

The economics of Greek wine

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Abstract

Wine is a product of great interest in Greece and around the world. Although both Greek and global production have fluctuated over the years, the trend is an upward one due to the introduction of new vine cultivations and techniques. Despite the parallel increase in international demand, prices have not followed suit. The main exporting countries are: France, Italy, Spain, Germany and Portugal. In Greece, in the period 1984-1985, red wine represented 32.37% of total production, whilst white wine 67.63% (vino di qualità prodotto in regioni, herein after VQPRD) represented only 5.76% of total production). In the period 1994-1995, red wine production as a percentage of total production dropped to 20.82%, whereas for white wine increased to 79.18%, with VQPRD production rising slightly to 7.33%. In recent years, red wine production has recovered and now represents one-third of total wine production. Other than the grapes, the basic production factors for wine makers are the inputs for grape production and bottling, including, among other things, carton packs, fuel, electricity and corks. A more detailed analysis shows that the inputs for production represent 15% of total costs, energy 7%, and enzymes and additional ingredients only 2%. A local research has revealed that Greeks usually drink in taverns/restaurants, bars/pubs and at home, with the consumption of bottled table wine being the greatest, followed by unbottled wine. Although wine labels are of little to medium importance to Greek consumers, wine prices have a major impact on their choice of wine, especially among public sector workers. The research also revealed that consumption is independent of income fluctuations due to the economic crisis. Interestingly, education level affects the kind of purchased packaging (bottled or unbottled wine) for at home, the price of purchased wines, consumption levels and label preferences. People with a higher education tend to consume bottled and more expensive wines, thereby paying particular attention to the wine label, with some differences found according to employment status and wine prices. It is put forward that people in higher income categories are more likely to maintain their wine consumption during bad economic times and crises.

Key words: *production, demand, prices, cost*

Introduction

In terms of wine production, Greece ranks 12th in the world, with production of 3.7 Mhectolitres annually (equivalent to 1.7% of wine production in Europe and 1% globally), behind Italy, Spain, France, USA, Argentina, Australia, Chile, South Africa, Germany, Portugal and Romania. Global wine production is estimated at 246 Mhectolitres and total demand (consumption) at 242 Mhectolitres. In 2017, approximately 2.7 million less bottles of wine were produced as a result of weather conditions (Ypaithros, 2017; Iefimerida, 2017). It is also important to note that in the period 1995-2013, the Organisation Internationale de la Vigne et du vin (OIV) reported a global decrease of 4% in vine-cultivated land, in particular in Europe, where 500,000 hectares were abandoned between 2008 and 2011. This was, to a certain extent, counterbalanced by an increase on other continents. Despite the abandonment of land, European production increased because of new cultivars and more efficient linear designs used in cultivation. The year 2017 was marked by a slight decrease in production accompanied by an increase in prices. Since 2009, total consumption has increased to 270 Mhectolitres (242 Mhectolitres in 2016). The main exporting countries are: France, Italy, Spain, Germany and Portugal (equivalent to 70% of global

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exports). Australia and Chile are the top export countries in the southern hemisphere. The main importers are USA, UK, Germany, Canada, China and Japan, with sales of over EUR 1 billion (KEOSOE, 2015). In Greece, recent figures show that wine consumption per capita per year is approximately 32-39 litres. During the period 2014-2015, wine imports fell by 13.11% and exports rose by 15.54% (in terms of volume) and by 5.2% (in terms of value) in comparison to the previous period. The German market is by far the largest for off-the-shelf Greek wines or for those served in Greek taverns. The USA represents a new and upcoming market for Greek wines due to the structural support programmes of the European Union (EDOAO, Krasia. gr, 2015). The Chinese wine market, the world's 5th largest, poses a new challenge for Greek wines. Although Greek wines are currently available in China, they face stiff competition from exported bottled wines from over 70 other countries. France sits at the top of the rankings, followed by Australia, Chile and Spain, with Greece trailing in 17th position (G.D. of Customs, PRC, 2011). In this market, 80% in terms of volume and 56% in terms of value is dependent on local production. Most people in China still believe that wine (from grapes) is a luxury that they cannot afford. Despite this, the level of wine consumption amongst the population grew to 30% from 2010 to 2015. This is attributed to the increased income per capita in China and, of course, the recognition and status of Chinese wine consumers (Enterprise Greece, 2015). In order to differentiate Greek wines from others, a proper marketing mix is required based on Chinese consumers' preferences. This includes the establishment of appropriate distribution channels, branding and promotional techniques (G.D.C., PRC, 2011; Enterprise Greece, 2015).

