

Wine and its economics in Greece and globally

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Abstract

Wine in Greece and globally is a product of great interest. Global and Greek production is fluctuating across years, but there is a clear tension of increase because of new vine cultivations and techniques. Also, international demand is increasing but prices do not follow increased demand. The main exporting countries are: France, Italy, Spain, Germany and Portugal. In Greece, in wine period 1984-1985, red wine represented 32.37% of total wine, while white 67.63% (V.Q.P.R.D. was only 5.76%). In 1994-1995, red wine represented 20.82% of total wine production, while white wine 79.18%. (V.Q.P.R.D.* was only 7.33%). In the last years red wine is the one third of total wine production. V.Q.P.R.D. wines showed a stable (and low production) across years. The basic production factors for wine makers (except grapes) are: bottles, carton packs fuel and electricity, corks, inputs on grape production. In a more detailed report, inputs represent 15% of total cost, while energy 7%, and enzymes, additional ingredients etc. only 2%. Fluctuations among these may lead wineries in better handling policies. A local research revealed that in Greece, people usually drink in tavern/restaurants, at home and in bar/pubs. Table bottled wine (including "Retsina") showed the greatest consumption followed by unbottled wine. Wine labels are of little to medium importance. Wine prices are very important for wine choice, especially for public sector employees. Answers revealed that consumption is independent from income fluctuations due to economic crisis. Education level affected the kind of packaging (bottled or unbottled wine) at home, wine prices, reduction in consumption and label preference. Higher education people consumed bottled and more expensive wine, paying attention in wine label. Some differences were found according to profession and wine prices. Annual income in higher categories may support wine consumption in case of bad economic conditions.

*Vin de Qualité Produit Dans Une Région Déterminée (French: Wines of Quality Produced in Determined Regions)

Key words: production, demand, prices, cost

Introduction

Greece is now at the 12th rank globally with production wine of 3.7 Mhctoliters, (1.7% and 1% in Europe and globally, respectively). The ranking is: Italy, Spain, France, USA, Argentina, Australia, Chile, South Africa, Germany, Portugal and Romania. Global wine production is estimated at 246 Mhctoliters and total demand (consumption) is 242 Mhctoliters. About 2.7 millions of bottles less in 2017 is the result of weather conditions (ypaithros, 2017; iefimerida, 2017).

Historically, OIV (Organisation Internationale de la Vigneet du vin) reported a global decrease of 4% in vine-cultivated land from 1995 to 2013, especially in Europe where 500.000 hectares were abandoned in years 2008-2011. The rest of the continents showed a slight increase. Europe production showed an increase because of the new cultivars and the more efficient linear designs used in cultivation. In 2017 there is a slight decrease accompanied by increased prices. The total consumption is increased after 2009 and until recently at 270 Mhctoliters (242 Mhctoliters in 2016). The main exporting countries are: France, Italy, Spain, Germany and Portugal (70% of global exports). Australia and Chile are the top export countries in the southern hemisphere. The main importers are USA, United Kingdom, Germany, Canada, China and Japan, with over a billion Euros in value (KEOSOE, 2015).

In Greece, wine consuming per capita is about 32 and 39 L in the last years. Wine imports were decreased by 13.11% for the period 2014-2015 and exports were increased by 15.54% (in volume) and by 5.2% (in values), in comparison to the previous wine period. The German market is the first destination of Greek wines on the shelf or in the Greek taverns. USA is the new rising market for the Greek wines by means of the proper support programs of the European Union (EDOAO, krasia.gr, 2015). The Chinese market is also a new challenge for Greek wines, since it is the 5th greater wine market globally. Greek wines are now available in China, where 70 more countries export their bottled wines and Greece occupies the 17th position, while France is the first exporting country in the certain market, followed by Australia, Chile, Spain, Italy, U.S.A., New Zealand and South Africa (G.D. of Customs, P.R. China, 2011). In this market 80% by volume and 56% by value is depended on the local production. Most of the people in China believe that wine (from grapes) is a

luxury that they cannot afford. The increasing rate of wine consumption reached 30% from 2010 to 2015, and is attributed to increased income per capita in China and of course to the recognition and status for Chinese wine consumers (Enterprise Greece, 2015). The proper marketing mix based on Chinese consumers' preferences and the proper distribution channels may establish a preference for Greek wines that must be differentiated from others by certain branding and promotion techniques (G.D.C. P.R. China 2011; Enterprise Greece, 2015).

Table 1. Greek wine export activity per country, total value (€), volume (in L) and mean price (€/L)

Country	Total value	Volume	Price
Germany	26.363.919	13.912.431	1.89
USA	8.244.876	8.244.876	4.31
France	8.244.876	3.702.182	1.48
Canada	3.658.728	981.007	3.73
Cyprus	3.366.082	1.140.969	2.95
Belgium	2.464.470	994.789	2.48
United Kingdom	2.273.953	904.622	2.51
Netherlands	1.752.246	795.194	2.2
China	1.147.872	275.604	4.16
Austria	1.105.559	508.823	2.17
Australia	847.922	263.078	3.22
Poland	725.300	583.232	1.24
Switzerland	701.650	160.755	4.36
Italy	431.319	428.024	1.01
Russia	413.076	256.790	1.61
Sweden	412.635	154.050	2.68
Denmark	224.666	99.421	2.26
Japan	191.361	47.104	4.06
Rest of world	2.864.858	1.025.349	2.79
Total	62.657.252	28.145.930	2.26

Source: ELSTAT (2015)

Year 2015 was a very difficult production period (data from 650 Greek wineries), mainly because of the weather conditions, in Nemea, Crete etc., but also due to capital controls, low cash flow for many wineries and generally the economic conditions in the country. The same was repeated in 2017 through production decrease in national and global level (ypaithros, 2017; iefimerida, 2017). These phenomena revealed that production must be independent from biotic, abiotic and economic stresses (EDOAO, 2015a; Pagkalaki, 2016).

Greek winery is relative small in size and imports of 30.4 million € (in 2014) are considered lavishness, because of the quality of traditional Greek wines, in comparison to lower quality imported ones (EDOAO, 2015a; Pagkalaki, 2016; Agro24: ICAP, 2016).

The top ten Greek wineries are presented as follows (EDOAO, 2015a):

- 1) E. Tsantalis S.A. In 2014 exported 42% of its production mainly in Germany (64% of its exports), Canada (7.5%), Netherlands (5%) and Russia (3.6%).
- 2) Greek Cellars-D. Kourtakis S.A. is holding the second place in production, exporting 35% of its wines.
- 3) E. Malamatinas and Son S.A. is specialized in cheap wines and “Retsina”.
- 4) Cavino is following, exporting 70-90% of its production.
- 5) Boutaris S.A. is another traditional winery for over 130 years.
- 6) EOSSamos (established in 1934), produces the local traditional Samos wine, exporting 80% of its production (mainly in France).
- 7) Tyrnavos wineries follows, producing wines and spirits.
- 8) G.A. Koutsodimos S.A.-Nemea wineries are producing VQPRD, local and table wines.
- 9) Biblia Chora from Kavala is now rising with a vineyard reaching 50 Ha.
- 10) Chateau Julia-Kostas Lazaridis is the last in the top ten.

There is a small number of large wineries with well-organized distribution channels and sales department to support sales of their products. Medium to small wineries are also nowadays well organized and focused in producing special wines (Dimitriadis and Tzortzaki, 2011). These wineries are also the main producers of unbottled wine. The quality of Greek wines is generally high and many labels are awarded globally with merits and special distinguish signs (Karavasili et al., 2017).

Table 2. Greek production (in HL) per wine product for certain years in the last four decades

Years 1984-1985			
Wine product	Wine volume (HL)	Red wines (HL)	White wines (HL)
1) Wines	5.015.500	1.623.500	3.392.000
V.Q.P.R.D.	289.000	145.000	144.000
Geographical ID	659.000	2.000	657.000
Table wines	4.067.500	1.476.500	2.591.000
2) Grape must	9.500	4.000	5.500
Total (1+2)	5.025.000	1.627.500	3.397.500
1994 - 1995			
1) Wines	3.042.924	633.485	2.409.439
V.Q.P.R.D.	222.976	92.259	130.717
Geographical ID	550.633	37.545	513.088
Table wines	2.269.315	503.681	1.765.634
2) Grape must	8.361	1.969	6.392
Total (1+2)	3.051.285	635.454	2.415.831
1996 - 1997			
1) Wines	4.105.125	880.977	3.224.148
V.Q.P.R.D.	313.400	145.123	168.277
Geographical ID	855.507	80.539	774.968
Table wines	2.936.218	655.315	2.280.903
2) Grape must	4.075	0	4.075
Total (1+2)	4.109.200	880.977	3.228.223
2004-2005			
1) Wines	4.274.720	1.385.000	2.889.720
V.Q.P.R.D.	400.780	246.640	154.140
Geographical ID	417.280	173.930	243.350
Table wines	3.136.270	959.800	2.176.470
Traditional wines	320.390	4.630	315.760
2) Grape must	20.280	0	20.280
Total (1+2)	4.295.000	1.385.000	2.910.000
2010-2011			
1) Wines	2.800.000	921.750	1.878.250
V.Q.P.R.D.	320.000	137.000	183.000
Geographical ID	480.000	225.000	255.000
Table wines	1.785.000	559.750	1.225.250
Traditional wines	215.000	0	215.000
a) Geographical ID	15.000	0	15.000
b) No geographicalID	200.000	0	200.000
2) Grape must	150.000	14.900	135.100
Total (1+2)	2.950.000	936.650	2.013.350
2011-2012			
1) Wines	2.660.050	911.850	1.748.200
V.Q.P.R.D.	280.000	110.000	170.000
Geographical ID	470.000	230.000	240.000
Table wines	1.716.000	571.750	1.144.200
Traditional wines	194.050	50	194.000
a) Geographical ID	14.000	0	14.000
b) No geographicalID	180.050	50	180.000
2) Grape must	90.000	8.000	82.000
Total (1+2)	2.750.000	919.800	1.830.200

It is clear from Table 2 that, wine volume was reduced and white wines are the double as much red ones. Wine volume reduce did not affected significantly VQPRD production. Progress of wine production in volume follows in Figure 1.

