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TURKEY'S ARDUOUS JOURNEY FROM VINE TO WINE

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Turkey's Arduous Journey from Vine to Wine: Why Can a Country, with the Fourth-Largest Vineyard in the World, not Make Wine from its Grapes?

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Abstract

This paper examines the impact of the recent high taxation policy on Anatolian wine production as well as the value added loss from the use of grapes for non-wine consumption. The results clearly indicate that the high taxation policy is significantly reducing the wine production in Turkey. The suggested policy option of increasing the wine production may create six times more revenue than the existing policy outcome. A possible feasible policy is to remove the lump sum tax from exports and encourage export-oriented 'Anatolian Old World' wine.

Keywords: Old World wine, Wine and high taxes, Turkish wine, Anatolia.

JEL: Q18, Q28, Y1

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1. Introduction

Turkey ranks fourth in the world regarding the acreage devoted to vines and sixth in terms of the grape tonnage harvested, but is virtually nowhere to be found on the lists of top wine-producing countries. Historically, the east of Turkey is considered as the birthplace of wine in the world. During the Ottoman era, the main wine producers were to be found in the non-Muslim population of the empire. After the collapse of the empire, the production of alcohol (excluding wine) was transferred to the Turkish Republic's state-owned alcohol production enterprise. For about 70 years, alcoholic drinks, except wine, had only been produced by the state monopoly, while wine was produced by both private and public companies. The recent privatization waves also affected the wine sector. More and more wine producers are entering the market. Is Anatolian wine ('Old World wine') reclaiming its title?

The English word *wine* is, according to Wikipedia, *derived from the Hittite 'wiyana' and Lycian 'Oino'*, both now extinct languages formerly spoken (among others) in areas that are part of today's Turkey. Anatolian wine production has a very long history of vineyard cultivation, and wine production dates back to the pre-Hittites, who lived in Anatolia between 3000 and 4000 BC. In fact, the earliest records of Anatolian wine date as far back as the Neolithic period, which started 10,200 years ago. Atalay and Hastorf (2006) have recently shown that traces of fermentation of fruit, which was likely to include grapes, can be found in Çatalhöyük, a 9500-year-old Neolithic site located in south central Anatolia. It is a historically well-known fact that Anatolia (Asia Minor) is the motherland of vineyards and wine. The later age witnessed Carian and Lydian civilizations in west and south-west Anatolia. In 1958, a sponge diver found an eastern Roman vessel from the seventh century AD on the shores of 1. 1. 1. Introduction

Halicarnassus (today's Bodrum). At the time, no one knew that the vessel was full of wine amphorae[1] exported from Caria.

[1] Amphora is a word formed from the Greek words amphi (two-sided) and phoros (portable). These two-handled, portable jugs with a pointed bottom were used in the commerce of ancient times to carry and store wine, olive oil and dry foodstuff. The bottom of mastic amphorae is supported by nobs and there is a seal with a sphinx motif.

Anatolian wine production started well before production in continental Europe, in particular France. During the Ottoman Empire (1299–1923), Anatolian wine was mainly produced by the non-Muslim population of Ottomans. Once the Turkish Republic was established, the state-run TEKEL[2] and some small private wine producers carried out and promoted alcohol production. For about 70 years, alcoholic drinks (excluding wine) were produced by the state only. Following the recent privatization of the alcohol markets in Turkey, smaller- and larger-scale wine producers are entering the market. Is Anatolian wine (Old World wine) reclaiming its title?

This paper is organized as follows. The historical roots of 'Old World wine' are investigated in the next section. Section 3 examines the current state of Anatolian wine and grape production. Section 4 examines the impact of the recent high taxation on wine production. Section 5 looks into three possible scenarios for turning vines into wine and the loss in value added resulting from alternative grape usage. The paper ends with some concluding remarks.

2. The brief historical roots of 'Old World wine'

According to McGovern (2005) and Vouillamoz et al (2006), 99% of the world's wine today is made from the domesticated *V. vinifera ssp. Sylvestris*.[3] Wild grapevines still exist at the headwaters of the Tigris River in Turkey and the wild populations may help in understanding the process of grapevine domestication. See Orhan, DeliormanOrhan and Ergun (2012) for the foundation of *V. vinifera ssp. Sylvestris* in Anatolia. The oldest wild grape (*Vitis sylvestris Gmelin*.) seeds were excavated in Turkey at Nevali Çori, near Urfa on the slope of the Euphrates side valley to which it belonged 8400 years ago (Gokbayrak & Soylemezoglu, 2010).

Intentional wine making is believed to have begun in the Neolithic period when communities established year-round settlements and began deliberately crushing and fermenting grapes and tending a grape crop year round. According to the archaeological findings, Neolithic Anatolia was the birthplace of agriculture. Thus, a

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The mastic wine of antiquity has been well known since the fourteenth century BC. These amphorae were transported and stored on top of each other thanks to their pointed bottoms and they are displayed the same way (source: Bodrum Museum of Underwater, Turkey).

[2] This is a state alcohol-producing company.

[3] The domesticated name is *V. vinifera ssp. sativa*.

number of pieces of evidence exist of the early domestication of the grape. McGovern and Rudolph (1996), Zohary and Hopf (2000), McGovern (2003) and Vouillamoz et al (2006) earlier claimed that the birthplace of wine was likely to be Transcaucasia, eastern Turkey or north-western Iran.

One of the noticeable methods for testing whether remains are wine or not is to use a specific wet chemical test for tartaric acid. McGovern (2005) argued that tartaric acid is very specific to the grapes in the Middle East and it is possible to determine the tartaric acid content of any food cups more than 10,000 years later. If a researcher can identify tartaric acid, the content was very likely to be wine. This test can further be supported by a DNA test of the content. We shall leave this argument for archaeobotanists to investigate and continue with the historical debate.

