

## Motivation for Drinking Wine\*

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### Abstract

We used a survey to investigate some motives for drinking red, sparkling and white wine among 3,433 Norwegian respondents. Respondents with an interest in wine drank all types of wine more frequently than those with little interest. Interest in cultural activities, which often are associated with wine consumption, also increased the frequency of consumption of all types of wine. Respondents who scored high on conspicuous attitudes drank sparkling and white wine more frequently than respondents with low scores. However, conspicuous attitudes did not affect the frequency of red wine consumption.

(JEL Classification: D12, Q13).

**Keywords:** consumer preference, motivation, red wine, sparkling wine, white wine.

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## **I. Introduction**

Wine consumption is affected by a variety of economic, social, cultural, psychological, demographic, and attitudinal factors (e.g., Yakovlev and Guessford, 2013; Holmes and Anderson, 2017; Gustavsen and Rickertsen, 2018; Fogarty and Voon, 2018; Niklas and Sadik-Zada, 2019; Hart and Alston, 2020). Gustavsen and Rickertsen (2018) found substantial effects of age, period and cohort variables on the frequency of wine consumption in Norway. Moreover, they found specific effects of marital status, education, income, place of living and attitudes towards hedonism, health and religion. Gustavsen and Rickertsen (2019) found that personality traits affected the frequency of wine consumption in Norway. Extraversion and openness to experience increased the frequency of wine consumption and agreeableness reduced it. Previous studies have also found that taste and sociability are important motivational factors behind wine consumption (e.g., Charters and Pettigrew, 2008; Marinelli et al., 2014), and that Prosecco wines benefit from high-consumer loyalty in the Italian market (Rossetto and Gastaldello, 2018).

We use a survey to estimate the frequency of consumption of sparkling, red and white wine. This study has three objectives. First, we investigate the importance of five motivational factors for wine consumption that were not investigated in Gustavsen and Rickertsen (2018; 2019). We include three sociability factors (cultural interest, wine interest and food interest), a proxy variable for taste and an index for conspicuous attitudes. We test for the effects of these variables in a model that includes the socioeconomic and demographic variables found to be important in Gustavsen and Rickertsen (2018; 2019), and the personality traits used in Gustavsen and Rickertsen (2019). Given some associations between personality traits and our motivational factors, we expect that the effects of the personality traits may be modified. Second, Gustavsen and Rickertsen (2018; 2019) studied the frequency of total wine

consumption while we investigate the specific effects for red, sparkling and white wine.

Third, we use more recent data than was used in these two previous studies.

## **II. Data and Methods**

Norwegian Monitor (NM) is the most comprehensive consumer survey in Norway. It is a nationally representative cross-sectional survey of adults aged 15 to 95 years, which has been conducted biannually since 1985. It includes questions related to demographics, socioeconomics, consumption frequencies, attitudes, personality traits, and much more. We used the 2019 survey and included 3,433 respondents aged between 18 and 90 years.

Table 1 shows the frequency and percentage distributions of yearly wine consumption. The values are based on the answers to the questions: “how often do you drink (i) sparkling wine (champagne etc.), (ii) white wine and (iii) red wine”. Less than one percent drank any kind of wine every day. About 24% never drank sparkling wine, 19% never drank white wine and 20% never drank red wine. Less than 2% drank sparkling wine, about 8% drank white wine and about 17% drank red wine at least once a week.

*Table 1 about here*

We constructed five motivation indexes, and three of them were related to sociability factors. The cultural interest index was based on the answers to four questions. “How often have you been to the following events during the last 12 months: (i) an opera, (ii) a classical music concert, (iii) a museum and (iv); a theater?” For each question the respondents had to tick one of the boxes: 10 times or more, 4-9 times, 1-3 times, infrequent or never go. The wine interest index was based on the answers to two questions: (i) “how interested are you in reading about wine in the newspapers?” and (ii) “how interested are you in wine and wine culture?” The respondents had to tick one of the boxes: very interested, somewhat interested or not interested. The food interest index was based on the answers to three questions. “How

interested are you in: (i) reading about food and beverages in newspapers and magazines, (ii) reading books about food and (iii) watching TV programs about food?” The respondents had to tick one of the boxes: very interested, somewhat interested or not interested.

No questions in the survey were directly related to the taste of wine, and we constructed a proxy taste index. This taste index was based on the answers to three questions: (i) “I am more concerned about the taste of the food than how healthy it is”, (ii) “it does not matter what the food looks like as long as it tastes good” and (iii) “I would rather use the money on things that bring long term pleasure than short term pleasures as vacations, eating out etc.” The respondents had to tick one of the boxes: totally disagree, somewhat disagree, somewhat agree or totally agree.

