Determinants of frequency of wine consumption in Croatia

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DETERMINANTS OF FREQUENCY OF WINE CONSUMPTION IN CROATIA

Abstract

Purpose: In the last 10 years, wine consumption in Croatia has increased and consumer habits and expectations have changed. Understanding consumer behavior in relation to wine consumption is important for wine-producing countries where wine is an important component of economy. The aim of this study is to identify the factors that influence the frequency of wine consumption in Croatia, where wine production is an important agricultural activity in terms of the number of people employed in the sector and an important factor in the development of tourism.

Methodology: Empirical research was conducted by means of a questionnaire filled out by 169 wine consumers who visited a wine fair in the Croatian Adriatic region. Based on the collected data, we developed and estimated a multinomial logit model.

Results: The results indicate that wine is consumed more frequently by men, married people, people in long-term relationships, and older people. In addition, people with high levels of education tend to drink wine less frequently. The paper explains the reasons for somewhat puzzling results and suggests future avenues of research.

Conclusion: Behavioral differences were confirmed in this study between subsample groups in accordance with four demographic characteristics, i.e., gender, age, marital status, and education criteria. Our analysis showed that males are more likely to consume wine than women, older than younger and less educated than more educated participants. Our results help wine marketers to segment and target wine consumers.

Keywords: Wine industry, Croatia, wine consumption frequency, sociodemographic characteristics

1. Introduction

Wine is a product valued in many, if not most, modern cultures around the world. Besides a few basic types of grapes, there are hundreds of species and subspecies or varieties grown all over the world. It can hardly be denied that the choice of wine is a matter of preference and choice, and it is not surprising that preferences for all sorts of things, including the taste of wine, are often an interesting point of discussion among people. However, to put it in an economic context, a better understanding of consumer behavior in regard to wine consumption is needed. Under the influence of globalization, increasing wine competition from the New World countries, and a series of economic crises in

the EU and beyond, the wine industry has changed dramatically over the past decade. The industry is facing a tremendous increase in competition, while consumer habits of consumption and purchasing decisions are changing due to changing attitudes toward health (Smith & Miltry, 2007; Hledik & Harsanyi, 2019; Deroover et al., 2021), purchasing power, lifestyle, and social utility (Orth et al., 2005), among other factors. Castellini and Samoggia (2018) studied millennials' wine consumption and purchasing habits, and their research findings suggest that Italian millennials are wine neophilic. Their findings are important for wine producers when targeting new consumers.

The above-mentioned increase in competition and market pressure, and thus the need to promote rural and agricultural development, has been recognized by the European Union (EU). However, producers must be trained not only to increase production, but also to better understand consumer habits and preferences. An adequate response by wine producers to changes in consumer preferences related to supply adjustments provides producers with a competitive advantage. According to Smith and Miltry's (2007) study, "consumer behaviors in developed countries of the European Union appear to be converging in many ways due to increasing interconnectedness and cultural cross-fertilization". They also concluded that consumer preferences are less driven by regional tradition and more by a growing acceptance of a cultural change. Destination image and experience became critical factors affecting consumers and wine tourism. For destinations traditionally involved in wine production, wine tourism began to play an important role in the national economy (Scorrano et al.; Rosato, 2018).

Croatia is a country with a long wine production tradition. Today, the sector consists mainly of small family-owned wineries, while there are almost no companies, with the exception of a few privatized ones. Although competition in the Croatian wine market is quite strong, there is a remarkable difference in the possibilities of developing distribution channels between producers from the Adriatic region and producers from the continental region. In the Adriatic region, tourism is an important flywheel for economic development and also one of the most important distribution channels for wine producers in this area.

Croatian agricultural acreage and commercial wine production have remained fairly stable over the past two decades, while homemade production of wine has declined, resulting in a decrease in the overall production. Although exports are slightly increasing, low production volumes of individual wine producers, small and fragmented vineyards, and tourism as a distribution channel are reasons for wine producers' lack of interest in exporting and their inability to compete with large producers on the foreign market. Pulls, clusters and other strategic alliances are the way to improve the position of Croatian wine producers on the foreign market. Imports are growing much faster than exports as demand in the domestic market increases and the self-sufficiency rate decreases from a maximum of 120 percent in 2007 to less than 80 percent in 2017. Due to the development of tourism and changing consumer preferences, interest in wine in Croatia is increasing.