Wine history in Anatolia dates back to the Neolithic period and there are a number of Neolithic sites in Anatolia (present Turkey). The Neolithic Anatolian site of Catalhoyuk (10500 BC) (Çatalhöyük) is among them. The archive reports of Çatalhöyük and Atalay and Hastorf (2006) show that the earliest wine consumption records are found in Turkish Neolithic archaeological investigations dating back to 9500 years ago. Apart from Çatalhöyük, a number of Neolithic sites exist in Turkey, such as Göbeklitepe (10000 BC), Çayönü (10200–4200 BC), Nevali Çori, Hallan Çemi (8000 BC), Hacılar (7000 BC), Yumuktepe (7500–1000 BC) and Köşkhöyük (6000 BC), all offering the opportunity to investigate this history. The Chalcholithic and Bronze Age history also provides stronger evidence of wine in Anatolian Turkey. The Hattian and Hittite (2100–1700 BC) civilizations in Anatolia used wine in their ceremonies. In fact, wine played an indispensable role in people's social lives and the Hittites had a special law to protect wine production and viticulture.

After the Hittites, the Phrygians (1200–700 BC) lived in Anatolia and wine was an essential part of their daily life. Wine history in Anatolia, after the arrival of Turkish tribes from Central Asia, remained unchanged at the beginning and they also drank wine. After Islam dominated Anatolia, the main production was carried out by Christian residents, but both Christians and Muslims consumed wine. During the Ottoman Empire (1299–1923), wine production and trade were carried out exclusively by non-Muslim minorities. The Ottoman Empire introduced prohibitions from time to time, but due to economic reasons these restrictions were always short-lived. The wine sales taxes were an important source of the Ottoman treasury.

During the Ottoman prohibition periods, grape production was diverted to other types of consumption.

Once the Turkish Republic was established, the state-run TEKEL and some small private wine producers carried out and promoted alcohol production. For about 70 years, alcoholic drinks (excluding wine) were produced by the state only.

3. Anatolian wine vinery and grape production

As history confirms, geographically, Turkey is among the most suitable countries in the world for vineyards. The worldwide vineyard reached a total area of 7812 mha in 2006 and Turkey was the fourth-largest vineyard in the world by area. The figure below depicts Turkey's level after Spain, France and Italy. Although Turkey is fourth in the world in terms of the vineyard area, its quantity of grape production is smaller. Figure 1 shows Turkey's grape production. An important part of this vineyard remains destined for the production of products that are not turned into wine, especially in Iran, in Turkey and in Syria. Only 11% of the total grapes are used for wine making, 53% for table use and the other 36% for raisins (Figure 3). Due to religious factors, the domestic consumption of wine is well below that of its counterparts. Turkey's wine exports are also very limited. Historically, the grape production has not changed to a great extent (Figure 2). However, due to the high taxation policy, the production of wine decreased after 2002, 2005 and 2011.

There has been a substantial decrease in wine consumption since the 1970s for different reasons, but Turkish people rediscovered wine in the 1990s, contributing to the high quality of wine since then.

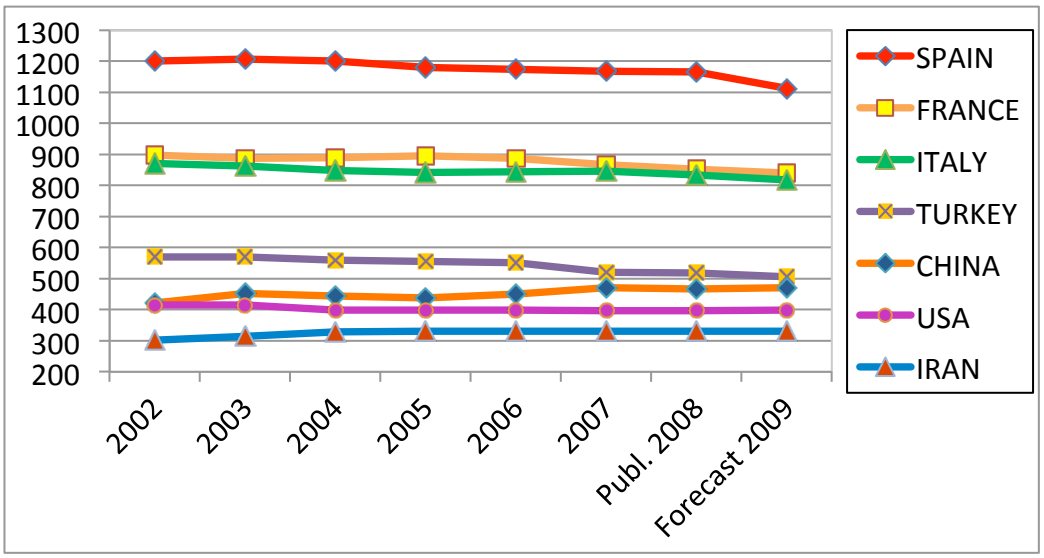
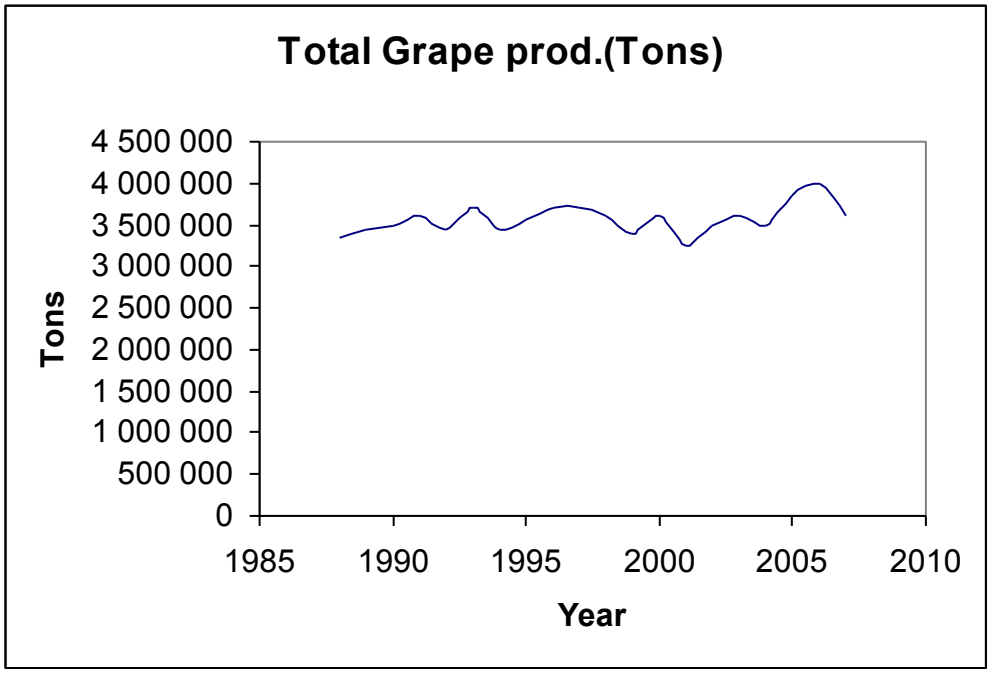


