

Parga-Dans, Eva; Vecchio, Riccardo; Annunziata, Azzurra; Alonso González, Pablo; Otero Enríquez, Raimundo

Article

A certification for natural wine? Comparative analysis of consumer drivers in Italy and Spain

Wine Economics and Policy

Provided in Cooperation with:

UniCeSV - Centro Universitario di Ricerca per lo Sviluppo Competitivo del Settore Vitivinicolo, University of Florence

Suggested Citation: Parga-Dans, Eva; Vecchio, Riccardo; Annunziata, Azzurra; Alonso González, Pablo; Otero Enríquez, Raimundo (2023) : A certification for natural wine? Comparative analysis of consumer drivers in Italy and Spain, Wine Economics and Policy, ISSN 2212-9774, Firenze University Press, Florence, Vol. 12, Iss. 1, pp. 23-35, <https://doi.org/10.36253/wep-12890>

This Version is available at:

<https://hdl.handle.net/10419/284539>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



<https://creativecommons.org/licenses/by/4.0/>



Citation: Eva Parga Dans, Riccardo Vecchio, Azzurra Annunziata, Pablo Alonso González, Raimundo Otero Enríquez (2023). A certification for natural wine? A comparative analysis of consumer drivers in Italy and Spain. *Wine Economics and Policy* 12(1): 23-35. doi: 10.36253/wep-12890

Copyright: © 2023 Eva Parga Dans, Riccardo Vecchio, Azzurra Annunziata, Pablo Alonso González, Raimundo Otero Enríquez. This is an open access, peer-reviewed article published by Firenze University Press (<http://www.fupress.com/wep>) and distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Data Availability Statement: All relevant data are within the paper and its Supporting Information files.

Competing Interests: The Author(s) declare(s) no conflict of interest.

A certification for natural wine? A comparative analysis of consumer drivers in Italy and Spain

EVA PARGA DANS^{1,*}, RICCARDO VECCHIO², AZZURRA ANNUNZIATA³, PABLO ALONSO GONZÁLEZ⁴, RAIMUNDO OTERO ENRÍQUEZ⁵

¹ Instituto de Productos Naturales y Agrobiología (IPNA-CSIC), Avda. Astrofísico Francisco Sánchez, 3, 38206, La Laguna, Santa Cruz de Tenerife, Spain

² Department of Agricultural Sciences, University of Naples Federico II (Italy), Via Università, 100, 80055 Portici – Naples, Italy

³ Department of Economic and Legal Studies, University of Naples “Parthenope”, Via Parisi, 13, 80133 Naples, Italy

⁴ Instituto de Productos Naturales y Agrobiología (IPNA-CSIC), Avda. Astrofísico Francisco Sánchez, 3, 38206, La Laguna, Santa Cruz de Tenerife, Spain

⁵ Department of Sociology and Communication, University of A Coruña, Rúa da Maestranza 9, 15001 A Coruña, Spain

E-mail: eva.parga.dans@ipna.csic.es; riccardo.vecchio@unina.it; azzurra.annunziata@uniparthenope.it; pablo.alonso.gonzalez@ipna.csic.es; raimundo.otero@udc.es

*Corresponding author.

Abstract. The 2020 certification of natural wine (NW) in France has unleashed a heated debate in Europe. However, knowledge about NW consumer profiles and preferences in a comparative perspective remains scarce in the academic literature. This study aims to define the perceptions, preferences and profiles of wine consumers who support a NW label. For this purpose, we employed analysis of variance, aprioristic factor analysis and multiple regression analysis to examine data from a direct survey performed in Italy and Spain in 2020. Findings reveal that NW consumers in both countries deem it necessary to establish a certification for NW. However, we found significant differences regarding consumers' profiles, as well as purchasing preferences. In Spain, demand for NW certification is linked to eco-healthy and proximity-craft attributes of wine, and is considered more important by non-professional consumers and those with lower educational level. In Italy, information on the label and the purchase experience are the most important factors to aid in recognizing NW, while women show a significant interest in the NW certification. These findings may help policy-makers to establish homogeneous parameters to differentiate and certify NW.

Keywords: natural wine, food labeling, consumer preferences, food certification, eco-labels.

1. INTRODUCTION

1.1 Research context

On March 25, 2020, natural wine (NW) obtained legal recognition for the first time in France under the designation *Vin Méthode Nature*, opening the way for similar initiatives worldwide. This recognition results from a long struggle led by the *Syndicat de Défense des Vins Naturels* before the French Government. The European Commission (EC) decided not to allow the use of the term NW because there is no definition of the term “natural” in the EU regulations associated with wine. Therefore, the combination of the two words can be misleading for the consumer, and damaging to the image of other wines [1]. Debate on the approval of the certification *Vin Méthode Nature* is ongoing at the European level. Disagreements emerge among EU states about the possibility of allowing it at their national level. The French authorities thus decided to create a new appellation associated with the method of production of these wines, based on fulfilling a series of requirements that include certification of organic viticulture, use of indigenous yeasts, prohibition of stabilization or filtration, and absence of any additives except low sulfite doses (up to 30 mg/liter). This opens up both a new horizon for a whole sector that can now certify wine with the recently approved French label and a legislative path for other countries to follow suit.

Until now, NW was considered a social movement involving consumers, producers and other actors in the wine value chain, who advocated naturalness and minimal intervention in wine rather than a regulated or defined form of winemaking [2, 3]. This movement spread throughout the 20th century from France to the whole of Europe as a reaction to modern viticulture and enological techniques. This includes intervention in the vineyard with synthetic chemicals and in the cellar with the more than 50 additives and processing aids that can be added to wine without a labeling requirement [4]. Several associations have emerged in Europe in defense of NW, such as *L'Association des Vins Naturels* or *Sans Aucun Intransit ni Sulfite* in France, *Triple AAA*, *Viniveri*, *Vinnatur* or *VAN* in Italy, and the *Asociación de Productores de Vino Natural* in Spain. This has added to the proliferation of different national standards [5, 6]. Although there is no agreed definition for NW, these associations advocate a winemaking process under parameters of minimum intervention and the greatest respect for nature.