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

Country	Total value	Volume	Price	Country	Total value	Volume	Price
Germany	26,363,919	13,912	1.89	Australia	847,922	263	3.22
USA	8,244,876	8,245	4.31	Poland	725,300	583	1.24
France	8,244,876	3,702	1.48	Switzerland	701,650	161	4.36
Canada	3,658,728	981	3.73	Italy	431,319	428	1.01
Cyprus	3,366,082	1,141	2.95	Russia	413,076	257	1.61
Belgium	2,464,470	995	2.48	Sweden	412,635	155	2.68
United Kingdom	2,273,953	905	2.51	Denmark	224,666	100	2.26
Netherlands	1,752,246	795	2.20	Japan	191,361	48	4.06
China	1,147,872	276	4.16	Rest of world	2,864,858	1,025	2.79
Austria	1,105,559	509	2.17	Total	62,657,252	28,147	2.26

Source: ELSTAT (2015)

2015 was considered a bad year in terms of production (data from 650 Greek wineries) not only because of the prevailing weather conditions in Nemea, Crete, etc., but also due to imposed capital controls, low cash flows in many wineries and the general economic conditions within Greece. The same applied in 2017, which saw wine production decrease, both at the national and global levels (Ypaithros, 2017; Iefimerida, 2017). These phenomena revealed that production must be independent from biotic, abiotic and economic stresses (EDOAO, 2015a; Pagkalaki, 2016). Within this context, two additional factors also play a significant role. Firstly, Greek wineries tend to be relatively small in size, Secondly, and ironically, Greece imports EUR 30.4 million (in 2014) worth of lower quality wines, despite the high quality of traditional Greek wines (EDOAO, 2015a; Pagkalaki, 2016; Agro24: ICAP, 2016).

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

- 1) E. Tsantalís S.A. In 2014, it exported 42% of its production, of which 64% to Germany, 7.5% to Canada, 5% to the Netherlands and 3.6% to Russia.
- 2) Greek Cellars-D. Kourtakis S.A. is the second larger producer (exports represent 35% of its production).
- 3) E. Malamatinas and Son S.A. is specialized in cheap wines and “Retsina”.
- 4) Cavino exports 70-90% of its production.
- 5) Boutaris S.A. is another traditional winery, the origins of which go back over 130 years.
- 6) EOSSamos (established in 1934), produces the local traditional Samos wine. It exports 80% of its production, mainly to France.
- 7) Tynnavos wineries produce wines and spirits.
- 8) G.A. Koutsodimos S.A.-Nemea wineries produce VQPRD, local and table wines.
- 9) Biblia Chora from Kavala is an up and coming vineyard covering 50 Ha.
- 10) Chateau Julia-Kostas Lazaridis is the last in the top ten.

At present, there are a small number of large wineries with well-organised distribution channels and sales departments, as well as medium to small wineries focused on producing special wines (Dimitriadis and Tzortzaki, 2011). The latter are also the main producers of unbottled wines. The quality of Greek wines is generally high and many labels have won international awards or recognition (Karavasili et al., 2017). It is clear from the data presented in Table 2 that the total volume of wine production fell and that the production of white wines is double that of red wines. Although the overall trend was downwards, this did not significantly affect the production of VQPRD wines. The development of wine production in terms of volume is graphically presented in Fig. 1 (Plate XY).

The proportion of red wine to white wine production is clearly visible in Table 2. In 1984-1985, red wine represented 32.37% of total wine production, while white wine 67.63% (and VQPRD wines only 5.76%). In 1994-1995, red wine production had dropped to 20.82% of total wine production, while white wine production jumped to 79.18% (with VQPRD increasing slightly to 7.33%). In recent years, red wine production has recovered and now represents one-third of total wine production, with VQPRD wines showing stable, but low levels of production over the years.

Price determining factors

In general, the global prices of wines are determined by substitute products, consumer incomes, consumer demands and expectations and the total number of consumers. On an economic level, prices depend on production volumes and the distribution and placement costs in special stores, supermarkets and restaurants. At the final point of sale, prices are determined by the label and consumer demands (Mayyasi, 2013). Religious beliefs may also influence potential demand. In some cases, wine (alcohol) is forbidden (in the case of Islam), whereas in others it is considered appropriate for special purposes. On the whole, however, modern people consider wine consumption to be a healthy habit (Fortune, 2011). Marketing also has a powerful influence on wine prices. According to Lockshin (2003), the applied marketing mix must take into account consumer behaviour, wine tourism, direct sales, distribution channel handling (controlled logistics) from the vineyard to the final consumer, the bottles and labels, participation in exhibitions and awards events, promotion to appropriate market segments, exports, the selection of appropriate distributors, branding and fame, as well as local legislation (regarding wine and alcohol). In other studies, the promotion and quality of wine making, the brand name, VQPRD recognition or certifications (based on local special conditions) and premium wines from famous vineyards are considered to be the main parameters for determining wine prices (Zaichkowsky, 1988; Quester and Smart, 1998; Rousou, 2008). Within this context,

Table 2. Greek production (in hl) according to product and production year

Product	Volume (in hl)	Red wines (in hl)	White wines (in hl)
1984-1985			
1) Wines	5,015,500	1,623,500	3,392,000
VQPRD	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
VQPRD	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
VQPRD	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
VQPRD	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
VQPRD	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 geographical ID	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
VQPRD	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 geographical ID	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

the cost of promotion and advertising activities may contribute up to 80% of the price of a bottle of wine (Marshall-Genzer, 2016). It is also often stated that global prices are dependent on the level of production, whereas no dependency exists on the basis of the special characteristics (organoleptic, balance and harmony) of specific wines (Lecocq and Visser, 2006). In addition to the referenced literature, research into the global prices of wine have been conducted by a wide array of organisations, including Statista (2017).