Figure 1: Vineyard share of the world and Turkey (in 1000 ha)
Source: International Organisation of Vine and Wine (OIV)

The economic impact of vinery occurs not only on the areas of agricultural sector employment and profits, such as the number of grape growers, grape-bearing acres and grape sales. The biggest value added can be achieved on the wine industry's direct impact: change in wineries and winery sales revenues. The wine industry value added can be shown in millions of distributor shares of Turkish wine revenue; millions of retail and restaurant shares of Turkish wine revenue; number of wine-related tourist visits; and estimated wine-related tourism expenditure. The other grape products compared with wine production – grape juice, raisins and grape product sales; the retail value of table grape sales; the retail value of raisin sales – can be minimal.

The added value of the wine sector is higher than that of the auto industry, as one of the Turkish winemakers claimed. Starting with a wine-producing capacity of 3,000 litres in 1943, the Turasan Winery has come a long way to become the tax champion in Nevşehir region in recent years. The wine sector could increase its brand value greatly if the burden of high government taxes and lack of incentives were removed. In fact, the relatively low domestic consumption surplus could be directed to exports and could be a good source for solving the chronic large current account deficit problem.

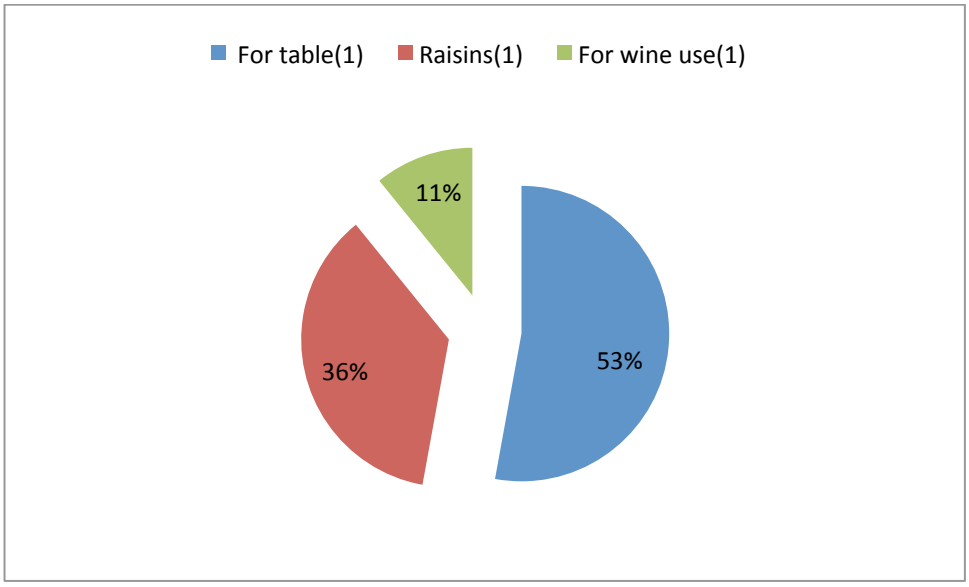


Source: Turkish Statistical Institute (TUIK)

Figure 2: Grape production with a longer history in Turkey

For example, as Anderson et al (2009) outlined, during the past two decades, the Australian wine industry has been through a remarkable period of export-oriented growth. In the first half of the 1980s, barely 2% of the country's wine production was exported, which was less than the volume it imported (similar to the current Turkish wine exports and imports).

In 2009, nearly two-thirds of Australia's production was exported – and the production itself has increased nearly fourfold since the early 1980s. New World wine is a growing trend in Western supermarkets and 'Old World wine' could also claim its title back.



Source: TUIK

Figure 3: Turkish grape production by use, 2010

A large variety of wine grapes is produced in the country. Table 1 indicates some of these varieties and the regions in which they are grown. There are also many other local types that are not recorded in the literature.

This study uses a standard and widely used methodology that includes direct, indirect and induced economic impact measures and considers the three different scenario outcomes in order to present the full picture.

3. Problems of Turkish viniculture and wine production and the tax impact

According to the State Planning Organization Report in 2000, the major problems of the wine sector in Turkey make up fewer than eight categories:

1. Despite the excellent wine-growing climate of the country, the wine grape quality and quantity are insufficient.
2. The wine-producing sector is not using[4] the thousand-year-old wine culture and wine history.
3. There is a lack of training for grape producers in wine grape production.
4. The wine production technology is not up to date.
5. The domestic wine culture and wine drinking habits need to be promoted.
6. The taxes on the wine sector are very high.
7. The advertising for wine is insufficient.[5]

[4] A recent law forbids the use of any historical link in wine advertisements.

The above problems remain and have worsened during the last decade. The survey carried out by Gümüs and Gümüs (2007) investigated the problems of the wine sector. Their research result emphasized that the most important problems of Turkish wine production are high consumption taxes, an unregistered economy and a lack of support from the Government. For example, as a result of excessive olive production support in the north west of the wine-growing region in Turkey, vineyards were uprooted in favour of young olive trees. The number of olive trees has increased from 75,000 to 350,000 and this has been determined to be a development in opposition to vineyards between 1993 and 1997 (Güngör & Güngör 2003). This is due not only to the subsidy for alternative agricultural production but also to the chain of high consumption taxes introduced after August 2002. The first consumption tax on wine consisted of 48.7% imposed on table wine and 212% on sparkling wine. Following the first tax imposition, the tax rate changed 5 times in the following 3 years. It was then finalized as a 63.3% private consumption tax on house wine and 275.6% on sparkling wine. It was also added that the wine has to have a fixed minimum price of 3.28 TL/lt (1.8 euro) for house wine and 11.212 TL (6.2 euro) for sparkling wine and all other wines (Gümüs & Gümüs, 2007). In fact, these amendments almost doubled the wine prices in 2005. The basic house wine price rose from 5 TL to 10 TL in 2005. The increase in price reduced the house wine quantity sold from (Q1) 92,795,123 litres to (Q2) 82,391,164 litres from 2005 to 2006, according to the Turkstat data source (a decrease of 10,403959 litres).