Wine is a canonical example of credence and experience goods because its quality is difficult to assess from its labeling [7]. Unlike any other food product,

wine carries no information about its nutritional values, ingredients or expiration date, despite the fact that it can contain dozens of additives, generating confusion for consumers [8]. The European Commission intends to address this issue and revise the labeling requirements of alcoholic drinks. It has even published a roadmap to update the regulation on the provision of food information to consumers (EU 1169/2011 FIC). Since 2017, the EC has launched a series of reports and forced the wine industry to present a self-regulatory proposal in 2018. Specifically, the proposal of the *Comité Européen des Entreprises Vins* (CEEV), as the representative institution of wine industries in Europe, is to offer some nutritional and ingredient information through a *quick response* (QR) code but not labeling the information on the bottle. However, through its Beating Cancer plan, the EC proposes a mandatory nutritional declaration and list of ingredients in alcohol labeling and is currently preparing an impact assessment that will culminate in a legislative proposal in 2022 [9]. Controversy between countries is also on the rise, given the emergence of new alcohol regulations such as the Irish Public Health Act from 2018, requiring alcoholic beverages to provide health warning claims on their labels similar to the ones displayed on tobacco [10].

These initiatives can be interpreted as a reaction to the current situation of the wine sector. In the light of this debate, this manuscript sets out to answer two key research questions. First, is there a specific consumer profile that demands the differentiation of NW in the market? Second, what are the preferences and perceptions of wine consumers who consider a certification to identify NW important? Answering these questions is a prerequisite for the development of a EU-wide certification and to better address both producers and consumers' needs and expectations, thus helping NW producers to create new marketing communication strategies or adapt their existing ones to new and emerging market niches.

1.2 Information asymmetries in the wine market

Wine constitutes a seminal example of information asymmetries in the market [11]. In this context, producers know about the elaboration process whereas consumers cannot, or it is difficult and time-consuming for them to obtain such information. These asymmetries make wine a complex product, about which specific knowledge is needed to make rational purchasing choices [12]. Consumers lack incentives to optimize their purchasing decisions and producers lack mechanisms to differentiate themselves in the market. This creates a poten-

tial adverse selection problem. Since it is not possible to differentiate the quality of the product, there are no incentives to compete and produce above average quality, eventually threatening its survival in the market [13].

In the case of NW, consumers still do not have a clear notion of what it is, how it differs from other wines, and where to buy it [6, 14]. In fact, the lack of NW certifications and the uncertainty associated with its attributes have generated a very unstable market for this product in traditionally wine-producing countries such as Spain, where consumer research about NW is scarce [15, 16]. Recent research has shown growing consumer interest in products with environmental attributes, such as organic, healthy, sustainable, responsible and “proximity” wines [17, 18]. It is accompanied by a surge in new certifications that aim to convey trust and inform about wine’s intrinsic and extrinsic qualities [19]. Previous research has shown that consumers are willing to pay a premium for organic wines in the belief that they are healthier, tastier, and of higher quality [3, 20]. However, the differences between organic, biodynamic, or sulfite-free wines remain confusing for many in the face of the proliferation of information associated with the naturalness of these wines [21–24]. Fewer studies have been conducted about NW specifically, although the literature on the topic is rapidly growing. Such coverage focuses on the different productive models in the natural wine field [15, 25, 26] and on the policy controversies arising from the recent French certification of natural wine “*vin méthode nature*” [27]. Studies focusing on consumer interest in NW show that a predisposition to pay more for NW by Italian consumers was associated with drinking frequency and occasion, organic production, sulphite content, income, and attitudes towards healthy eating and the environment [28, 29]. Other studies have explored consumer perception of NW in the Italian wine industry [14], the construction of taste in the NW market [30], and marketing strategies in the NW sector [2, 25]. There is a research gap regarding comparative studies between countries, in that we must better understand consumer behavior and specific socio-economic profiles, given the current dominant focus on Italy in the literature. This study therefore enriches the growing literature on sustainable food consumption attitudes. A further research gap lies in the lack of studies on consumer interest in NW certification, a timely issue with normative implications because the certification developed by the French government has changed the field of play. Owing to these present academic gaps in knowledge, this manuscript sets out to answer two key research questions. First, is there a specific consumer profile that demands the differentiation of NW in the

market? Second, what are the preferences and perceptions of wine consumers who deem a certification to identify NW important? Answering these questions is a prerequisite for the development of a EU-wide certification and to better address both producers and consumers’ needs and expectations, and help NW producers to create new marketing communication strategies. Owing to the present academic gap in knowledge to date, this paper deals with consumer profiles in relation to NW label interest and their preferences regarding a NW certification. For this purpose, data were collected through a direct survey delivered in Italy and Spain. Both are traditional producing and consuming wine countries leading in terms of vineyard surface area, production volume and export value rankings worldwide, only after France [31]. Ultimately, the paper offers an original contribution to a rather unexplored but emerging topic.

2. MATERIALS AND METHODS

2.1 Data collection

Data were collected using a questionnaire survey aimed at a convenience sample of Spanish and Italian wine consumers aged between 18 and 70. The questionnaire was administered by online survey management software, with a filling time of approximately 11 minutes. The survey consisted of a total of 30 questions structured from multiple-choice answer possibilities based on previous research into NW consumption [5, 6, 14], divided into four interrelated sections: (1) wine consumption habits and occasions; (2) wine labeling information and eco-label perceptions; (3) NW consumption habits, perceptions and occasions; (4) socio-demographic factors. Before beginning the survey, all participants provided informed consent. This included the purpose of the research, the voluntary nature of participation, number of questions, approximate response time, and the possibility of leaving the survey at any time. Both survey procedure and questionnaire were favorably evaluated by the Ethics Committee of the Spanish National Research Council (CSIC, approval number 136/2020).