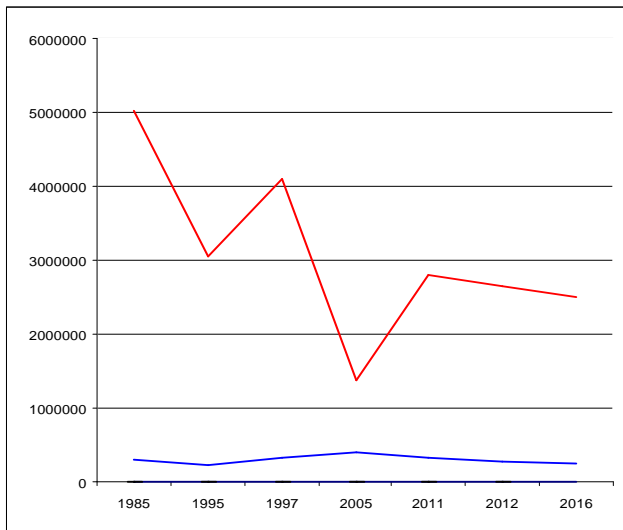


Fig. 1. Greek wine volume across periods (years: 1985, 1995, 1997, 2005, 2011, 2012, 2016). Total production in HL in red curve, quality wines (VQPRD) in lower blue curve

The relations between wine types are exhibited in Table 2. In 1984-1985, red wine represented 32.37% of total wine, while white 67.63% (V.Q.P.R.D. was only 5.76%). In 1994-1995, red wine represented 20.82% of total wine, while white 79.18% (V.Q.P.R.D. was only 7.33%). During the last years red wine is the one third of total wine production. V.Q.P.R.D wines showed a stable (and low production) across years.

Price determining factors

Generally, price of wines globally is determined by substitute products, consumers' income, consumers' demand and expectations and the total number of consumers. In economic level, price depends on the total production volume, the distribution and placement cost in the special stores, supermarkets and restaurants. At the final sale places price is defined by the label and the consumers' demand (Mayyasi, 2013). Religious beliefs may influence the potential demand, since in some cases wine (alcohol) is forbidden (in case of Islam), or is considered appropriate for special purposes, although modern people consider wine consumption as a healthy habit (Fortune, 2011). Marketing is the most influencing parameter on wine prices, and according to Lockshin (2003), marketing mix must involves consumer's behavior,

wine tourism, direct sales, distribution channel handling (controlled logistics) from the vineyard to the final consumer, the bottles and labels, participation in exhibitions and awarding events, promotion to proper market segments, exports, the choice of the proper distributors, branding and fame and finally the local legislation (for wine and alcohol). In other studies, quality of wine making, promotion, the brand name, VQPRD or locality certifications (based on local special conditions) and premium wines of famous vineyards are considered the main parameters for defining wine prices (Zaichkowsky, 1988; Quester and Smart, 1998; Rousou, 2008). They also stated that global prices are depended on the level of production, balancing between 246 and 270 Mhectoliters in the last decades. Wine production along with enterprise cash flows determines the level of market supply. The special characters (organoleptic, balance and harmony), do not define wine price (Lecocq and Visser, 2006). Promotion and advertising may influence significantly wine price contributing by 80% in bottle price (Marshall-Genzer 2016). Global prices were a research project of Statista (2017) and many other organizations.

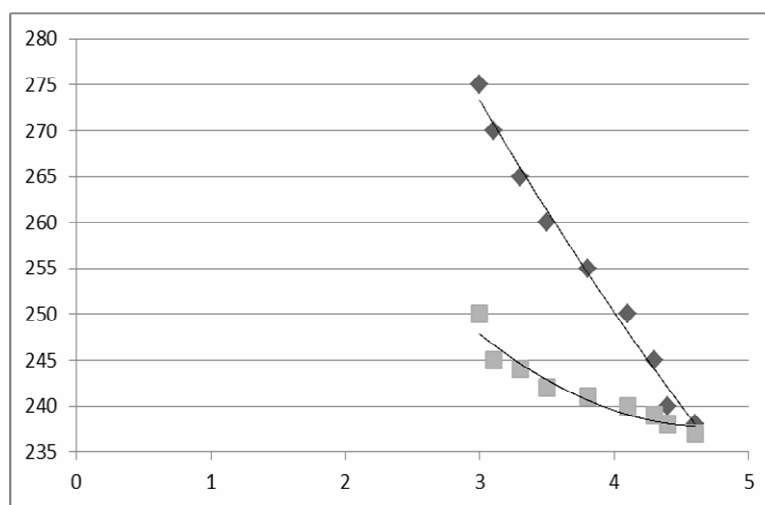


Fig. 2. The global wine prices in USD based on synthesis of statistical data for estimated consumption (■) as a base of demand and wine production (◆) determining market supply (WineNews & Entertainment, 2016; Winebusiness 2017; Grapeconnect, 2017; CNNmoney, 2017; Statista 2017; ICAP, 2016; OIV, 2017).

The decrease in the recent production lead to increased prices, because of the increased global demand (ypaithros, 2017; iefimerida, 2017), showing the relation between wine production and prices. Only special wines are independent from these fluctuations, like a Petrus 1982 or similar, where consumers expect to taste something different and exceptional. Such wine makers are bonded to a certain client model, or

market segment. They are focused on full differentiation in the market (Blatsios, 2014).

Wine supply

Many dispersed wineries formed the wine market supply based on: The inputs cost, production technology, market expectations and the number of producers. Also, the bad environmental conditions in 2017 decreased total production (CNN Money, 2017). Conversely, price is alone a determination parameter of total wine supply, accompanied by the cash-flow of wine enterprises (Quester and Smart, 1998; Rousou, 2008). Great wineries invest continuously on new technology and automatic systems, from the grape to the bottle (Karavasili et al., 2017). Wine policy of European Union lead to decrease of European vineyards in order to improve quality. Tax policies in wine and alcohol are also very strict. In Greece, the specific tax on consumption lead to illegal practices of producers and lower tax inputs for government. About 4,500,000 Hliters of wine remained unregistered and thus without tax for 2015-2016 production (KEOSOE, 2016). During the last years wine production was reduced by 20% in comparison to the previous 5-year period, accompanied by reduced consumption of 6% for the same period (Agro24: ICAP Group, 2016). Exports were also decreased after 2010, but in 2014 there was the first time of increased export sales (15.5% in comparison to 2013).

Wine demand

According to Karavasili et al. (2017), wine demand in depended on wine prices in relation to disposable income, consumers' nutritional habits and tourism. Also seasonal fluctuations and consumption period may determine wine demand: in summer consumers the white wine and in winter the red wine (especially as a gift in Christmas period). Substitute products competing with wine may be: beer, tsipouro, ouzo and soft drinks. The total income of wine consumers may lead them in substitute products, or to the unbottled wine preference. In Greece 18 million tourists and 11 million Greeks are forming the consumption demand. Wine labels have been under consideration in relation to the total impact on wine demand. Beer and ouzo are considered the most competitive substitutes for wine. Especially beer, which is found in lower prices in restaurants and taverns, is considered the strongest competitor. The unbottled wine decreases wine-beer competition since it is sold in lower prices (Souravla et al., 2012).

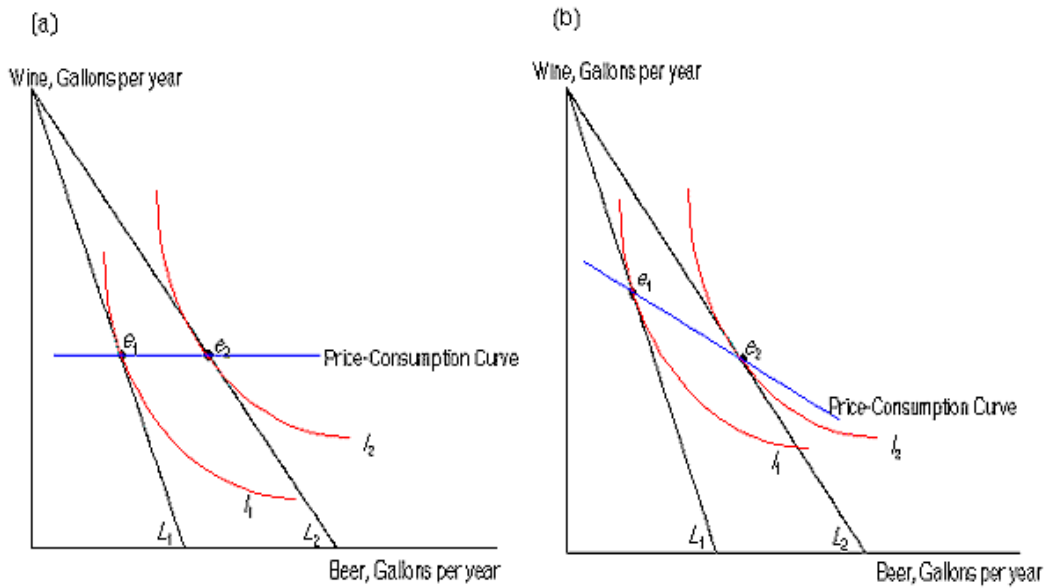


Fig. 3. Global prices and demand curves for wine and beer (Perloff, 2003)

Decreasing prices of beer (balance from e_{2a} to e_{2b} , with wine price balance in e_1) at to income levels L_1 , L_2 , is moving demand curves (in red), without any significant substitution of wine by beer consumption (Fig. 3).

