in moderating wine consumers towards environmental issues, there are some limitations to be considered and addressed in future research. First, this study does not investigate whether consumers will be willing to trade the quality of a wine against environmental attribute. Second, future research should try to investigate whether and how the willingness to pay for sustainable certified wine is actually influenced by the role of social media and environmental knowledge.

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