The conspicuous attitudes index was based on four questions: (i) “It is important to look good”, (ii) “I like to wear clothes with a visible brand”, (iii) “I try to obtain things that impress others”, and (iv) “nice house, expensive car and nice clothes rouse admiration among others”. The respondents had to click one of the boxes: totally agree, somewhat agree or disagree.

We followed Gustavsen and Rickertsen (2019), used the 20 item version of the Big Five personality traits developed by Engvik and Clausen (2011). The latent variables, the motivation indexes and the Big Five personality traits were constructed using the graded response model suggested by Samejima (1969). The other variables were as defined in Table 2 and discussed in more detail in Gustavsen and Rickertsen (2018). To estimate the frequencies of wine consumption, we followed Gustavsen and Rickertsen (2019) and used the beta regression setup in Ferrari and Cribari-Neto (2004). However, to take account of respondents who never drank wine odds ratios were included in the model (Stasinopoulos et al., 2017).

### III. Estimation Results

The estimation results are shown in Table 2. The  $O_0$  columns show the probability part of the models, i.e., the odds of not drinking sparkling, white or red wine. The  $BE(0,1)$  columns show the estimated parameters of the beta regression part of the model, i.e., the frequency of consumption given that you drink wine. The associated standard errors are shown in the parentheses. The parameter estimates have no natural interpretation beyond signs and significance.

Some variables have similar effects on the consumption frequencies. Wine interest, cultural interest and income increase the probability of drinking wine and increase the frequency of consumption of all types of wine, although the income effect is insignificant at the 5% level for the probability of drinking red wine. Food interest increases the probability of drinking red wine and the frequency of consumption of white and red wine. Conspicuous attitudes increase the probability of drinking sparkling and red wine and the consumption frequency of sparkling and white wine. Taste has no significant effect, however, the taste variable may be a weak proxy for liking the taste of wine.

There are several significant effects of the personality traits extraversion, agreeableness and conscientiousness but no significant effects for neuroticism and openness to experience. Religious respondents had a lower probability of drinking all types of wine and their consumption frequencies were lower for sparkling and red wine. There are also significant effects related to age, sex and living in a big city.

To investigate the quantitative effects of the motivation indexes on the frequencies of sparkling, white and red wine consumption, we performed some simulations. In each simulation, we calculated the expected difference in the consumption frequencies between respondents in the 90<sup>th</sup> quantile (respondents scoring high on the motivation) and respondents in the 10<sup>th</sup> quantile (respondents scoring low on the motivation). The other motivation indexes

and covariates were held constant at their mean values in each simulation, and each simulation was bootstrapped using 500 repetitions.

Table 3 shows the expected yearly consumption frequencies of sparkling, red and white wine in the 90<sup>th</sup> and 10<sup>th</sup> quantiles of each motivation index and the difference between these two quantiles. Wine interest and cultural interest both strongly increase the frequencies of consumption of sparkling, white and red wine. For example, respondents in the 90<sup>th</sup> quantile of wine interest are expected to drink red wine 48 times and white wine 27 times per year, while respondents in the 10<sup>th</sup> quantile are expected to drink red wine 15 times and white wine 11 times per year. Food interest increases the frequencies of consumption of red and white wine, but has no effect on sparkling wine. Conspicuous attitudes increase the frequencies of consumption of sparkling and white wine, but has no effect on red wine. Our taste index has no effect.

*Table 2 about here*

*Table 3 about here*

#### **IV. Discussion and Conclusions**

Wine interest and cultural interest both strongly increase the frequencies of consumption of all types of wine. The strong effect of the index for wine interest is not surprising. However, there is no clear causality and the links may go both ways. Interest in wine causes increased frequency of wine drinking, and increased frequency of wine drinking causes interest in wine. For many people going to the opera, theater or a classical concert may be associated with having a glass of wine. This association may explain the strong and consistent effects of the cultural index. Food interest is associated with increased frequency of consumption of red and white wines, which frequently are served with good food. The index for conspicuous attitudes is associated with a desire to impress other people in different ways. Sparkling and white wine may be closer associated with this desire than red wine. As discussed above, the taste index is associated with the taste of food rather than wine, which may explain the insignificant effects.