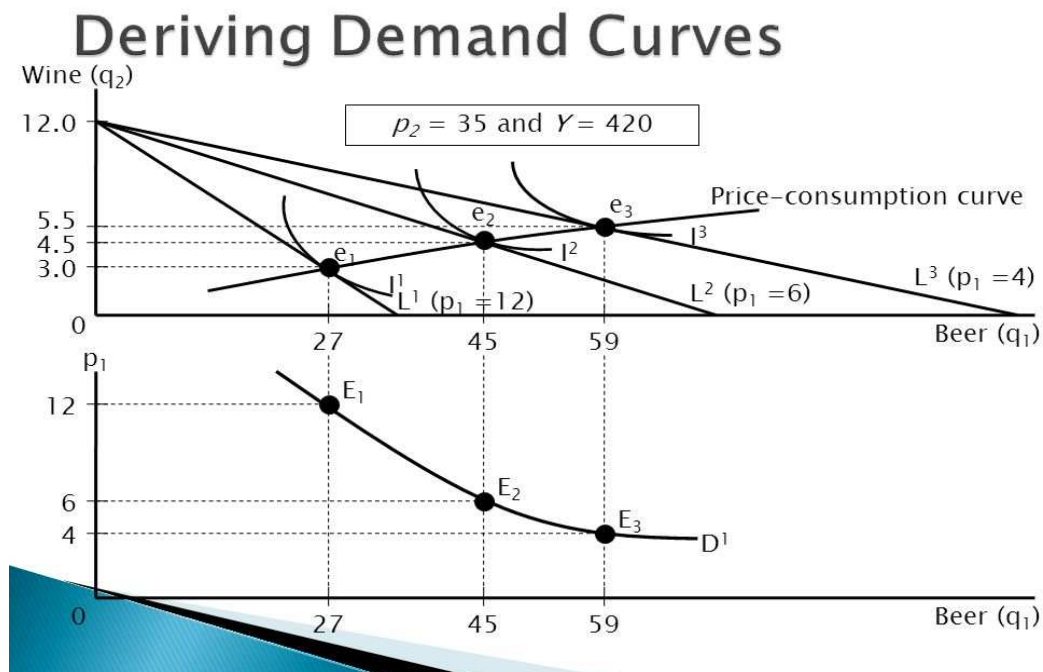


Fig. 4. Global prices and demand curves for wine and beer (Woods, 2015)

In Figure 4, it is more apparent the substitution of wine by beer, when beer price is decreasing by 65% according to Woods (2015).

The greatest competition is now between labeled quality bottled wine and cheap wine, or the unbottled (in bulk and in large packages) and bottled wine. The distribution channels and V.Q.P.R.D. availability determine the quantities in the market and subsequently demand and prices (Rousou, 2008). According to ICAP Group (2016), demand is based on wine prices, consumers' income, traditions etc. A transposition to cheaper substitutes was realized because of lower consumers' income and alcohol drinks' demand was lower at all sale positions. Additionally, consumers' standards and nutritional habits usually affect positively wine demand and consumption, since many research works reveal the positive effects of wine in human health, combining healthy and well-being living, although fast life rates in the cities turned people in a more unhealthy way of living and eating fast food or having low quality nutrition (KEOSOE, 2010). Advertisement, usually through magazines, supports wine consumption and especially certain high quality labels (Karavasili et al., 2017). ELSTAT reports on household budgets (2015) revealed a total consumption for wine products in Greece reaching 6.46 millions € in 2014, representing 38% of total alcohol drinks. The mean monthly consumption per household reached 1.45 l in the same period.

Consumers' behavior may be quantitative or qualitative, i.e. buying the same label every time or among a restricted variety of wines, resulting in a complex model of behavior based on prices, preferences, locality, labels (Lockshin, 2003), i.e. in the New world the production territory is the main determining parameter than price. In HORECA market, variety is restricted and prices are inflated. Also, consumers may be attracted by the bottle and the label or its info. Label awards do not affect wine prices (Lockshin, 2003; Greis, 2015). Consumer's satisfaction is a synthesis on certain price level (Ball, 2013; Viner, 1960, 2016). Also consumer's culture and education is affecting demand formatting a rather inelastic curve, which is not affected by other market parameters like the production fluctuations, but this is not apparent at the lower market segment (Lockshin and Spawton, 2001).

In Greece, from total wine production 63% or more concerns wines without certifications (VQPRD, local wines) for the last five years. Greek wines are high in consumers' preferences, thus import intrusion is only 6%. For the same period, in volume terms, bottled wines cover 36-40%. In value terms, bottle wine represents 58%. Red wines have a cut of 68-70% (ELSTAT, 2015; Agro 24: ICAP, 2016).

Wine cost estimations

Cost production for vines and wine in relation to price and quality policy are the basic economics of the wine sector. In general, cost production for Greek producers is not so high because of limited inputs, but prices of wine are low. Larger wineries may ask for better prices and consumers may pay for a good quality wine. Also, they maintain an extended distribution network.

According to KEOSOE (2016), wine cost is based on:

The price of raw material (grapes), its quality and labor cost. Also, the technology of wine production. Tax policy is of great importance, because the special tax on wine consuming cumbers the final prices. Cash flows and well organized procurement departments may also influence cost. Advertisement and promotion may reach 80% of total cost (Marshall-Genzer, 2016). Economies of size, quality targeting and packaging/bottling also affect total cost. The high contribution of raw materials (vines), has a high harvest cost (50% of vines), contributing also in wine cost reaching 50% in Greece. Mechanization of viticulture may reduce total cost in the future.

The total image of the brands is very important for wine sector. Bottles usually are of Greek origin (or other Balkan countries) and cork is imported from Portugal. Quality of corks may affect significantly bottling cost. Generally, large wineries have lower cost of bottling/packaging. Greek winery has to cope with the cost of vines and mechanization or automation level, in comparison to better economies of other European wineries (Rodopoulos and Nikoloudakis, 2006). Many small vineyards and many small wineries cannot reduce easily production cost, with negative results on final prices that consumers have to pay (Rousou, 2008). Many other factors may affect total cost, like depreciation, storage, distribution, labor cost and producers' expectations. All these factors are unstable, especially vine production. Distribution network may determine the final prices, discount policy and product placement in points of sale (Blatsios, 2014). ICAP (2016) analyzed also the economics of wine, showing that gross profit gap increased by 2.6 units and now is about 27%.

Methodology

A question sheet was formed properly to record consumers' habits and preferences on wine/alcohol demand. A total of 40 randomly selected people answered the questions (that are presented directly in the results), involving consumption, preferences and prices. Demographic/social data were also recorded. Data were

analyzed using Google forms tools, MS-Excel 2003 (Microsoft) and SPSS ver. 17. Frequency bars, pie charts and cross-tabulation analysis was performed. Statistics of correlations and comparisons were based on statistical theory (Snedecor and Cochran, 1980). Data were transformed properly prior to calculations.

Results and Discussion

All answers are presented in the proper form in Figures 5-18. The 14 questions resulted in a complex consumer profile, but revealed a relative independence of religious beliefs (of the random sample of 40 people).

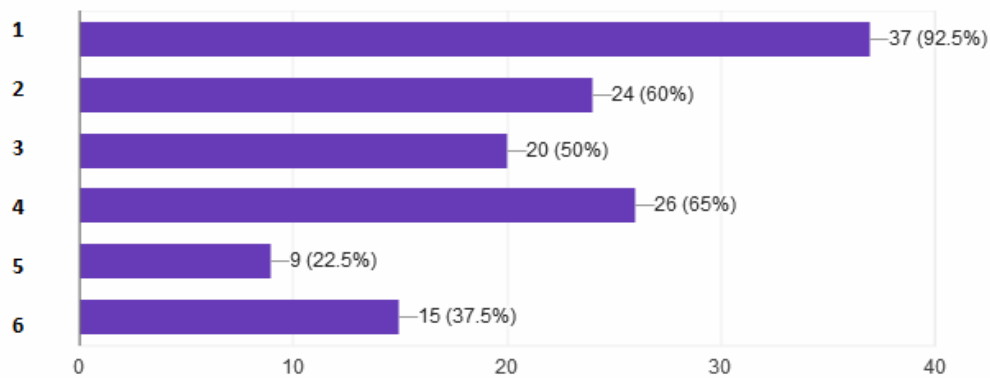


Fig. 5. Question 1: Are you drinking alcohol or soft drinks? 1= wine, 2 tsipouro/ouzo, 3= rest alcohol drinks, 4= beer, 5= water or teas, 6= juice/soft drinks