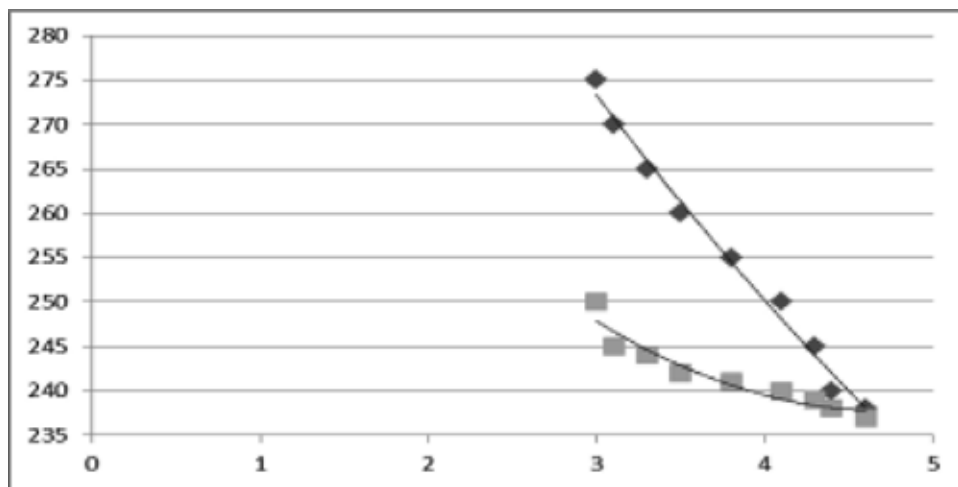


Fig. 2. Global wine prices (in USD) based on the synthesis of statistical data for estimated consumption (■) on the basis of demand and wine production (◆) for determining market supply (Wine News & Entertainment, 2016; Wine Business 2017; Grape Connect, 2017; CNN Money, 2017; Statista, 2017; ICAP, 2016; OIV, 2017)

Supply of wine

The supply of wine to the market is determined by a wide array of dispersed wineries based on input costs, production technologies, market expectations and the number of producers. Although the poor environmental conditions in 2017 saw a decrease in total production (CNN Money, 2017), it is price, in conjunction with the cash flows of wineries, that is the main parameter determining total wine supply (Quester and Smart, 1998; Rousou, 2008). Great wineries continuously invest in new technologies and automatic systems, from the grape to the bottle (Karavasili et al., 2017). The wine policy of the European Union sought to improve the quality of European wines at the expense of the number of vineyards. Tax policies regarding wine and alcohol are also very strict (KEOSOE, 2016). In the last few years, wine production has fallen by 20% in comparison to the previous 5-year period, and has been accompanied by a drop in consumption of 6% during the same period (Agro24: ICAP Group, 2016). Exports, which decreased from 2010 onwards, only recovered in 2014 (an increase of 15.5% in comparison to 2013).

The recent decrease in production volumes has led to increased prices because of increased global demand (Ypaithros, 2017; Iefimerida, 2017), which reflects the relationship between wine production and prices. Only the prices of special wines are independent of these fluctuations because the wine makers are bound to a certain client model or market segment. They are focused on full differentiation in the market (Blatsios, 2014).

Demand for wine

According to Karavasili et al. (2017), the demand for wine is dependent on wine prices, as dictated by disposable income, consumers' nutritional habits and tourism. Seasonal fluctuations and the time of consumption may also determine the demand for wine. Substitute products that compete with wine include beer, tsipouro, ouzo and soft drinks. The incomes of wine consumers may lead them to consume substitute products or give preference to unbottled wines. Ouzo and, in particular, beer are considered the most competitive substitutes for wine. Beer is sold at lower prices than wine in restaurants and taverns. Unbottled wines provide the answer to tackling such strong competition because they are sold at lower prices, too (Souravla et al., 2012).

The decreasing price of beer (balance from e2a to e2b, with wine price balance in e1) at income levels L1 and L2, moves the demand curves (in red), without any significant substitution of wine consumption for beer consumption (see Fig. 3, Plate XIV). According to Woods (2015), and as is presented in Fig. 4 (Plate XIV) below, it is clear that the substitution of wine for beer occurs when the price of beer is decreased by 65%.

At present, the biggest competition is between labelled high quality bottled wine and cheap wine, and between unbottled (in bulk or in large packages) and bottled wine. The distribution channels and availability of VQPRD wines determine the quantities in the market and subsequently demand and prices (Rousou, 2008). According to the ICAP Group (2016), demand is based on wine prices, consumer incomes, traditions, etc. The move towards cheaper substitutes is often the result of falling or low consumer incomes, whereby the sale of and demand for all alcoholic drinks is lower at all points of sale. In addition, consumer standards and nutritional habits also usually positively affect the demand for and consumption of wine. This is backed up by extensive research, which has shown the benefits to health and well-being of drinking wine, but also of the impact the fast pace of life in cities is having on turning people towards unhealthier ways of living – no exercise, fast food and low quality nutrition (KEOSOE, 2010). Advertising, usually through magazines, supports wine consumption, which is particularly true for certain high quality labels (Karavasili et al., 2017). A report published by ELSTAT in 2015 revealed that the value of household consumption of wine products in Greece in 2014 was EUR 646 million; the equivalent of 38% of the total consumption of alcoholic drinks. In the same period, the mean monthly consumption per household was 1.45 litres. In the HORECA market, variety is restricted and prices are inflated. Consumers may be attracted by the bottle, the label or the information on it. Awards and certifications do not affect wine prices (Lockshin, 2003; Greis, 2015). A consumer's satisfaction is a synthesis on a certain price level (Ball, 2013; Viner, 1960, 2016). The cultural background and education of consumers also affects demand, which can be rather inelastic and remain unaffected by other market parameters, such as production fluctuations, although this is not apparent in the lower market segment (Lockshin and Spawton, 2001).