As mentioned, a convenience sampling procedure was applied in the absence of a regular wine consumer population census. Eligibility was based on the definition of regular wine drinkers by Wine Intelligence [32], i.e., individuals consuming wine at least once a month. This description has been previously used in similar wine consumer studies [33–35]. The questionnaire was launched through specialized sector agents in both Spain and Italy. Producers’ associations, distributors, wine critics, sommeliers, wine observatories, etc., publi-

cized the initiative through their websites. They requested the participation of their users, clients and followers, to improve the response rate among wine consumers in both countries. Through this system, a total of 527 fully completed surveys by wine consumers were collected in Spain and 501 in Italy during the two months from mid-September to mid-November 2020.

2.2. Data analysis

Data analysis consisted of two phases in order to understand the drivers influencing demand for NW labeling. Consumer demand for a NW label was our dependent variable and was assessed by asking “*To what extent do you consider labeling important to identify NW?*”. Respondents answered this question using a five-point scale (from 1 “not at all” to 5 “a lot”). The first phase of the analysis responds to our research question regarding profiles of consumers that expressed a need for NW certification. It consisted of a sample description and an analysis of variance (ANOVA) aimed at distinguishing which socio-demographic and consumer profiles most accurately describe wine drinkers likely to support certification of NW in the two countries. Based on the F value and the associated significance level ($p < 0.01$), a relationship of statistical dependence or independence was established between the factors and the DV, in line with recent research related to NW consumer preferences [5, 36].

The assumption of normality is used especially when any of the factor categories has less than 50 cases. It was tested through Kolmogorov-Smirnov or Shapiro-Wilk statistics and was not fulfilled in several ANOVAs. Therefore, rejection of the hypothesis of equality of means was replicated by default through a Kruskal-Wallis test. For the case of the independent dichotomous variables (gender and NW consumption), means were compared by evaluating the level of significance associated with the F value [37].

The purpose of the second phase was to answer our second research question, about the preferences and perceptions of wine consumers who consider labels important as a means to identify NW. First, it included r Pearson correlations ($p < 0.01$), in order to discriminate between independent and quantitative variables (IV) in wine labeling information, and on purchasing occasions that best correlated with the DV for each country [38]. It also established a ranking order and a comparison between the two. All the 85 IV in the questionnaire were used to prepare this ranking. The aim of this bivariate exploratory statistical analysis is to identify the best IVs that explain the DV in Spain and Italy. This also sheds light on the differences between the two countries. The exploratory bivariate analysis was followed by an apri-

oristic factor analysis to group the best IVs from each country under common latent dimensions. This strategy permits such exploratory factor analysis and makes it more efficient, thanks to avoiding the *rubbish in, rubbish out* phenomenon described by [38], which can result from factoring in an indiscriminate number of variables.

The factor extraction method is based on principal component analysis using a Varimax rotation. In all cases, Bartlett’s test of sphericity rejected the null hypothesis that the observed correlation matrix is an identity matrix ($p < 0.01$), which legitimizes aprioristic factorizations [38]. The eigenvalues obtained for each of the factors created are always greater than the unit. The scores obtained in differential format for each factor are calculated using the regression estimation method. Finally, the factors are used as IVs in a multiple regression model aimed at explaining the largest percentage of variance in the DV and establishing an explanatory or predictive model for each context. Use of the factors in the explanatory model was supported by a corresponding significant F value ($p < 0.01$) [39]. In the multiple regression models, we checked the assumptions of normality and homoscedasticity of the residuals, as well as the linearity of the IVs with respect to the DV. It was also verified that the Durbin-Watson statistic was between 1.5 and 2.5 in the models, so the residuals were mutually independent.

3. RESULTS

3.1 Socio-demographic profiles & NW certification

This section responds to our question about whether there is a specific consumer profile correlated with demand for the differentiation of NW in the market. Table 1 shows the sample description from both countries. The Spanish sample was composed of 527 wine consumers, 69% men and 31% women, with a mean age of 45 years. More than 50% of the Spanish respondents had a net monthly income of between 1,001 and 2,000 € and university or master studies (79.4%). In addition, 36.2% of the population surveyed considered themselves to be wine professionals. Regarding wine consumption habits, 44.2% of respondents drank wine several times a week, 78.0% consumed NW (33.3% at least once a month), and considered that a certification for NW is necessary (3.95 out of 5).

The Italian sample was made up of 501 wine consumers, 55% of whom were men and 45% women, with an average age of 38. Almost 50% of the Italian respondents had a net monthly income between 1,001 and 2,000 € and university or master studies (55.5%). Finally, 19.6%

Table 1. Socio-demographics and wine habits of the surveyed population.

		Spain (n=527)	Italy (n=501)
Gender (%)	Female	30.9	45.3
	Male	69.1	54.6
Age	Mean (S.D.)	44.90 (10.27)	37.50 (14.49)
Income (%)	Less than €1,000	9.1	25.4
	€1,001 – €2,000	50.6	48.7
	€2,001 – €3,000	25.8	15.4
	More than €3,000	14.9	10.5
Level of education (%)	No studies	0.6	0.0
	Secondary	2.5	5.5
	Vocational training	17.6	38.9
	University/master	79.4	55.5
NW consumption (%)	Yes	78.0	68.7
	No	22.0	31.3
Wine consumption frequency (%)	At least once a month	6.1	15.2
	Several times a month	9.3	13.6
	Once a week	17.5	21.8
	Several times a week	44.2	36.7
	Everyday	23.0	12.8
NW consumption frequency (%)	At least once a year	35.2	21.5
	At least once a month	33.3	32.3
	At least once a week	14.8	22.7
	2-3 times a week	11.2	15.7
	Daily	5.6	7.8
I am a... (%)	Wine professional	36.2	19.6
	Wine consumer	63.8	80.4
NW label importance	Mean (S.D.) in a scale from 1 to 5	3.95 (1.33)	3.90 (1.10)

of respondents defined themselves as wine professionals. Regarding wine consumption habits, 36.7% drank wine several times a week, 68.7% consumed natural wine (32.3% at least once a month) and considered a NW certification necessary (3.90 on average out of 5).

