

# WHAT INFLUENCES CROATIAN CONSUMERS' WINE CHOICE?

## ŠTO UTJEČE NA HRVATSKE POTROŠAČE U IZBORU VINA?

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### Abstract

**Purpose** – This research explores the habits of Croatian wine consumers and the importance of selected wine choice attributes, including price, Country of Origin (COO), grape variety, sugar content, color, brand, Protected Designation of Origin (PDO), traditional terms of kvalitetno vino KZP and vrhunsko vino KZP (TT), vintage, and bottle/label design, with respect to age, gender, and subjective knowledge.

**Methodology** – The study is based on 428 questionnaires collected in a survey conducted among consumers during the winter/spring of 2019. The results were analyzed using descriptive statistics and quantitative methods (Friedmann ANOVA, Mann-Whitney's U-test, and Kruskal-Wallis test).

**Findings and Implications** – Most respondents perceive wine as a pleasure. However, consumers with more subjective knowledge predominantly experience wine as a product with potential health benefits. The frequency of consumption generally increases with age. In general, grape variety and TT are the most important attributes in wine choice, TT being the most important attribute among women and consumers with more subjective knowledge. The importance of COO, grape variety, and vintage attributes increases with the age,

### Sažetak

**Svrha** – Istraživanjem se proučavaju navike hrvatskih potrošača i važnost atributa u izboru vina (cijena, zemlja podrijetla, sorta vinove loze, sadržaj šećera, boja, marka, zaštićena oznaka izvornosti, tradicionalni izrazi „kvalitetno“ i „vrhunsko“, berba, iskustvo i dizajn boce) s obzirom na dob, spol i subjektivno znanje.

**Metodološki pristup** – Istraživanje se temelji na podacima iz upitnika od 428 potrošača, prikupljenih tijekom zime i proljeća 2019. godine, analiziranih pomoću deskriptivnih i kvantitativnih statističkih metoda (Friedmann ANOVA, Mann-Whitneyev U-test i Kruskal-Wallisov test).

**Rezultati i implikacije** – Većina ispitanika vino doživljava kao užitak. Međutim, potrošači s više subjektivnog znanja vino doživljavaju prije svega kao proizvod s potencijalnom zdravstvenom dobrobiti. Učestalost konzumiranja općenito raste s godinama. Deklarirana sorta vinove loze i tradicionalni izrazi najvažniji su atributi u izboru vina. Ženama i potrošačima s više subjektivnog znanja tradicionalni izrazi su važniji od ostalih čimbenika. Važnost zemlje podrijetla, sorte vinove loze i berbe raste sa životnom dobi, dok se važnost cijene i dizajna boce/etikete smanjuje. Potrošači su još uvijek zbunjeni EU oznakom zaštićene oznake izvornosti (ZOI), iako se

while the importance of price and bottle/label design decreases. Consumers are confused by the common European PDO label although it does not differ from the national system of Geographical indications that preceded it. The results can be useful in creating targeted marketing strategies to improve competitiveness of the wine industry, as well as to indicate the need for educating individual consumers and prospective consumer groups about PDO and potential benefits of moderate wine consumption.

**Limitations** – The data sample represents consumers from Croatia. However, most of them come from Zagreb, which may limit the result relevance given the socio-economic differences between the capital and other regions.

**Originality** – This is the first research to explore the attributes of wine important to Croatian consumers and link these with age, gender, and subjective knowledge since Croatia joined the EU and adopted the new wine labeling rules.

**Keywords** – wine consumer behavior, choice attributes, segmentation, Croatia, EU

ona ne razlikuje od nacionalne oznake kontroliranog zemljopisnog podrijetla koja joj je prethodila. Rezultati ovoga istraživanja mogu biti primjenjivi u kreiranju ciljanih marketinških strategija i jačanju konkurentnosti vinske industrije. Oni upućuju na potrebu intenzivnijeg informiranja potrošača i potencijalnih potrošačkih grupa o oznaci ZOI i potencijalnim dobrobitima umjerene konzumacije vina.

**Ograničenja** – Iako su zastupljeni potrošači iz cijele države, većina je iz Zagreba, što može ograničiti relevantnost s obzirom na socio-ekonomske razlike između glavnog grada i drugih područja.

**Doprinos** – Nakon ulaska Hrvatske u EU i usvajanja novih pravila označavanja ovo je prvi rad o važnosti atributa u izboru vina hrvatskih potrošača općenito, te s obzirom na dob, spol i subjektivno znanje.

**Glavne riječi** – ponašanje potrošača vina, atributi izbora, segmentacija, Hrvatska, EU

## 1. INTRODUCTION

Wine is an extremely complex product with a large number of factors influencing its quality. Likewise, there is a number of attributes affecting the perception of quality among consumers and their choice. Therefore, it is not surprising that wine is a product with pronounced differences in price (Caracciolo, Cembalo & Pomarici, 2013).

When faced with a choice of wine and without being given the possibility to taste it or obtain information about the grape variety, vintage, and technology (intrinsic cues), a consumer will probably resort to evaluating the wine and its perceived quality based on extrinsic cues, such as price, country and region of origin, brand, and bottle/label design (Horowitz & Lockshin, 2002; Thomas & Pickering, 2003). Intrinsic attributes are the properties that have dominant neuromarketing strength because of their influence on consumers' future purchase decisions. Consumers' ability to connect extrinsic attributes with intrinsic ones can be defined by a measure of knowledge, where it is necessary to distinguish real (objective) knowledge from subjective or self-assessed knowledge, referring to what individuals perceive that they know (Flynn & Goldsmith, 1999). Unfortunately, very often real knowledge is possessed exclusively by a minority. Consumers are generally overconfident and overestimate what they actually know (Alba & Hutchinson, 2000). Forbes (2012) concluded that consumers evaluate two to three wine attributes when choosing wine and, given that the choice of important attributes change over time, it is necessary to identify them and bring them into focus of marketing communication. According to Vigar-Ellis, Pitt and Berthon (2015), consumers with more objective wine knowledge are more likely to participate in exploratory wine purchasing while consumer novices try to make a quick choice considering only a few wine attributes. Wine consumption trends are undergoing significant changes (Castellini & Samoggia, 2018) in the light of consumers' new choice criteria

or expectations that are more focused on different social aspects and health-oriented issues. As outlined by Mascarello, Pinto, Parise, Crovato and Ravarotto (2015), consumers consider all parameters at their disposal to reduce their uncertainty and risk related to a product.