[5] Not to mention satisfactory advertisement, advertising wine became strictly forbidden by law.

Wine Grape Varieties by Region in Turkey		
Regions	White	Red
Marmara and Thrace	Clairette Pinot Chardonnay Riesling Semillon Beylerce Yapıncak Vasilaki	Pinot Noir Ada karası Papazkarası Karaşeker (kuntra) Gamay Karalahana Cinsault
Aegean	Semillon Bornowa misketi Sultaniye	Carignane Çalkarası Grenache Merlot Cabernet Sauvignon Alicante Bouschet
Central Anatolia	Emir Hasandede Narince Kabarcık	Öküzgözü Boğazkere Kalecik karası Papazkarası Dimrit Sergikarası Burdur Dimriti
Mediterranean	Kabarcık Dökülgen	Sergikarası Goğazkere
South East	Dökülgen Kabarcık Rumi	Horozkarası Öküzgözü Boğazkere Sergikarası

Table 1: Recorded wine grape varieties by region in Turkey

Source: Wine sector in Turkey, by Cengiz Karabayır (http://www.igeme.org.tr/Assets/sip/tar/Wine_08.pdf)

It is also clear that as the quantity of wine production and sales declines, the sales value (including taxes) of wine increases (Figure 4).

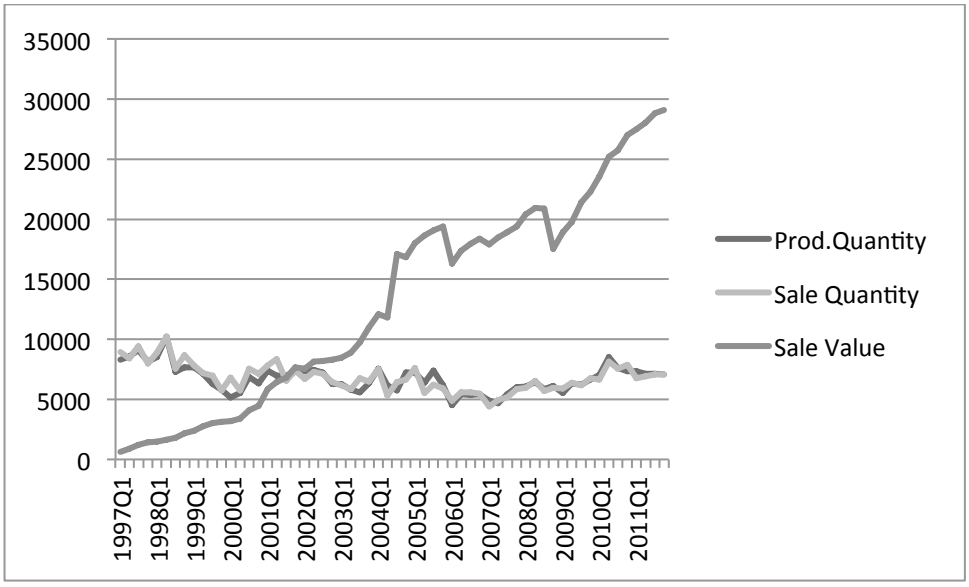


Figure 4: The impact of high wine taxation on prices after 2002

Source: TÜİK quarterly seasonally adjusted data, 1997–2011. The quantity is in litres and the value is in 000 TL.

The main recent tax-imposing years were 2002, 2005 and 2011. Figure 5 clearly shows the last decade's wine production and sales in Turkey.

In order to be able to see the statistical significance of the tax's impact on wine production and sales, a dummy variable is introduced for those years (Table 2).

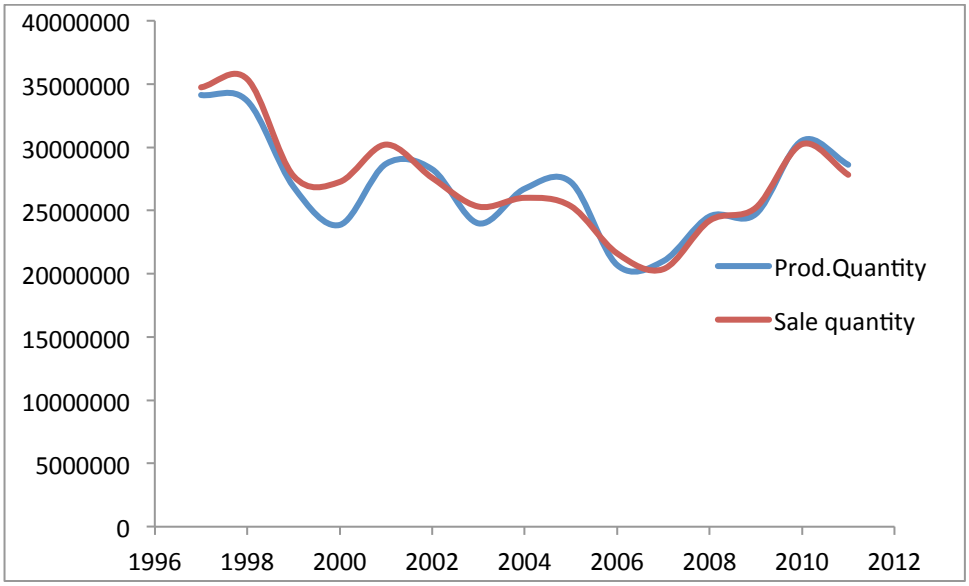


Figure 5: Recent wine sales and production in litres

Year	Prod. quantity	Sales quantity	Tax.sc1	Tax.sc2
1997	34,122,623	34,745,051	0	0
1998	33,660,407	35,385,401	0	0
1999	26,878,985	27,730,501	0	0
2000	23,858,818	27,258,423	0	0
2001	28,686,717	30,211,063	0	0
2002	28,255,449	27,577,284	1	0
2003	23,982,921	25,310,077	1	0
2004	26,721,115	26,001,147	1	0
2005	27,238,402	25,345,401	1	1
2006	20,690,878	21,609,210	1	1
2007	20,998,398	20,363,731	1	1
2008	24,530,810	24,197,486	1	0
2009	24,720,400	25,216,717	1	0
2010	30,519,785	30,242,102	1	0
2011	28,615,988	27,821,956	1	1

