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Red wine consumption in “the new world“ and “the old world”

World red wine market is expanding. In 2012, the total red wine trade was over 32 billion dollar, Most current research on wine focus on the Old World: France and Italy. In this article, in addition to the Old World, we examine two other countries from the New World: the U.S. and China. U.S. wine exports increased 100 times in the past 50 years while China is currently world's largest red wine consumer.

We use historic data from 2000-2012, focusing on consumption sector which include the local production sale and import red wine sale in China, U.S., France and Italy. The first goal of the analysis is to present and introduce the trend of the world red wine market from import, export, production and consumption. Initial import and local production data analysis indicates that the Old World countries, are still the giant of wine market, their red wine culture is inveteracy, and people enjoy drinking red wine in their daily life, but the total volume is decreasing gradually. China will be the biggest importer in the world instead of the U.S. in future, and their market will be more open than before. U.S will increase their consumption and import more from other countries.

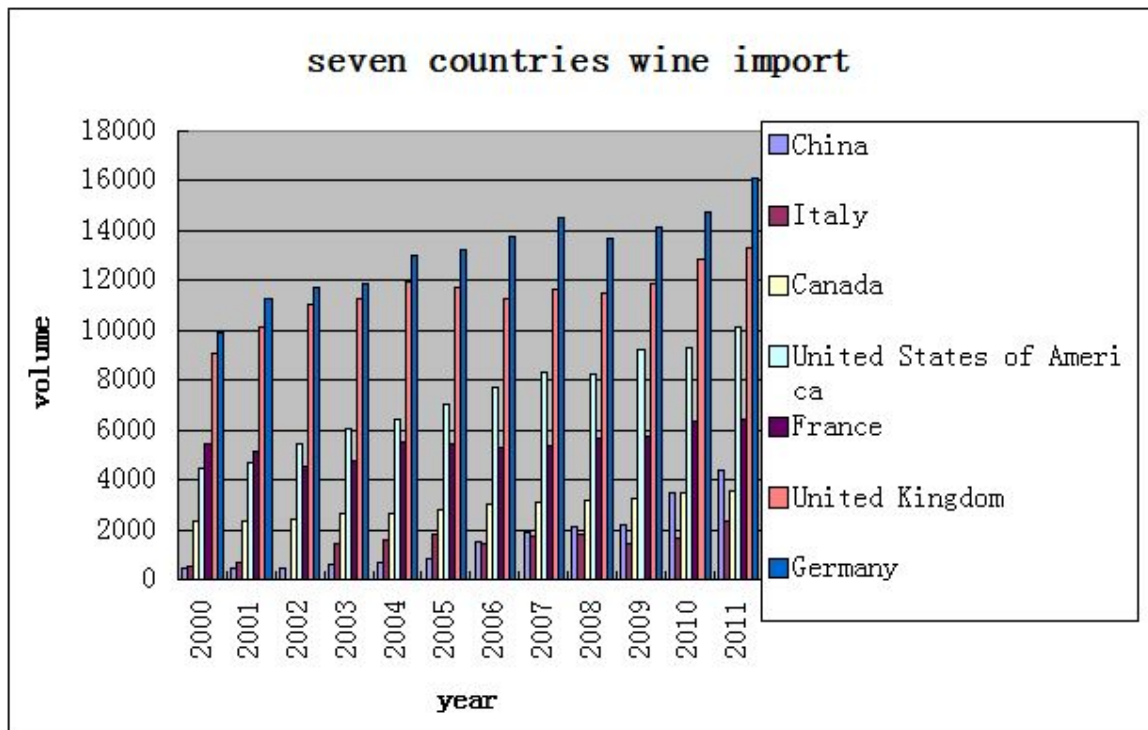
General background:

Grape growing Areas (the grape only for wine produce) between new world and old world