In Greece, in the last five years, over 63% of the total wine production concerns non-certified (VQPRD, local) wines. Greek wines are held in high regard by local consumers, so imports are relatively low at just 6%. During the same period, bottled wines represented 36-40% of the market in terms of volume and 58% in terms of value (of which red wines 68-70%) (ELSTAT, 2015; Agro 24: ICAP, 2016).

Costs of producing wine

The basic economics of the wine sector are driven by the production costs related to the vines and wines and the applied quality policy. In general, the costs of production for Greek producers is not so high because of the limited inputs required, which is reflected in

the low prices of the wines produced. However, larger wineries with extensive distribution networks can ask better prices, with consumers willing to pay for a good quality wine. According to KEOSOE (2016), the costs of producing wine are determined by:

- the price and quality of the raw material (grapes) and labour costs;
- tax policies because the applied tax on wine consumption has a direct impact on the final price;
- cash flows and the degree to which procurement departments are well-organised;
- advertising and promotion, which can contribute to 80% of the total costs (Marshall-Genzer, 2016);
- economies of scale, targeted quality and packaging/bottling. The bottles are usually of Greek origin (or from other Balkan countries) and the cork is imported from Portugal. The quality of corks can significantly affect bottling costs. In general, large wineries have lower bottling/packaging costs;
- the cost of vines and the level of mechanization or automation in comparison to other European wine producers (Rodopoulos and Nikoloudakis, 2006). With large numbers of small vineyards and wineries, it is not easy to reduce costs, which has a knock-on effect on the final prices consumers have to pay (Rousou, 2008);
- other factors, such as depreciation, storage and distribution costs, as well as producers' expectations. All these factors are unstable, especially vine production.

Blatsios (2014) also points out that final prices may be determined by the distribution network in terms of discount policies and placement at points of sale. ICAP (2016) also analysed the economics of wine. The results showed that the gross profit gap increased by 2.6 units and is now about 27%.

Methodology

A questionnaire was drafted to record consumer habits and preferences with regards to wine/alcohol. A total of 40 randomly selected people completed the survey. Demographic/social data were also recorded. The data were analysed using Google tools, MS-Excel 2003 (Microsoft) and SPSS (version 17). Frequency bars and pie charts were generated accordingly, and cross-tabulation analysis performed. Statistical correlations and comparisons were based on applied statistical theory (Snedecor and Cochran, 1980). The data were transformed properly prior to the calculations.

Results and Discussion

The respondents answers to the 14 questions in the questionnaire survey are presented in Fig. 5-18. The results provide a comprehensive, if not complex, consumer profile, which revealed a relative independence from religious beliefs (among the random sample of 40 people).

Data presented in Fig. 5-18 (Plate XV - IXX) reveal that 92.5% of the respondents drink wine, 65% beer and 60% tsipouro/ouzo. The majority primarily drink in taverns/restaurants (75%), followed by at home (67.5%) and in bars/pubs (52.5%). Of the respondents, 62.2% drink bottled table wine, including "Retsina", followed by unbottled wine (in bulk, 24.3%). This pattern is mirrored in taverns/restaurants; bottled table wine, including "Retsina" (55.3%), followed by unbottled wine (in bulk, 31.6%). Wine labels are of little to medium importance (51.3% and 30.8% of respondents, respectively). Wine prices are very important for the choice of wine (for 80% of respondents). The economic crisis did not lead to a significant reduction in consumption (for 95% of respondents). If the respondents' income were to increase, 80% stated that their consumption would not increase. The answers to the last two questions revealed that consumption is independent of fluctuations in income due

to the economic crisis. The sample set consisted of males (62.5%) and females (35%), with 2.5% of respondents choosing not to identify their gender. Over half of the respondents were 46-60 years old, or younger people (40% in total). Older people represented 7.5% of the sample set. In addition, the majority of respondents possessed a higher education, sometimes with post graduate studies (67.5% in total), with a minority possessing only an elementary education. Most of the respondents work in the public sector (60%), and most have an income of between EUR 13,001 and EUR 20,000.

The cross tabulation analysis (not presented) shows that there is a relation between the following: age (Question 10) and the point of consumption (Question 2); education level (Question 11) and the kind of packaging at home (Question 2); age (Question 10) and the kind of packaging outside of the home (Question 4); education level (Question 11) and wine label (Question 5); education level (Question 11) and wine prices (Question 6); employment status (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); and male/female gender, age, or annual income (Question 13) and possible consumption after an increase in income (Question 8). In the case of the X^2 test, there is a reservation with regards to the categories chosen and the number of counts less than 5. With regards to points of consumption (place parameter), younger people show different behaviour to older people. They also purchase different kinds of packaging (bottled or unbottled wine) outside of the home. Education level clearly affects the kind of purchased packaging (bottled or unbottled wine) at home, sensitivity to wine prices, consumption levels and label preference. People with a higher education consume bottled and more expensive wines, paying particular attention to the wine label. Some differences were found according to employment status and wine prices. Public sector workers are very sensitive to wine prices, whereas those in higher income categories are more likely to maintain their wine consumption during bad economic times. Males behave differently to females when it comes to possible future consumption after an increase in income, or due to age, both of which have a significant effect on possible consumption.