Considering the role of the Croatian wine sector in the Croatian economy and in the development of tourism and due to the increase in the share of quality/premium wines in the total wine production, the **aim of this paper** is to identify the demographic profiles of Croatian wine consumers regarding frequency of wine drinking. The variables whose influence on consumer preferences is examined in this paper are gender, age, education level, the number of household members, marital status, and household income. The main research question of the paper is whether there exist significant differences in the determinants of consumer preferences when consumers have already revealed their initial preferences for wine consumption (by attending wine fairs) in comparison with the bulk of empirical literature that models consumer preferences on a completely random sample.

Our research represents an extension of previous research on consumer habits, both in general and in the wine industry. The results of our research can be of use to all those involved in the supply chain, especially to wine producers in identifying markets for developing the company's production and marketing strategy (expanding a product range, changing the appearance of the label, targeting a specific market and consumer type, etc.). The paper is structured as follows. After a brief literature review (second section), model development (third section) used in this paper is presented. The estimation results and discussion are presented in the fourth and fifth section, respectively, while the last section provides a conclusion.

Thus, our main research **hypothesis** is that there are significant differences in the frequency of wine consumption among wine consumers and that these differences are influenced by age, gender, marital status, income, and education level of consumers.

2. Literature review

Wine is a specific, valuable product with unique characteristics in terms of consumption. It can also be seen as a complex product considering the many factors that influence wine consumer behavior. Some recent Croatian research indicates that wine is primarily perceived as a pleasure from the consumer's point of view (Alpeza et al., 2023), while others go further and state that wine could be seen as an experience good (Kaštelan Mrak & Kaštelan, 2023). A study (Bouillet, 2014) conducted on a sample of 2,000 Croatian students found that 63.4% of them consume wine at least once a month, while Leko Šimić and Turjak (2018) found that wine is the most common choice of alcohol for students in domestic consumption.

Recognizing the importance of understanding the profile of wine consumers and directing the focus of producers to consumer behavior has become a necessity to keep up with rapid global changes. There are relevant prior research papers that address the wine industry from the perspective of consumer theory and preference theory (for example, Thach et al., 2022, and Borchgrevink & Sherwin, 2017). Lockshin and Corsi (2012) pointed out that in the period between 2004 and 2012, about 100 journal articles addressed wine consumer behavior. The Web of Science database contains 570 articles on this topic in its Core Collection from 2012 to 2023. Of these, 142 articles fall into the categories of Business, Economics, and Agricultural Economics Policy (Web of Science, 2023).

Recognizing and understanding the profile of wine consumers is essential for wine producers in order to adjust and improve their offer to the needs of the market. According to Molina et al. (2015), although most of the scientific literature deals with research on the influence of subjective variables on wine market segmentation, objective variables (like socio-demographic) could be more suitable. The socio-demographic factors identified as significant in relation to wine consumption are age, income, the level of education, marital status and gender.

Age was determined as a significant predictor in several recent research studies (Rebelo et al., 2021; Dubois et al., 2021). Stockley et al. (2017) analyzed wine consumption by different age groups in Australia. They found that the 65+ age group was more likely to drink wine ≥ 5 days per week, while respondents aged 25-34 were more likely to consume five or more standard drinks per occasion than all other age groups. Thus, older consumers tend to drink more frequently, while consumers aged 25-34 are more likely to drink larger amounts. This same age group (i.e., 25-34) is recognized as the group with the highest percentage (29%) of wine drinkers in Poland, followed by the 35-44 age group (28%) (Statista, 2022). Recent research on wine consuming preferences conducted in Croatia (Alpeza et al., 2023) showed that consumption frequency commonly increases with age.