Since 1990s, old “European” world begun to decline their grape-growing areas gradually. Especially in 2006, France decreased almost 20,000 hectares in one single years and maintained this rate until the EU introduced permanent abandonment premiums for vineyards in 2011(OIV). And this is the tendency among in old world. The whole European vineyards should start at 3481000 hectares in 2013, a decrease of 0.5% between 2012 and 2013.(OIV)

On the other side, in new world (over there we only focus on the main protagonists U.S. And mainland of China), generally, the grape-growing area increase drastically. In China. The area soared from 161,650 hectares in 1995 to almost 560,000 hectares in 2011. U.S. As a new world leader and one of famous wine producer, not like those fresh troops expand their grape-growing area rapidly. In fact, the old members of new world (Australia U.S. And Chile), they already had a clear market share with old world countries. They might prefer to enhance their reputation of brand rather than increase the output. The U.S. Grape-growing area under vine among 400,000 hectares since 2004. In 2013, the total world area under vines (including the area not yet in production, whether harvested or not, and regardless of the grapes' final destination) should therefore remain stable in relation to that of 2012 at 7436000 hectares cares.(OIV)

Import between the new world and the old world countries

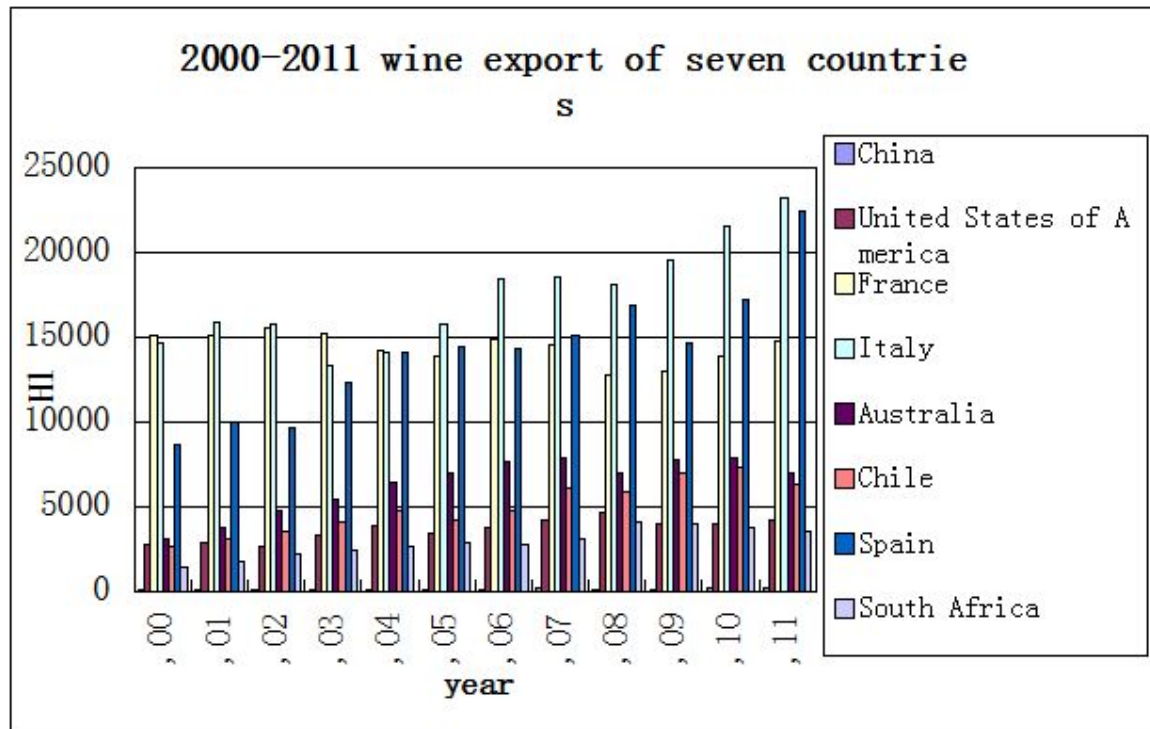


For import part, we use the data from International Organization of vine and wine. Seven highly relevant and typical countries which can represent the new and old world wine industry (Germany, Canada, U.S., France, Italy, U.K. And China mainland) had been showed in figure.1. The traditional old