Additional supportive information was sought from other studies. Petridis (2012) showed that wine consumption in the greater region of Thessaloniki is high and that 93% of consumers drink wine for health and taste reasons. Price is not a problem. As a result, 71.2% of consumers drink wine at least once a week, with over 62.5% of consumers spending over EUR 10/month on wine. Red wine accounts for 30.3% of consumption, followed by white wine (28.7%) and white "Retsina wine" (19.2%). Wine preferences are based on aroma, price, habits, sweetness, origin and variety. Consumers usually combine wine consumption with meat and therefore 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 in equal measure, without any preference. Bottled wine is preferred only for its stable quality and safety. On the whole, consumers drink Greek wines (53%) and imported ones rarely (3.5%). The preference among imported wines is for French wines (33.4%), followed by Italian wines (12.5%). The best points of sale are Supermarkets and Cava cellar shops (49.8% and 43%, respectively). Wine consumers look for wines with a good taste, aroma, clarity, price and origin, and only then look at the label. Most Greek wine consumers consider wine prices to be fair and affordable (56%) and are not interested in the availability of points of sale or advertising. If prices were to increase, consumers say they would cut down on their wine consumption or would buy unbottled cheap wine. Greek consumers would not substitute wine with other alcoholic drinks, although they would also consume beer as a second choice (29.3%), or ouzo/tsipouro (23.1%). However, this is not a global trend and previous research in Greece produced different results (Souravla et al., 2012). A total of 69%

may read the wine label, reduce their consumption for religious reasons or increase their demands during the Christmas period. The origin of wine is the most important information for Greek consumers. Certification has no impact on wine choice. The higher the level of income the higher the consumption of wine. A consumer's gender and age may also affect consumption. Men drink more wine than women, read wine labels more often, and show an increased level of consumption with age. Education level also affects wine consumption. People with lower levels of education drink wine more frequently, but those with a higher level of education prefer to drink better quality wines and to read wine labels. Advertising has little impact on Greek consumers.

Finally, a more recent analysis of the situation in Greece revealed that the basic production factors for wine makers, other than grapes, were the inputs for grape production and bottling, including, among other things, carton packs, fuel, electricity and corks. A more in-depth analysis showed that the inputs for production represent 15% of total costs, energy 7%, and enzymes and additional ingredients only 2%. Fluctuations in these costs may help wineries to develop better handling policies. In the European Union, many environmental projects and new technologies may lead to higher gross incomes and higher quality, environmentally friendly products (EDOAO, Krasia.gr, 2015b).

Conclusions

In Greece, people usually drink in taverns/restaurants, at home and in bars/pubs. At home, the majority of Greek consumers drink bottled table wine, including "Retsina", followed by unbottled wine. This consumption pattern is mirrored in taverns/restaurants, etc. Wine labels are of little to medium importance. Wine prices are very important for the choice of wine, especially for public sector workers. According to the results of the questionnaire survey, the respondents did not significantly reduce their consumption as a consequence of the economic crisis. If incomes were to increase, 80% would not increase their level of consumption. The answers to the last two questions in the questionnaire survey revealed that consumption is independent of fluctuations in income due to the economic crisis. A consumer's education level affects the kind of purchased packaging (bottled or unbottled wine) for at home, the price of the wines purchased, reductions in consumption and label preference. People with a higher education consume bottled and more expensive wines, paying particular attention to the wine label. Some differences were found according to employment status and wine prices. People in higher income categories are more likely to maintain their wine consumption during bad economic times. Males behave differently to females when it comes to possible future consumption after an increase in income, or due to age, both of which have a significant effect on possible consumption.

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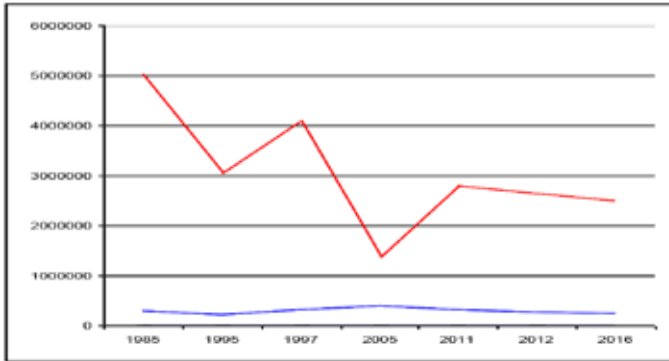


Fig. 1. Volume of Greek wine production (years: 1985, 1995, 1997, 2005, 2011, 2012 and 2016). Red curve represents total production in hectolitres, the blue curve high quality (VQPRD) wines

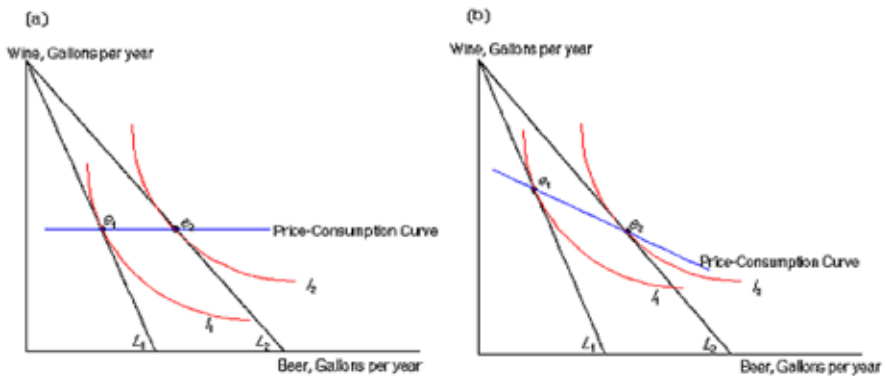


Fig. 3. Global prices and demand curves for wine and beer (Perloff, 2003)