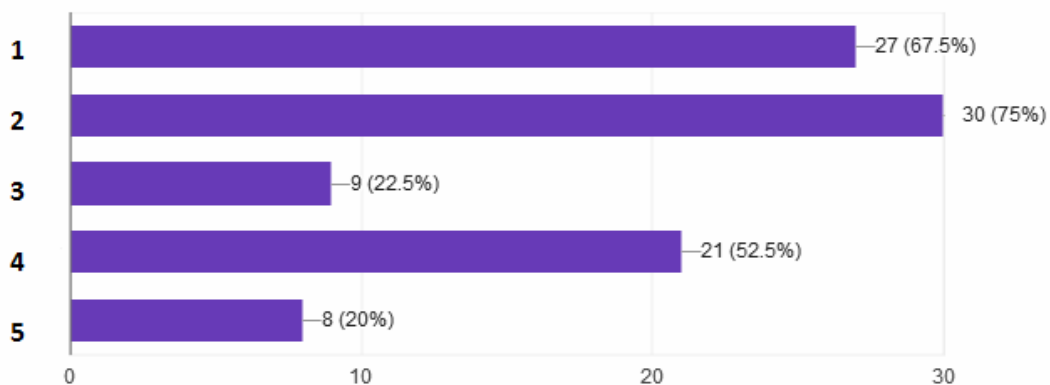


Fig. 6. Question 2: Are you drinking at home/elsewhere? 1= home, 2= tavern, 3= cafeteria, 4= bar/pub, 5= night clubs

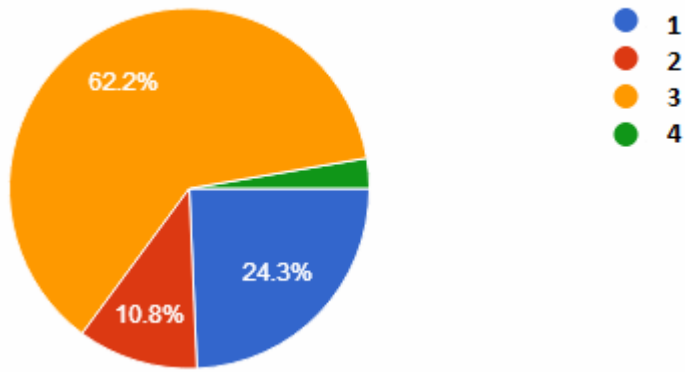


Fig. 7. Question 3: In case of wine, what kind are you drinking at home? 1= wine unbottled (in bulk), 2= wine unbottled in economy packs (5 l), 3= table bottled wine, 4= expensive bottled wine.

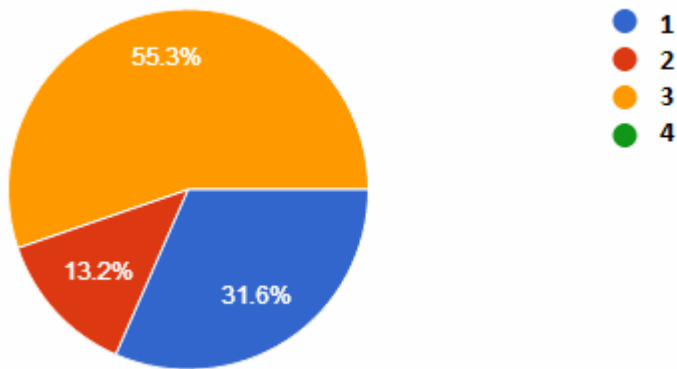


Fig. 8. Question 4: In case of wine, what kind are you drinking outside (taverns, bars, etc)? 1= wine unbottled (in bulk), 2= wine unbottled in economy packs (5 l), 3= table bottled wine, 4= expensive bottled wine.

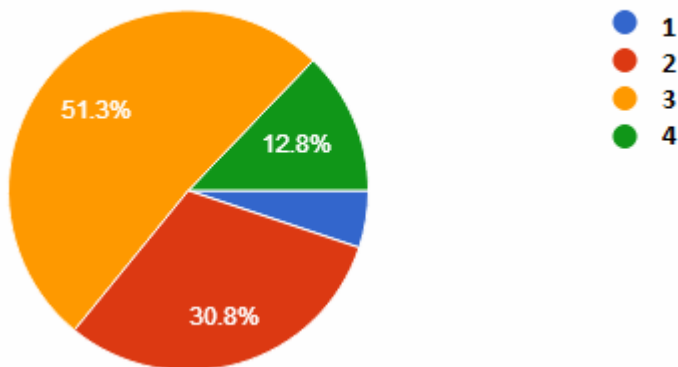


Fig. 9. Question 5: Wine label is of great importance to you? 1= absolutely yes, 2= yes, 3= a little, 4= not at all

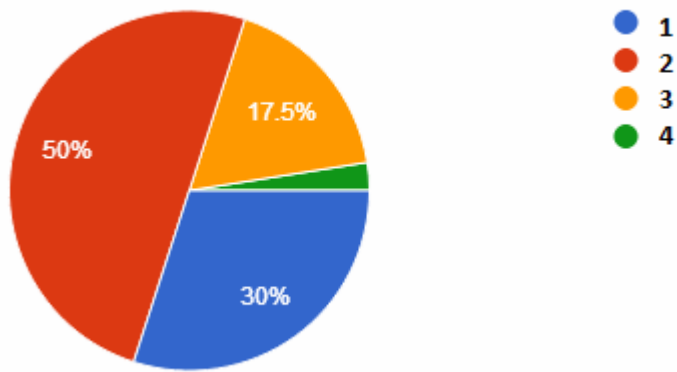


Fig. 10. Question 6: Wine prices are of great importance to you? 1= absolutely yes, 2= yes, 3= a little, 4= not at all

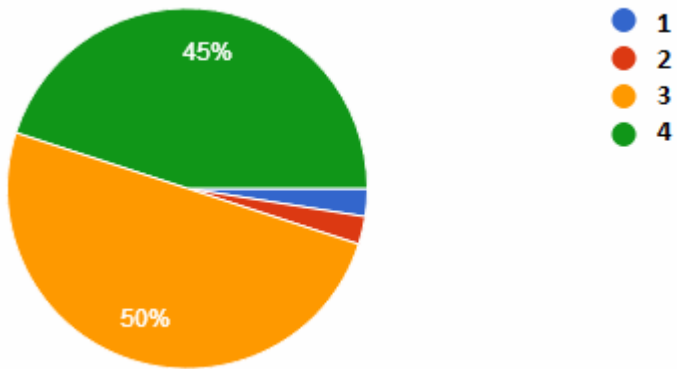


Fig. 11. Question 7: Have you reduced wine consumption (during last years)? 1= absolutely yes, 2= yes, 3= a little, 4= not at all

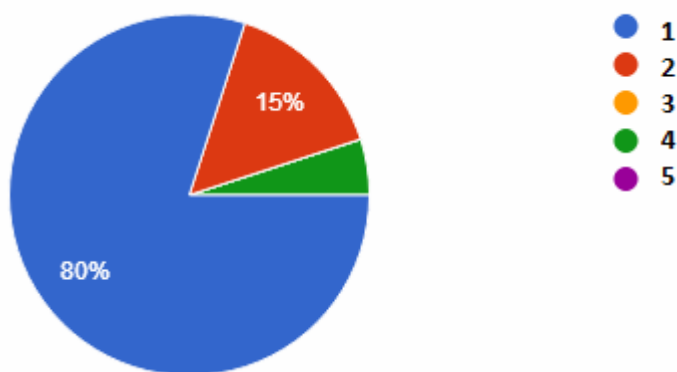


Fig. 12. Question 8: If your income will increase, will you increase consumption of the following? 1= No, 2= wine, 3= beer, 4= tsipouro/ouzo, 5= rest of alcohol drinks

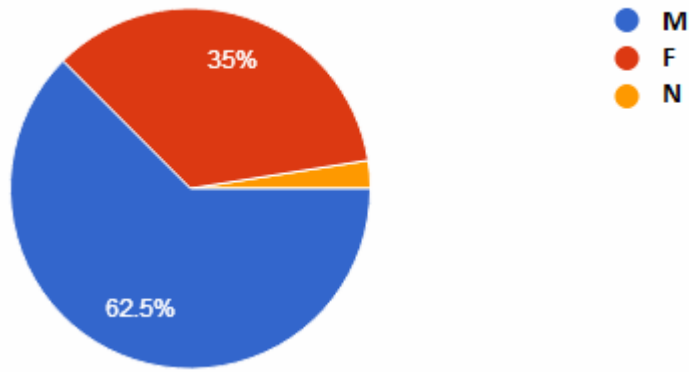


Fig. 13. Question 9: Please give your sex. M= male, F= female, N= I do not wish to answer

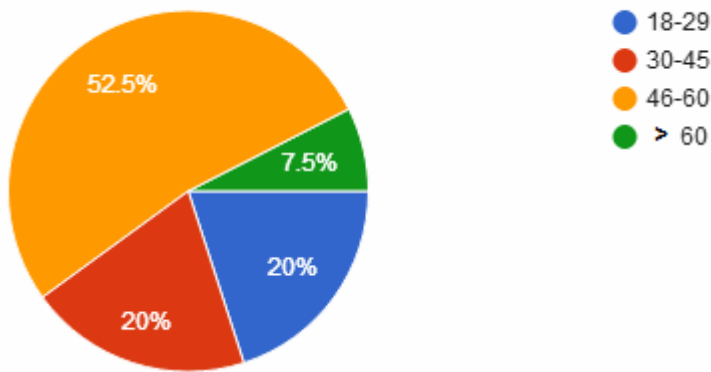


Fig. 14. Question 10: Please give your age group. 18-29, 30-45, 46-60, over 60 years old