European countries still dominate the world import market, but mostly inside the E.U., they trade wine with each other, Germany imports huge value from its neighbor France, So does U.K.. France and Italy, even they are the largest producers in the whole world. They still import certain number of wine from new world countries or their each other, however, most of their import are low price bulk wines coming particularly from Spain. (OIV) It means under recent world economic circumstance, those old world-wine market dominators-countries already turned their direction and focus on the high quality bottle wine to make more profit. In the new world side, China had the fastest increase rate in the world and almost increase 4000,000hl over last decade. U.S. As one of the new world leader, still need a huge import volume in their own market, most from the European mainland. Comparing with China, the national culture could be an important reason for explaining the gap of volume. They have more similar habit with Euro than the people born in Far East.

Generally, the old world still dominates the import market, but the new world countries have enough market and capital to excess them. Because of the world economy are recovering from the serious crisis, countries like China and U.S. Have more energy than those E.U. Countries. However, the wine culture habit still could be the most significant to prevent China to be the largest import country in the world.

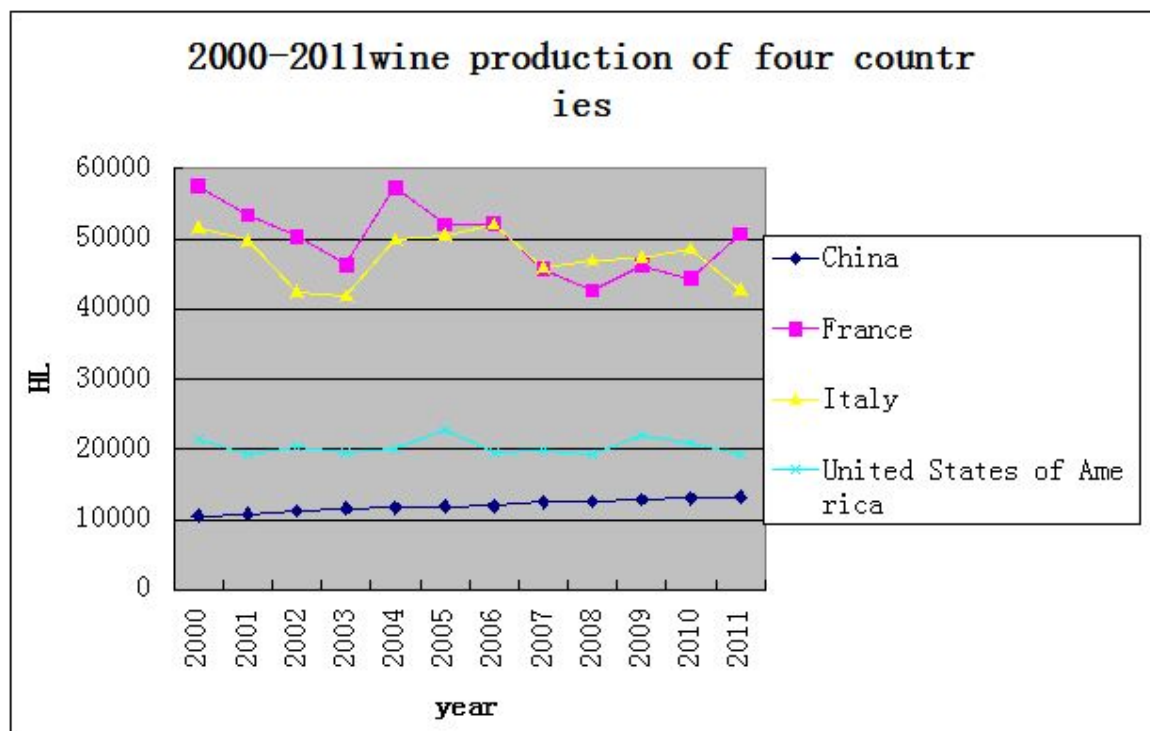
Export between the new world and the old world countries