The significant sociodemographic profiles or IV associated with the desire for a NW label in each country are detailed in Table 2. Results show that in both countries NW consumers are more likely to ask for a certification, to be able to identify it in the market. However, ANOVA shows significant differences between consumer profiles from Spain and Italy.

In Spain it was the non-professional consumers and those without university or higher education who most expressed a need for NW certification. In Italy, on the other hand, (female) gender was the variable that discriminated the importance of such certification. All these variables showed significant differences (Sig. $F < 0.05$), but there were also descriptive differences to consider in both samples. For example, Spanish consumers with lower purchasing power most valued the need

to certify NW. This difference in means would be significant by the F test, not by KW. In Italy, younger consumers thought it more important to certify NW, whereas in Spain the over-50s showed the greatest interest in this, although not with statistical significance.

3.2 Wine purchasing preferences, perceptions & NW certification

This section responds to our question about the preferences and perceptions of wine consumers who deem a NW certification desirable. In order to understand the underlying data structure, Table 3 shows the r Pearson correlations ($p < 0.01$) that best explain the DV for the cases of Spain and Italy, establishing a comparative ranking between them.

In the Spanish case, ranking results show that considering NW healthier than other wines was the main motivation for its consumption among those who would prefer it had a certification. Secondly, the fact that NW wines are organic and sustainable is the next motivation

Table 2. ANOVA – Kruskal-Wallis test / DV (“Do you consider labeling important to identify NW?”) * IV.

IV- NW consumption (VI)		No	Yes	F	Sig.			
SPAIN	n	116	412	8.144	.004			
	Mean	3.65	4.04					
ITALY	n	157	344	8.272	.004			
	Mean	3.69	4.00					
IV- I am a...		Wine Professional	Wine Consumer	F	Sig.			
SPAIN	n	191	337	5.884	.016			
	Mean	3.77	4.06					
ITALY	n	98	403	.122	.727			
	Mean	3.87	3.91					
IV- Wine consumption frequency		At least once a month	Several times a month	Once a week	Several times a week	Every day	F	Sig.
SPAIN	n	32	50	92	233	121	.528	.715
	Mean	4.16	4.12	3.99	3.90	3.92		
ITALY	n	76	68	109	184	64	1.581	.178
	Mean	3.93	4.13	3.72	3.88	3.98		
IV- NW consumption frequency		At least once a year	At least once a month	At least once a week	2-3 times a week	Daily	F	Sig.
SPAIN	n	145	137	61	46	23	1.020	.397
	Mean	4.01	4.08	4.23	3.76	4.04		
ITALY	n	74	111	78	54	27	.471	.757
	Mean	3.96	4.02	3.91	4.15	3.96		
IV- Income		Less than €1000	€1001-2000	€2001-3000	More than €3000	F	Sig.	
SPAIN	n	48	267	136	77	2.782	.040(**)	
	Mean	4.02	4.06	3.94	3.57			
ITALY	n	94	180	57	39	.525	.666	
	Mean	3.98	3.83	3.77	3.92			
IV- Education Level		Primary School	Secondary School	University or Master	F	Sig.		
SPAIN	n	13	93	419	7.672	.000		
	Mean	4.54	4.38	3.84				
ITALY	n	27	191	272	2.237	.108		
	Mean	3.48	3.91	3.95				
IV- Age in large groups		18-34	35-49	+50	F	Sig.		
SPAIN	n	78	280	169	.444	.642		
	Mean	3.97	3.90	4.02				
ITALY	n	270	108	122	2.516	.082		
	Mean	4.00	3.79	3.78				
IV- Gender		Woman	Man	F	Sig.			
SPAIN	n	162	362	.947	.331			
	Mean	4.03	3.91					
ITALY	n	227	274	6.971	.009			
	Mean	4.04	3.78					

** Kruskal-Wallis test (Sig.>.05).

Table 3. Comparison of Pearson correlations (r) / DV ("To what extent do you consider labeling important to identify NW?") * IV.

Highest r for Spain	SPAIN		Highest r for Italy	ITALY	
	Ranking	r		Ranking	r
Healthy (Motivation NW consumption)	1	.377**	Tasting (NW identification)	1	.344**
Sustainable and organic (Motivation NW consumption)	2	.357**	Wine shop (Place NW purchase)	2	.311**
Winery (Place NW purchase)	3	.323**	Books, guides and/or specialized magazines (NW identification)	3	.297**
Brand (Importance label information)	4	.318**	Biodynamic certification (Importance label information)	4	.288**
Artisanal (Motivation NW consumption)	5	.309**	Internet and/or social networks (NW identification)	5	.277**
Region and/or country (Importance label information)	6	.290**	Brand (Importance label information)	6	.274**
Wine shop (Place NW purchase)	7	.289**	Organic certification (Importance label information)	7	.270**

** Sig.<.01.

for their consumption. Third, wineries are the preferred place for NW purchase. Subsequently, the winery name or brand when choosing a bottle of wine appears fourth in the ranking. Following this in fifth place, the fact that NW is handmade is a motivation for its consumption and demand for certification. Finally, the region and country of origin is in sixth position, while wine shops as the preferred place of NW purchase follow this as seventh. This means that for Spaniards who consider a NW certification necessary, it is important to characterize attributes such as healthy, sustainable, ecological and artisanal, which are the main motivations for its consumption. In comparison, these attributes rank 20th, 13th and 30th in Italy).