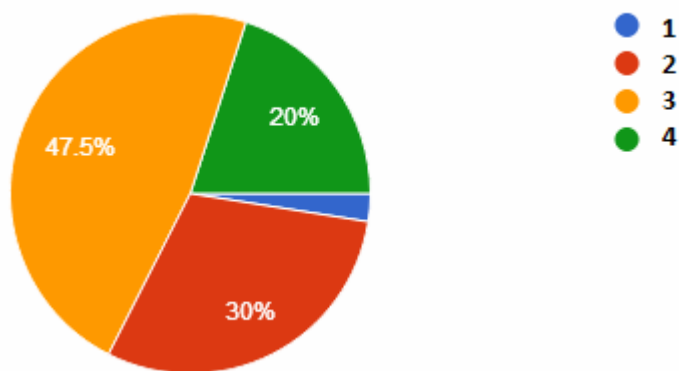


Fig. 15. Question 11: Please give your education level. 1= graduate of first and second level elementary schools, 2= graduate of high school and post graduate training institutions, 3= graduate of University (AEI), or Technological Institutions (TEI), 4= Post graduate studies (PhD or master degree)

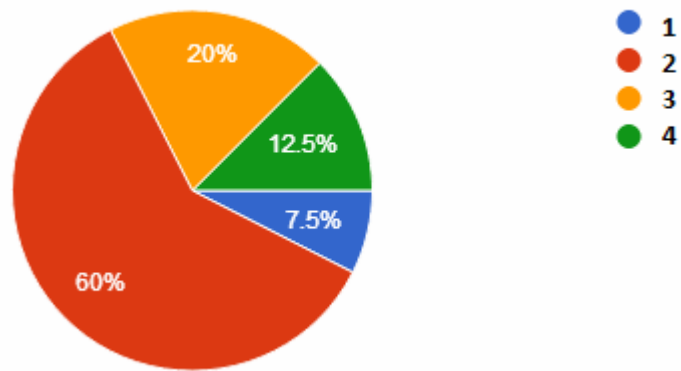


Fig. 16. Question 12: Please give your profession. 1= unemployed, 2= work in public sector, 3= work in private sector, 4= self-employed

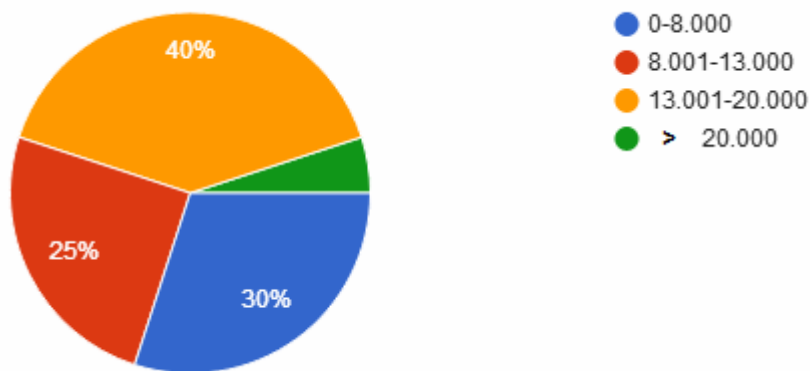


Fig. 17. Question 13: Please give your annual income. 0-8,000, 8,001-13,000, 13,001-20,000, over 20,000 Euro

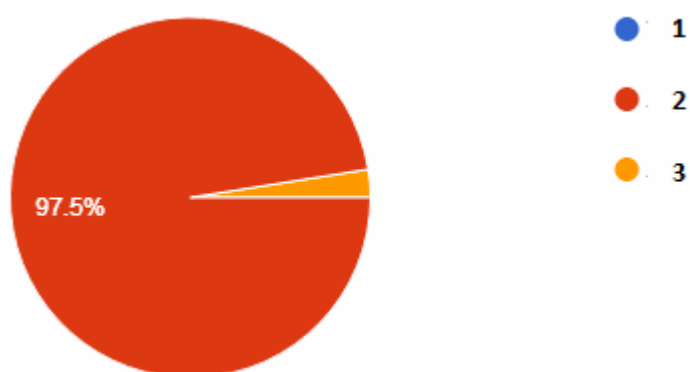


Fig. 18. Question 14: Please declare if 1= I have some limitations because of my religious beliefs, 2= I do not have any restriction because of my religious beliefs, 3= I do not answer about my religious beliefs

Table 3. Cross-tab and X^2 between age (question 10) and point of consuming (question 2)

Crosstab

Count

		VAR00010				Total
		1,00	2,00	3,00	4,00	
VAR00002	1,00	4	0	3	0	7
	2,00	1	7	11	3	22
	3,00	3	1	7	0	11
Total		8	8	21	3	40

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14,202 ^a	6	,027
Likelihood Ratio	16,209	6	,013
Linear-by-Linear Association	,666	1	,414
N of Valid Cases	40		

a. 10 cells (83,3%) have expected count less than 5.

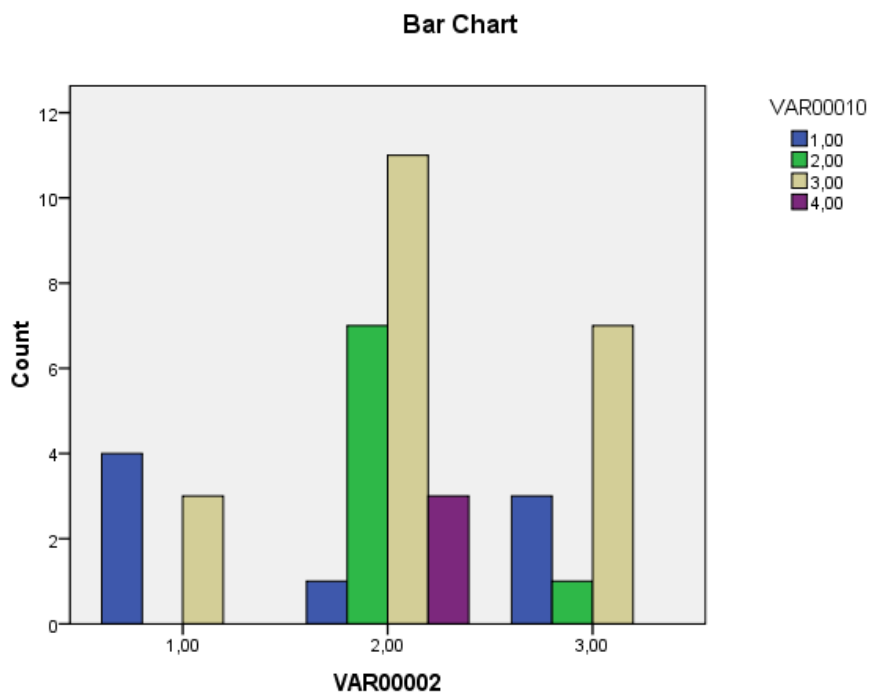


Fig. 19. Bar chart for corss-tab between questions 2 and 10

Table 4. Cross-tab and Pearson correlation between education level (question 11) and kind of packaging at home (question 2)

Crosstab

Count

		VAR00011				Total
		1,00	2,00	3,00	4,00	
VAR00003	1,00	1	2	6	0	9
	2,00	0	2	2	0	4
	3,00	0	7	9	7	23
	4,00	0	0	0	1	1
Total		1	11	17	8	37

Symmetric Measures

		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval	Pearson's R	,320	,133	2,001	,05 ^c
Ordinal by Ordinal	Spearman Correlation	,308	,141	1,915	,06 ^c
N of Valid Cases		37			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

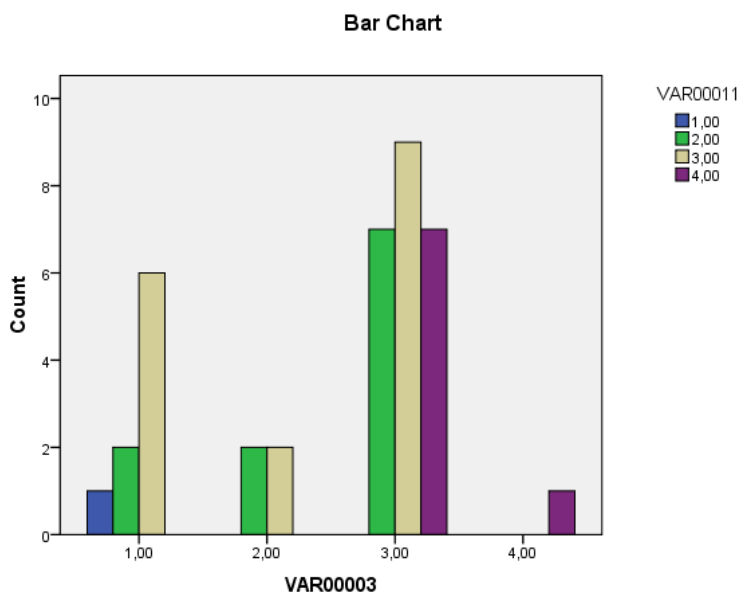


Fig. 20. Bar chart for corrs-tab between questions 3 and 11

Table 5. Cross-tab, X^2 and Pearson correlation between age (question 10) and kind of packaging outside (question 4)

Crosstab

		VAR00010				Total
		1,00	2,00	3,00	4,00	
VAR00004	1,00	0	0	9	3	12
	2,00	3	0	2	0	5
	3,00	4	8	9	0	21
Total		7	8	20	3	38

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	21,557 ^a	6	,001
Likelihood Ratio	25,337	6	,000
N of Valid Cases	38		

a. 10 cells (83,3%) have expected count less than 5.

