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Decomposing the Growth of US Wine Exports to China into Scale, Competitive, and Second-order Effects

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DECOMPOSING THE GROWTH OF US WINE EXPORTS TO CHINA INTO SCALE,
COMPETITIVE, AND SECOND-ORDER EFFECTS

by

Xiaorui Wang

B.A., Tianjin Foreign Studies University, 2010

A Thesis
Submitted in Partial Fulfillment of the Requirements for the
Master of Science

Department of Agribusiness Economics
in the College of Agriculture
Southern Illinois University Carbondale
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THESIS APPROVAL

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A Thesis Submitted in Partial

Fulfillment of the Requirements

for the Degree of

Master of Science

in the field of Agribusiness Economics

Approved by:

Dr. Wanki Moon, Chair

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Graduate School
Southern Illinois University Carbondale
September 5th, 2014

AN ABSTRACT OF THE THESIS OF

Xiaorui Wang, for the Master of Science degree in Agribusiness Economics, presented on September 5th, 2014, at Southern Illinois University Carbondale.

TITLE: DECOMPOSING THE GROWTH OF US WINE EXPORTS TO CHINA INTO SCLAE, COMPETITIVE, AND SECOND-ORDER EFFECTS

MAJOR PROFESSOR: Dr. Moon, Wanki

The study aims at investigating the reason for the growth of US wine exports to China through utilizing CMS (Constant Market Share Analysis) model decomposed into three effects: scale, competitive and second-order effect. The result shows that the increasing demand of Chinese market is the key factor for the growth of US wine exports to China; at the same time, it also indicates that the product competitiveness of US wine is declining, while market distribution channels are lacking. The phenomenon of the increase of Chinese market for importing American wine can be attributed to the growing Chinese wine market, the growth of economy in China and the increasing income of Chinese people, as well as the trade policy after China joining in WTO.

DEDICATION

I would like to dedicate this thesis to the promising wine exports business from the United States to China. Through researching on this field, I find my career and passion in it. Also I would like to give my special thanks to my instructor—Dr. Wanki Moon, thank you for your patience and instructions.

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I would like to give my thanks and acknowledgements to many people who have helped me in the process of completing my thesis. First of all, I would like to thank Dr. Wanki Moon for your patience and instructions to my thesis. Without you, I can't finish it. Secondly, I would like to thank Dr. Altman, Dr. Rendleman and Dr. Taylor. Thanks for your time and suggestion about my thesis. Lastly, thanks to my wife for her support and encouragement.

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CHAPTER I

INTRODUCTION

According to the data from the United Nations Commodity Trade Statistics Database (UN Comtrade) in 2000, China ranked 51st in the world with only $4.9 million in importing bottled wine; surprisingly, by 2011, the imports in China reached up to $1.3 billion, which made China become the 5th largest bottled wine importer in the world. According to U.S-based consulting firm A.T. Kearney, although in the West where is the traditional wine consumption countries, the wine markets are all declining; however, in China the wine business has been impressively increasing at 15% annually over the past several years. Furthermore, based on a report issued in September, 2011 by U.K.-based International Wine and Spirit Research (IWSR) forecasts that the wine consumption in China will double to 250 million cases by 2016, compared with 125 million 12-bottle cases in 2010. Unquestionably, there is great demand for wines in China in recent years, and such phenomenon will continue for a while.

1.1 Wine market in China

The wine market in China consists of both domestic wine production and import. To be more specific, the domestic wine production is dominating the market, accounting for 75% of volume sales in China in 2011 versus 25% for imported wine (Bouzdine-Chameeva, Pesme, & Zhang, 2012). Still wine is the largest segment of the wine market in China, accounting for 96% of the market's total value (Table 1). There is 290% of increase in consumption in ten years (2000-2010), which is from 246.9 million liters to 964 million liters (Anderson & Nelgen, 2011). The major consumption lies in entertaining and gift-giving occasions; besides, those two major holidays – the Chinese New Year and the Mid-autumn Festival account for 60% of annual wine sales. "Wine has become a symbol of a desirable urban lifestyle, which shows sophistication,

vitality and social status in China", according to a specialist in consumer goods and retail practice at ATK (Ni, 2011). The leading distribution channel in Chinese wine market is on site, accounting for 50.5% share of the total market's volume. The main consumers are from middle class aged at mid-thirties as well as young urban people who have been influenced by western culture.

Table 1: China wine market category segmentation: $ billion, 2012		
Category	2012	%
Still wine	21.8	96%
Fortified wine	0.5	2.3%
Sparkling wine	0.3	1.3%
Champagne	0.1	0.5%

Source: Marketline

1.1.1 Domestic wine industry, market and consumer

As mentioned before, the Chinese wine market is predominated by domestic wine production.

Table 2. 2003-2011 Domestic Wine Production			
Year	Production (Million Liter)	Year	Production (Million Liter)
2003	340.30	2008	690.83
2004	360.73	2009	960.00
2005	430.43	2010	1080.80
2006	490.75	2011	1450.00
2007	660.50		

Source: Chinese Food Industry Year Book

From Table 2, we can see that the domestic wine production in China keeps increasing sharply due to the growth of Chinese vineyards. Generally speaking, over the past several years, Chinese vineyards increased 113% and expanded to 26 provinces. The main regions are in the north, accounting for 87% of the entire domestic wine production (Figure 1).

Figure 1: Location of wine growing in China

Source: International Journal of Wine Research 2009.

There are hundreds of grape varieties grown in those regions in China, among which the most important are Chardonnay, Italian Riesling, Ugni Blanc, Chenin Blanc, Gewurztraminer, Sauvignon Blanc, Semillon, White Riesling and Rkatsiteli for white; Cabernet Sauvignon, Cabernet Franc, Merlot, French Blue, Muscat Hamhurg, Pinot Noir, Syrah, Carignan and Saperavi for red (Tagliabue, 2008). Totally, about 940 licensed companies including around 500 wine production sites are doing wine business in China (Yan, 2011), however, only ten of them are able to produce more than 10,000 tons of wine annually as well as only around 50 wineries have the capacity to produce wines according to international quality standards (Bobik, 2007).