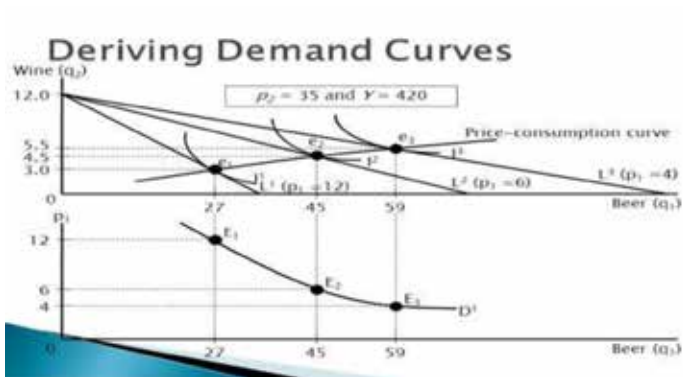


Fig. 4. Global prices and demand curves for wine and beer (Woods, 2015)

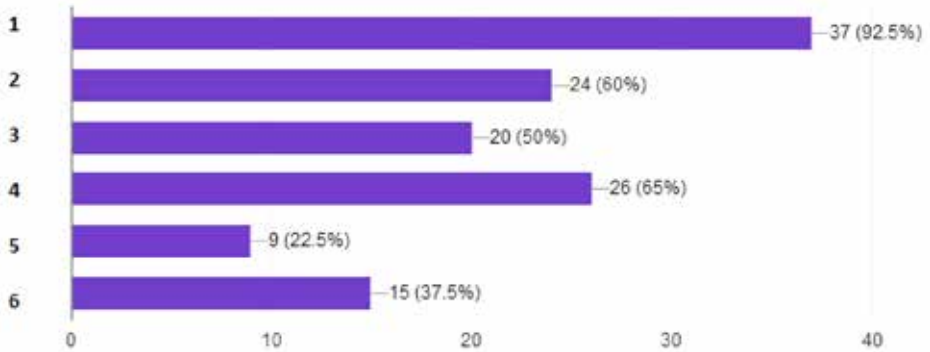


Fig. 5. Question 1: Do you drink alcohol or soft drinks? 1) wine, 2) tsipouro/ouzo, 3) other alcoholic drinks, 4) beer, 5) water or teas, 6) juice/soft drinks

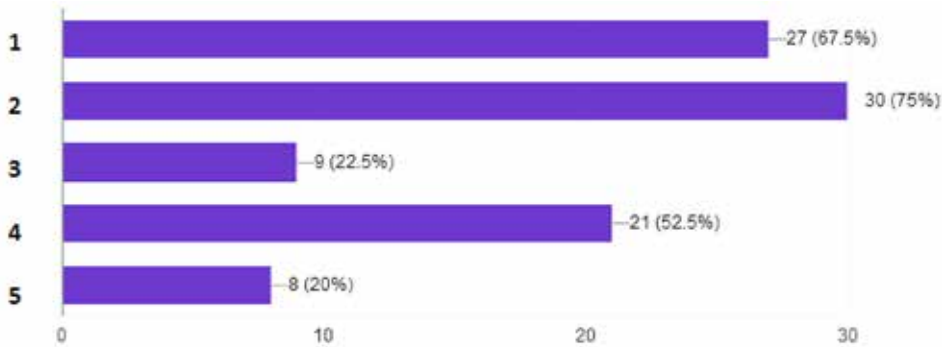


Fig. 6. Question 2: Do you drink at home/elsewhere? 1) home, 2) tavern, 3) cafeteria, 4) bar/pub, 5) night clubs

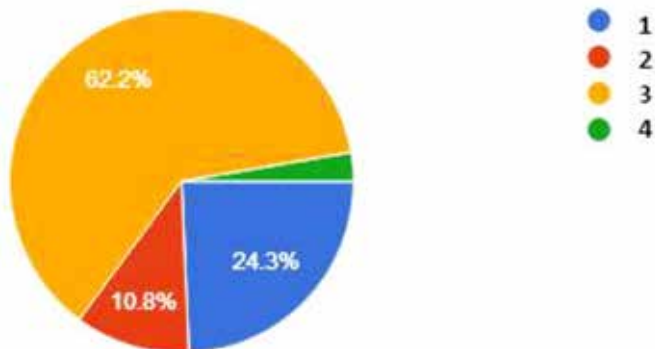


Fig. 7. Question 3: In case of wine, what kind do you drink at home? 1) unbottled (in bulk), 2) unbottled in economy packs (5 litres), 3) bottled table wine, 4) expensive bottled wine