For export part, we pick eight phenomenal wine-export countries (China, U.S., France, Italy, Australia, Chile, Spain and South Africa) who can present different producing area. The data also come from International Organization of vine and wine. The old world plays the most important role in the whole world export market. Italy produced 23238,000HL in 2011 which is the No.1 volume production in the world, Spain followed and had an distinctly increase since 2009. France, as the most famous wine countries, kept its export volume around 15000,000HL, and there is a trend that France is trying to decrease their total volume in wine industry, and gain the compensation from the value of wine increased. On the other hand, the Southern Hemisphere new world countries (Chile Australia and South Africa) had a huge increase over past decade to cover the almost infinite market demand. In fact, those countries only occupied more low-price wine market share, especially the bulk wine export. The high-quality bottle wine export just contribute a little in their total export volume. Actually the whole new world countries lost 1% sale in the world in 2012. Most of U.S. Wine export to their old friend U.K. And neighbor Canada, even the California wine is one of the famous brand in the world. However the U.S. Wine export just like other New world countries, the bulk wine contribute a lot in

their export volume. China is the new name among the new world countries. because its totally different culture and diet and drinking habit, people live in there do not prefer grape base wine. China has a long vineyard history, however, recent year, The Chinese wine brand began to expand their market and try to export to their neighbors. China has their ambition to become the top wine-maker in the world, but the internal market of China is super large so that at least in recent year, they do not need to consider too much about the overseas. The export increase of China was not that obvious in the past decade.