Even worse, due to lack of regulation and supervision, as well as unscrupulous vintners, some bottles of wine carry a local label, but might contain cheap table wine from Europe that was in a giant plastic shipping bag for months. Some of them mix their own wines with cheap imported ones or even with fruit juice and water as so-called "half-juice wine" which is forbidden in 2004. Although there are many wine producers, distributors and retailers, the majority of domestic wine market yield to the following four companies: Yantai Changyu Group Company Limited, China National Cereals, Oils and Foodstuffs Import & Export Corporation (COFCO) Wine & Spirit Co. Ltd, Great Wall Wine, Dynasty Fine Wines Group Limited and Yantai Weilong Group Co., Ltd which account for more than half of market share (Figure 2).
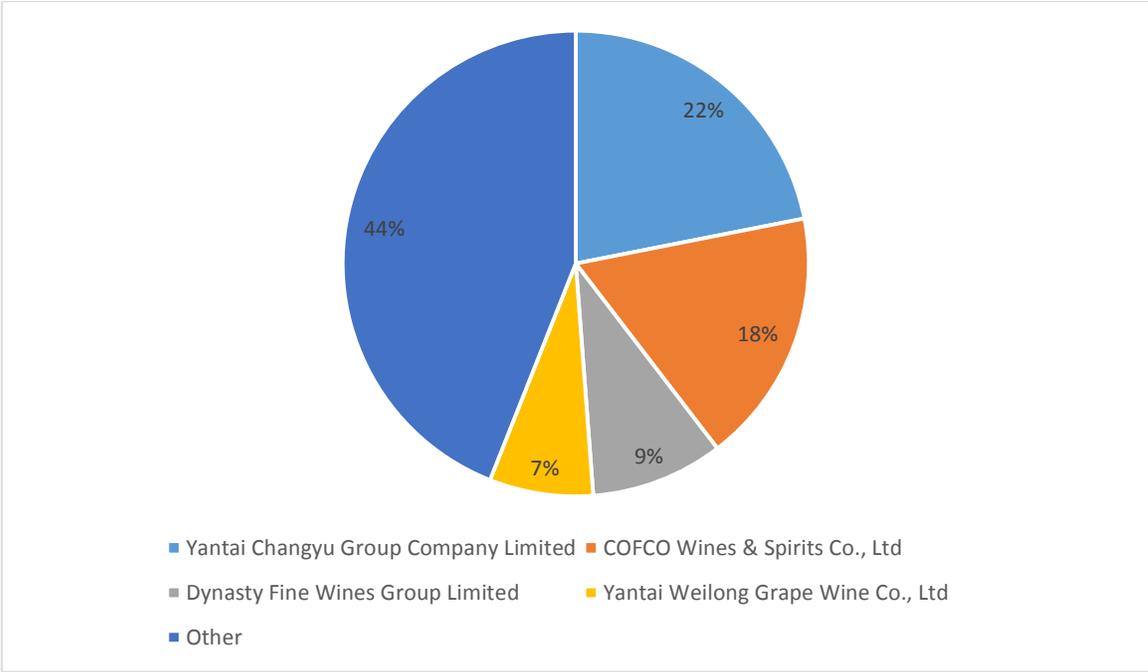

Figure 2. China Wine Market Share: % share, by volume, 2012

Source: Marketline

Among those four significant wine companies, Yantai Changyu Group Company Limited is viewed as a leader in this industry. It is the first industrialize winery and the largest wine production company in China, located headquarter in the coastal city – Yantai, Shandong

Province in northeast of China. Changyu also cooperates with foreign wine companies, leading to the château-building boom in China. For instance, in 2001, it cooperated with famous French wine group Castel; later, in 2006, it also entered in ice wine business in cooperation with Canadian Aurora Ice Wine Co., which successfully planted grape variety for ice wine. Currently, the Changeyu Kely wine becomes a strong competitor to European imported wines for foreigners living in China (Mitry, Smith, & Jenster, 2009).

The distribution channels mainly depend on on-site, accounting for 50.5% share of the total market's volume. With the development of supermarkets, it becomes the second important channel for domestic wine products, and the market share increased at 28.1%. The third one is specialist retailer as agents for sorts of brands from both domestic and foreign countries. The fourth one, often viewed as the cheapest way for restaurants and small shop owners to buy wines, is warehouse for individual businesses or agents to purchase directly. However, due to the time and stock conditions, consumers cannot get exactly what they want. Table 3 illustrates the market share of each distribution channel in 2012.

Table 3: Wine market distribution channels: % share, by volume, 2012	
Channel	% share
On Site	50.5%
Supermarkets/Hypermarket	28.1%
Specialist Retailers	21.1%
Warehouse/Cash & Carry	0.2%
Other	0.1%
Total	100%

Source: Marketline

The price of domestic wine production is in different ranges, but mainly concentrates in low-end to mid-market products. For low-end wines like Great Wall and Changyu are about 20 RMB (Chinese currency), equal to 3.22 U.S Dollars; as for their mid-market wines which can be competed with entry-level wine or table wine from import, are between 50-100 RMB, approximately 8.06-16.12 U.S Dollars; those premium wines in sophisticated package are sold for 300-500 RMB – 48.37 to 80.62 U.S Dollars (Noppe, 2012).

According to Vinexpo, Chinese consumers, including that in Hong Kong have consumed more than 155 million 9-litre cases or 1.865 billion bottles of red wine in 2013, which was 136% of 2008 consumption. As a result, China has become the world's largest red wine consuming nation ahead of France and Italy. With the introduction of the health concept of drinking red wine as an alternative to spirits from government marketing, the symbolic value of red wine in the society and the growing population of middle class and the rise of rich people, red wine is more and more attractive to Chinese consumers than white, fortified, sparkling wine and champagne. However, there is a distinct difference among Chinese consumers that rich people with higher social status is more likely to consume imported wine because they think it stands for their wealth, prestige and taste (Muhammad, 2014). Customers in different regions also have their preference towards different brands. Briefly, there is a trend that customers would like to choose wine products from their regions. For example, Changyu occupies a prominent position in Shandong Province in northeast of China, Great Wall is popular in north and Dynasty is preferred by southern part of China, like Shanghai, Suzhou, Hangzhou (Bobik, 2010).

However, according to Noppe (2012), the average Chinese consumers have very limited wine knowledge. Chinese consumers are likely to mix soft drinks such as Sprite or Coca-Cola with wine. The majority consumers buy wines as a gift for others instead of drinking it; on the

other hand, wine is popular on banquet, wedding ceremony, or party as a substitute for those who can't drink spirit like baijiu. Such behaviors do not represent the core concept of wine: wine is not a substitute for something; instead, it stands for a culture and lifestyle to some extent. Although the Chinese wine market is developing at a high speed, current consumption per capital in China is 1.12 L in 2012, compared with 56 L per capital in France, 50 L per capital in Italy and 47 L per capital in Portugal (Bouzdine-Chameeva, Pesme, & Zhang, 2012). From this perspective, wine market in China exists great and powerful potential due to more and more exposure of western culture and lifestyles as well as the realization towards great features of wine from Chinese consumers.