EU countries have a common wine labeling system, with a solid reputation based on Geographic Indications (GIs). This system presents objective attributes that are transparent and kept under official control so it is reliable and understandable to consumers. The attributes of GIs, Protected Designation of Origin (PDO), Traditional Terms (TT), and the grape variety play a dominant role in the wine choice of Italian and Spanish consumers (Hertzberg & Malorgio, 2008; Pomarici, Corsi, Mazzarino & Sardone, 2021). French consumers prefer wine with traditional labels (Viot, 2012), so the perception of appellation (AOC-PDO) prevails in the French market (Ugaglia, Cardebat & Jiao, 2019).

As previously explained, understanding consumer behavior is the key to creating methods and tools for the purpose of effective product-customer communication. The more detailed the analysis of consumers, the greater the potential of using the information obtained. Some authors demonstrated the role of gender as relevant to analyzing the influence of labeled attributes on the choice of wine. They agree that gender should be a wine market segmentation factor (Charters et al., 2011; Sutanopai-boon & Atkin, 2012; Miguel, Capliure, Perez & Bigne, 2017). Another factor of market segmentation which has been studied continuously and recognized as relevant is the age. In general, young people possess considerable market potential because they are at an age when they learn and create attitudes and habits with regard to a particular product (Thach & Olsen, 2006; Wiedmann, Behrens, Klarmann & Hennigs, 2014). Wolf, Wolf, and Lecat (2022) showed that splitting consumers into subgroups by age is an effective method of accurately targeting wine consumers with customized products. Marketing may be the solution to attracting younger

wine consumers, with the Millennials (aged 25-39) and Generation Z (aged 18-24) as the most challenging age groups. Market analysis shows a certain stagnation of interest in wine; consumers younger than 40 have different values, they are more health-conscious, have lower discretionary income and wealth, and are more ethnically diverse than previous generations (McMillan, 2022). A deeper understanding of wine consumers subjective knowledge (what consumers think they know about wine), as well as their objective knowledge (how much consumers objectively know about wine), may help to create effective marketing strategies. It has been found that the level of knowledge about wine can have a significant impact on wine choice (Vigar-Ellis et al., 2015; Hall, 2016; Ferreira, Lourenço-Gomes & Pinto, 2022).

The wine market in Croatia has changed in the last decade. The labeling rules changed in 2013, when Croatia became a Member State of the European Union and adopted the common GIs system of PDO. According to Čačić, Tratnik, Gajdoš Kljusurić, Čačić, and Kovačević (2011), geographical origin and labels indicating quality used to be crucial in the purchase of wine. This can be explained by the long tradition of a labeling system that included the variety name and a mandatory quality category of *kvalitetno* or *vrhunsko*, as the two main label attributes of the GIs system. These quality categories are a signal of objective quality due to a certification process that preceded their use. These categories are a significant link to some other attributes, for example, the price, so the *vrhunsko* category achieves premium prices compared to the *kvalitetno* category. However, the labeling rules have changed since Croatia's 2013 accession to the EU: quality categories became "traditional terms", while declaring the *kvalitetno vino KZP* and *vrhunsko vino KZP* labels is an option. Grape variety, vintage, and sugar content have also become optional attributes in the wine labeling since the country joined the EU. These attributes convey important information to the Croatian market; most wines are monovarietal

and the knowledge of wine can be measured by the knowledge of varieties and vintages. The new circumstances have paved the way for unequal labeling, potential unfair market game, and consumer unsafety.

The contribution of this paper is twofold. Firstly, it analyzes the impact of the new labeling rules on consumers: how they purchase wine and whether their perception of the importance of attributes has changed under the new rules. Secondly, the present study aims to determine whether gender, age, and level of subjective knowledge influence the relationship between labeled attribute and its possible role in wine purchase intention. The success of marketing adjustment to changes and new circumstances depends on the understanding of changes that surround this specific product and how it is perceived by consumers. Hence, this study therefore contributes to a better understanding of Croatian consumers' behavior and their responses to labeled attributes.

In the current literature, there are very few studies in this field, namely those examining wine with geographical indications and the awareness of them among Croatian consumers (Čačić et al., 2011), wine market segmentation in a part of Croatia (Kalazić, Šimić & Horvat, 2010), or consumers' response to different attributes of sparkling wines (Cerjak, Tomić Maksan, Fočić & Brkić, 2016). However, to the best of the authors' knowledge, this is the first comprehensive study exploring wine and purchase attributes since Croatia joined the EU.

## 2. RESEARCH METHODOLOGYS

### 2.1. Questionnaire

The present research was conducted among consumers using a questionnaire in a supermarket and online during the winter/spring season of 2019. All participants were wine consumers older than 18. The questionnaire was distributed by regular e-mail to wine producers too. It con-

sisted of three parts, two of which are presented in this paper. The first group of questions was linked to wine behavior, consumption motivations, and importance of wine choice attributes: grape variety, traditional terms of *kvalitetno vino KZP* and *vrhunsko vino KZP*, country of origin, price, PDO, color, sugar content, brand, vintage, and bottle/label design. Their importance was measured using a 5-point Likert scale, with the value of 1 indicating unimportance and 5 meaning 'very important'. The socio-demographic information, including the age, gender, education and income level of the respondents formed the second group of questions in the questionnaire.

Questionnaires with incomplete answers were removed from the total sample (465). Thus, the representative sample for statistical analysis comprised 92% of total responses.

## 2.2. Statistical Analysis

Statistical analysis was performed using the Statistica version 12.0 statistical software package (TIBCO/StatSoft, Tulsa, OK, U.S.).