Production between the new world and the old world countries

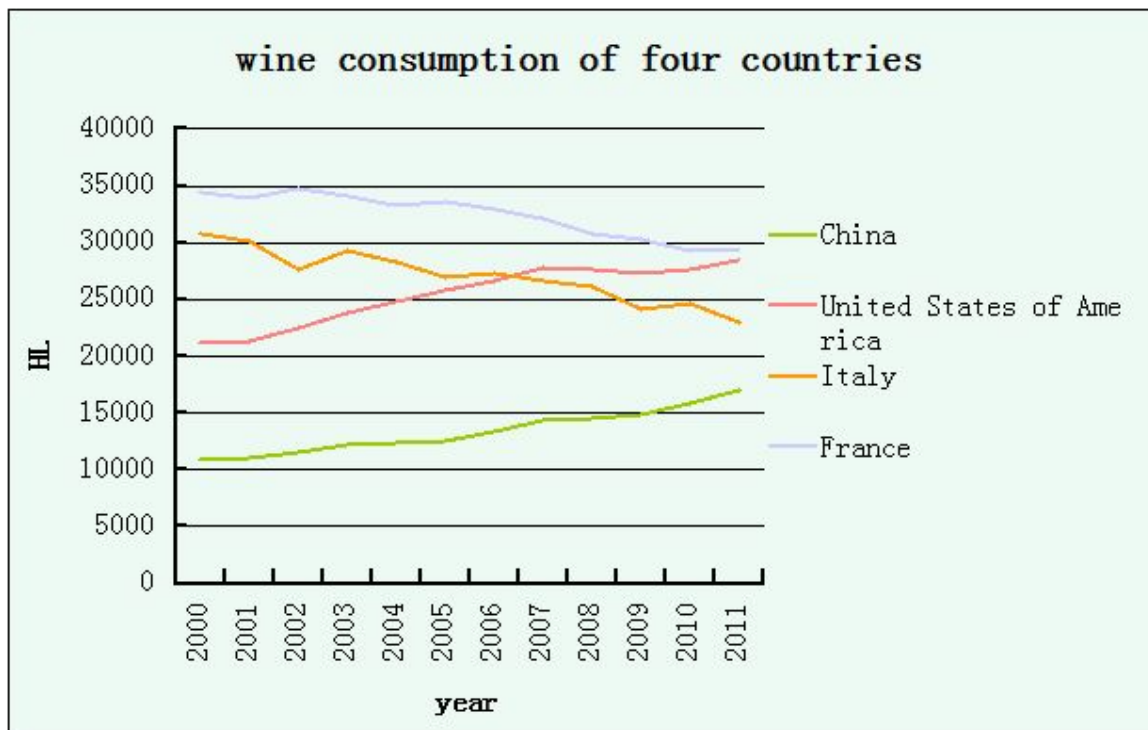


For production part, the annual production from China, U.S., Italy and France has been showed in the figure. In the old world, because our data from OIV only end at 2011, actually in 2013, Italy Italian production (excluding juice and musts) of almost 45 Mhl was the second largest wine producer in the world (state of the vitiviniculture world market). The reason why in 2011 Italy suffered a wine reduction is their own vine policy encouraged producers to decrease output with subsidy to solve their

over-demand situation. And from the export report, the old world's goal is obvious which is enhance their quality of wine and expand export simultaneously reduced their total output. France did the same thing in long-term even their production in 2011 increased 6 Mhl.

In the new world side, and over there we conditionally ignore the Southern Hemisphere wine producers. U.S. and China maintain their output with a upward trend. Especially Chinese wine production always keep a positive increase rate since 2000. However the production of 2012 and 2013 were not showed in the figure, the production in China, which with 11.7 Mhl recorded a decrease of 2.1 Mhl compared with the previous year (-15%) . The U.S. Recorded a downward trend on their production at the end of 2011. Also 2012 is absolutely bad year for the world wine production because the weather and whole world economic situation. However, The United States recorded a significant wine production in 2013 at 22 Mhl excluding juice and musts, particularly in California: +7% compared with 2012(state of the vitivinivulture world market).

Consumption between the new world and the old world countries



For consumption part, the overall trend is apparent, the old world delegates reduce their consumption gradually. And the new world countries, on the contrary, growth trend is being kept. It might be because the old world long-awaited recovery that mark the end of the financial and subsequently economic crisis, which began in 2008, is still to take place (OIV). The wine price went up and also the production reduction in the main European wine producers could be the reason why the old world decrease their total wine consumption. On the other hand, The United States, (even do not show in the figure) with 29.1 Mhl of wines consumed (excluding vermouth and special wines), became the primary internal market in the world in terms of volume in 2013. However, its rate of growth in recent years did not continue between 2012 and 2013(OIV). China, meanwhile, have a beautiful future in consumption section. Nevertheless, if we jump out the figure and focus on 2013 or 2014, depend on the report from OIV, the rapid increase in consumption since the beginning of the 2000s appeared to have come to a sudden end. This is because the Chinese government implemented a series policies on anti-corruption, (in China, wine is treated as an luxury especially import from abroad). Meanwhile, common Chinese are still blind with wine. In 2013, Chinese only drink 1.5L red wine per capita. However the market capacity of China still looks like infinite because the population and economy.

Purpose

After simple introduction about the situation of chosen countries in the world wine market, in the next step, we use consumption data to do a study about which factor could be the main reason to influence the countries' red wine market and make a forecast about the future market trend.

Data

We use the database from International Wine & Spirit Research (IWSR) which is a professional wine and spirits information collecting institution. It contains four countries' total wine (red wine and all other wine conclude in this data) consumption import and local production, both retail value and

volume from 2000 to 2013 and all that data show us the real market situation. And also, in order to complete our analysis, we used some other data (GDP, population density, exchange rate and disposable income) from World Bank and national Bureau of Statistics.

Analysis

In this work, our analysis mainly depends on OLS and Tobit model with log transformation. Red wine consumption volume could be considered as dependent variable and all the other independent variable setting showed below.