In a nutshell, the domestic wine industry is fast growing but developing unevenly, which is also the same to the quality of wine production. With more and more entering of imported wine, domestic wine industry is confronting with a crueler challenge and fiercer competition.
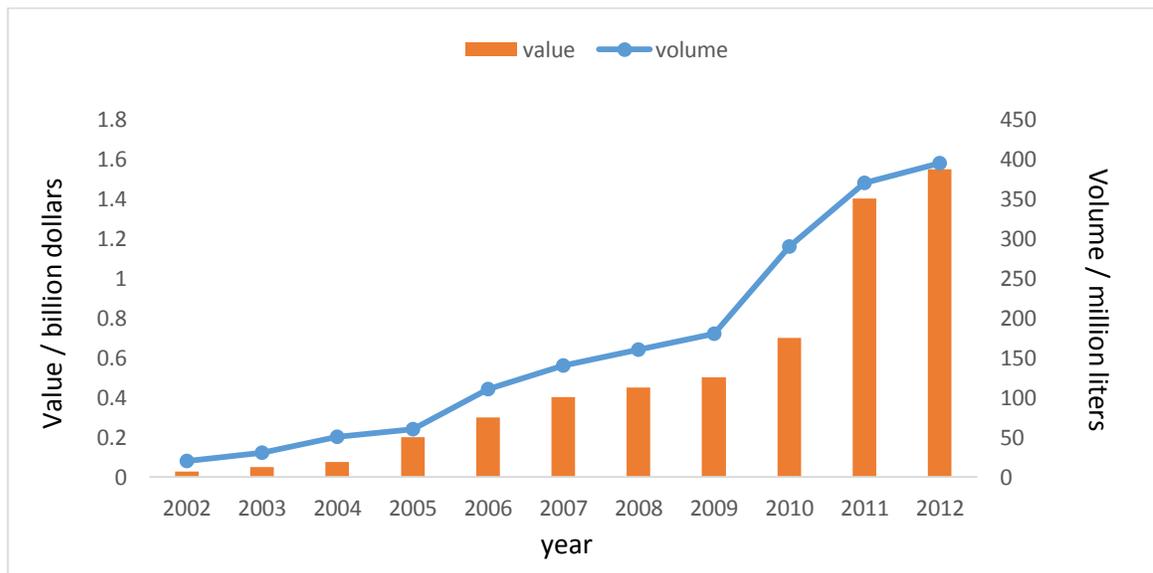
1.1.2 Imported wines

Figure 3: 2002-2012 China wine imports (U.S billion and million liter)

Source: UN Comtrade data

Figure 3 shows us from 2002 to 2012, the amount and value of wine that is imported to China. From the beginning of 2002, the amount and value of imported wine are increasing gradually. In 2012, in terms of import value, is 1.58 billion U.S dollars, which is about 67-fold rise over a decade period; on the other hand, in terms of volume, it increased from 31 million liter in 2002 to 390 million liter. According to EU SME Center, currently, there are about 1,500 imported wine brands and 24,137 wine importers (direct and indirect) in China. The market of imported wines is mainly existing in Tier 1 cities with fast developing speed, such as Beijing, Shanghai, Guangzhou. According to Wine Intelligence, only 23 million adults aged among18-50 can afford to buy imported wines and only 14.3 million currently buy it. However, with the increasing wealth in Tier 2 cities such as Shenzhen, Tianjin, Nanjing, with a population of three million to 8 million, the import wine trade is likely to be refreshed and reinforced.

According to St. Pierre Jr who is chief executive of Chinese importer, ASC Fine Wines, there are ten major countries selling wines to China: France, Australia, Italy, Spain, USA, Chile, Argentina, New Zealand, Portugal and South Africa. France is the dominant supplier of bottled wine, accounting for 7.6 million 9-litre cases in 2011.

Based on the research of Economic Research Service (ERS) from United States Department of Agriculture, through using China Customs data on bottled wine imports during 2002-2011, it concluded that for every $1 increase in total wine imports in the first quarter of 2011, China spent $0.55 on French wine, $0.20 in Australian wine, $0.09 on Italian wine, $0.03 on Spanish wine, $0.03 on Chilean wine, $0.02 on American wine, and $0.08 on wine from all other countries. Figure 4 shows us the value (US$ million) of bottled wine imports (excluding sparkling wine) from 2004 to 2012 based on the data from UN Comtrade.
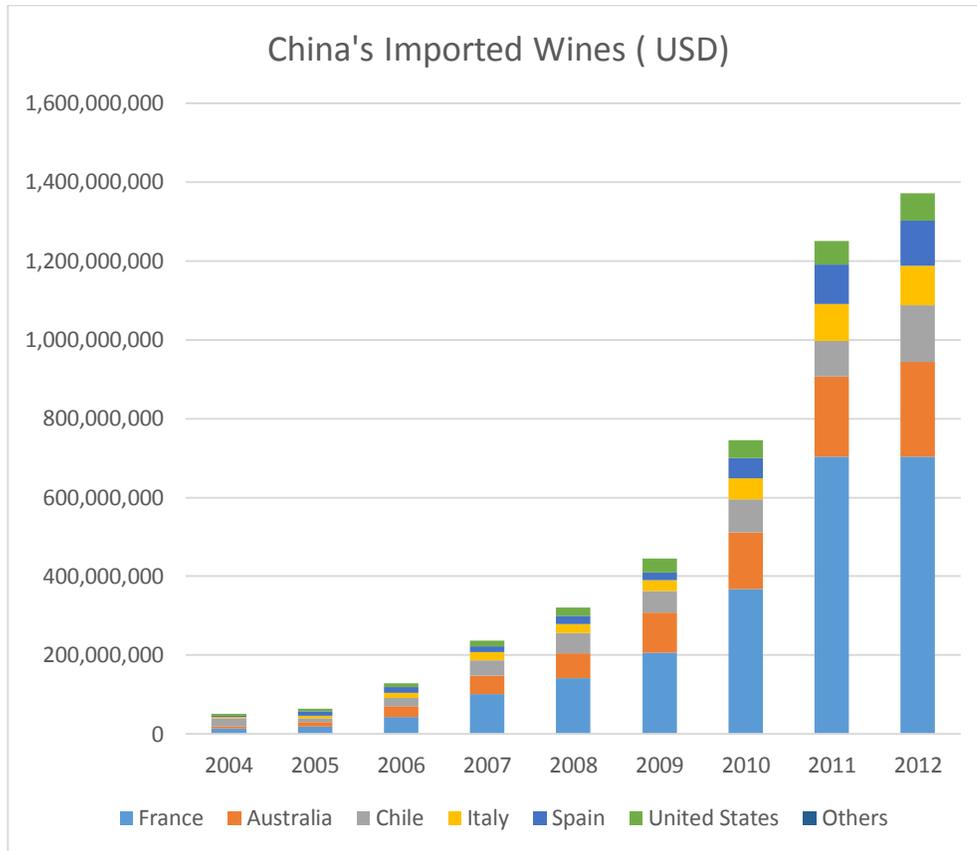
Figure 4. China's Imported Wine from 2004 to 2012 (Unit: USD)

Source: UN Comtrade data

France is keeping its dominant status throughout those periods. At the same time, Australia is following behind in a fast-speed way; in addition, Italy, Chile, Spain, United States and New Zealand are developing more or less.