Symmetric Measures

		Value	Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval	Pearson's R	-,481	,103	-3,287	,002 ^c
Ordinal by Ordinal	Spearman Correlation	-,493	,119	-3,396	,002 ^c
N of Valid Cases		38			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis. c. Based on normal approximation.

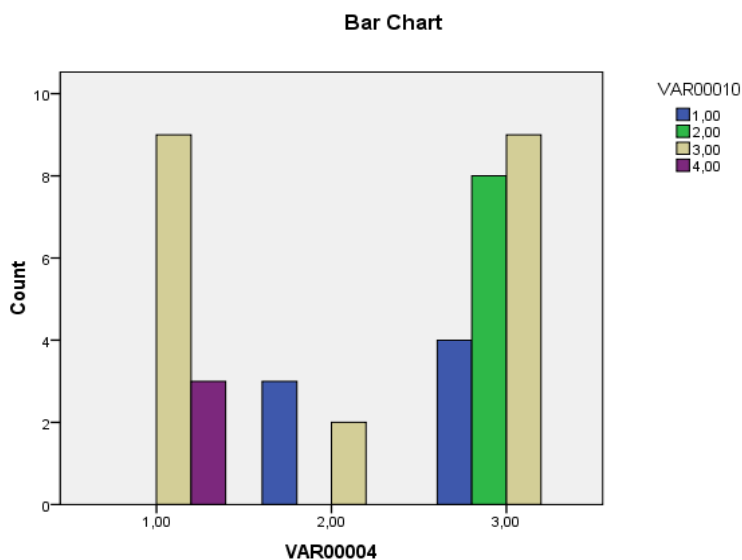


Fig. 21. Bar chart for corss-tab between questions 4 and 10

Table 6. Cross-tab and Pearson correlation between education level (question 11) and wine label (question 5)

Crosstab

Count

		VAR00011				Total
		1,00	2,00	3,00	4,00	
VAR00005	1,00	0	0	1	2	3
	2,00	0	2	5	4	11
	3,00	1	7	11	2	21
	4,00	0	3	1	0	4
Total		1	12	18	8	39

Symmetric Measures

		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval	Pearson's R	-,481	,110	-3,337	,002 ^c
Ordinal by Ordinal	Spearman Correlation	-,481	,121	-3,335	,002 ^c
N of Valid Cases		39			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

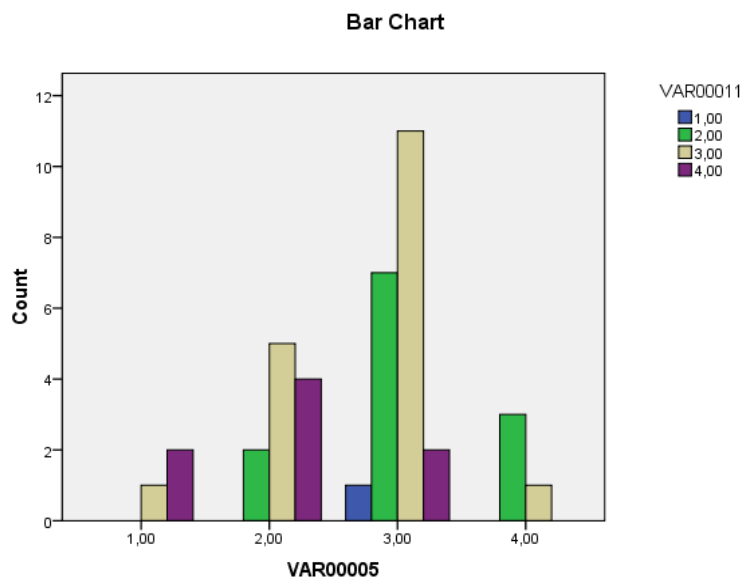


Fig. 22. Bar chart for corss-tab between questions 5 and 11

Table 7. Cross-tab and Pearson correlation between education level (question 11) and wine prices (question 6)

Crosstab

		VAR00011				Total
		1,00	2,00	3,00	4,00	
VAR00006	1,00	1	7	3	1	12
	2,00	0	2	14	4	20
	3,00	0	3	1	3	7
	4,00	0	0	1	0	1
Total		1	12	19	8	40

Symmetric Measures

		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval	Pearson's R	,329	,151	2,149	,038 ^c
Ordinal by Ordinal	Spearman Correlation	,351	,167	2,310	,026 ^c
N of Valid Cases		40			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

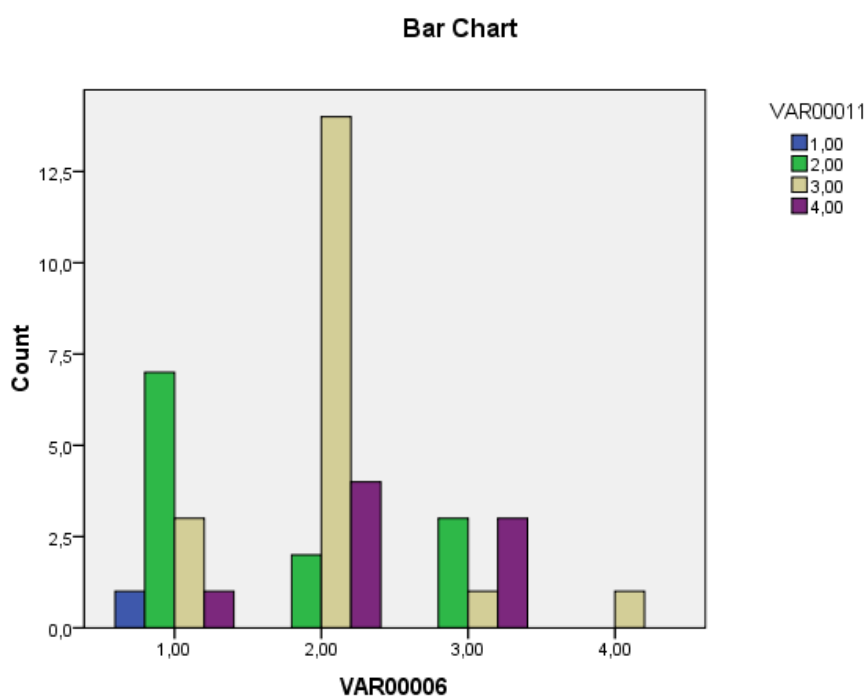


Fig. 23. Bar chart for corss-tab between questions 6 and 11

Table 8. Cross-tab and X^2 between profession sector (question 12) and wine prices (question 6)

Crosstab

Count		VAR00012				Total
		1,00	2,00	3,00	4,00	
VAR00006	1,00	1	6	5	0	12
	2,00	1	14	2	3	20
	3,00	0	4	1	2	7
	4,00	1	0	0	0	1
Total		3	24	8	5	40

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	20,556 ^a	9	,015
Likelihood Ratio	14,613	9	,102
Linear-by-Linear Association	,001	1	,974
N of Valid Cases	40		

a. 14 cells (87,5%) have expected count less than 5. The minimum expected count is ,08.

Bar Chart

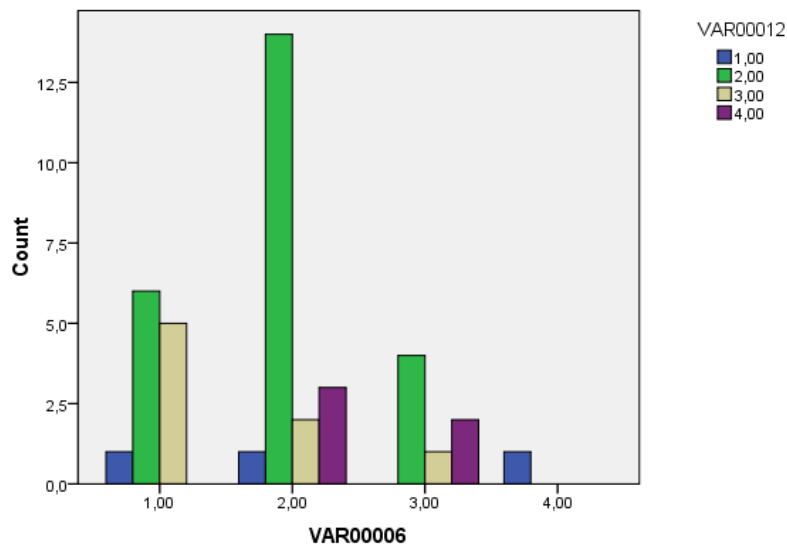


Fig. 24. Bar chart for corss-tab between questions 6 and 12

Table 9. Cross-tab, X^2 and Pearson correlation between education level (question 11) and reduced wine consumption (question 7)

Crosstab

		VAR00011				Total
		1,00	2,00	3,00	4,00	
VAR00007	1,00	0	0	0	1	1
	2,00	0	0	0	1	1
	3,00	1	2	14	3	20
	4,00	0	10	5	3	18
Total		1	12	19	8	40

Chi-Square Tests

	Value	df	Sig. (2-sided)
Pearson Chi-Square	19,491 ^a	9	,021
Likelihood Ratio	18,426	9	,031
N of Valid Cases	40		

a. 12 cells (75,0%) have expected count less than 5.