In the Italian case, those wishing for a NW certification prioritize the place of purchase over the specific attributes of NW. In other words, in first place they prefer to go to tastings to identify and buy it. In second place, Italians prefer to go to wine shops (seventh in Spain) and, in third place, they rely on books, guides or specialized magazines to identify NW. Biodynamic certification (e.g., Demeter) is important for Italians, appearing fourth in the ranking. It is noteworthy that for Italians who would prefer NW certification, the internet and social networks are important spaces for identifying NW, with fifth position in the ranking. The information present on the label and the organic certification occupy positions number six and seven, respectively. Thus, in addition to purchase (tastings, wine shops, book or guides), aspects related to labeling (biodynamic and organic certifications or brand) are also

relevant factors among those requesting NW certification. These results are in stark contrast with the Spanish case, where purchase places occupy the 43rd, 7th and 19th positions in ranking and labeling considerations appear in 46th, 17th and 9th positions.

These variables were subsequently organized through an aprioristic factor analysis to identify clusters of explanatory variables of the DV. These factors have a higher Pearson's r than the IV variables that comprise them (see Table 4), so their predictive capacity will be greater for the DV.

In the Spanish case, the first explanatory factor associated with demand for a NW certificate clusters the variables expressing NW attributes that characterize it as healthier, more sustainable and ecological than other wines. This factor was defined as *eco-healthy* (F1). A second explanatory factor emerges for the Spanish context that combines the perception of NW as artisanal and the preference to buy directly from the winery. We named this factor *proximity-craft* (F2). A third factor combines the importance of the brand or product name with the region and country of origin when a person supporting NW certification chooses a wine. We called this factor *origin-brand* (F3). In the Italian case, a factor identified as *wine experience* (F4) groups together tasting and wine shops as means to identify and buy NW. Another factor defined as *on-label-info* (F5) groups the importance of organic and biodynamic certifications with brand information, in order to recognize NW. Finally, we defined a sixth factor *extra-label-info* (F6) as the importance of information widely retrieved in the media to recognize

Several studies have noted the relationship of the symbolic prestige of wine consumption with the purchasing power and high education levels of certain social classes [41], even suggesting that wine is a food that establishes hierarchies [42]. Already Bourdieu's studies [43] analyzed the taste for wine as an element of bourgeois social distinction, which allows classifying the social and educational origin of the individual. However, our results show that in Spain the need felt to certify NW is associated with wine consumption among social strata with lower purchasing power and educational qualifications. These results are in line with other research showing that the lower classes can challenge the *bourgeoisie* regarding food and wine enjoyment, making a statement of sociability and generosity that contrasts with the formality and rigidity of the middle and upper classes [44].

Traditionally, in many mostly southern parts of Europe, wine was an everyday food staple [45]. However, with the globalization of wine and the proliferation of brands and quality labels, the choice to purchase wine has made the debate about which consumers choose which wine more complex. Thus, our results for the Italian sample differ profoundly from the Spanish context, where women and young people are more likely to be interested in a NW label. In short, the socio-demographic characterization of wine consumers remains a complex scientific debate and therefore deserves special attention, especially in relation to emerging consumer trends such as NW. In fact, it remains unclear why certain sociodemographic factors are associated with greater interest in NW as a function of each specific society or culture.

The factors resulting from this study are in line with recent research on NW. Concerning the eco-healthy factor or F1, previous studies have shown that the perception of a wine's naturalness through labeling information associated with health consciousness, sustainability and ecological winemaking are becoming determinant drivers of purchasing choices [22, 46]. They are positively associated with a higher willingness to pay [47]. Moreover, these studies show that not only the perception but also the labeling of these attributes has become important, in line with F5, the on-label-info factor, for the Italian consumer sample. For both the Spanish and Italian samples eco-healthy (F1) attributes are important. However, Italian consumers prefer to obtain this information on-label (F5), through organic and biodynamic certifications. This shows the complexity of the current wine certification system, the multiple associated seals and the confusion it entails for the consumer, which ultimately emphasizes the absence of ingredient

labeling of this product. In fact, organic certification has undergone a significant market breakthrough and has managed to build trust among consumers [48]. Current confusion about the differences between organic, biodynamic and NW for consumers, who tend to think that they are all similar, has contributed to this loss of confidence in labels [3, 20, 21]. Certainly, organic, biodynamic and NW are all based on organic agriculture, but they have different ways of working in the vineyard and winery [6]. Seufert et al. [49] show that the perception of organic agriculture as chemical-free is the result of a limited and partial approach to organic certifications, engendering a huge confusion between environmental, sustainable or health-related principles. This would explain why in the Italian sample the need to certify NW is associated with the importance of seeking extra-label information (F6) to identify it. Thus, our results suggest that in the absence of more information, a certification system combining eco-healthy (F1) and on-label-info (F5) could satisfy different NW consumer profiles in various countries.

What these results ultimately show is that the quality conventions associated with origin, brand or reputation of wine have changed radically, in turn transforming traditional systems of marketing and labeling [50]. Our results regarding F3, the origin-brand factor, indeed suggest this, since its attributes are important for those desiring NW certification in Spain, whereas in Italy it is also relevant but in combination with organic and biodynamic certification (F5 on-label-info). It would appear that the certification based on protected designations of origin (PDO) played a very important role during the 1990s, when the globalized wine market developed [51]. In this scenario, traditional producer or Old World countries competed with New World countries by relying on a system based on PDO, brand names and prizes from international competitions that generated positive attitudes among consumers [30, 52]. However, in the contemporary globalized market, varied certifications associated with eco-friendly, sustainable or health characteristics have emerged, generating alternatives to conventional wines [53, 54]. Our results suggest that traditional aspects of the wine quality certification system are still important when certifying NW. Therefore, a certification system for NW should respect traditional quality conventions in the wine labeling system and combine it with other emerging aspects valued by the contemporary consumer such as F1 (eco-healthy), F2 (proximity craft) or F5 (on-label-info).