Based on a survey (Cohen, Corsi & Lockshin, 2014) conducted in March 2013, involving 913 respondents who belong to upper-middle class urban population aged 18-49 living in Beijing, Shanghai, Guangzhou, Chengdu, Shenyang, and Wuhan, and drink imported wine at least twice a year. Figure 5 illustrated the awareness of region of origin, grape variety and price from those Chinese.

9

Bordeaux – 87 (France)

Provence—60 (France)

Napa Valley – 57 (U.S)

Barossa Valley – 54 (Australia)

<RMB250   45

RMB 250-699   37

≥RMB 700   18

Cabernet Sauvignon (Red) 83

Chardonnay (White) 55

Sauvignon Blanc (White) 53

Riesling (White) 52

France   97

China   87

Italy   83
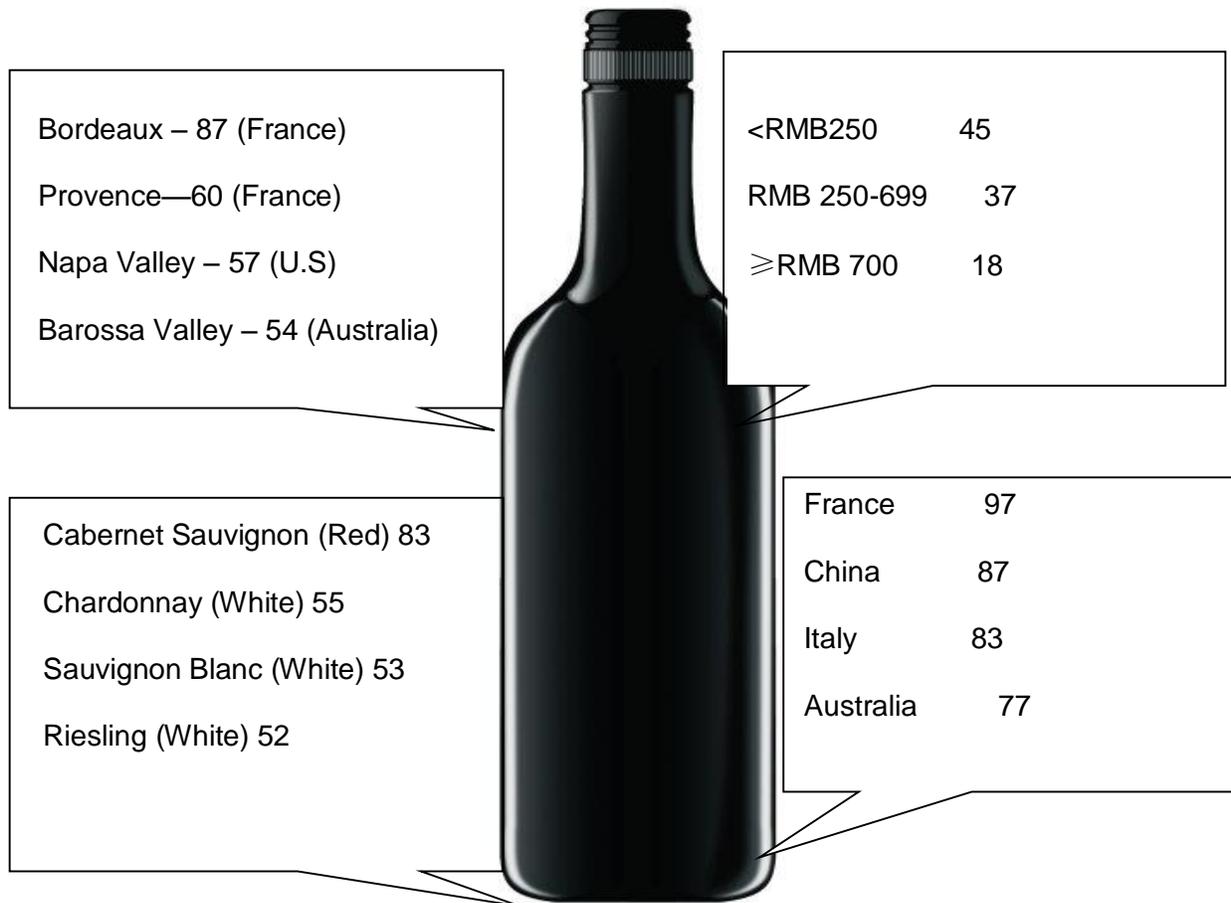
Australia   77

Figure 5. Wine awareness in China (based on % awareness or % spending on premise)

Source: Wine & Viticulture Journal

As we can see, imported wines from new world such as Australia and the United States are gradually catching people's attentions, even though the old world wines still dominate in this group of people.

1.2 U.S Wine Exports
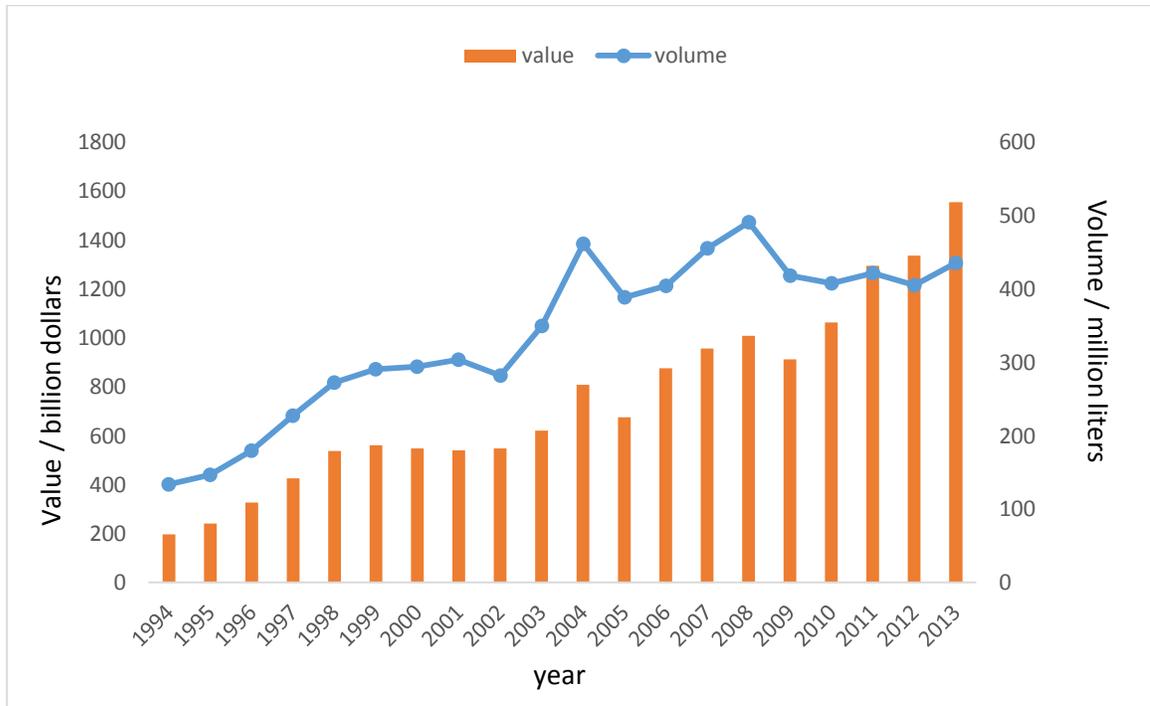
Figure 6. U.S. Wine Export from 1994 to 2013 (Million Liters/ Billion Dollar)