When Gustavsen and Rickertsen (2018) were analyzing age as an independent variable, they established in their sample that there was a 0.4 percentage point rise in wine consumption frequency with a rise of respondent age by one year. Rebelo et al. (2021) conducted a study on frequency of wine consumption in Spain and Portugal during the COVID-19 pandemic and found that in Portugal there was a significant impact of age, i.e., older people tend to drink more frequently, but they find no such effect in Spain. In a research study conducted by Dubois et al. (2021), age has a different effect depending on the country - in France, the categories of respondents aged 18 to 29 and older than 51 increase the likelihood of additional consumption, while in Italy, this is the 30-40 segment. In contrast to research mentioned previously, in this one conducted in Spain the segment aged under 18 increases the likelihood of additional consumption with no significant effect in Portugal.

The influence of income, as one of the traditional demand factors, on alcohol and/or wine consumption has been studied by various authors (Dubois et al., 2021; Garcia-Cortijo et al., 2019; Gustavsen & Rickertsen, 2018). Gustavsen and Rickertsen (2018) also noted slight income differences, where an increase in income by 1% makes wine drinking more probable by 0.2 percentage points. A study conducted by Garcia-Cortijo et al. (2019), who examined the influence of income on wine consumption in China, among other factors, concluded that an increase in income level leads to an increase in wine consumption. Their findings are consistent

with those of other authors who have conducted the same research on China, but they should be considered in the light of the specifics of the market studied. China is not a traditional wine country and it appeared on the wine map of the world only 15 years ago. Dubois et al. (2021) found out that income level has no significant influence on consumption in the whole sample. However, a subsample of respondents in France showed that the lowest income was associated with an increase in wine consumption. Considering the specifics of Croatia - a long winemaking tradition, a large share of wine production for home consumption, wine as a readily available product, it is assumed that the level of income has a greater influence on the quality of wine consumed by consumers than on the quantity, which is why this variable was included in the model we tested.

The impact of education as an independent variable proved to be substantial in research done by Gustavsen and Rickertsen (2018), where a Bachelor's degree increases the probability of wine consumption by 8.6%. Bruwer and Buller (2012) found that the percentage of women with low levels of education who consume wine is higher than that of men, while the opposite is true for those with medium levels of education. However, research conducted by Rodríguez-Donate et al. (2019) showed that as the level of education increases, the percentage of men who frequently consume wine decreases and the percentage of men who rarely consume wine increases. In their study, this behavior was not observed among women, although women with a non-university degree tended to be low-frequency consumers compared to men. Villanueva et al. (2017) found in their study that the lower the level of education, the higher the wine consumption. A higher education level can be associated with higher consumption among those consumers who supplement wine quantity with wine quality. Wine consumption in these cases has a biased component for a more informed and qualified demand.

Marital status is among significant factors influencing alcohol-consuming behavior. That was shown in results of an influential study published by Dinescu et al. in 2016. Their study was conducted on a large sample of same-sex twin pairs (Dinescu et al., 2016) and it confirmed a general finding that married people tend to consume less alcohol. The study showed statistically significant differences between married couples and their single, divorced,

and even cohabiting twins. Although to varying degrees, the differences are significant for both male and female respondents. In addition, and of greater importance to our study, married couples consume alcohol less frequently than their single counterparts. This study attempted to isolate wine as an alcoholic beverage, and we understand that wine, especially quality wine, may lead to different results, but general results show that married couples consume less alcohol, which we believe is important. According to other research, marital status also matters for alcohol consumption in several ways. As noted above, marriage is an important variable in wine brand choice in some studies, but perhaps more interesting is the finding of a study among older couples that showed that alcohol consumption by both partners reduced negative marital quality (Birditt et al., 2018), and that the same finding was not confirmed when both partners did not consume alcohol. Thus, joint moderate alcohol consumption may indicate shared interests. That being married has a positive impact on wine drinking frequency was also observed in Gustavsen and Rickertsen (2018), who found a 1.9% difference for married.