Furthermore, aspects related to proximity-craft (F2) are important for Spaniards supporting a NW certificate. Previous research highlights the association con-

sumers make between the perception of craft, traditional, small-scale or proximity winemaking with sustainable, organic and natural winemaking [5, 55, 56]; in other words, wines that deviate from standard and industrial production methods [57]. Not surprisingly, the French certification body *Vin Méthode Nature* is currently debating whether to charge wine companies producing over 25,000 bottles per year more, to prevent appropriation of the label by industry. Therefore, aspects related to proximity-craft should also be taken into account when certifying NW.

Finally, there is the experiential factor (F4) among those wanting a NW certification in Italy. In general terms, wine has been considered as a unique product and different from any other food whose singularity makes it an experiential product [58]. Wine is ceasing to be a traditional food in rural societies and is becoming more and more a product associated with hedonic or luxury consumption, especially in non-wine producing regions [36]. The recent review on consumer behavior by Deroover et al. [59] highlights that wine is perceived as an expression of traditions and culture. These attributes have greater influence on purchasing and consumption choices than for any other food or beverage [60]. Our results show that the lived-experience of identifying and buying a NW in specialized wine shops and wine tastings is also part of this consumption pattern. Therefore, a NW certificate should incorporate aspects that differentiate these wines with regard to the unique experience that can take place through NW consumption.

5. CONCLUSION

This study has furthered demographic and socio-cultural knowledge of the consumer profiles and drivers of demand for a NW certification, distinguishing as an example between Spanish and Italian wine drinkers. To answer the initial research question as to whether there is a specific consumer profile that considers a NW label necessary, results show that those who already consume NW are the most likely to demand a certificate to differentiate NW in the market, both in Italy and Spain. However, there are significant differences between these profiles. In Spain, non-professional consumers and those with lower educational levels support a NW certificate to a greater extent, while in Italy it is women who show a greater interest.

Concerning our second research question about the preferences and perceptions of wine consumers who consider NW certification important, results show four main explanatory factors in the final multiple regres-

sion models, two for each country. The eco-healthy and proximity-craft factors explain the demand for a NW certificate in Spain to a greater extent, while in Italy it is the on-label-info and experiential factors. Both samples converge in showing a predisposition among those who consume NW to prefer a distinctive label and that the explanatory factors for such a certificate are not mutually exclusive. Therefore, these results suggest that the stakeholders could indeed set homogeneous standards to reduce uncertainty and information asymmetries concerning NW. This constitutes an important contribution to the debate on the need to establish a common regulatory framework leading to a consensual EU-wide creation of a distinctive NW label. This would help assuage the polemics among countries, as reflected in complaints by several Members of the European Parliament against the French certification initiative *Vin Méthode Nature*. It could also satisfy NW producers who demand some sort of differentiation in the wine market given the lack of ingredient labeling in wine. In parallel, it could also respond to consumer interests in more transparent and sustainable food products, given that the new regulations for labeling alcoholic beverages are still being debated, with no clear outcome [9]. Certainly, a rise in the minimum standard requirements for ingredient labeling in the wine sector would make NW producers less interested in having their own certification [61], but this scenario is still unclear. Given that the promotion and growth of NW would be positive in terms of environmental sustainability and a cleaner food chain in Europe and beyond, a NW certification is in line with new EU-wide strategies such as *From Farm to Fork* and the *European Green Deal*. A pro-labeling policy for NW would be therefore fundamental to reconcile sustainability aims with consumer and producer interests alike, thus reducing the currently prevailing information asymmetry in the wine market.

We are aware that the lack of a probabilistic sample is a core shortcoming of this study, which limits the potential to extrapolate the results to the whole wine consumer population in Spain and Italy at large. Furthermore, the explained variance in the regression models is low, which implies that there may be more drivers influencing demand for a NW certificate. Future research should explore the perspectives of other actors in the wine sector on NW labeling, such as winemakers or traders, to further optimize NW communication and marketing. Similarly, more cross-national and comparative studies are needed to better delve into the profile of the NW consumers and the perceptions associated with them, in order to more effectively deliver a Europe-wide certification.

ACKNOWLEDGEMENTS

This study was supported by the Spanish Innovation, Technical and Scientific Research Plan 2017–2020 – Ramón & Cajal Ref. RYC2018-024025-I and PID2021-126272OA-I00. The text was edited by Guido Jones, funded by the Cabildo de Tenerife, under the TFinnova Programme supported by MEDI and FDCAN funds. Dissemination of the survey in Spain was provided by the Observatorio Español del Mercado del Vino (OEMV), Viti vin, Spanish Wine Lover, Gourmet Hunters, Bodegas.bio, Indie Spanish Wines, Vinos Utópicos, Junguitu ¿hablamos de vino?, El Sumiller and Vinófilos.