We find quite different effects of the personality traits than those found in Gustavsen and Rickertsen (2019). These differences may be due to the inclusion of our motivational variables but also the disaggregation of wine into red, sparkling and white wine or the use of a different sample. Gustavsen and Rickertsen (2019) found that the higher the degree of extraversion and the higher the degree of openness to experience, the higher are the probabilities for drinking wine. Neither extraversion nor openness to experience was found significant in this study. However, a higher degree of agreeableness increased the probability of drinking sparkling and red wine and a higher degree of conscientiousness reduced the probability of drinking each type of wine. Gustavsen and Rickertsen (2019) found that agreeableness reduced the expected frequency of wine consumption, and openness to experience increased the expected frequency of wine consumption. We find that agreeableness reduces the expected frequency of sparkling wine consumption but has no effects for white or red wine. We find no effect of openness on the frequencies of wine consumption, but extraversion increases the frequencies of consumption of all types of wine. There was no effect of neuroticism in any of the studies.

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*Table 1*  
**Frequencies and Percentages of Wine Consumption**

	<i>Every day</i>	<i>3-5 week</i>	<i>1-2 week</i>	<i>2-3 month</i>	<i>1 month</i>	<i>3-11 year</i>	<i>Less</i>	<i>Never</i>	<i>Total</i>
<b>Frequencies</b>									
Sparkling	0	4	56	231	353	970	1059	825	3,498
White	11	51	232	423	473	971	690	667	3,518
Red	19	120	460	588	420	736	481	709	3,533
<b>Percentages</b>									
Sparkling	0.0	0.1	1.6	6.6	10.1	27.7	30.3	23.6	100.0
White	0.3	1.4	6.6	12.0	13.4	27.6	19.6	19.0	99.9
Red	0.5	3.4	13.0	16.6	11.9	20.8	13.6	20.1	99.9

Note. Based on 3,622 respondents.

*Table 2*  
**Estimation Results for the Censored Beta Regression for Wine Consumption**

<i>Variable</i>	<i>Description</i>	<i>Sparkling</i>		<i>White</i>		<i>Red</i>	
		<i>O<sub>0</sub></i>	<i>BE(0,1)</i>	<i>O<sub>0</sub></i>	<i>BE(0,1)</i>	<i>O<sub>0</sub></i>	<i>BE(0,1)</i>
Intercept		<b>-1.58</b> (0.14)	<b>-3.84</b> (0.06)	<b>-1.93</b> (0.15)	<b>-2.89</b> (0.06)	<b>-2.24</b> (0.16)	<b>-2.30</b> (0.06)
<i>Motivation</i>							
Cultural interest (index)		<b>-0.62</b> (0.07)	<b>0.10</b> (0.02)	<b>-0.47</b> (0.07)	<b>0.15</b> (0.02)	<b>-0.45</b> (0.07)	<b>0.11</b> (0.02)
Wine interest (index)		<b>-1.59</b> (0.11)	<b>0.28</b> (0.02)	<b>-1.80</b> (0.13)	<b>0.32</b> (0.02)	<b>-2.28</b> (0.13)	<b>0.45</b> (0.02)
Food interest (index)		-0.09 (0.07)	0.02 (0.02)	-0.13 (0.07)	<b>0.04</b> (0.02)	<b>-0.18</b> (0.08)	<b>0.05</b> (0.02)
Taste (index)		0.00 (0.07)	0.00 (0.02)	-0.09 (0.07)	0.00 (0.02)	-0.15 (0.08)	-0.03 (0.02)
Conspicuous attitudes (index)		<b>-0.19</b> (0.07)	<b>0.09</b> (0.02)	-0.11 (0.07)	<b>0.04</b> (0.02)	<b>-0.16</b> (0.08)	-0.01 (0.02)
<i>Personality traits</i>							
Extraversion		-0.03 (0.06)	<b>0.07</b> (0.02)	-0.07 (0.06)	<b>0.04</b> (0.02)	0.00 (0.06)	<b>0.06</b> (0.02)
Agreeableness		<b>-0.16</b> (0.06)	<b>-0.04</b> (0.02)	-0.11 (0.07)	-0.02 (0.02)	<b>-0.17</b> (0.08)	-0.03 (0.02)
Conscientiousness		<b>0.18</b> (0.07)	<b>-0.04</b> (0.02)	<b>0.14</b> (0.07)	0.01 (0.02)	<b>0.19</b> (0.07)	0.01 (0.02)
Neuroticism		-0.03 (0.06)	-0.01 (0.02)	-0.01 (0.07)	-0.03 (0.02)	0.00 (0.06)	-0.03 (0.02)
Openness to experience		0.08 (0.06)	0.00 (0.02)	0.04 (0.06)	-0.01 (0.02)	0.06 (0.06)	-0.02 (0.02)
<i>Other variables</i>							
A	Standardized age	<b>0.19</b> (0.05)	<b>-0.06</b> (0.02)	-0.09 (0.06)	<b>0.11</b> (0.02)	<b>-0.26</b> (0.06)	<b>0.17</b> (0.02)
I	Standardized income	<b>-0.31</b> (0.07)	<b>0.10</b> (0.01)	<b>-0.18</b> (0.06)	<b>0.06</b> (0.02)	-0.13 (0.07)	<b>0.07</b> (0.02)
E	=1 higher education	-0.07 (0.11)	0.04 (0.03)	-0.04 (0.11)	0.05 (0.03)	<b>-0.32</b> (0.12)	0.05 (0.04)
W	=1 if woman	<b>-0.48</b> (0.15)	<b>0.19</b> (0.05)	<b>-0.57</b> (0.18)	<b>0.13</b> (0.05)	0.04 (0.17)	0.00 (0.05)
M	=1 if married	-0.09 (0.14)	0.06 (0.04)	-0.12 (0.15)	0.07 (0.04)	0.06 (0.15)	<b>0.08</b> (0.04)
WM	=1 woman and married	0.21 (0.19)	-0.06 (0.06)	0.33 (0.21)	-0.07 (0.06)	0.04 (0.21)	-0.04 (0.07)
BC	=1 living in a big city	-0.09 (0.12)	<b>0.09</b> (0.03)	-0.07 (0.14)	<b>0.17</b> (0.04)	-0.11 (0.14)	<b>0.09</b> (0.04)
Religion	= 1 if religious	<b>0.94</b> (0.11)	<b>-0.09</b> (0.04)	<b>0.83</b> (0.11)	-0.07 (0.04)	<b>0.87</b> (0.12)	<b>-0.11</b> (0.04)