Socio-demographic data and consumer behavior were analyzed by means of descriptive statistics. The choice of statistical methods was preceded by Kolmogorov-Smirnov and Lilliefors tests to check the compliance of the answers and data of the Likert-scale under a normal distribution. The data is not distributed normally, which was expected considering the ordinal Likert scale. Therefore, non-parametric tests were applied in further analysis. The Friedmann ANOVA and the post hoc Mann-Whitney U-test (Wilcox test) were used to test the differences of attribute importance. The Kruskal-Wallis test was applied in testing the differences of attribute importance concerning the consumer subgroups segmentation to determine wheth-

er there are statistically significant differences among the choice attributes related to age, gender, and subjective knowledge. A regression analysis was performed to quantify the correlation between the importance of wine choice attributes and the respondents' age.

## 3. RESULTS AND DISCUSSION

### 3.1. Sample Description

The sample used in the survey reflected broadly the population in relation to gender: according to the Croatian Bureau of Statistics (DZS, 2021), the estimated gender distribution in 2019 was 51.5% (women) and 48.5% (men), which is very close to the sample (Table 1). Almost a third of the participants were consumers under the age of 30, which is important considering the potential benefit of the study. The 31-45 age group accounted for 40.3% of the sample, with 32.5% of participants being older than 45 (Table 1). As to consumption, 39.8% of participants drink wine several times a week, 42.1% drink wine a few times a month, and 18.1% of participants drink wine several times a year (Table 2). Of consumers who drink wine only occasionally, 47.1% are younger than 30 years while 30.6% belong to the 31-45 age group. As 18.3% of the sample are students and the unemployed, they can be extracted as "financially dependent." Even though limited in their ability to consume wine due to financial dependence, that segment certainly constitutes an important target group of potential serious consumers. While 57.2% of participants describe wine as a source of pleasure, 35.2% of participants believe that wine is primarily healthy. The frequency of drinking is related to subjective knowledge; 66.3% of respondents who drink often belong to a group of consumers with higher subjective knowledge (Table 2).

TABLE 1: Socio-demographic parameters of the sample.

		Female (%)	Male (%)	Total
		<b>46.3</b>	<b>53.7</b>	<b>100</b>
<b>Age</b>	18-24	3.1	5.3	8.3
	25-30	9.4	9.4	18.8
	31-45	19.7	20.6	40.3
	+45	14.1	18.4	32.5
<b>Residence</b>	Zagreb	32.5	36.4	68.9
	Other cities	9.7	11.4	21.1
<b>Employment status</b>	Retired	0.9	1.5	2.4
	Grape/wine producer	2.4	4.4	6.8
	Public and state sector employee	19.5	11.8	31.4
	Real sector employee	18.2	27.2	45.4
	Student, unemployed	5.3	8.6	13.8
<b>Monthly income*</b>	Below average	6.1	5.7	11.8
	Average	9.9	14.9	24.8
	Above average	29.6	38.4	68

Note: \* Median equalized net income, retrieved from the Croatian Statistical Yearbook (DZS, 2021).

TABLE 2: Wine behavior with respect to subjective knowledge

	Sample response (%)	Great subjective knowledge (response, %)	Basic wine knowledge, "I can explain what I like" (response, %)
Consumption frequency			
Several times a week	39.8	66.3	43.6
Several time a month	42.1	24.1	75.4
Several times a year	18.1	6.3	93.7
Consumption quantity			
1 glass (200 ml)	19.6	30	70
2 glasses	52	41.7	58.3
More than 2 glasses	28.4	46.1	53.9
Color preference			
White	38	39.1	60.9
Red	56.4	40.1	50.9
Rose	5.6	31.2	68.8
Opinion about wine			
Wine is healthy	35.2	56.3	43.7
Wine is a pleasure	57.2	36.1	63.9
Wine is a fashion (on occasion)	14.3	12.2	87.8

These results show that consumers with less subjective knowledge mostly perceive wine as a product of pleasure, while those with more subjective knowledge mainly experience wine in the dimension of health and understand the health benefits of wine (Table 2). Our findings are similar to those of some previous authors: for instance, Chang, Thach, and Olsen (2016) found a statistically significant difference across U.S. population in terms of the level of health consciousness. Red wine is considered to be the healthiest wine, compared to other colors and styles. French, Italian, and Spanish consumers perceive wine as a healthy drink if consumed moderately (Vecchio et al., 2017).

This study points to a deficiency in promoting the health benefits of moderate wine consumption in Croatia. In addition, website analysis of the ten largest wine producers or wine cellars in Croatia using "wine" and "health" as keywords confirmed this conclusion. No affirmative information or text related to wine-health topic was found at any of the wine cellars' websites. Nu-

merous references about the potential benefits of moderate wine consumption can be used in marketing activities to motivate consumers to opt for wine rather than other beverages that may be more affordable but are of lower quality.

### 3.2. Importance of Attributes in Wine Choice

The results of analysis of the Likert-scale responses about the importance of wine choice attributes are presented in Table 3. The post hoc Wilcoxon tests highlighted groups of parameters that differ from one another (Table 4). Traditional terms and grape variety proved to be the parameters with the strongest influence on consumer wine choice (Table 3). No statistically significant differences were found among these factors (Table 4). The COO, price, PDO and sugar content can be classified as the attributes having the second level of importance, with vintage, brand, and bottle/label design being of the lowest importance in wine choice (Table 3).

TABLE 3: Importance of wine choice parameters; Friedmann ANOVA.