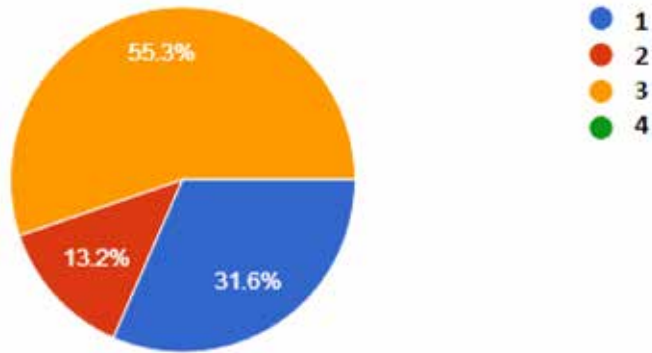


Fig. 8. Question 4: In case of wine, what kind do you drink outside of the home (taverns, bars, etc)? 1) unbottled wine (in bulk), 2) unbottled wine in economy packs (5 litres), 3) bottled table wine, 4) expensive bottled wine

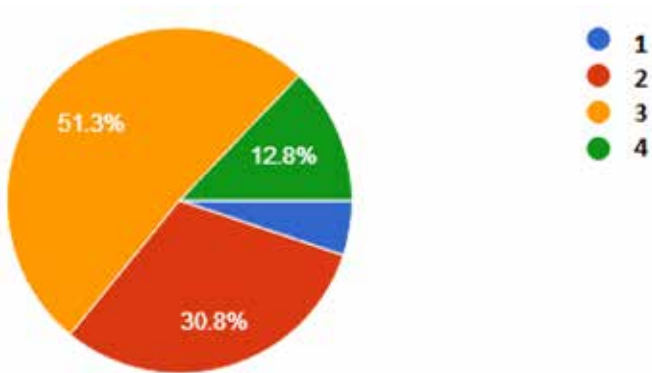


Fig. 9. Question 5: Is the wine label of great importance to you? 1) absolutely yes, 2) yes, 3) a little, 4) not at all

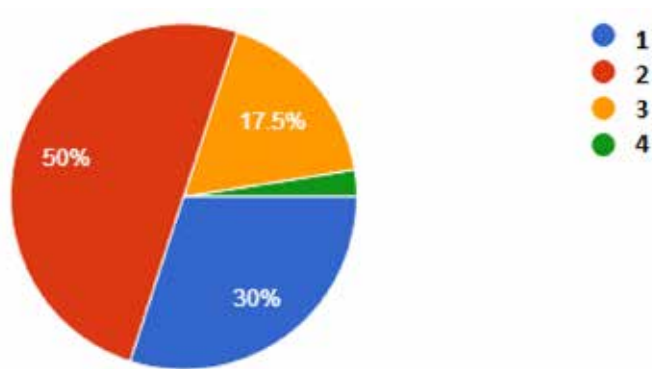


Fig. 10. Question 6: Are wine prices of great importance to you? 1) absolutely yes, 2) yes, 3) a little, 4) not at all

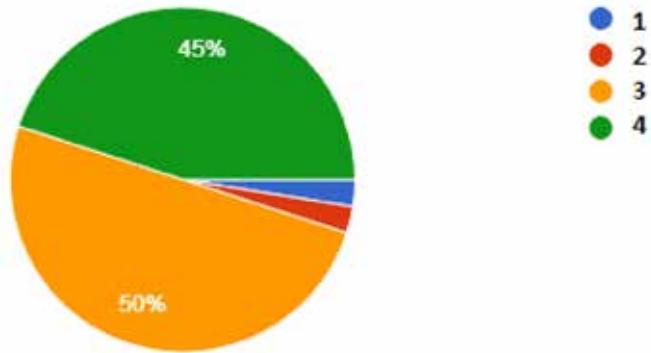


Fig. 11. Question 7: Have you reduced your wine consumption (during the last few years)? 1) absolutely yes, 2) yes, 3) a little, 4) not at all

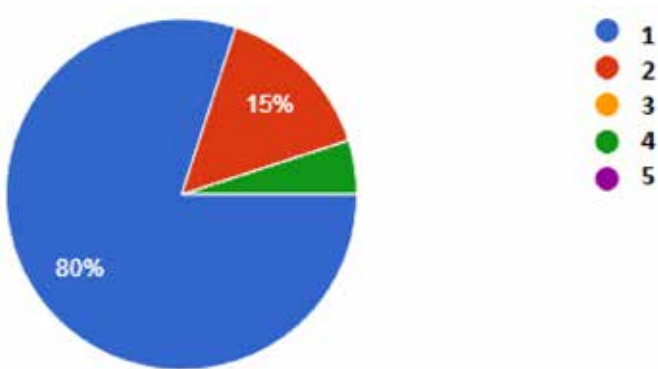


Fig. 12. Question 8: If your income were to increase, of which of the following will you increase your consumption? 1) No, 2) wine, 3) beer, 4) tsipouro/ouzo, 5) other alcoholic drinks

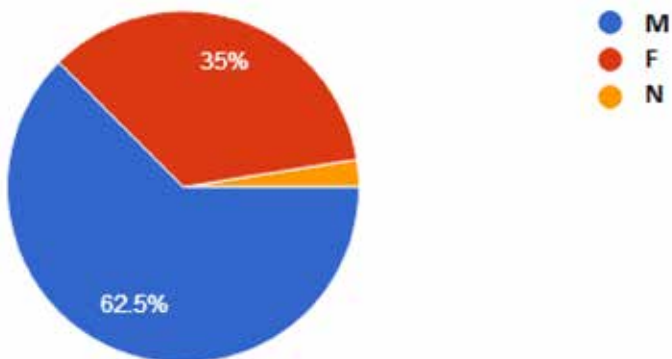


Fig. 13. Question 9: What is your gender? M = male, F = female, N = I do not wish to say