Notes: The estimation results are based on 500 bootstraps and 3,433 respondents. The numbers in parentheses are the standard errors. Bold print indicates significance at the 5% level.

*Table 3*  
**The Effects of Motivation on Frequencies of Wine Consumption**

	<u>Sparkling</u>		<u>White</u>		<u>Red</u>	
	Freq	T-value	Freq	T-value	Freq	T-value
<i>Cultural interest (index)</i>						
90 <sup>th</sup> quantile	9.32	(20.59)	24.18	(18.59)	37.82	(23.06)
10 <sup>th</sup> quantile	5.90	(15.84)	15.69	(16.61)	27.31	(20.37)
Difference	<b>3.42</b>	(8.87)	<b>8.49</b>	(8.59)	<b>10.50</b>	(6.84)
<i>Wine interest (index)</i>						
90 <sup>th</sup> quantile	10.64	(21.35)	27.19	(19.14)	47.93	(26.17)
10 <sup>th</sup> quantile	4.33	(15.33)	11.31	(16.96)	15.09	(17.55)
Difference	<b>6.30</b>	(16.81)	<b>15.88</b>	(15.19)	<b>32.84</b>	(21.98)
<i>Food interest (index)</i>						
90 <sup>th</sup> quantile	8.06	(18.49)	21.11	(17.27)	35.05	(22.57)
10 <sup>th</sup> quantile	7.49	(17.98)	18.95	(17.98)	30.48	(21.19)
Difference	0.55	(1.39)	<b>2.16</b>	(2.23)	<b>4.57</b>	(3.06)
<i>Taste (index)</i>						
90 <sup>th</sup> quantile	7.78	(17.81)	20.37	(18.06)	32.34	(22.58)
10 <sup>th</sup> quantile	7.81	(18.28)	19.82	(16.92)	33.45	(21.11)
Difference	-0.04	(-0.08)	0.55	(0.56)	-1.11	(-0.72)
<i>Conspicuous attitudes (index)</i>						
90 <sup>th</sup> quantile	8.68	(19.34)	21.12	(17.97)	33.16	(22.78)
10 <sup>th</sup> quantile	6.95	(18.25)	19.10	(17.98)	32.62	(22.85)
Difference	<b>1.73</b>	(5.01)	<b>2.01</b>	(2.42)	0.55	(0.44)

Notes: The estimation results are based on 500 bootstraps and 3,433 respondents. Bold print indicates significant difference at the 5% level. The Freq columns show the expected annual consumption frequency when all other variables are measured at their mean values. The 90<sup>th</sup> quantile rows show the upper decile and 10<sup>th</sup> quantile rows show the lower decile of each motivational variable. The Difference rows show the difference in consumption frequency between the two quantiles.