	Average Ranks	Sum of Ranks	Mean	STDEV
Grape variety	6.91	2888	3.47	1.39
Traditional terms	6.83	2854	3.43	1.32
Country of origin	6.35	2655	3.32	1.32
Price	5.98	2499	3.24	1.17
PDO	6.11	2552	3.2	1.35
Color	5.68	2376	3.11	1.34
Sugar content	5.74	2401	3.07	1.41
Vintage	5.28	2188	2.94	1.31
Brand	5.27	2207	2.92	1.22
Bottle/label design	4.98	2082	2.85	1.15

Note: STDEV: Standard Deviation

TABLE 4: Importance of wine choice parameters; post hoc Wilcoxon tests

	A	B	C	D	E	F	G	H	I
B	0.37548	-							
C	0.02472	0.10127	-						
D	0.001894***	0.005978**	0.1339	-					
E	0.000915***	0.000104***	0.08255	0.780855	-				
F	0.000001***	0.000024***	0.000741***	0.073345	0.116276				
G	0***	0.000009***	0.001603***	0.076264	0.050087	-	-		
H	0***	0***	0***	0.000056***	0.000066***	0.10098	0,100982	-	
I	0***	0***	0***	0.000178***	0.000077***	0.09511	0,095114	0,851257	-
J	0***	0***	0***	0***	0.000001***	0.003433**	0,003433**	0,098575	0,168914

Note: A: Grape variety, B: TT, C: COO, D: Price, E: PDO, F: Color, G: Sugar content, H: Brand, I: Vintage, J: Bottle/label design. Marked *P*-values are different significantly as follows: \*\*\*  $P < .0100$ , \*\*  $P < .0500$ .

Croatia is blessed with numerous indigenous varieties, some of which have made the country very well known on the international wine scene (Skinner, 2019; Gaither, 2021). The heritage of Croatian viticulture is mostly marked by the production of single-variety wines. Therefore, it is not surprising that the variety name is the key information consumers look for when choosing wine. Given that Croatian consumers are aware of the importance of grape variety as an element of the identity, this affects the approach to the priorities in their choice. Consumers have a similar attitude towards the *kvalitetno vino KZP* and *vrhunsko vino KZP* traditional terms. These labels are subject to mandatory control in production, using professional and validated criteria, so they should be a signal of objective quality. As such they were incorporated in the GIs system established in Croatia back in 1957, and Croatian consumers were brought up in this tradition, so the importance of these attributes is not surprising. Given that the “traditional term” labeling is derived from PDO, it should promote the importance of PDO. However, as the results of this study show, there is some misunderstanding and discrepancy regarding the PDO and TT. The term PDO is new in Croatia: it has been in use since 2013 and is equal to the label of GIs, which was in use until 2013. However,

PDO only ranks fifth, indicating the likely confusion of consumers and the ambiguities they have about this concept. Although the PDO label is always linked to the name of a protected area, as was the case under the previous GIs system, it is clear that consumers still do not recognize that. It can be concluded that consumers do not understand the link between PDO and TT even though these are conjunctive labels, so TT can only be used for wine with PDO. This phenomenon can be explained by a long tradition of positioning of TT as key information. The TT labeling is still regulated as part of mandatory control in Croatia, and this discrepancy in understanding the meaning of PDO and TT needs to be a signal indicating the direction to take in the marketing communication.

The attribute of price also ranks in the first group according to importance (Table 3). However, it may be less important when assessed together with other product characteristics (Čačić et al., 2011; Lockshin & Corsi, 2012; Duarte, Madeira & Barreira, 2010). A study by Čačić et al. (2011) on a group of highly educated consumers in Croatia found that a set of attributes that send a message about wine quality is more important than its price.



Stanco, Lerro, and Marotta (2020) found that the most important wine attributes for Italian consumers are largely related to tradition and sustainability: these are GI labels, grape variety, sustainable certification, vintage, and price. Previous studies of the Italian market (Pomarici, Lerro, Chrysochou, Vecchio & Krystallis, 2017) also identified similar preferences, with price, grape variety, vintage, and GI PDO as the most important attributes. Portuguese consumers generally give priority to the transfer of trust and knowledge. Latent class analysis and segmentation of 18 parameters of wine choice showed expert consumers (44.9%) as the largest segment, with their ranking list of importance including wine-food matching, grape variety, and traditional terms (Nunes, Madureira, Oliveira & Madureira, 2016).

The valuation and understanding of food, as well as wine, has changed significantly over the decades. Today, it is primarily related to the so-called functional value which offers health benefits beyond their nutritional value. Therefore, both wine color and sugar content are important attributes and serve as indirect indicators of consumer understanding of the complexity of wine composition. While socio-demographic analysis shows that consumers prefer red wine, according to the Likert-scale it can be concluded that Croatian consumers perceive these attributes to be important but not crucial in their wine choice. Most wines placed on the market are one or two years old, with the exception of some wines in which specific technologies are used. The "vintage" is not a source of risk, and consumers seem to know that.

Wine branding in Croatia is far from being perceived as important. The brand attribute ranks in the penultimate place, between vintage and bottle design (Table 3). As already mentioned, wine branding in the "Old World" is complex because of very influential traditional labeling with information that suggests objective quality; hence, brand seems to be a parallel guarantee of expected quality. Most consumers lack sufficient understanding of branding and are very slow in accepting new standards, especial-

ly when deprived of the labels to which they are accustomed. Research in France shows that the notion of "brand" in the minds of consumers does not correspond to what we commonly agree to call a brand and what experts consider a brand (Viot & Passebois-Ducros, 2010).

Non-European countries differ in the perception of importance of labeled attributes. New Eastern markets are more inclined to the European tradition of labelling, which is standardized and refers to the variety name and other qualitative properties thanks to certification protocols (Tang, Tchetichik & Cohen, 2015; Chan, 2018). The situation in the United States differs somewhat; different authors agree about brand, origin (region and country) and grape variety as being the most important attributes in wine choice (Sutanopaiboon & Atkin, 2012; Gustafson, Lybbert & Sumner, 2016; Pomarici et al., 2017) while consumers from New Zealand seem to place the most emphasis on medals awarded to wine. Cross-national research in 11 countries (Lockshin & Cohen, 2011) as well as results of recent research conducted in Portugal (Chamorro, García-Gallego & Trindade-Carlos, 2021) recorded any changes in relation to brand; this attribute seems to have little importance as a choice signal. According to Bruwer, Chrysochou, and Lesschaeve (2017), Canadian consumers consider grape variety and wine style to be the most important attributes, assigning least importance to packaging. Regardless of the different labeling approaches around the world, it seems that some attributes such as grape variety – that need not be declared at all – are equally important. For producers who intend to enter the world of more modern marketing, using processes such as branding, this is certainly an important information.