1. Other wines: include all other kinds non-grape-base wine which are sale in those four countries
2. Average Price: we use the single year retail value divide volume to gain an average price of wine (include grape base wine and other wine)
3. GDP: Gross Domestic Product of China, U.S., France and Italy.
4. Nominal exchange rate: the nominal exchange rate from the local currency (RMB and Euro) to U.S. dollar
5. Disposable Income: we assume wine is not a daily necessity. So disposable income may be a meaningful variable.
6. Population density. Population density of those four countries.
7. Countries: U.S., France, Italy and China and we use China as the base country because the trend we talked above in the world wine market, China has that consumption ability to become the largest red wine consumer in the world. And this analysis mainly based on consumption. We set China to be the base country. All those variables are dummy variable.
8. Year: the wine consumption annual data from 2000 to 2013, since the database is too small, it only contains 13 years. So we set year as a dummy variable (based on 2000).

The OLS and Tobit model are given by:

$$Volume = \beta_1 OT + \beta_2 AP + \beta_3 GDP + \beta_4 NER + \beta_5 DI + \beta_6 PD + \sum_{i=1}^4 \beta_7 country_i + \sum_{j=01}^{13} \beta_8 year_j + \varepsilon$$

Where i denote the four countries based on China, j represents the year from 2000 to 2013 based on year 2000. Because those data are annual data and only have 14 objects for each country, we have to combine those four countries into one group and run the model and set year and countries as a dummy variable to observe the change for different year and countries. However, the year variable cannot be used, because it means sum of those four countries' consumption in one single year. And it is meaningless for our topic. In there, we only set those variables and add in the model, and just talk a little about the years (year still is a very important factor in wine industry, even we use the data main focus on consumption side, However, year is an important reason for consumer to choose red wine. And our data based on bottle wine which regret year as a core reason to decide reputation and price).

Result and Discuss

OLS with robust standard error and Tobit results for the equation above are presented in table 1.

Because of the limited database in the both OLS model the R square is large and almost approaches 100%. (Because of the time issue, we don't have enough time to finish all those jobs before deadline. Actually this paper is a semi-finish work, the result part still need time to revise and discuss with my professor. And in the presentation part, I will show the whole content and turn the finish work in) the estimated result

Table1. **variables effect on consumption volume**

variables	OSL model		Tobit model	
	linear	log	linear	log
other wines	0.2283821**	63.71479***	0.2283821***	0.4457638***
production rate between import and local	-17840.35	0.4457638***	-17840.35	-235621**
Average price of bottle wine	-6587.2462**	-235621	-6587.246***	-124504.5***
GDP(billion dollar)	17.80921	-124504.5*	17.80921*	63.71479***
nominal exchange rate	550.0068	-101256	550.0068	-101256.3**
disposable income	-5.11375	-131278.7***	-5.11375**	-131278.7***
population density	-9622.095**	-1016896**	-9622.095***	-1016896***
U.S.	-725210.2*	-1416345**	-725210.2**	-1416345***
France	311528.5	532131.9***	311528.5**	532131.9***
Italy	992127.7***	897157.2**	992127.7***	897157.2***
2001	4439.096	5436.807	4439.096	5436.807
2002	11640.92	5540.92	11640.92	5540.92
2003	22679.77	16852.07	22679.77**	16852.07
2004	29848.81	16559.95	29848.81**	16559.95
2005	37318.54	18965.29	37318.54**	18965.29
2006	52122.81*	35599.45	52122.81***	35599.45**
2007	68156.09**	49246.68	68156.09***	49246.68**
2008	81433.95**	59899.96	81433.95***	59899.96**
2009	88240.41**	78824.43*	88240.41***	78824.43***
2010	93937.72**	76173.43*	93937.72***	76173.43***
2011	106353.2**	83761.43*	106353.2***	83761.43***
2012	105263.7**	78134.72*	105263.7***	78134.72***
2013	108342.9**	79576.5	108342.9***	79576.5***
R-squared	0.9931	0.9904		
/sigma			8992.067***	10545.66***
Pseudo R2			0.191	0.1788
n=56				

* Significant at 90%

* significant at 95%

* significant at 99%