Source: Wine Institute & Global Trade Information Services, using data from U.S. Dept. of Commerce.

According to San Francisco based-Wine Institute from the U.S, in 2013, U.S. wine exports, 90% from California, reached record high $1.55 billion in winery revenues, up 16.4% compared to the previous year (Figure 6). What's more, it is the fourth consecutive year's increase by value. In terms of volume shipments, it reached 435.2 million liters as well, increasing at 7.5%. "Consumers across the globe continue to recognize the quality, diversity and value of California wines, despite significant trade barriers and heavily subsidized foreign competitors," a quoted saying from Robert P. Koch, the President and CEO of Wine Institute. So far, the most important export markets for U.S wines are the European Union's 28-member countries that are the largest one accounting for $617 million, up to 31% compared to the previous year. Canada is the second important market, accounting for $454 million, up 12% of

the whole market. China, including Hong Kong is $155 million accounting 18% of the market; Japan is $102 million, 7%; Mexico, $22 million, 21%; South Korea, $18 million, up 16% compared to previous year.

The most important and popular grape varieties in the United States are Chardonnay, Sauvignon Blanc, Riesling for white; Zinfandel, Cabernet Sauvignon, Merlot, Pinot Noir for red. Besides California, Oregon, Washington State, and New York State are the other major wine regions in the United States.

1.2.1 U.S Wine Exports to China

According to Steve Riboli, the vice president and the third generation of Riboli Family owned San Antonio Winery in Los Angeles, American wine has become a hot commodity in China, especially among the young, upwardly mobile middle class and these consumers want a taste of American culture, whether it is through wearing American clothes or drinking Californian wine. Taking the 97 years old San Antonio Winery as an example, it exports 15% of its wines to China, estimating 700,000 bottles annually and expects that to rapidly increase in the next two years. Riboli said, "We've had double-digit sales growth in China versus single-digit growth here in the U.S, the primarily export red wines like cabernet, pinot noir and merlot. These wines go well with spicy regional Chinese cuisine and we've found that Chinese consumers also like red wine for its health benefits." San Antonio Winery's success in China is just a small part of the increasing American wine in China. Due to the rapid development of the economy in China and the emerging middle and up class, Chinese consumers are looking for new ways for lifestyle. Drinking red wines is considered to be a healthy way of life compared with traditional spirit, baijiu, which usually contains 40% - 60% alcohol. Entertaining and drinking with friends is a part of social culture to Chinese, thus, there are great opportunities for American wine

entering Chinese market. Even former NBA star Yao Ming established his own wine company in Napa Valley – Yao Family Wines under the brand name Yao Ming in 2009.

In order to promote American wine to China, there were lots of activities taking place. In 2012, the California Wine Pavilion at Vinexpo Asia-Pacific in Hong Kong represented 250 wine brands, attracting 18,000 key trade visitors in Asia. Later on, the Wine Institute's California Wine export China tour under the name of "Discover California Wines" with more than 35 delegates represented more than 120 brands in Beijing, Shanghai, and Guangzhou and participate in 12 consumer, trade and media activities, including "California Wine Summit" and Sonoma County feature seminars. Both the China tour and Vinexpo Asia-Pacific trade show give consumers, distributors and other wine business related organizations more detailed, vivid and true images about California wines through introducing the local lifestyles, wines, cuisine, landmarks and vistas. According to Linsey Gallagher, the director of Wine Institute's International market, new global branding campaign is intended to target China's emerging middle class with luxury, high-end positioning. Through conducting those campaigns, it developed the California wine brand in China; capitalized on the California lifestyle image; reached affluent Chinese consumers where they live, commute, work and play; increased awareness of California wines, generated word-of-mouth; positioned Shanghai market for long-term growth; and most importantly – boosting sales of California wines.

Figure 7 is showing us the value of U.S wine export to China during 2004-2012, based on the data from UN COMTRADE. As we can see, the value of the U.S wine exports to China from 2004 to 2012 keeps going up constantly. However, there is a contradiction in the U.S wine export to China: the exports have been steadily increasing, but the market share is still quite

small, even declining in some periods, based on the Table 4 demonstrating the market share of

U.S wine in China.