### 3.3. Age-Related Segmentation of Wine Choice Attributes

No significant difference concerning the importance of attributes in wine choice was found between respondent age groups, but the descriptive results suggested differences in the ranking (Table 5).

TABLE 5: Age segmentation of wine choice parameters; descriptive analysis

	18-24		25-30		31-45		46+	
	Mean	STDEV	Mean	STDEV	Mean	STDEV	Mean	STDEV
Grape variety	3.38	1.4	3.29	1.3	3.54	1.4	3.52	1.41
Traditional terms	3.72	1.1	3.37	1.26	3.4	1.35	3.43	1.34
Country of origin	3.21	1.4	3.33	1.29	3.33	1.36	3.36	1.27
Price	3.38	1.32	3.38	1.19	3.29	1.18	3.04	1.09
PDO	3.21	1.42	3.13	1.33	3.11	1.33	3.4	1.34
Color	3.41	1.45	3.1	1.39	3.02	1.31	3.15	1.33
Sugar content	2.97	1.21	2.95	1.38	3.18	1.45	3.03	1.41
Brand	2.83	1.36	2.94	1.35	2.84	1.3	3.08	1.3
Vintage	2.76	1.02	2.85	1.19	2.91	1.24	3.04	1.27
Bottle/label design	3	1.16	2.99	1.12	2.76	1.17	2.79	1.15

Grape variety is the most important factor in choice and its importance strengthens with age; older consumers appreciate these cues more than the young ones. The same trend was evident when analyzing COO and PDO attributes. Their importance also grows more pronounced with age. When it comes to TT *kvaliteto vino KZP* and *vrhunsko vino KZP*, the youngest consumers pay the most attention to that label, followed by the oldest. It is clear that young consumers have less knowledge and experience. The information they possess when entering the world of consumers has been determined by their upbringing culture and heritage, and in this context, TT has so far proven a powerful tool in positioning on the wine market.

The Kruskal-Wallis tests did not find significant differences among age groups with respect to any attribute, but some trends of importance of certain attributes in relation to age may be observed. As respondents are analyzed from a younger to an older age, positive trends were confirmed for the COO ( $R^2=0.76$ ), grape variety ( $R^2=0.53$ ), and vintage ( $R^2=0.99$ ). Negative trends were observed for price ( $R^2=0.8$ ) and bottle/label design ( $R^2=0.76$ ). The youngest consumers were found to pay the most attention to bottle and label design. A research study by Duarte et al. (2010) proved that age is a key factor in behavioral segmentation when it comes to the wine price, which was confirmed by the

present study (Table 5). Consumers of different age groups experience the brand attributed differently; those aged 25-30 and consumers with more experience pay more attention to different producers' internal labels. Both groups could be said to possess certain knowledge but of a different nature and characteristics. Younger people explore more, use all communication tools to inform themselves about a product, and are open to follow trends; older people, on the other hand, know more and definitely understand more but are at the same time more traditional.

These findings are similar to those of some other studies by authors who also found no significant difference among the age groups with respect to the involvement with wine and wine selection (Montgomery & Bruwer, 2013; Silva, Figueiredo, Hogg & Sottomayor, 2014). Recent research has highlighted the important influence of design in wine industry on young consumers' choice (Chamorro et al., 2021). Millennials and Generation Z are extractive groups of interest in marketing strategies and activities. According to Atkin and Thach (2021), Millennial consumers in the United States rely less on geographical cues such as region of origin to determine wine quality and pay more attention to medals won, label imagery, and alcohol content. While U.S. Millennials rated "I tasted the wine previously" as more important, Spanish

Millennials ascribed more importance to the PDO/TT “Designation of origin” (De-Magistris, Gracio & Albisu, 2014). The youngest consumers – Generation Z, that is people born after 2000 – are self-assured and broad-minded, and believe that consumption style is a symbol of personal identity (Castellini & Samoggia, 2018). Without doubt, young people are interested in wine as a content with deeper meaning and symbolism, as well as in the history behind the wine. They are looking for products that possess genuine cultural values. Informing and educating young people should be continuous and organized, focusing primarily on the benefits of moderate wine consumption. With such an approach young people can be expected to acquire good consumer wine habits (Fountain & Lamb, 2011).

### 3.4. Gender Segmentation of Wine Choice Parameters

Descriptive statistics showed women to be more sensitive to all examined cues than men (Table 6). The post hoc tests singled out four attributes on which women and men differ significantly: COO, TT, sugar content, and bottle/label design. It is important to emphasize and discuss PDO and TT because of their importance in wine choice in general (Table 3). Women seem

to have more confidence in cues that describe the qualitative properties of a product and are controlled out of the cellar, so that might be another indicator for creating future marketing strategies. The findings in the Australian study were similar; females were found to utilize label style to a greater degree than males and to make wine choice decisions at an affective rather than cognitive level (Mueller & Szolnoki, 2010). Some other authors also believe that gender should be a wine market segmentation tool (Charters et al., 2011; Sutanopaiboon & Atkin, 2012). However, there are other opinions. A study by Forbes (2012) points to only a few significant differences between males and females in New Zealand, Australia, UK and United States, thus indicating that gender does not significantly affect the number of attributes that are evaluated by consumers or the importance that they attach to these attributes. Rodríguez-Donate, Romero-Rodríguez, Cano-Fernández, and Guirao-Pérez (2019) claim that gender should not be a tool for strategic planning of marketing mechanisms because the “women” group is not homogeneous. Different results certainly indicate the need for further and more specific research given the absence of other published knowledge on possible gender differences in wine consumer behavior in Croatia.