Table 2: Annual wine production and sales in litres; dummy variables for taxation

In our tax effect regression, firstly fitting regression models with 'production quantity (PQ)' as a dependent variable and Tax.sc1 as an independent variable:

$$PQ_t = \alpha_0 + \alpha_1 Tax.sc1 + \mu_t \qquad (1)$$

The results from the regression described in equation (1), run using data for Turkey between 1997 and 2011, the high taxation period between 2002 and 2011, are presented below:

The model with first taxation (Tax. sc1) dummy:

Coefficients:

	Estimate	Std Error	t value	Pr(>|t|)
(Intercept)	31,066,088	1,436,745	21.623	1.42e-11 ***
tax. sc1	-5,697,577	1,759,646	-3.238	0.00648 **

Signif. codes: 0 *** 0.001 ** 0.01 * 0.05 . 0.1 1

Residual standard error: 3,213,000 on 13 degrees of freedom

Multiple R-squared: 0.4464, adjusted R-squared: 0.4039

F-statistic: 10.48 on 1 and 13 DF, p-value: 0.006477

For a second taxation period, we have examined the following regression and the second dummy employs the tax-changing periods 2005–2008 and 2011 as presented in Table 3:

$$PQ_t = \alpha_0 + \alpha_1 Tax.sc2 + \mu_t \qquad (2)$$

The model with the second taxation (Tax.sc2) dummy:

Coefficients:

	Estimate	Std Error	t value	Pr(>|t|)
(Intercept)	28,534,114	1,110,115	25.704	1.57e-12 ***
tax.sc2	-4,749,039	2,149,728	-2.209	0.0457 *

Signif. codes: 0 *** 0.001 ** 0.01 * 0.05 . 0.1 1

Residual standard error: 3,682,000 on 13 degrees of freedom

Multiple R-squared: 0.2729, adjusted R-squared: 0.217

F-statistic: 4.88 on 1 and 13 DF, p-value: 0.04572

These results clearly indicate that the high taxation policy is significantly reducing the wine production in Turkey. There are also other implicit negative incentives for wine production, such as the problematic institutional structure of tax collection. If a wine producer, for instance, sells 100,000 litres of wine, the producer has to pay almost 200,000 liras as private consumption tax within 15 days. Wine producers are expected to subsidize this money in this case. Wine companies have to take out bank loans to pay taxes, which means paying constant interest to keep the business running.

Most Turkish wine producers are small and medium-scale enterprises. A general debate on the price impact on this type of vine sector, by Folwell and Castaldi (1987), clearly outlined that the returns to smaller wineries tend to be more sensitive to wine or product prices than grape and input prices. The Turkish wine sector's tax impact also confirms Folwell and Castaldi's conclusions.

Improving the added value in the wine sector can be achieved by increasing the quality and quantity of wine. As Gergaud and Ginsburgh (2008) clarified, technology is indeed more important than terroir. The Turkish wine sector also needs serious technological upgrading as the country historically has an excellent terroir. The improvement of the quality of wine is very important but we will put that aside for this

research. Another way ahead is to increase the quantity and due to the domestic demand shortage an export subsidy or improvement to the export performance is needed. As Karelakis et al (2008) clearly examined the export performance determinants of Greek wine firms, similar lines can be adapted to Turkish vine firms.
The world's fourth-largest vine acreage country either produces table grapes or dries grapes to produce raisins (Table 5). If we compare the retail price of raisins and table grapes with basic retail house wine, regardless of the quality improvements, it is possible to achieve high value added in Turkish grape production.

4. Value added loss and alternative scenarios

In this section, we have examined the alternative scenarios for Turkish wine production. Our first scenario is the continuation of the current state of viniculture and wine production.

4.1 Current state of viniculture and the wine production sector

4.1.1 Employment

According to the sources of the Turkish Statistical Institute and the alcohol and tobacco regulatory body, TAPDK, as Gümüs and Gümüs (2007) outlined, the number of people employed in wine production is about 1000 in Turkey. This number is confirmed by the EU–Turkey enlargement wine bilateral meeting reports.
The true statistics may not be known due to the biggest problem of the unregistered economy of the sector. These employment statistics exclude agricultural employment and the employment in the wine retail sector. Table 3 provides detailed regional data for wine employment.

4.1.2 Foreign trade

The foreign trade statistics of recent years confirm that the exports have declined while the imports have increased (Figure 6). Thus, the high taxation policy is increasing the imports and beginning to contribute to the large trade deficit of the country. This result partially originates from the contribution of high taxes to the domestic production and liberalization of the wine trade.
Anderson et al (2009) examined the export performance and value added structure of the Australian wine sector. There is a clear lesson from the New World wine sector for 'Old World wine'. As they emphasized: 'Over the past two decades, the Australian

wine industry has been through a remarkable period of export-oriented growth'. Even when vines for drying and table grapes are included, the vineyard area in Australia has trebled over the 20 vintages to 2008, the biggest surge in Australia's history. In the first half of the 1980s, barely 2% of the country's wine production was exported, which was less than the volume it imported. Today, nearly two-thirds of Australia's production is exported – and the production itself has increased nearly fourfold since the early 1980s. Moreover, the average price of those exports has more than trebled in nominal terms over that period.

Regional Capacity

M: Engineer; T: Technical staff; U: Expert; Ä°: Non-managerial; Ä°D: Managerial.