US Wine Export to China Value
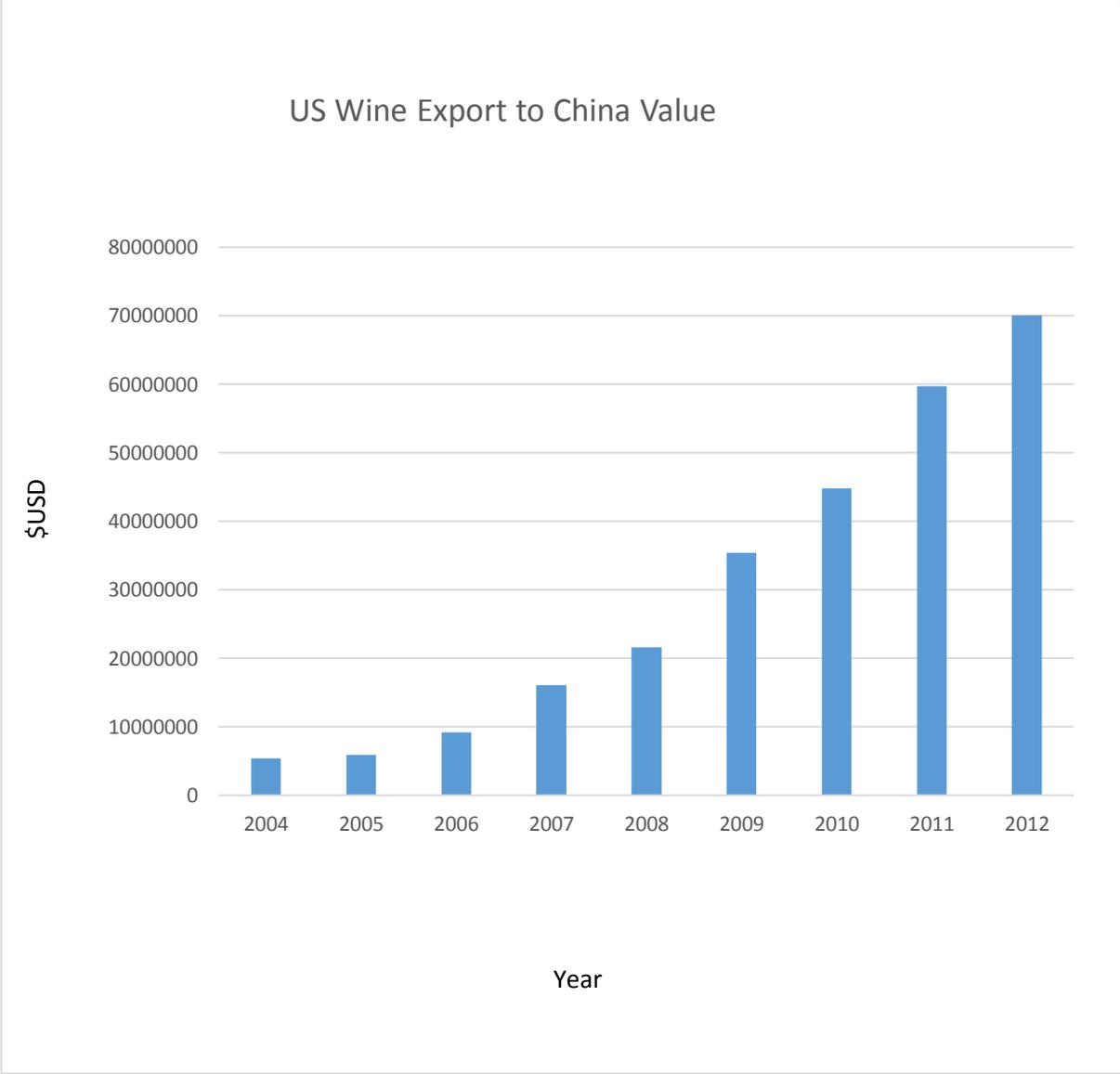
Figure 7. The value of U.S wine export to China during 2004-2012

Source: UN Comtrade data

Table 4. Market share of U.S wine exports to China during 2004-2012 ($USD)

Year	Total Value of U.S Wine Exports	Total Value of Imported Wine in China	Market share of U.S wine exports to China (%)
2004	5,397,738	52,757,764	10.23%
2005	5,914,260	75,136,009	7.87%
2006	9,183,089	138,187,785	6.64%
2007	16,098,800	257,112,507	6.26%
2008	21,558,510	380,408,015	5.67%
2009	35,367,388	457,368,297	7.73%
2010	44,818,214	797,214,874	5.62%
2011	59,701,153	1,436,335,970	4.16%
2012	70,081,291	1,581,071,091	4.43%

Source: UN Comtrade data, market share calculated by the author

1.3 Significance of the study

As mentioned before, the wine market in China is growing rapidly as well as providing great opportunities and potential for foreign countries to participate in, however, there is lots of competition. Generally speaking, U.S wines are not very known to Chinese consumers compared to those wines from Old World such as France and Italy; at the same time, the market share of U.S wine export still accounts for a small portion in China's imported wine market, though its exports are increasing every year. Under this circumstance, through investigating current U.S wine exports to China, finding out the main reasons contributing to this situation, this paper may provide a valuable and helpful perspective and suggestions for wine export business people, organizations and related companies on the wine export business of the United States and how

the U.S wines and the U.S wine industry should go about marketing their products in China and what they should improve in exporting wines in China.

1.4 Research method

There are a number of factors contributing to the growth of the U.S wine exports to China. This paper investigates and analyzes the affecting factors on this situation by using constant market share model (CMS). The CMS method is a technique for analyzing trading patterns and trends for the purpose of policy formulation, and it is intended to shed light on the factors underlying a country's comparative export performance (Ahmadi-Esfahani, 2006). From this perspective, the analysis of factors affecting exports mainly takes the constant market share model, and it is one of the most important descriptive tools indicating if a country's comparative export performance reflects changing market shares or total market growth. This paper discusses the research method in details in chapter III.

1.5 Summary of all chapters

The first chapter, it introduces the current situation of wine market in China. First of all, it divides the domestic wine market into three parts: domestic wine industry, market and consumers. Secondly, it introduces the imported wine countries. Thirdly, it talks about American wine into two aspects: on one hand, it illustrates the American wine exports to the world; on the other hand, it specifies in talking about American wine export in China. Fourthly, it describes the significance of the study indicating the beneficiaries of this study. Fifthly, it introduces the research method adopted in this study and gives a brief explanation why it was chosen. Lastly, it summarizes each chapter.

For the second chapter, it starts with an overall introduction of previous study related to this study; then describes the individual research paper; in the end, the author gives a conclusion of enlightenment and thoughts from those paper.

As for the third chapter, it gives more detailed introduction of CMS model and explains how to adopt it into this study. For the fourth chapter, it shows the result and how it comes up, and analysis according to the interpretation of CMS model.

Finally, the conclusion chapter includes the overall summaries of the thesis and major conclusions from the analysis, implications for related business organization and people in this field, limitation of this research and suggestions for future research.

CHAPTER II

PREVIOUS STUDY

Many studies have, in the past, conducted research on wine trade between China and wine export countries. In addition, they have investigated the influence and impact of imported wine on China's domestic wine industry. Some researchers have analyzed the factors affecting the growth of imported wine in China such as the reduction of tariff, the growth of economy, increase of income of Chinese consumers and appreciation of RMB. Furthermore, researchers have adopted different economic models such as Constant Market Share (CMS) model, Almost Ideal Demand System (AIDS) model and Ordinary Least Square (OLS) model to analyze the relationship between the product and origin as well as the affecting factors of the growth of foreign wine in China.

Jin (2013) analyzed the current situation of imported wine in China and explored the influence of imported wine on Chinese wine industry. The paper summarized six aspects for current situation of imported wine in China: 1. the scale of imports is continuingly increasing; 2. European Union is the major origin for Chinese imported wine; 3. the import unit price increased; 4. small package of fresh wine is dominated as well as the increasing number of sparkling wine and fortified wine; 5. imported wine from private business accounted for up to 50% of total imports; 6. various factors lead to the consistent growth of imports. On the other hand, it found out the impact from imported wine on Chinese wine industry. First of all, the imported wine is grabbing partial Chinese wine market share leading to the fierce competition between imports and domestic wine. Secondly, imported wine is reducing the initiative of domestic wine production and preventing its development. Thirdly, imports' pricing from ports to retails are significantly different. Finally, the quality of imported wines is uneven, because

some distributors taking advantage of Chinese consumers who don't have sufficient wine knowledge are using poor quality imported wine as high quality one with high price in order to get more profits and seize the mid to high-end market, which impedes the development of good wines produced domestically.