TABLE 6: Gender segmentation of wine choice parameters; descriptive analysis and Mann-Whitney U test

	Female		Male		Rank Sum		P-value
	Mean	STDEV	Mean	STDEV	Females	Males	
Grape variety	3.49	1.43	3.44	1.34	41098	47312	0.57
Traditional terms	3.60	1.30	3.29	1.30	43631	44779	0.0076*
Country of origin	3.44	1.38	3.22	1.32	42783	45207	0.0403*
Price	3.30	1.19	3.18	1.15	41720	46690	0.2757
PDO	3.33	1.35	3.09	1.34	42789	46043	0.0612
Color	3.23	1.34	3.00	1.35	42508	45902	0.0841
Sugar content	3.25	1.45	2.92	1.36	43396	45014	0.0100*
Brand	3.02	1.23	2.85	1.22	41972	45599	0.1451
Vintage	3.00	1.32	2.89	1.31	41074	46079	0.44
Bottle/label design	3.05	1.11	2.67	1.16	44082	42654	0.0006*

Note: \* Marked P-values are different significantly at  $P < 0.05$ .

### 3.5. Level of Subjective Knowledge Related Segmentation of Wine Choice Parameters

This is the first study to examine subjective wine knowledge of Croatian consumers, finding that consumers differ in opinion about the importance of some wine choice attributes, depending on their subjective knowledge (Table 7). Grape variety was identified as the most important information for consumers with more subjective knowledge, along with sugar content and vintage. People with less knowledge pay significantly more attention to price and bottle/label design (Table 7). More educated people are more aware of different aspects of wine quality and social values, so it is obvious that they pay more attention to grape variety as an identity value of cultural and wine heritage. Grape variety, vintage, and sugar content have also become optional attributes in the wine labeling since the country joined the EU. The attribute of sugar content can be related to the nutritional value, as a potential aspect of interest among consumers who are more involved in the health dimension of wine, which is in turn related to knowledge about wine. The absence of such information on the label or only partial declaration is likely to cause confusion among consumers, hence it requires additional innovation and creativity in the marketing sector.

Subjective knowledge, according to Perrouty, d'Hauteville, and Lockshin (2006), is a key determinant of wine consumers' behavior. Hollebeek and Brodie (2009), on the other hand, posit that more involved wine consumers tend to base their purchase decisions on information and knowledge-based attributes, while less involved consumers tend to rely on cues that are not as intellectual. Uninformed and inexperienced wine consumers often look at the packaging of a wine and bottle design to help make their choice (Barber, Almanza & Dodd, 2008), as this study also confirmed. Some authors have obtained the same observations in relation to the price and wine involvement (Barber et al., 2008; Viot, 2012; Robertson, Caitlin Ferreira & Elsamari Botha, 2018). According to Viot (2012), only price and vintage were important to French novices, with price as the only attribute that differentiated novice from expert consumers. Robertson et al. (2018) found the price of wine to be the dominant attribute regardless of the level of product knowledge expertise. However, Saidi and Giraud (2018) did not find any significant impact of the level of knowledge and wine involvement on the choice criteria in the case of red Burgundy wines. It can be concluded that consumer knowledge is a serious parameter of interest for all participants in marketing, ranging

TABLE 7: Segmentation of wine choice parameters with respect to subjective knowledge; descriptive analysis and Mann-Whitney U-test.

	Well-informed		Less informed		Rank Sum		P-value
	Mean	STDEV	Mean	STDEV	Well-informed	Less informed	
Grape variety	3.6	1.42	3.38	1.35	40847	50532	0.0435*
Traditional terms	3.38	1.41	3.49	1.24	37072	54306	0.4175
Country of origin	3.34	1.37	3.33	1.28	38609	52342	0.7546
Price	3.03	1.17	3.38	1.15	34571	56807	0.0029*
PDO	3.21	1.42	3.22	1.29	38397	53410	0.9997
Color	2.99	1.33	3.19	1.35	36483	54896	0.1474
Sugar content	3.29	1.39	2.91	1.39	41642	49737	0.0048*
Brand	2.94	1.25	2.92	1.21	37898	52628	0.8752
Vintage	3.15	1.36	2.79	1.26	41098	49003	0.0051*
Bottle/label design	2.63	1.13	2.98	1.15	33675	56002	0.0033*

\* Marked P-values are different significantly at  $P < 0.05$ .

from producers and analysts to experts and professionals in the marketing sector.

## 4. CONCLUSIONS

During the last decade, the Croatian wine sector has undertaken activities to adjust to common EU roles of labeling without losing its originality. The present study of wine behavior and importance of declared attributes for wine choice in the new market circumstances since accession to the EU present a contribution in this direction. Its results highlight the preference for a traditional and complete form of labeling. Although optional since 2013, the labels including traditional terms of *vrhunsko vino KZP* and *kvalitetno vino KZP*, and the grape variety were identified as the dominant attributes in the wine purchase choice. Even though the PDO (new GIs label) is only formally different from the national GIs that combined a quality category (TT) with the name of a specific controlled origin, the new name of GIs was found to cause confusion among consumers. The significant difference in the positioning of PDO (fifth place) and TT (second place) suggests a less than satisfactory understanding of PDO.

This paper sought to determine the role that gender, age, and subjective level of knowledge play when determining the importance of presented attributes in the wine choice. That part of the research is driven by the assumption that segmented consumer groups have different sensibility to labeled cues and a potential to influence wine marketing strategy. While most respondents perceive wine as pleasure, those with more subjective knowledge consume wine due

to its potential health benefits. For them, the attributes such as grape variety, sugar content, and vintage are significantly more important than for the consumers with less subjective knowledge. People with less knowledge pay significantly more attention to price and bottle/label design. Women are more concentrated on all attributes of wine choice and consider TT and PDO to be significantly more important than do men. Some trends observed with respect to age segmentation could be useful in the affirmation of younger, health-conscious consumers in the world of wine.