** If the registered producer number is 3 or less then the production capacity is not provided.*

Area-based production capacity totals can originate from different sources.

Regions	Registered producers	Staff information						Area information		Prod. capacity
		M	T	U	Ä°	Ä°D	Total	Covered area	Open area	Litres
ANKARA	2	2	2	1	8	2	15	5,1	18,295	*
ANTALYA	1	1	1	1	1	1	5	644	5,837	*
BALIKESIR	3	3	1	4	10	5	23	3,653	63,575	*
CANAKKALE	4	3	2	2	24	6	37	3,841	15,256	2,191,475
DENIZLI	6	5	0	4	30	4	43	6,394	70,627	9,268,861
EDIRNE	2	2	0	1	6	2	11	2,92	25,16	*
ISTANBUL	1	0	1	0	4	0	5	520	0	*
IZMIR	7	11	5	7	58	8	89	7,619	24,788	6,308,698
KAYSERI	1	1	0	1	1	0	3	178	8,05	*
MANISA	3	3	1	2	15	4	25	3,728	262,625	*
NEVSEHIR	8	10	3	6	63	12	94	21,666	284,686	10,356,214
TEKIRDAG	19	16	9	25	114	23	187	50,843	122,57	18,421,210
TOTAL	**57**	**57**	**25**	**54**	**334**	**67**	**537**	**107,106**	**901,469**	**52,366,358**

Table 3: Employment of wine producers in Turkey, by region

Source: TOBB industrial production data statistics

Due to the low domestic consumption in the Turkish wine sector, there may be an important policy proposal for the Turkish wine industry regarding export-oriented production.

For a total economic impact, the total output value, total jobs and total value added impact of wine should be observed. Figure 5 shows the recent trends of wine

production and sales statistics in Turkey. While the sales value has almost doubled, the sales quantity has not changed. The production value and production quantity have similar results. Turkish vineyards produced[6] more than 350 million (270 million USD) Turkish lira worth of wine grapes in 2010 according to the producer statistics. The number of wine producers consisted of only 12 in the year 2000. According to the TAPDK sources, due to the privatization of the largest state company TEKEL and the recent trends in Turkish wine making, the producer number is now more than 60 in Turkey.

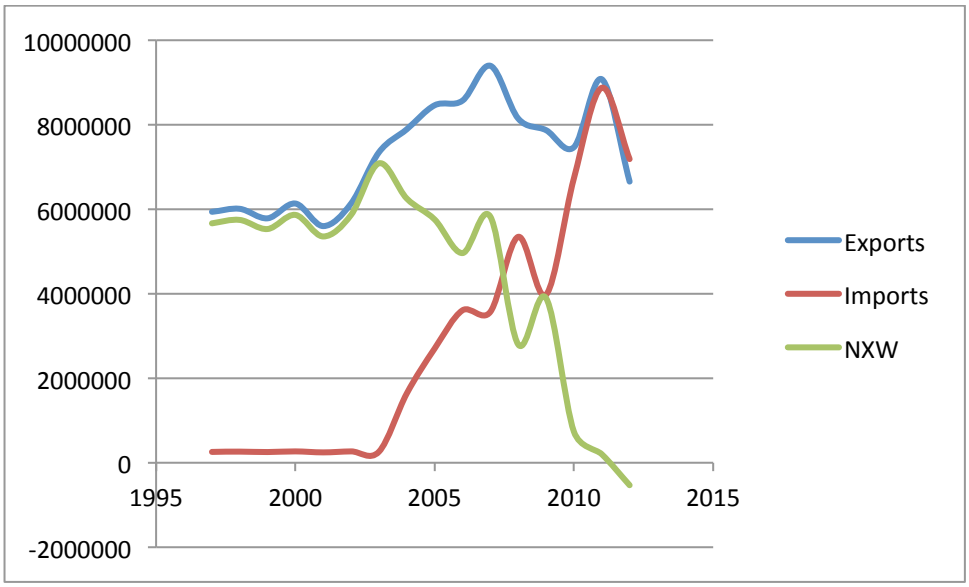


Figure: 6 Foreign trade of Turkish wine

Source: Tüik Isıc code 1102 (classification in dollars)

4.1.3 Total revenue in the vine sector

Firstly, the gross value of grape production is examined. Under the given values, the total grape production is 4,264,720 tons in 2009 according to the agricultural statistics of TÜİK. Table 6 indicates the gross value of all grape productions in 2009 and 2008. The total value of grapes in table use is 2,964,330,418 TL. The raisin use totals 1,531,987 tons.

Subtracting the intermediate input costs from the gross value of vine production gives the gross value added at producers' prices. The deduction of taxes less subsidies on products equals the gross value added at basic prices. Converting the agricultural

[6] It is assumed that 1 USD = 1.30 TL in 2010.

product raisins and table vines into a wine-making process involves some costs and extra values.

The per kilo raisin wholesale price is 7 TL, which will sum up to 10,723,909,000 TL for the total raisin revenue. The total value of wine use grapes is 352,988,559 TL. The annual total value[7] of wine produced is 4,064,083,520 TL. Table 7 depicts the calculated current revenue outcomes.

Due to the unregistered part of the sector, the numbers should be treated cautiously. It might be better to consider wine production wholesale values as the raisin production calculation is carried out.