Symmetric Measures

		Value	Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval	Pearson's R	-,387	,150	-2,586	,014 ^c
Ordinal by Ordinal	Spearman Correlation	-,382	,157	-2,551	,015 ^c
N of Valid Cases		40			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis. c. Based on normal approximation.

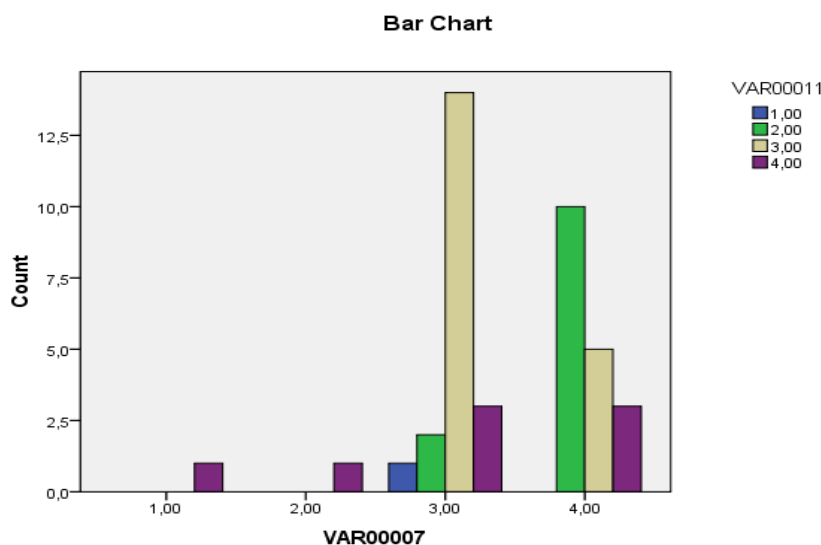


Fig. 25. Bar chart for corss-tab between questions 7 and 11

Table 10. Cross-tab and Pearson correlation between annual income (question 13) and reduced wine consumption (question 7)

Crosstab

Count

		VAR00013				Total
		1,00	2,00	3,00	4,00	
VAR00007	1,00	0	1	0	0	1
	2,00	0	0	1	0	1
	3,00	4	3	11	2	20
	4,00	8	5	5	0	18
Total		12	9	17	2	40

Symmetric Measures

		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval	Pearson's R	-,30	,128	-2,0	,05 ^c
Ordinal by Ordinal	Spearman Correlation	-,364	,134	-2,411	,02 ^c
N of Valid Cases		40			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

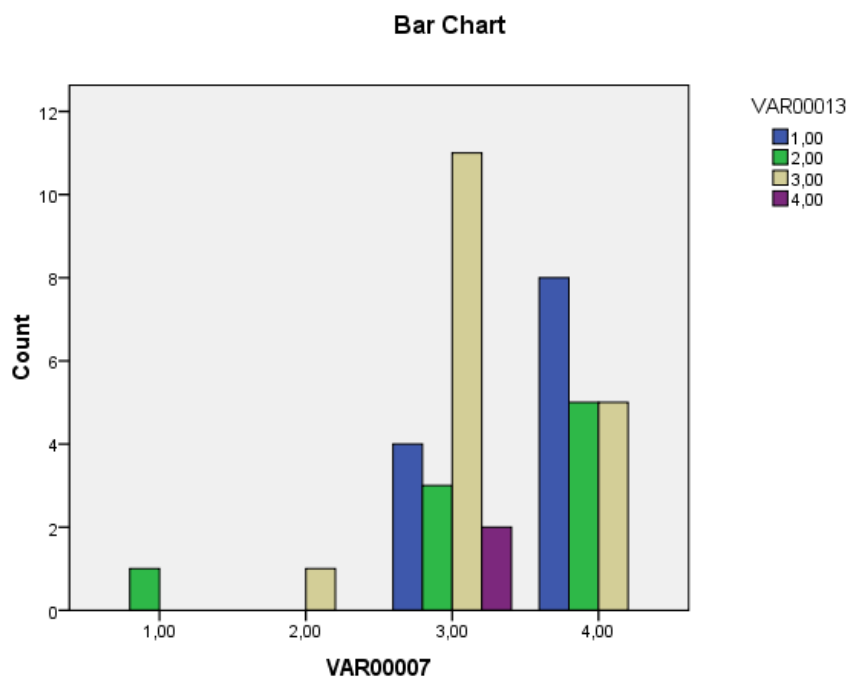


Fig. 26. Bar chart for corss-tab between questions 7 and 13

Table 11. Cross-tab and Pearson correlation between male/female sex (question 9) and possible consumption after income increase (question 8)

Crosstab

Count

		VAR00009			Total
		1,00	2,00	3,00	
VAR00008	1,00	17	14	1	32
	2,00	6	0	0	6
	4,00	2	0	0	2
Total		25	14	1	40

Symmetric Measures

		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval	Pearson's R	-,312	,061	-2,025	,05 ^c
Ordinal by Ordinal	Spearman Correlation	-,383	,076	-2,554	,015 ^c
N of Valid Cases		40			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

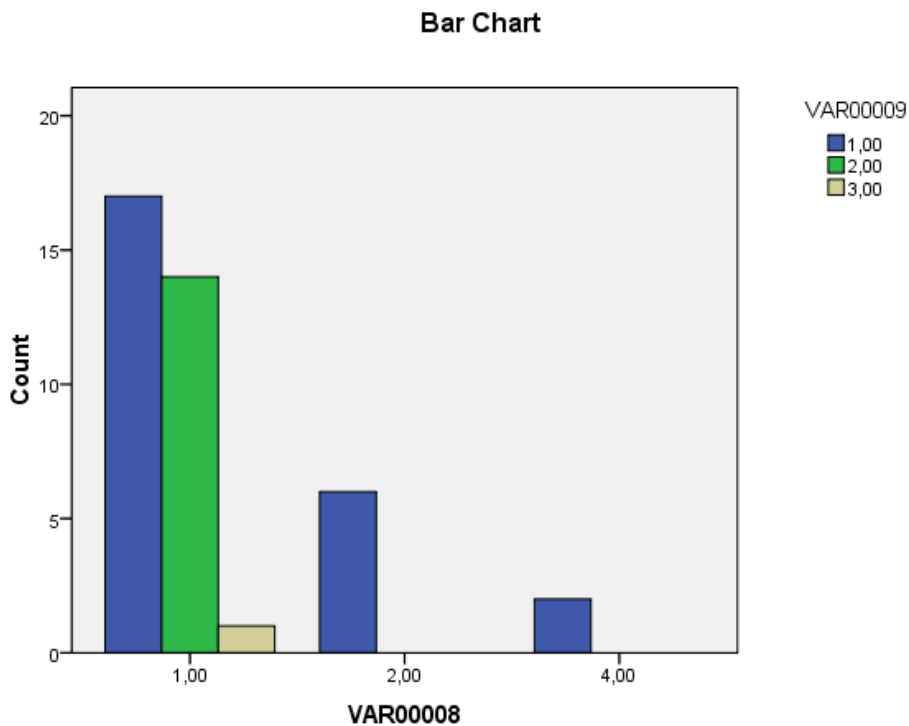


Fig. 27. Bar chart for corss-tab between questions 8 and 9

Table 12. Cross-tab and Pearson correlation between age (question 10) and possible consumption after income increase (question 8)

Crosstab

Count

		VAR00010				Total
		1,00	2,00	3,00	4,00	
VAR00008	1,00	8	8	14	2	32
	2,00	0	0	6	0	6
	4,00	0	0	1	1	2
Total		8	8	21	3	40

Symmetric Measures

		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval	Pearson's R	,364	,104	2,410	,021 ^c
Ordinal by Ordinal	Spearman Correlation	,387	,098	2,588	,014 ^c
N of Valid Cases		40			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

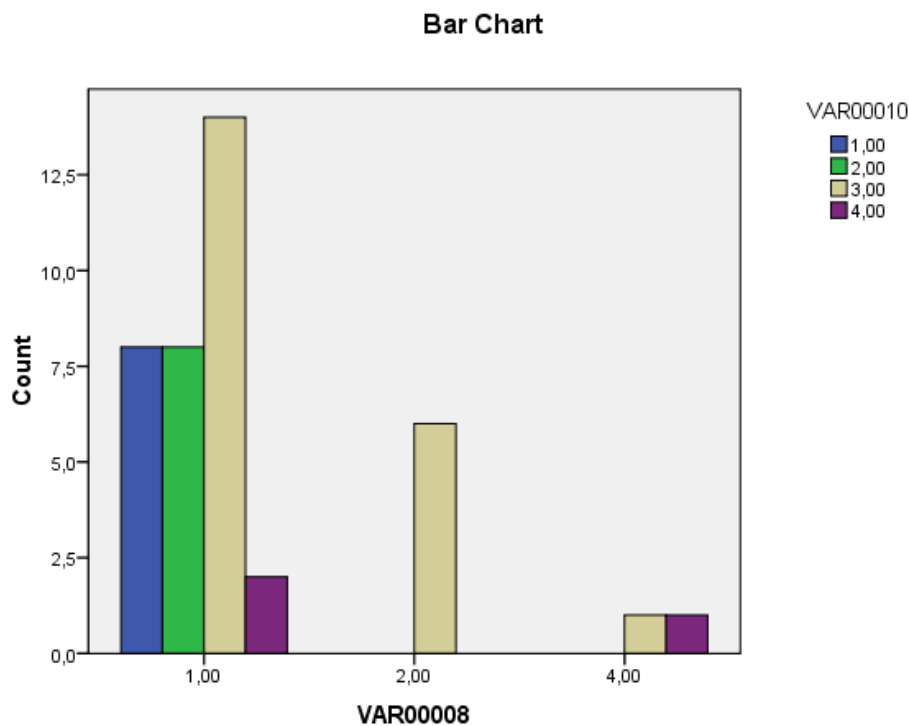


Fig. 28. Bar chart for corss-tab between questions 8 and 10

Table 13. Cross-tab and Pearson correlation between annual income (question 13) and possible consumption after income increase (question 8)