REFERENCES

- [1] European Commission, DG Agri. 7.10.20, response letter to a CEEV, document AGRI.DDG3.G.2/EM/RR. 2020, Brussels.
- [2] Maykish, A., R. Rex, and A.K. Sikalidis, *Organic Winemaking and Its Subsets; Biodynamic, Natural, and Clean Wine in California*. Foods, 2021. **10**(1): p. 127.
- [3] Urdapilleta, I., S. Demarchi, and W.V. Parr, *Influence of Culture on Social Representation of Wines produced by Various Methods: Natural, Organic and Conventional*. Food Quality and Preference, 2021. **87**: p. 104034.
- [4] Dandrieux, M.V., *L'auto-confession de la terre*. Im@go. A Journal of the Social Imaginary, 2020. **9**(15): p. 206-219.
- [5] Vecchio, R., et al., *Why consumers drink natural wine? Consumer perception and information about natural wine*. Agricultural and Food Economics, 2021.
- [6] Alonso González, P. and E. Parga-Dans, *Natural wine: do consumers know what it is, and how natural it really is?* Journal of Cleaner Production, 2020. **251**: p. 119635.
- [7] Ashton, P. and H. Kean, *People and their pasts: public history today*. 2014, London: Palgrave Macmillan.
- [8] Pabst, E., G. Szolnoki, and S. Mueller Loose, *The effects of mandatory ingredient and nutrition labelling for wine consumers – A qualitative study*. Wine Economics and Policy, 2019. **8**(1): p. 5-15.
- [9] Laaninen, T., *Alcohol labelling*. 2021, Brussels: European Parliament Research Service.
- [10] Critchlow, N., C. Moodie, and D. Jones, *Health information and warnings on alcohol packaging in Ireland: it is time to progress the Public Health (Alcohol) Act 2018*. Irish Journal of Medical Science (1971-), 2022. **191**(3): p. 1461-1463.
- [11] Akerlof, G.A., *The market for "lemons": Quality uncertainty and the market mechanism*. The Quarterly Journal of Economics, 1970. **84**(3): p. 488-500.
- [12] Sáenz-Navajas, M.-P., et al., *Wine quality perception: A sensory point of view*, in *Wine Safety, Consumer Preference, and Human Health*. 2016, Springer: Cham. p. 119-138.
- [13] Lofgren, K.G., T. Persson, and J.W. Weibull, *Markets with asymmetric information: the contributions of George Akerlof, Michael Spence and Joseph Stiglitz*. The Scandinavian Journal of Economics, 2002. **104**(2): p. 195-211.
- [14] Fabbriizzi, S., et al., *Sustainability and Natural Wines: An Exploratory Analysis on Consumers*. Sustainability, 2021. **13**(14): p. 7645.
- [15] Fuentes Fernández, R., *Finding Common Ground: The Need for Cooperation and Collaboration in the Spanish Natural Wine Industry*. Wine Business Case Research Journal, 2019. **3**(1): p. 65-93.
- [16] Fuentes-Fernández, R. and A. Gilinsky Jr, *Coopetition as improvisation: an exploratory comparative case study investigation into Spain's natural wine industry*. International Journal of Wine Business Research, 2021.
- [17] Caracciolo, F., et al., *Variety seeking behavior in the wine domain: A consumers segmentation using big data*. Food Quality and Preference, 2022. **97**: p. 104481.
- [18] González, P.A. and E. Parga-Dans, *Organic labeling controversies: a means to an end within global value chains*. Renewable agriculture and food systems, 2020. **35**(2): p. 109-114.
- [19] Pomarici, E. and R. Vecchio, *Millennial generation attitudes to sustainable wine: An exploratory study on Italian consumers*. Journal of Cleaner Production, 2014. **66**: p. 537-545.
- [20] Delmas, M.A. and N. Lessem, *Eco-Premium or Eco-Penalty? Eco-labels and quality in the organic wine market*. Business & Society, 2017. **56**(2): p. 318-356.
- [21] Sogari, G., C. Mora, and D. Menozzi, *Factors driving sustainable choice: the case of wine*. British Food Journal, 2016. **118**(3): p. 632-646.
- [22] D'Amico, M., G. Di Vita, and L. Monaco, *Exploring environmental consciousness and consumer preferences for organic wines without sulfites*. Journal of Cleaner Production, 2016. **120**: p. 64-71.
- [23] Amato, M., et al., *Exploring consumers' perception and willingness to pay for "Non-Added Sulphite" wines through experimental auctions: a case study in*