Grape	Total		Grape					
	Area (Decare)	Production (Tons)	For	Raisins(1)	For wine	% Table%	% Raisins	% Wine
1988	**5 900 000**	**3 350 000**	-	-	-			
1989	**5 970 000**	**3 430 000**	-	-	-			
1990	**5 800 000**	**3 500 000**	-	-	-			
1991	**5 860 000**	**3 600 000**	-	-	-			
1992	**5 760 000**	**3 450 000**		-	-			
1993	**5 670 000**	**3 700 000**	-	-	-			
1994	**5 670 000**	**3 450 000**	-	-	-			
1995	**5 650 000**	**3 550 000**	-	-	-			
1996	**5 600 000**	**3 700 000**	-	-	-			
1997	**5 450 000**	**3 700 000**	-	-	-			
1998	**5 410 000**	**3 600 000**	-	-	-			
1999	**5 350 000**	**3 400 000**	-	-	-			
2000	**5 350 000**	**3 600 000**	-	-	-			
2001	**5 250 000**	**3 250 000**	-	-	-			
2002	**5 300 000**	**3 500 000**	-	-	-			
2003	**5 300 000**	**3 600 000**	-	-	-			
2004	**5 200 000**	**3 500 000**	1 900 000	1 230 000	370 000	**54**	**35**	**11**
2005	**5 160 000**	**3 850 000**	2 000 000	1 400 000	450 000	**52**	**36**	**12**
2006	**5 138 351**	**4 000 063**	2 060 167	1 495 697	444 199	**52**	**37**	**11**
2007	**4 846 097**	**3 612 781**	1 912 539	1 217 950	482 292	**53**	**34**	**13**
2008	**4 827 887**	**3 918 442**	1 970 686	1 477 471	470 285	**50**	**38**	**12**
2009	**4 790 239**	**4 264 720**	2 256 845	1 531 987	475 888	**53**	**36**	**11**
2010	**4 777 856**	**4 255 000**	2 249 530	1 543 962	461 508	**53**	**36**	**11**

Source: The Summary of Agricultural Statistics
(1) Data have been compiled since 2004.

Table 5: Grape production and use in Turkey

Source: TÜİK

[7] Quarterly wine production data provide these values.

The report prepared by the tax council of the Turkish Ministry of Finance in 2008 clearly states that the tax on wine is extremely high. This high tax burden can be compared with the high alcohol tax countries of northern Europe, but as far as the purchasing power is concerned, Turkish taxes on wine are well above the highest tax northern country in Europe. The Turkish Ministry of Finance claims that these high taxes aim to protect public health and environmental damage and finance the public expenditure on health and environmental services.

The report also gives some data on the unregistered part of the wine production and outlines that 'In Turkey, official wine production is 28 million litres; in fact the estimated number is 90 million litres in 2008. This means two thirds of wine production is unregistered'.

In fact, the amount of grapes allocated to wine use is at least three times more than the estimated numbers. For example, 475,888,000 kg of grapes should produce roughly 300 million litres of wine. (Neither 28 million litres nor 90 million litres is correct, as claimed!)

The report also provides some data on the cost details of the production of one bottle of wine, which are presented in Table 7.

Table 8 presents the 3 different scenarios. The current scenario shows the current total final revenue of grape production. The total revenue of wine production is obtained by the tax 2 level sales price (8.54 TL) with the total grapes for wine use.

Crops	Number of trees: Total	Bearing	Non bearing	Production (**Ton**-Tons)	Price **TL/kg**)	Value (**TL**)	Value of marketable (**TL**)
2009							
Grapes (total)[1]	**4 790 239**	**4 790 239**	**-**	**4 264 720**	**-**	**3 317 318 977**	**2 786 547 940**
Grapes (for table-seed)[1]	2 396 535	2 396 535	-	1 695 307	1,32	2 235 836 397	1 878 102 573
Grapes (for table-seedless)[1]	357 241	357 241	-	561 538	1,30	728 494 021	611 934 977
Grapes (raisins-seed)[1]	649 681	649 681	-	402 094	-	-	-
Grapes (raisins-seedless)[1]	649 643	649 643	-	1 129 893	-	-	-
Grapes (for wine use)[1]	737 139	737 139	-	475 888	0,75	352 988 559	296 510 390
2008							
Grapes (total)**[1]**	**4 827 887**	**4 827 887**	**-**	**3 918 442**	**-**	**3 177 337 701**	**2 668 963 669**
Grapes (for table-seed)**[1]**	2 421 728	2 421 728	-	1 490 185	1,40	2 084 793 499	1 751 226 539
Grapes (for table-seedless)**[1]**	354 779	354 779	-	480 501	1,43	685 933 792	576 184 385
Grapes (raisins-seed)**[1]**	643 871	643 871	-	321 142	-	-	-
Grapes (raisins-seedless)**[1]**	651 770	651 770	-	1 156 329	-	-	-
Grapes (for wine use)**[1]**	755 739	755 739	-	470 285	0,86	406 610 410	341 552 744

Source: TÜİK:The Summary of Agriultural Statistics
Note. Figures may not be equal to total due to rounding off.
(1) Number of trees is area (decare), it is not included in the total.
(2) Number of trees is the number of group of hazels.

Table 6: Price and quantity of Turkish grape use varieties

The current scenario uses the current share of grape use, i.e. 11% wine, 36% raisins and 53% table grapes. The total gross revenue of grape production is lower than any other scenario.

4.2. Alternative scenarios for wine production

4.2.1. Turkey, instead, uses 53% of table grapes in wine production

The second scenario is that the 53% table consumption of the total grape production is used along with the existing 11% of wine use for wine production. The total amount of grapes used for wine production amounts to 64% and the remaining grapes are used for raisins. The 64% of grape production is 2,732,733 tons. It is again assumed that the basic house wine price is 8.54 TL and a standard bottle of house wine is produced from 1 kg grapes for these alternative scenarios. The total grapes allocated to raisin production of 1,531,987 tons in 2009 is assumed to be fixed.

The wine value of 64% of grape production is 23,337,539,820 TL. The total gross value of grape production is almost doubled.

Table wine TL	Tax 1	Tax2
Cork	0,06	0,06
Label	0,03	0,03
Cap	0,02	0,02
Wine	0,4	0,4
Labour	0,9	0,9
Transport	0,1	0,1
Depreciation	0,1	0,1
Total costs	1,61	1,61
Market sale price	2.50	2.50
Lump sum tax (ÖTV)	1,75	3,28
Total	4,25	5,78
% 18 VAT	0,77	1,05
Total sale price	5,02	6,83
Retail profit (20%-30%	1,06	1,71
Suggested sale price	6,27	8,54

Table 7: Costs of a bottle of wine after two levels of lump sum taxes

Source: Turkish Ministry of Finance, tax council report and own calculations

VALUE	Current Scenario	Scenario 2	Scenario 3
Total revenue of wine production:	**4,064,083,520**	**23,337,539,820**	**36,420,708,800**
Total revenue of table grape production:	**2,964,330,418**	**0**	**0**
Total revenue of raisin production:	**10,723,909,000**	**10,723,909,000**	**0**
Total gross revenue	**17,752,322,938**	**34,061,448,820**	**36,420,708,800**

Table 8: The total revenues of grape production under three scenarios. The base year is 2009 and it is assumed that the same production exists for all three scenarios.