The influence of gender on consumer behavior is of great importance to wine producers in developing their business strategy and has been the topic of scientific papers (Dubois et al., 2021; Rodríguez-Donate et al., 2019 and 2017; Gustavsen & Rickertsen 2018; Nazan Gunay & Baker, 2011). The difference between male and female perspectives on the decision-making process and attitudes toward wine consumption is a result of culture (Palan, 2001) and also biological differences. According to Nazan Gunay & Baker (2011), gender is an important target segmentation criterion. A slight impact of gender on wine consumption frequency was observed in Gustavsen and Rickertsen (2018), where being a woman increased the probability of drinking wine by 0.9 percentage points. In a research study published by Dubois et al. (2021), gender has a significant influence on wine consumption (demonstrated in a subsample in Italy), where men consumed wine less frequently during the COVID-19 lockout. In their latter work, Gustavsen and Rickertsen (2019) examined associations between personality traits and expected frequencies of wine and beer consumption, concluding that being open or driven by extrovertism or higher social capital leads to more frequent consumption. Thach (2012) studied the

differences in wine consumption between men and women and concluded that men drink more wine and on more occasions than women. Rodríguez-Donate et al. (2017) examined the influence of gender on the frequency of wine consumption, among other sociodemographic determinants. They found that adult males were more likely to consume wine. In general, their research shows significant gender differences in the decision to consume wine. Rodríguez-Donate et al. (2019) found in their recent work that the predominant wine drinking behavior in both genders is that with low frequency of consumption, where the percentage with high frequency of consumption is much higher among men than women. In addition, the percentage of women who do not consume wine is higher than that of men.

3. Data and methodology

This research was conducted through a questionnaire (survey). Data gathering took place in Croatia, during the season of wine fairs in June 2021. Wine fairs in Croatia are organized either in a way that a visitor rents a glass and pays to taste wine presented by winemakers, or a visitor pays an entrance fee and can then taste various wines. As this might prove costly, only consumers who are wine lovers and who consume wine more than the average of the general population were included in this research. For the same reason, the questionnaire was not conducted online and via social media. Filling out the questionnaire took about 10 minutes, and 169 wine consumers were included in this research. All respondents were over 18 years old, which is the minimum age limit for consuming alcoholic beverages in Croatia. Almost 95% of respondents lived in the same county in Croatia (Primorje-Gorski Kotar County), as the questionnaire was taken at wine fairs organized in that county, which is why this variable was not included in the model.

The questionnaire consisted of 24 questions divided into several categories. The first category consisted of 6 demographic questions: age of respondents, gender, the level of education, the number of household members, marital status and monthly household income. The second category consisted of 8 questions about consumer preferences: how often respondents consume wine (on a daily/weekly/monthly basis, several times a year), on what occasions (alone, with friends, with family), how much money they spend on wine, what price range they

prefer when they buy wine, and what type (white/black/rose, dry/semi sweet/sweet, table/quality/premium, domestic/imported) of wine they consume more often. The third part of the questionnaire consisted of 12 questions about wine preferences. The answers were offered in the form of a Likert scale, ranging between 1 that stands for – completely disagree, to 5 that stands for – completely agree.

Table 1 shows sociodemographic characteristics of the respondents.

Table 1 Sociodemographic characteristics

Sociodemographic characteristics	%
Gender	
Men	48.5
Women	51.5
Age	
18-29	30.2
30-39	27.2
40-49	25.4
50-59	11.2
60-69	5.3
no reply	0.7
Education level	
Secondary education	22.5
Bachelor's degree/Master's degree	52.1
Postgraduate level	24.8
no reply	0.7
Marital status	
marriage/long relationship	65.7
single/divorced/widowed	32.5
no reply	1.8
Income (monthly per household)	
up to 1,300 euro	30.2
1,301 - 2,650 euro	49.7
2,651 - 3,999 euro	7.1
above 4,000 euro	10
no reply	3

Source: Authors' calculations

The respondents are between 19 and 69 years old. Males and females make up 48.5% and 51.5% of the sample, respectively. In the sample, 22.5% of respondents completed high school, 52.1% hold a Bachelor's degree, and 24.8% completed postgraduate studies (MBA or PhD level). Married people made up 65.7% of respondents, while 32.5% were single, divorced or widowed. Monthly household income of almost half of the respondents (49.7%) ranges between 1,301 and 2,650 euro.

Table 2 shows descriptive statistics of the sample.