- Italy and Spain*. Wine Economics and Policy, 2017. **6**(2): p. 146-154.
- [24] Teissedre, P.-L., S. Catarino, and P. Comuzzo, *Wine quality production and sustainability*, in *Improving Sustainable Viticulture and Winemaking Practices*, J.M. Costa, et al., Editors. 2022, Elsevier. p. 187-199.
- [25] Fuentes Fernández, R. and A. Gilinsky Jr, *Competition as improvisation: an exploratory comparative case study investigation into Spain's natural wine industry*. International Journal of Wine Business Research, 2021. (ahead-of-print).
- [26] Wei, R., et al., *Natural and sustainable wine: a review*. Critical Reviews in Food Science and Nutrition, 2022: p. 1-12.
- [27] González, P.A., E.P. Dans, and R.F. Fernández, *Certification of Natural Wine: Policy Controversies and Future Prospects*. Frontiers in Sustainable Food Systems, 2022. **6**.
- [28] Galati, A., et al., "Natural wine" consumers and interest in label information: An analysis of willingness to pay in a new Italian wine market segment. Journal of Cleaner Production, 2019. **227**: p. 405-413.
- [29] Migliore, G., et al., *Factors affecting consumer preferences for "natural wine"*. British Food Journal, 2020. **122**(8): p. 2463-2479.
- [30] Maguire, J.S., *Taste as Market Practice: The Example of "Natural" Wine*. Consumer Culture Theory, 2018. **19**: p. 71-92.
- [31] OIV. *State of the Vitivinicultural sector in 2019*. 2020; Available from: <https://www.oiv.int/js/lib/pdfs/web/viewer.html?file=/public/medias/7284/presentation-oiv-press-conference-april-2020.pdf>.
- [32] Wine Intelligence, *Global trends in wine 2020*. 2020, London: Wine Intelligence.
- [33] Bazzani, C., et al., *Nutritional knowledge and health consciousness: do they affect consumer wine choices? Evidence from a survey in Italy*. Nutrients, 2019. **12**(1): p. 84.
- [34] Pabst, E., et al., *Consumers' reactions to nutrition and ingredient labelling for wine—A cross-country discrete choice experiment*. Appetite, 2021. **156**: p. 104843.
- [35] Staub, C., et al., *How do you perceive this wine? Comparing naturalness perceptions of Swiss and Australian consumers*. Food Quality and Preference, 2020. **79**: p. 103752.
- [36] Parga-Dans, E., P.A. González, and R. Otero-Enríquez, *The role of expert judgments in wine quality assessment: the mismatch between chemical, sensorial and extrinsic cues*. British Food Journal, 2022.
- [37] Hecke, T.V., *Power study of anova versus Kruskal-Wallis test*. Journal of Statistics and Management Systems, 2012. **15**(2-3): p. 241-247.
- [38] Carifio, J., and R.J. Perla, *Ten common misunderstandings, misconceptions, persistent myths and urban legends about Likert scales and Likert response formats and their antidotes*. Journal of social sciences, 3 106-116
- [39] Schäufele, I., D. Pashkova, and U. Hamm, *Which consumers opt for organic wine and why? An analysis of the attitude-behaviour link*. British Food Journal, 2018.
- [40] Migliore, G., et al., *Factors affecting consumer preferences for "natural wine": An exploratory study in the Italian market*. British Food Journal, 2020.
- [41] Overton, J. and W.E. Murray, *Class in a glass: capital, neoliberalism and social space in the global wine industry*. Antipode, 2013. **45**(3): p. 702-718.
- [42] Demossier, M., *Contemporary lifestyles: the case of wine*, in *Culinary Taste*. 2012, Routledge. p. 108-122.
- [43] Bourdieu, P., *Distinction: A social critique of the judgement of taste*. 1987: Harvard university press.
- [44] Charters, S. and S. Pettigrew, *Why do people drink wine? A consumer-focused exploration*. Journal of Food Products Marketing, 2008. **14**(3): p. 13-32.
- [45] Demossier, M., *Consuming wine in France: the 'wandering' drinker and the vin-anomie*, in *Drinking cultures: sites and practices in the production and expression of identity*, T. Wilson, Editor. 2005, Berg: Oxford. p. 129-154.
- [46] Bazzani, C., et al., *Nutritional knowledge and health consciousness: do they affect consumer wine choices? Evidence from a survey in Italy*. Nutrients, 2020. **12**(1): p. 84.
- [47] Macht, J., et al., *Insights into the organic labelling effect: the special case of wine*. British Food Journal, 2021. (ahead-of-print).
- [48] Fanasch, P. and B. Frick, *The value of signals: Do self-declaration and certification generate price premiums for organic and biodynamic wines?* Journal of Cleaner Production, 2020. **249**: p. 119415.
- [49] Seufert, V., N. Ramankutty, and T. Mayerhofer, *What is this thing called organic?—How organic farming is codified in regulations*. Food Policy, 2017. **68**: p. 10-20.
- [50] Parga-Dans, E. and P. Alonso González, *'Marketing quality' in the food sector: Towards a critical engagement with the 'quality turn' in wine*. Geoforum, 2017. **85**: p. 5-8.
- [51] Agostino, M. and F. Trivieri, *Geographical indication and wine exports. An empirical investigation*

- considering the major European producers. *Food Policy*, 2014. **46**: p. 22-36.
- [52] Defrancesco, E., J.E. Orrego, and A. Gennari, *Would 'New World' wines benefit from protected geographical indications in international markets? The case of Argentinean Malbec*. *Wine Economics and Policy*, 2012. **1**(1): p. 63-72.
- [53] Bonn, M.A., J.J. Cronin Jr, and M. Cho, *Do environmental sustainable practices of organic wine suppliers affect consumers' behavioral intentions? The moderating role of trust*. *Cornell Hospitality Quarterly*, 2016. **57**(1): p. 21-37.
- [54] Schäufele, I. and U. Hamm, *Consumers perceptions, preferences and willingness-to-pay for wine with sustainability characteristics: A review*. *Journal of Cleaner Production*, 2017. **147**: p. 379-394.
- [55] Prudham, S. and K.I. MacDonald, *Qualifying tradition: Instituted practices in the making of the organic wine market in Languedoc-Roussillon, France*. *Journal of Agrarian Change*, 2020. **20**(4): p. 659-681.
- [56] Hågård Brown, M., *Values of quality in 'natural' wine production*. 2021.
- [57] Alonso González, P. and E. Parga Dans, *The 'terroirist' social movement: The reawakening of wine culture in Spain*. *Journal of Rural Studies*, 2018. **61**: p. 184-196.
- [58] Hu, S., *Natural Wine: the Conundrum*. 2020.
- [59] Deroover, K., et al., *A scoping review on consumer behaviour related to wine and health*. *Trends in Food Science & Technology*, 2021(112): p. 559-580.
- [60] Platania, M., S. Platania, and G. Santisi, *Entertainment marketing, experiential consumption and consumer behavior: the determinant of choice of wine in the store*. *Wine Economics and Policy*, 2016. **5**(2): p. 87-95.
- [61] Streletskaia, N.A., J. Liaukonyte, and H.M. Kaiser, *Absence labels: How does information about production practices impact consumer demand?* *PloS one*, 2019. **14**(6): p. e0217934.

APPENDIX

Table A1. Coefficients.

Model ^a	Unstandardized coefficients		Standardized coefficients	t	Sig.
	B	Std. error	Beta		
SPAIN					
Constant	3.955	.052	—	75.719	.000
F1_ECO-HEALTHY	.372	.067	.283	5.581	.000
F2_PROXIMITY CRAFT	.266	.067	.201	3.973	.000
ITALY					
Constant	3.974	.047	—	84.256	.000
F4_WINE EXPERIENCE	.322	.052	.319	6.150	.000
F5_ ON-LABEL-INFO	.196	.053	.194	3.730	.000

a. DV- "Do you consider labeling important to identify NW?"