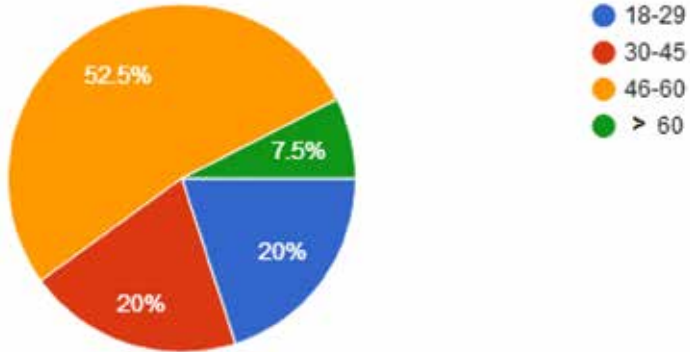


Fig. 14. Question 10: Please indicate your age group. 18-29, 30-45, 46-60, over 60 years old

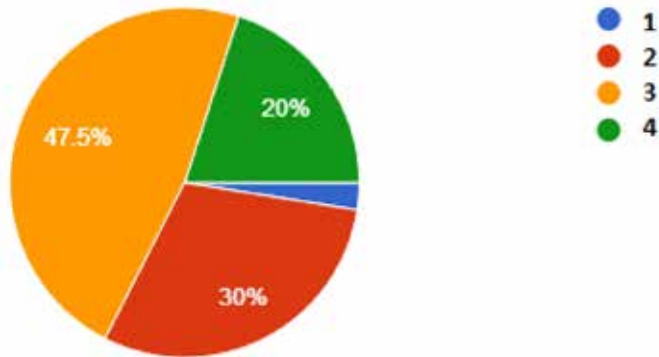


Fig. 15. Question 11: Please indicate your level of education. 1) graduate of first and second level elementary schools, 2) graduate of high school and post graduate training institutions, 3) graduate of University (AEI), or Technological Institution (TEI), 4) Post graduate studies (PhD or Master's degree)

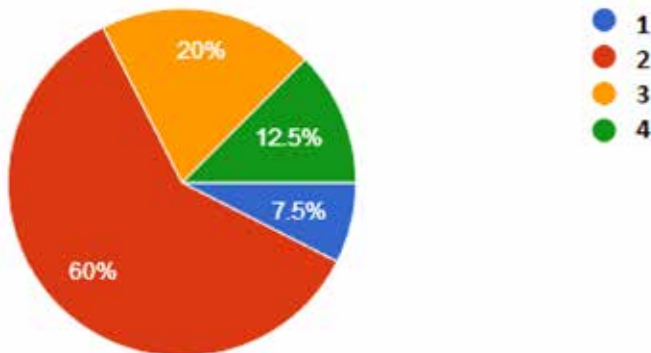


Fig. 16. Question 12: Please indicate your employment status. 1) unemployed, 2) public sector worker, 3) private sector worker, 4) self-employed

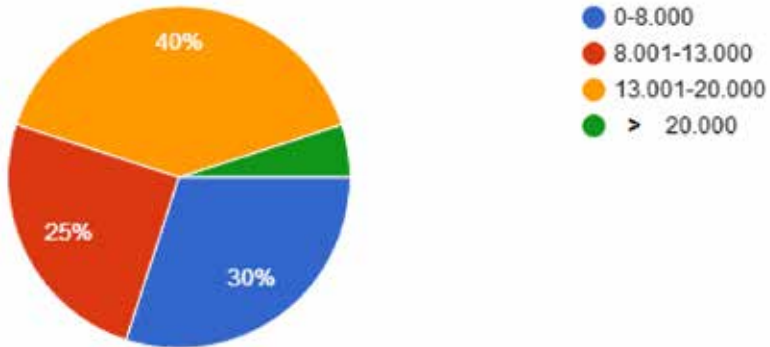


Fig. 17. Question 13: Please indicate your annual income. EUR 0-8,000, EUR 8,001-13,000, EUR 13,001-20,000, over EUR 20,000

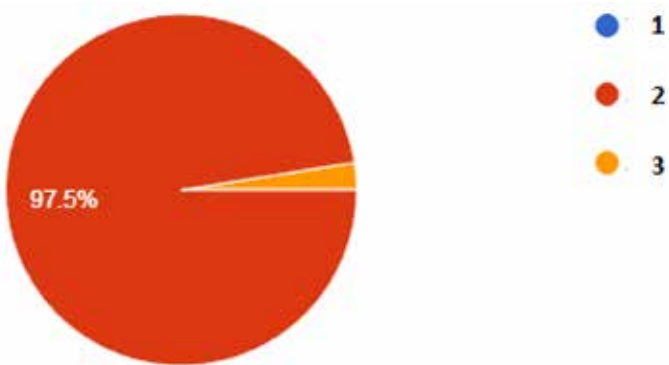


Fig. 18. Question 14: Please indicate whether 1) your consumption is limited by your religious beliefs, 2) your consumption is not limited by your religious beliefs, 3) you do not wish to disclose anything about your religious beliefs