Crosstab

Count

		VAR00013				Total
		1,00	2,00	3,00	4,00	
VAR00008	1,00	11	9	11	1	32
	2,00	1	0	4	1	6
	4,00	0	0	2	0	2
Total		12	9	17	2	40

Symmetric Measures

		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval	Pearson's R	,311	,087	2,015	,051 ^c
Ordinal by Ordinal	Spearman Correlation	,359	,131	2,372	,023 ^c
N of Valid Cases		40			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

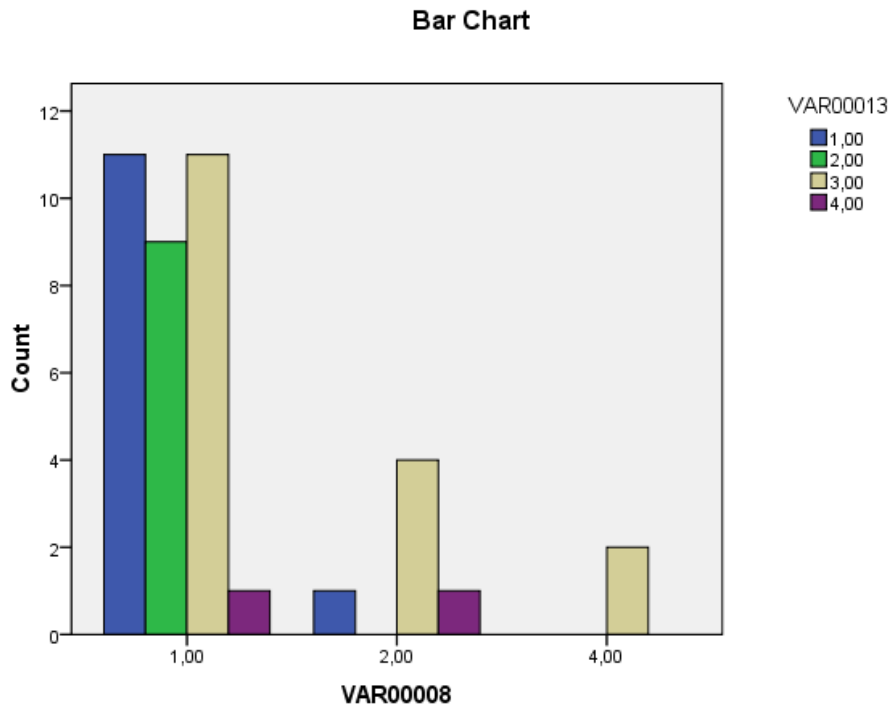


Fig. 29. Bar chart for corss-tab between questions 8 and 13

Data from figures 5-18 revealed that wine is drinking 92.5% of the sample, followed by beer (65%) and tsipouro/ouzo (60%). They usually drink in tavern/restaurants (75%), at home (67.5%) and in bar/pubs (52.5%). Table bottled wine (including “Retsina”) is the major kind of wine consumption at home (62.2%), followed by unbottled wine (in bulk, 24.3%). Also, table bottled wine (including “Retsina”) is the major kind of wine consumption outside i.e. in taverns, restaurants etc (55.3%), followed by unbottled wine (in bulk, 31.6%). Wine labels are of little to medium importance (51.3% and 30.8% respectively). Wine prices are very important for wine choice (a total of 80%). After economic crisis, consumption was not reduced significantly according to the answers (95% in total). If income will increase, 80% will not increase consumption. The last two answers revealed that consumption is independent from income fluctuations due to economic crisis. The sample was consisted by males (62.5%), females (35%) and no answers (2.5%). Over the half was consisted of people 46-60 years old, or younger people (40% in total). Older people represented 7.5%. Also, sample consisted of higher education persons, sometimes with post graduate studies (67.5% in total) and people with elementary studies was a pure minority. Most of them were working in the public sector (60%). Finally, the main income category was 13,001-20,000 Euros.

Data from cross-tabs (Tables 3-13, with accompanied Figures 29), showed that there is a relation between age (question 10) and point of consuming (question 2), education level (question 11) and kind of packaging at home (question 2), age (question 10) and kind of packaging outside (question 4), education level (question 11) and wine label (question 5), education level (question 11) and wine prices (question 6), profession sector (question 12) and wine prices (question 6), education level (question 11) and reduced wine consumption (question 7), annual income (question 13) and reduced wine consumption (question 7), male/female behaviour, age, or annual income (question 13) and possible consumption after income increase (question 8). In case of X^2 test, there is a reservation because of the categories chosen and a number of counts less than 5. In case of wine consuming points (place parameter), younger people showed different behaviour in comparison to older people. Also, they consume different kind of packaging (bottled or unbottled wine) outside from home. Education level affected the kind of packaging (bottled or unbottled wine) at home, wine prices, reduction in consumption and label preference. Higher education people consumed bottled and more expensive wine, paying attention in wine label. Some differences

were found according to profession and wine prices. Public sector professions are very considered about wine prices. Annual income in higher categories may support wine consumption in case of bad economic conditions. Males behave differently than females in case of possible future consumption after income increase and, age, or annual income affect significantly possible consumption.

In other studies additional information was retrieved. Petridis (2012) showed that wine consumption in the greater region of Thessaloniki is high and 93% of consumers drink wine because of health and taste reasons. Price is not a problem resulting in a 71.2% consumption at least once a week and a budget over 10 € for monthly wine consumption for 62.5% of consumers. Red wine is on top with 30.3% consumption, white wine is next with 28.7% and white “Retsina wine” follows with 19.2%. Wine preferences were based on aroma, price, habits, sweetness, origin and variety. Consumers usually combine wine consumption with meat and thus, red wine. They drink wine with their friends at home or restaurants. Organic wine consumption is not usual for Greek consumers (31% may buy it). Most of them (53%) consume bottled or unbottled wine equally, without any preference. Bottled wine is preferred only for its stable quality and safety. They drink Greek wines (53%) and imported only 3.5%. They may consume an imported one (70%) with preference in French wine (33.4%) and then Italian (12.5%). The best sale points are Supermarkets and Cava cellar shops (49.8 and 43% respectively). Wine consumers are seeking for taste, aroma, clearness, price, origin and then label. Most of Greek wine consumers consider wine prices fair and affordable (56%) and they are not interested about availability of sale points or advertisements. They declared that they would cut down wine consumption in case of increased prices, or they would buy unbottled cheap wine. Greek consumers would not substitute wine with other alcohol drinks, although they would also consume beer as a second choice (29.3%), or ouzo/tsipouro (23.1%), but this is not a global trend and previous research in Greece showed different results (Souravla et al., 2012). A total of 69% may read the wine label and reduces consumption because of their religious habits and increases demand in Christmas period. Origin of wine is the most important information for Greek consumers. Certifications have no impact on wine choice. Total income lead to increased wine consumption. Consumers’ sex and age may affect consumption. Males drink more wine than females, reading also wine labels, and older people also showed increased consumption. The education level also affects wine consumption. People of lower

levels drink wine more frequently, but of higher levels prefer quality wine, reading also wine labels. Advertisement is of low impact on Greek consumers.

Finally, in a newer review in Greece, the basic production factors for wine makers (except grapes) are: bottles, carton packs fuel and electricity, corks, inputs on grape production. In a more detailed report, inputs represent 15% of total cost, while energy 7% and enzymes, additional ingredients etc. only 2%. Fluctuations among these may lead wineries in better handling policies. In European Union, many environmental initiations and new technology adaptation may lead to higher gross income and better products of high quality and environmental-friendly (EDOAO, krasia.gr, 2015b).

Conclusions

In Greece, people usually drink in tavern/restaurants, at home and in bar/pubs. Table bottled wine (including “Retsina”) is the major kind of wine consumption at home followed by unbottled wine. The same was also found for wine consumption outside i.e. in taverns, restaurants etc. Wine labels are of little to medium importance. Wine prices are very important for wine choice, especially for public sector employees. After economic crisis, consumption was not reduced significantly according to the answers. If income will increase, 80% will not increase consumption. The last two answers revealed that consumption is independent from income fluctuations due to economic crisis. Education level affected the kind of packaging (bottled or unbottled wine) at home, wine prices, reduction in consumption and label preference. Higher education people consumed bottled and more expensive wine, paying attention in wine label. Some differences were found according to profession and wine prices. Annual income in higher categories may support wine consumption in case of bad economic conditions. Males behave differently than females in case of possible future consumption after income increase and, age, or annual income affect significantly possible consumption.

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