Understanding the importance of labels and other attributes in wine purchases, especially on the market with an extremely large number of producers and different product styles, can certainly help both producers and marketers. Producers who do not have the opportunity to invest in expert marketing will benefit from it to combine and design the attributes themselves to a certain extent in order to communicate directly with consumers about specific quality parameters. Direct producer-consumer communication at various events and trade fairs can be an excellent tool for education, especially for less informed consumers, also helping producers to better position themselves on the market. Marketing practitioners could use this work to develop innovative programs for targeted occasions and segment groups with particular quality preferences (women and young people) while also motivating and attracting less educated, inexperienced, and potential consumers (Millennials and Generation Z). In this way, both producers and marketing professionals can add new value to the wine being marketed and strengthen its competitiveness.

## REFERENCES

1. Alba, J. W., & Hutchinson, J. W. (2000). Knowledge Calibration: What Consumers Know and What They Think They Know. *Journal of Consumer Research*, 27(2), 123-156.
2. Atkin, T., & Thach, E. (2021). Millennial wine consumers: Risk perception and information search. *Wine Economics and Policy*, 1(1), 54-62.
3. Barber, N., Almanza, B., & Dodd, T. (2008). Relationship of Wine Consumers' Self-Confidence, Product Involvement, and Packaging Cues. *Journal of Foodservice Business Research*, 11(1), 45-64.
4. Bruwer, J., Chrysochou, P., & Lesschaeve, I. (2017). Consumer involvement and knowledge influence on wine choice cue utilization. *British Food Journal*, 119(4), 830-844.
5. Caracciolo, F., Cembalo, L., & Pomarici, E. (2013). The hedonic price for an Italian grape variety. *Italian Journal of Food Science*, 25(3), 289-294.
6. Cerjak, M., Tomić Maksan, M., Fočić, N., & Brkić, R. (2016). The Importance of Intrinsic and Extrinsic Sparkling Wine Characteristics and Behavior of Sparkling Wine Consumers in Croatia. *Journal of International Food & Agribusiness Marketing*, 28(2), 1-11.
7. Chan, D. (2018). How do consumers select wine? Factors that affect the purchasing decision of wine consumers in Singapore. *Perspectives in Asian Leisure and Tourism*, 3(5).
8. Čačić, J., Tratnik, M., Gajdoš Kljusurić, J., Čačić, D., & Kovačević, D. (2011). Wine with geographical indication – awareness of Croatian consumers. *British Food Journal*, 113(1), 66-77.
9. Castellini, A., & Samoggia, A. (2018). Millennial consumers' wine consumption and purchasing habits and attitude towards wine innovation. *Wine Economics and Policy*, 7(2), 128-139.
10. Chamorro, A., García-Gallego, J. M., & Trindade-Carlos, H. C. (2021). Study on the importance of wine bottle design on consumer choices. *British Food Journal*, 123(2), 577-593.
11. Chang, K. J., Thach, L. M., & Olsen, J. (2016). Wine and health perceptions: Exploring the impact of gender, age and ethnicity on consumer perceptions of wine and health. *Wine Economics and Policy*, 5(2), 105-113.
12. Charters, S., Velikova, N., Ritchie, C., Fountain, J., Thach, L., Dodd, T. H., & Fish, N. (2011). Generation Y and sparkling wines: a cross-cultural perspective. *International Journal of Wine Business Research*, 23(2), 161-175.
13. De-Magistris, T., Gracia, A. & Albisu, L. M. (2014). Wine consumers' preferences in Spain: an analysis using the best-worst scaling approach. *Spanish Journal of Agricultural Research*, 12(3), 529-541.
14. Duarte, F., Madeira, J., & Barreira, M. M. (2010). Wine purchase and consumption in Portugal-an exploratory analysis of young adults' motives/attitudes and purchase attributes. *Ciência e Técnica Vitivinícola*, 25(2), 63-73.
15. DZS (2021). Žene i muškarci u Hrvatskoj. Državni zavod za statistiku. Retrieved from: [https://podaci.dzs.hr/media/zoyp1kuq/men\\_and\\_women\\_2021.pdf](https://podaci.dzs.hr/media/zoyp1kuq/men_and_women_2021.pdf)
16. Ferreira, C., Lourenço-Gomes, L., & Pinto, L. M. C. (2022). How does self-reported knowledge influence the effect of extrinsic cues on wine choice? A qualitative approach. *Journal of Wine Research*, 33, 17-39.
17. Flynn, L. R., & Goldsmith, R. E. (1999). A Short, Reliable Measure of Subjective Knowledge. *Journal of Business Research*, 46(1), 57-66.
18. Forbes, S. L. (2012). The influence of gender on wine purchasing and consumption. *International Journal of Wine Business Research*, 24(2), 146-159.
19. Fountain, J., & Lamb, C. (2011). Generation Y as young wine consumers in New Zealand: how do they differ from Generation X? *International Journal of Wine Business Research*, 23(2), 107-124.
20. Gaither, J. (2021). How an Ancient Croatian Grape Became America's Signature Wine. Retrieved from: <https://www.winemag.com/2021/02/11/crjlenak-original-zinfandel/>