Jiang (2013) investigated the influence of reduction of tariff on Chinese import of wine. It concluded that with the reduction of tariff, the import of wine is increasing. At the same time, Jiang explored other reasons for the growth of imported wine, namely, the growth of economic production, the increase of income, appreciation of the RMB. Finally, Jiang provided some suggestions for domestic wine production, in order to compete with imported wine: first of all, increasing the quality of domestic production; secondly, strengthening brand image for domestic production; thirdly, reinforcing the distribution channels; fourthly, standardizing the market regulation; lastly, developing domestic wine tourist as well as promoting wine culture.

Zhang and Tian (2012) built import demand model based on factors such as import and domestic market price, consumers' income, tariff, and so on, to study the main influencing factors of changes in wine imports and used Almost Ideal Demand System (AIDS) Model to study the relationship between products of different origin. As a result, with rising of consumers' incomes and reduction of import tariffs, the scale of China's wine import has great potential. Imported and domestic wines are differentiated in competitiveness: the former one mainly accounted for Chinese high-end market.

Yan Jiang in her "A Study of the Fluctuation of China's Import of Wine and the development of Chinese Wine industry" illustrated the development of international trade of wine, explored the reason of the fluctuation and its influence to Chinese wine industry and raise some suggestion based on the results of the research. Through adopting CMS Model and

Ordinary Least Squares (OLS), it concluded that domestic demand is the main factor influencing China's import of wine; what's more, world's biggest wine producers mainly use competitive price to expand their share in Chinese market; meanwhile, the growth of Chinese domestic demand of wine enhances the import of foreign wine and the development of Chinese wine industry.

Zhou, Ying and Jiang (2008) also utilized CMS Model to analyze the reason for the fluctuation of imported wine in China. It concluded that the key factor for the fluctuation of imported wine in China is import gravitation; global economy is also closely related to the imported wine trade in China: in recession period, due to the decline of global demand, reduction of import gravitation and unreasonable import structure, the imported wine was declining; in flourishing period, because of strong global demand and increase of import gravitation, the imported wine trade in China is enhanced. So far, relatively strong gravitation of Chinese imported wine as well as good global economy environment promote imported wine in China.

Luo (2010) investigated in the consumption of imported wine in China and analyzed the increasing status of Australian wine exported to China, through adopting CMS Model, it found out the increasing demand of Chinese market in each year is the key factor on the increasing importing Australian wine; however, the structure of products and competitiveness of Australian wine is declining. What's more, different grape varieties from Australia is showing different performance in Chinese market. The increasing phenomenon of Chinese market for importing Australian wine is also related to the great potential of Chinese market, the trade policy after joining in WTO and marketing strategies from exporting countries.

Each study gives inspirations and enlightenment to this paper: on one hand, it provides suggestions about adopting CMS model to utilize data and analyzing the results; on the other

hand, it helps to expand the horizon of the author in order to investigate the study in a fuller and more comprehensive way.

CHAPTER III.

METHODOLOGY

Methodology: Constant Market Share (CMS) Model

In this paper, Constant Market Share (CMS) model is adopted in order to investigate the factors affecting the growth of U.S wine exports to China, as CMS model is a key method that can provide insights into a country's comparative export performance. In terms of the purpose of the analysis, a standard for comparison is required to be defined, either "the world" or a set of similar or closely competitive countries. In addition, product-type and country of destination should be categorized in order to specifically analyze the exports (Ahmadi-Esfahani, 2006).

The CMS model was firstly used in export analysis by Tyszynski in 1951 for international economics, developed by Richardson (1971), Jepma (1986) and Milana (1988), and used to quantify the export performance of a country compared to the rest of the world or single foreign market. According to Jepma (1988), the traditional CMS model can further investigate on the reason for the increase of export trade in a country. It summarized that the increase of trade from export country to import country, namely export growth rate (q) result from three factors: scale effect (SE), competitive effect (CE), and second-order effect (SOE). This study deals with the growth of U.S wine exports to China during the period 2004-2012. CMS analysis is used to investigate the scale effect, competitive effect, and second-order effects that drive in wine exports during this period. Among those three effects, scale effect means that due to the global change in total demand of a certain product, the amount of exporting country for such product also change. From this perspective, if China enlarges its demand for imported wine, the exporting country to China increases as well, showing positive result. Competitive effect is another factor which means the change of competitiveness of a certain product in an exporting

country also causes the change of value for such exported product. If the result is positive, it is showing that the competitiveness of wine from export country is increasing. Second-order effect is also named as interaction effect as a result of the interaction between scale effect and competitive effect, reflecting the correlation between export growth and market share growth, indicating the degree of the exporting country adapting its export share in order to take advantage of the import growth of its trading partner (Fagerberg and Sollie, 1987). A negative second-order effect means that the exporter has lost market share in markets that grow quickly, and gain market share in markets that grow slowly.

The basic model is: q=Q + s + sQ   (1)

q is the export growth rate, Q is scale effect, s is competitive effect, and sQ is second-order effect. The Equation (1), can be considered as the aggregate version of Equation (2) below. That is, when exports are differentiated in terms of product type (i=1,…, I) and regional destination (j=1,…, J), the export growth for the focus country, here, United States, in market ij can be written as below:

$$q_{ij} = Q_{ij} + s_{ij} + s_{ij}Q_{ij} \qquad (2)$$

To all growth rate, we can use: $q = \sum_{ij} w_{0ij}q_{ij}$ \qquad (2a)

Here, "w_{0ij}" is the weight representing the ratio of the amount of product export compared to total amount exports.

Substitute (2) into (2a):

$$q = \sum_{ij} w_{ij}q_{ij} = \underbrace{\sum_{ij} w_{0ij}Q_{ij}}_{scale\ effect} + \underbrace{\sum_{ij} w_{0ij}s_{ij}}_{competitive\ effect} + \underbrace{\sum_{ij} w_{0ij}s_{ij}Q_{ij}}_{sec\,ond-order\ effect} \qquad (3)$$

Equation (3) is called first level decomposition.

The scale effect (SE) also can be divided into: scale-aggregate growth effect (SAGE) and scale-market effect (SME), expression is SE=SAGE+SME, where SAGE is a country's imports growth rate of a product; at the same time, competitive effect can be decomposed into competitive aggregate growth effect (CAGE) and competitive market effect (CME), where CAGE is the product market share growth rate of a country, expression is CE= CAGE+CME.