Table 2 Sample descriptive statistics

	mean	sd	min	max
Cons. freq.	1.025	0.640	0	2
Male	0.481	0.501	0	1
Married	0.660	0.475	0	1
Income	2.432	1.576	0	6
Education	1.037	0.686	0	2
Age	37.83	11.73	20	69
N	162			

Source: Authors' calculations

Table 3 Wine consumption frequency in the sample

Cons. freq.	Freq.	%
daily	31	18.34
weekly	101	59.76
monthly or yearly	37	21.90
Total	169	100

Source: Authors' calculations

Based on the aforementioned literature, especially on the paper written by Rodríguez-Donate et al. (2017), where they investigated the sociodemographic determinants of wine consumption in Tenerife using multinomial logistic regression, we developed and estimated the following multinomial logit model:

$$\ln \frac{P(y_i = m)}{P(y_i = 0)} = \alpha_m + \sum_{k=1}^{5} \beta_{mk} X_{ik} \ , \qquad [1]$$

where Y is a categorical variable consumption frequency with three categories (daily, weekly, month-

ly or a couple of times a year), with daily being the reference category. X_{ik} is a vector of regressors (k is the index for regressors), that is, a vector that includes variables male, married, income, education and age. Income and education are categorical variables with seven and three categories, respectively, while male and married are dummy variables. Estimated coefficients are interpreted as odds of being in a particular category (e.g., weekly wine consumers) versus the base category of a dependent categorical variable (e.g., daily wine consumers). This means that we had two sets of estimated coefficients, one set representing odds of being in the category of a weekly wine consumer vs. a daily wine consumer, and one set representing odds of being in the category of a monthly or a yearly wine consumer vs. a daily wine consumer. These odds ratios are also called relative rise ratios and are presented in the Results section of the paper (Table 4). As a diagnostic check, we conducted the Brant test for parallel lines, which was not significant, suggesting that we can use our estimations.

4. Results and discussion

The log likelihood ratio test statistics showed that our five-predictor model provided a better fit than the model under the null hypothesis, under which we have the model with only the constant included.

According to our results (Table 4), being married or in a relationship decreases the odds of being in category I (weekly wine consumers) by (0.25-1)%, i.e., -75.1%, and by 84.2% of being in category II (monthly and/or yearly wine consumers) versus category 0 (base category - daily wine consumers). The age effect had the same direction, but the size is much lower. An increase in age by one year decreases the odds of being in category I and in category II by 7.2% and by 6.4%, respectively. Gender is borderline significant (at a 5% significance level) and only for the coefficient of the first category. It is in line with other research in this field, that is, men tend to drink wine more frequently than women. Education is significant at a 10% significance level and it indicates that more educated people tend to drink more occasionally (greater odds of being in categories I and II with respect to category 0).

Table 4 Results of the multinomial logit model

	Category I	Category II
Ind. vars	weekly	monthly & yearly
Male	0.377**	0.405
	(0.184)	(0.232)
Marital status	0.249**	0.158**
	(0.173)	(0.118)
Income	0.923	0.670**
	(0.135)	(0.132)
Education I	2.785*	3.952*
	(1.637)	(2.950)
Education II	1.161	3.578
	(0.735)	(2.850)
Age	0.928***	0.936***
	(0.0204)	(0.0239)
LR chi2(22)	44.76	p-val = 0.000011
Pseudo-R2	0.1443	
N	162	

Exponentiated coefficients, standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Source: Authors' calculations

From the size of the coefficient across the categories of our DV (dependent variable), we concluded that overall, married people (or people in relationships) drink more frequently than unmarried or divorced people. The coefficient for age showed that older people drink more frequently. The most comparable study with our research is that of Rodríguez-Donate et al. (2017), with the most important differences being the sampling process (we conducted our survey at wine fairs, which by definition creates a sampling bias) and a different country/region. We may add that the fact that the sample in their research was taken on an island (Tenerife) might also bring a new element that makes one-to-one comparisons with our results harder. Notwithstanding these differences, our findings are mostly in line with their research, which is important given our research question, and has practical implications for wine producers and wine marketers.

In general, our results show that married people consume wine more frequently than single, divorced, or widowed persons. Age also plays a role, as older people in the sample tend to consume wine more frequently. As in most studies, men tend to drink more often than women, although this dif-

ference is not as significant in our sample. The final variable for which we found a significant value is education level, as educated consumers tend to drink wine more occasionally.