21. Gustafson, C. R., Lybbert, T. J., & Sumner, D. A. (2016). Consumer sorting and hedonic valuation of wine attributes: exploiting data from a field experiment. *Agricultural Economics*, 47(1), 91-103.
22. Hall, D. (2016). Exploring wine knowledge, aesthetics and ephemerality: clustering consumers. *International Journal of Wine Business Research*, 28(2), 134-153.
23. Hertzberg, A., & Malorgio, G. (2008). Wine demand in Italy: An analysis of consumer preferences. *New Medit*, 7(4), 40-46.
24. Hollebeek, L. D., & Brodie, R. J. (2009). Wine service marketing, value co-creation and involvement: research issues. *International Journal of Wine Business Research*, 21(4), 339-353.
25. Horowitz, I., & Lockshin, L. (2002). What Price Quality? An Investigation into the Prediction of Wine-quality Ratings. *Journal of Wine Research*, 13(1), 7-22.
26. Kalazić, Z., Šimić, M. L., & Horvat, J. (2010). Wine Market Segmentation in Continental Croatia. *Journal of Food Products Marketing*, 16(3), 325-335.
27. Lockshin, L., & Cohen, E. (2011). Using product and retail choice attributes for cross-national segmentation. *European Journal of Marketing*, 45(7/8), 1236-1252.
28. Lockshin, L., & Corsi, A. M. (2012). Consumer behaviour for wine 2.0: A review since 2003 and future directions. *Wine Economics and Policy*, 1(1), 2-23.
29. McMillan (2022). State of the US Wine industry. Retrieved from: <https://www.svb.com/globalassets/trendsandinsights/reports/wine/svb-state-of-the-wine-industry-report-2022.pdf>
30. Mascarello, G., Pinto, A., Parise, N., Crovato, S., & Ravarotto, L. (2015). The perception of food quality. Profiling Italian consumers. *Appetite*, 89, 175-182.
31. Miguel, M. J., Caplliure, E. M., Perez, C., & Bigne, E. (2017). Buying private label in durables: gender and other psychological variables. *Journal of Retailing and Consumers Services*, 34, 349-357.
32. Montgomery, I. K., & Bruwer, J. (2013). Domain-Specific Consumer Involvement in the U.S. Wine Market. *Journal of Food Products Marketing*, 19(5), 439-462.
33. Mueller, S., & Szolnoki, G. (2010). The relative influence of packaging, labelling, branding and sensory attributes on liking and purchase intent: Consumers differ in their responsiveness. *Food Quality and Preference*, 21(7), 774-783.
34. Nunes, F., Madureira, T., Oliveira, J. V., & Madureira, H. (2016). The consumer trail: Applying best-worst scaling to classical wine attributes. *Wine Economics and Policy*, 5(2), 78-86.
35. Perrouy, J. P., d'Hauteville, F., & Lockshin, L. (2006). The influence of wine attributes on region of origin equity: An analysis of the moderating effect of consumer's perceived expertise. *Agribusiness*, 22(3), 323-341.
36. Pomarici, E., Lerro, M., Chrysochou, P., Vecchio, R., & Krystallis, A. (2017). One size does (obviously not) fit all: Using product attributes for wine market segmentation. *Wine Economics and Policy*, 6(2), 98-106.
37. Pomarici, E., Corsi, A., Mazzarino, S. & Sardone, R. (2021). The Italian Wine Sector: Evolution, Structure, Competitiveness and Future Challenges of an Enduring Leader. *Italian Economic Journal*, 7(2), 259-295.
38. Robertson, J., Caitlin Ferreira, C., & Elsamari Botha, E. (2018). The influence of product knowledge on the relative importance of extrinsic product attributes of wine. *Journal of Wine Research*, 29(3), 159-176.
39. Rodríguez-Donate, M. C., Romero-Rodríguez, M. E., Cano-Fernández, V. J., & Guirao-Pérez, G. (2019). Analysis of heterogeneity in the preferences of wine Consumption. *Wine Economics and Policy*, 8(1), 69-80.
40. Saidi, M., & Giraud, G. (2018). Choisir un vin: rôle de l'implication et des connaissances dans le traitement de l'information disponible. *Economierurale*, (363), 39-63.

41. Silva, A. P., Figueiredo, I., Hogg, T., & Sottomayor, M. (2014). Young adults and wine consumption a qualitative application of the theory of planned behavior. *British Food Journal*, 116(5), 832-848.
42. Skinner, W. (2019). 'A gift from God': autochthonous grapes and wine heritage on the island of Hvar, Croatia. *Journal of Wine Research*, 30(4), 294-311.
43. Stanco, M., Lerro, M., & Marotta, G. (2020). Consumers' Preferences for Wine Attributes: A Best-Worst Scaling Analysis. *Sustainability*, 12(7), 2819.
44. Sutanonpaiboon, J., & Atkin, T. (2012). Using Region to Market Wine to International Consumers. *Journal of Food Products Marketing*, 18(1), 1-18.
45. Tang, V. C., Tchetchik, A., & Cohen, E. (2015). Perception of wine labels by Hong Kong Chinese consumers. *Wine Economics and Policy*, 4, 12-21.
46. Thach, E. C., & Olsen, J. E. (2006). Market segment analysis to target young adult wine drinkers. *Agribusiness*, 22(3), 307-322.
47. Thomas, A., & Pickering, G. (2003). The Importance of Wine Label information. *International Journal of Wine Marketing*, 15(2), 58-74.
48. Ugaglia, A. A., Cardebat, J-M., & Jiao, L. (2019). The French Wine Industry. In: A. A. Ugaglia, J-M. Cardebat & A. Corsi (eds.), *The Palgrave Handbook of Wine Industry Economics* (pp. 17-46). Cham: Palgrave Macmillan.
49. Vecchio, R., Decordi, G., Grésillon, L., Gugenberger, C., Mahéo, M., & Jourjon, F. (2017). European consumers' perception of moderate wine consumption on health. *Wine Economics and Policy*, 6(1), 14-22.
50. Vigar-Ellis, D., Pitt, L., & Berthon, P. (2015). Knowing what they know: A managerial perspective on consumer knowledge. *Business Horizons*, 58(6), 679-685.
51. Viot, C. (2012). Subjective knowledge, product attributes and consideration set: a wine application. *International Journal of Wine Business Research*, 24(3), 219-248.
52. Viot, C., & Passebois-Ducros, J. (2010). Wine brands or branded wines? The specificity of the French market in terms of the brand. *International Journal of Wine Business Research*, 22(4), 406-422.
53. Wiedmann, K. P., Behrens, S., Klarmann, C., & Hennigs, N. (2014). Customer value perception: cross-generational preferences for wine. *British Food Journal*, 116(7), 1128-1142.
54. Wolf, M. M., Wolf, M., & Lecat, B. (2022). Wine market segmentation by age generations in the Western US: expectations after the COVID-19 pandemic. *International Journal of Wine Business Research*, 34(3), 373-391.