4.2.2. The conversion of the total grape production into wine production, such as the percentages of France, Spain and Italy

It is clear that in our results, the highest value added for the economy is achieved within the third scenario. The third scenario assumes that all the grape production is used for wine making. The total gross value is the highest in the third scenario, 36,420,708,880 TL. Turkey has an important place and infrastructure in raisin production and a significant proportion of grape production is seedless (suitable for

raisins but not for wine). Thus, our policy recommendation will be to follow the second scenario not the third. This policy, with an export orientation, will be a better choice as far as economic revenue concerned.

5. Conclusion

A high taxation policy is good for increasing the short-run government revenues, but this claim is no longer valid for the long run. In fact, the use of grapes for raisins or fresh usage creates a huge economic loss and in the long term also a loss in government revenue. 'Anatolian Old World wine' can reclaim its title if the government policies on taxation are reviewed and subsidies for the sector introduced. However, the subsidies are not preferred politically, and for other reasons, i.e. health and religious or social reasons, as the Finance Ministry reports claim, domestic consumption is discouraged. Thus, the export policy in the wine sector should be encouraged. A possible suggested policy to remove the lump sum tax from exports and encourage export-oriented wine would be a start.

What is needed to keep Anatolian Old World wine exports growing? The international wine market is very overcrowded, with low/zero profits, and is increasingly dominated by bulk wine destined for supermarket retailing. Turkey should avoid the low-price end of the international market and will require major new investments for articulating the industry's long-term strategy to attract investors' attention with a generic 'Anatolia Old World wine' promotion campaign in conjunction with an international tourism push, generic R&D and skill upgrading in viticulture, oenology in wine marketing and financing, which in turn will require more helpful support from the Government, e.g. switching from a high taxation policy to export-oriented policies. Turkey should expand its tertiary education and other training in viticulture, oenology, wine business and wine tourism. Turkey should support generic promotion to raise the export demand, thus raising the quality, e.g. Bordeaux spends 3 cents/litre on promotion and Australia spends 1 USD per litre. Turkey bans legal wine promotion. This is not to mention improving the grape and wine industry statistics.

If one can derive a lesson from the Australian grape and wine sector, the success lies in four main points. Turkey should have i) a good supply factor and consistently deliver quality and value, ii) flexible wine-making practices that allow new trials, iii) a

brand, iv) a skill infrastructure and v) regulation and integrity regarding exported wine.

Further research could consider the export-oriented policies of 'Anatolian Old World wine'. All is ready to improve Turkish wine and viniculture on the world's stage.

References

Anderson, K., Nelgen, S., Valenzuela, E. & Wittwer, G. (2009) *Economic Contributions and Characteristics of Grapes and Wine in Australia's Wine Regions*. Report prepared for the GWRDC, WFA and AWBC.

Atalay, S. & Hastorf, C. A. (2006) Food, Meals, and Daily Activities: Food Habitus at Neolithic Çatalhöyük. *American Antiquity*, Vol. 71, No. 2, pp. 283-319

Cellarnotes.net. *World Comparison*. [Online] Available from: http://www.cellarnotes.net/world_comparison.htm. 25.09.2013

Folwell, R. J. & Castaldi, M. A. (1987) Economies of size in wineries and impacts of pricing and product mix decisions. *Agribusiness*, 3, 281–292. doi: 10.1002/1520-6297(198723)3:3<281::AID-AGR2720030304>3.0.CO;2-R

Gergaud, O. & Ginsburgh, V. (2008) Natural endowments, production technologies and the quality of wines in Bordeaux. Does terroir matter? *The Economic Journal*, 118, F142–F157. doi: 10.1111/j.1468-0297.2008.02146.x

Gokbayrak, Z. & Soylemezoglu, G. (2010) Grapevine throughout the history of Anatolia. *International Journal of Botany*, 6, 465–472.

Gümüs, S. & Gümüs, A. H. (2007) The outlook of wine sector in Turkey during the EU accession process. Mimeo.

Güngör, H. & Güngör, G. (2003) The economic structures and marketing strategies of small family enterprises engaged with wine production in northwest of Turkey. ISHS paper presented at *Acta Horticulturae 652: I International Symposium on Grapevine Growing, Commerce and Research*.

International Organisation of Vine and Wine (OIV). (2011) World wine statistics. *34th World Congress of Vine and Wine, 24 June 2011, in Porto (Portugal)*.

Karelakis, C., Mattas, K. & Chryssochoidis, G. (2008) Greek wine firms: Determinants of export performance. Agribusiness, 24, 275–297. doi: 10.1002/agr.20159

McGovern, P.E. (2005) South-eastern Turkey: Homeland of winemaking and viticulture? *ARIT Newsletter*, Mimeo.

Orhan, N., DeliormanOrhan, D. & Ergun, F. (2012) Grape (Vitis vinifera L.) in Anatolian civilizations. Mimeo.

State Planning Organization. (2000) İçki sanayi özel ihtisas kurumu raporu. [Online] Available from: http://www.tapdk.gov.tr/tutunalkolkontrol/Belgeler/SanayiiözelihtisasKomisyonuRaporu-8nciBeşYıllıkPlanDPT.pdf

TUIK Statistical Institute of Turkey. *Sectoral Data* 01.09. 2012

Turkish Ministry of Finance. (2008) 4760 Sayılı Özel Tüketim Vergisi Yasası ve Uygulamasının Alkollü İçecekler Açısından Değerlendirilmesi. Vergi Konseyi Alt Çalışma Grubu Raporu, 23 September 2008.

Vouillamoz, J. F., McGovern, P. E., Ergul, A., Söylemezoğlu, G. & Grando, M. S. (2006) Genetic characterization and relationships of traditional grape cultivars from Transcaucasia and Anatolia. *Plant Genetic Resources*, 4 (2), 144–158.