In our study, marital status led to more frequent wine consumption. As can be seen from the literature review, the results of previous studies are not consistent with respect to this variable. One study (Dinescu et al., 2016) indicates that married people consume less alcohol than others, while another (Birditt et al., 2018) indicates that married couples are more likely to be satisfied with their relationship when drinking together. There are several points to note about this. First, while there is alcohol in wine, alcohol and wine are not the same thing. As wine is increasingly perceived as an expensive/quality commodity, it may (or may not) be the case that unmarried individuals who consume more alcohol do not drink more wine than their married counterparts. Second, higher frequency does not automatically mean greater quantity. Third, our survey was conducted at a wine fair, most of our participants came in groups, many of them were couples, and it is reasonable to assume that visitors to a wine fair like wine and are likely to prefer it to other alcoholic alternatives. In this regard, our conclusion that married people are more likely to drink wine than others is not necessarily inconsistent with previous research suggesting that they consume less alcohol, but may be consistent with research suggesting that couples who drink together are happier, and also with previous research suggesting that people like drinking in groups. There are a number of possible explanations for this, and besides sampling biases that have already been explained, it can be mentioned that Croatia has a long tradition of wine consumption and that, like in other Mediterranean countries, wine is an integral part of most social events.

Our finding that men tend to drink more frequently than women is consistent with most other research studies. It is notable that this factor is statistically less significant in our study. Again, this could be related to the sample size and a bias (wine fairs do not attract people who do not like wine). Higher levels of education are generally associated with higher income and different social status, so differences in wine consumption frequency among educated people are not surprising. Moreover, we believe that people with higher education levels are not only less likely to consume wine, but also more likely to

consume more expensive wines. However, in our study sample, we found no statistically significant difference in this regard.

5. Conclusion

Understanding consumer behavior in relation to wine consumption is always important for wine-producing countries, as wine is an important component of agriculture and thus of the economy. This is even more important today as European wine producers face strong competition from the New World countries offering cheaper products. Therefore, in the traditional EU wine-producing countries, including Croatia, the main trend in wine production is towards higher quality and better product differentiation (Katunar et al., 2020a). The aim of this research was to gain a better understanding of Croatian wine consumers. For the purpose of our research, 169 wine consumers completed the questionnaire at a wine fair in Croatia. We developed and estimated a multinomial logit model.

Our analysis confirmed some of our previously expected results in regard to wine consumption frequency. Behavioral differences were confirmed between subsample groups according to four demographic characteristics: gender, age, marital status, and education criteria. Our analysis showed that males are likely to be more frequent wine consumers than women, older than younger and less educated than more educated participants. Inter-estingly, data from our sample showed that mar-ried people were also likely to be more frequent wine consumers than participants who are single, divorced or widowed. Our results help wine mar-keters to segment and target wine consumers. For example, one target group indicated in our research are older married people. Overall, our results con-tribute to the existing literature on market segmen-

tation in specific industries, as wine producers can use them to better differentiate individuals and groups that are more likely to become their customers. This is especially true for small wine producers who often rely on direct sales by inviting consumers to wine tastings at their wine basements/stores (Katunar et al., 2020b). However, some of our other expectations were not confirmed. We believe this is due to the main limitations of our study – a relatively small sample and a bias in the sample. The bias is caused by the fact that we conducted a survey exclusively at wine fairs, which are usually frequented by wine lovers. Notwithstanding the bias in our sample, our results show that the significance of the main determinants of wine consumption is in line with previous research in this research field.

Nevertheless, for our future research, we plan to conduct a survey with a larger and more diverse sample. In our future research, we will use this survey and conduct it on a larger scale. Our aim is to confirm some of these findings in a larger sample and add variables such as brand loyalty, consumer preferences, etc. Moreover, in future research, the survey will include respondents from different geographical regions of Croatia. This should allow, among other things, the analysis of possible regional differences and the substantiation of the results and conclusions. In addition to the sample-related issues that we will address, we plan to expand our questionnaire to relate wine consumption to consumption of other alcoholic beverages and to better understand the relationship between wine consumption frequency and quantity.

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