Thus, the second level decomposition is (4):

$$q = \sum_{ij} w_{0ij} q_{ij} = SAGE + (\sum_{ij} w_{0ij} SE_{ij} - SAGE) + \text{CAGE} + (\sum_{ij} w_{0ij} CE_{ij} - CAGE) + \sum_{IJ} w_{0ij} SOE_{ij} \quad (4)$$

SAGE is explained that, assuming an export country's market share to Chinese imported wine market is constant, the increase of demand for imported wine in China leads to the change of wine from export country, as well as the wine from export country to China also increase. In this case, the result of SAGE is positive.

SME reflects how an export country concentrate on the product that has fast or slow growing demand. The positive result indicates the country's exports are mainly concentrated on the rapid growth in demand for wine products in China.

CAGE illustrates that, assuming the scale of total import is constant, due to the change of the overall competitiveness from export product to China imported wine market, it results in a change of value of export country. If the result is positive, it shows the growth of total competitiveness of one export country in Chinese wine market.

CME illustrates that, assuming the scale and structure of imported wine in Chinese wine market is constant, the change of competitiveness of certain wine product results in a change of value of export country. If the result is positive, it shows an increase in product competitiveness of one export country in Chinese wine market.

3.1 Data source

All the data is from the database of UNCOMTRADE (Table 5), based on HS as reported in commodity category grape wine (including fortified), alcoholic grape must (2204) which divided into four sub-category: grape wine, sparkling (220410), grape wine not elsewhere specified, fortified wine or must, pack<2L (220421), grape wine, alcoholic grape must not elsewhere specified (220429), and grape must, unfermented, except as fruit juice (220430).

Table 5. Summary of wine exports to China from each country during 2004 to 2012 (USD)

Year	category	France	Australia	Chile	Italy	Spain	US
2004	220410	1821966	160967	3644	176262	77385	53131
2004	220421	9487902	5482950	2455118	2837644	1195724	5233532
2004	220429	2144074	560896	17240857	526476	1334946	99249
2004	220430	0	45466	44527	14454	159	11826
2005	220410	2676365	340712	6469	122020	159774	21905
2005	220421	14801506	9494621	3835227	3292827	1964632	5472492
2005	220429	2153783	1311072	5186868	2402848	10604006	419863
2005	220430	0	0	78027	0	172	0
2006	220410	4323393	328480	9927	2052901	1510860	108492
2006	220421	35405625	20848561	5109142	7502589	3573711	8409461
2006	220429	3502400	6742037	15906409	2416814	10308293	735886
2006	220430	0	40551	89113	36603	82	29250
2007	220410	7559444	832344	3850	2175416	3779406	338984
2007	220421	88911634	39711851	9437798	15949241	6334057	14494603
2007	220429	4712131	5627296	30674720	2154736	3503803	967918
2007	220430	0	37100	86812	55987	3844	297295
2008	220410	9685613	856441	28380	1771086	1816652	434897
2008	220421	126334855	57004518	14422517	16975128	12992994	17811152
2008	220429	6021424	5234131	36937884	3484523	5418515	3199126
2008	220430	25077	28491	0	29393	72	113335
2009	220410	7316186	970465	23155	2349504	411949	5080328
2009	220421	194398526	82883899	22139243	22801618	16609749	22153884
2009	220429	4372206	18560812	31820602	2027629	2850769	8121176
2009	220430	34733	82213	0	129122	811	12000
2010	220410	12664407	1512466	54470	3198751	732417	1132514
2010	220421	347220029	122488410	37434874	46036007	31625467	33429496
2010	220429	7568952	19865512	45957223	3633137	18953756	10204128
2010	220430	46395	229610		1063018	13950	52076
2011	220410	16638616	1445603	66007	8303850	1804163	2006647

2011	220421	674679964	180809555	65578887	73093486	64840790	52683793
2011	220429	12256006	20113582	25956660	9177746	32499262	5001932
2011	220430	0	96254	0	2653298	105859	8781
2012	220410	26560912	3781998	120152	6988998	1714759	2224486
2012	220421	664442073	216597025	81438470	78449165	85814841	58451736
2012	220429	12251174	17643149	62794818	11250529	27037338	9330707
2012	220430	40395	2043935	0	2353947	109024	73362

Source: from UN Comtrade data

3.2 Period division

Based on the tendency of the figure 7, throughout 2004-2012, the U.S wine exports is keeping increasing all the years; meanwhile, in order to make sure the effectiveness of the data and avoid unreasonable fluctuation of data, therefore, this paper divided 2004-2012 into three stages: 2004-2006, 2007-2009, and 2010-2012, to be more specific and comparative to analysis the result.

3.3 Regional destination

As mentioned before, USA is the major country j in this paper; besides, France, Australia, Chile, Italy, and Spain are also discussed for comparison with USA.

RESULT

Through utilizing above CMS model from first level to second level and calculating, table 6 is the result of first level decomposition and table 7 is the result of second level decomposition.

4.1 First level decomposition result

The following data can be calculated from original data: 1. weight of category for each stage in each country, 2. the volume growth between stages, 3. market share of each stage, and 4. market share growth between stages. Then SE, CE, SOE, and q, from first to second stage, and from second stage to third stage, for each country, can be calculated.

Table 6. CMS model first level decomposition result

From first to second stage						
	France	Australia	Chile	Italy	Spain	US
SE	488.74	367.03	191.35	226.93	74.82	254.57
CE	11.97	2.79	18.62	-26.96	-53.84	-13.84
SOE	58.45	-30.90	27.01	-39.45	16.06	-66.71
q	559.16	338.92	236.97	160.52	37.04	174.03
From second to third stage						
	France	Australia	Chile	Italy	Spain	US
SE	294.86	176.93	119.41	252.20	393.74	139.10
CE	3.79	-21.59	-17.47	2.11	68.62	-28.67

Table 6. CMS model first level decomposition result (Continued)

SOE	11.10	-36.19	-3.87	-14.31	123.74	-29.85
q	309.75	119.16	98.06	240.00	586.11	80.57

Generally speaking, during 2004-2012, the total export value from each country in each year is increasing, however, each country has its own characteristics showing on the different effects. As mentioned before, the change of export is determined by those three effects: scale effect, competitive effect and second-order effect, in which scale effect plays a very significant role. In other word, the growth of demand for imported wine in China's market causes the increase of export. As for competitive effect and second-order effect, each country has a different performance. France is in the leading position with the positive results of each effect all the time; Australia, Chile and Italy follow behind France, taking the advantage of their scale effect during this period; Spain has a significant growth in scale effect, competitive effect and second-order effect from 2004 to 2012. As for the United States, the increase of export rate benefits from its scale effect.

4.1.1 Scale effect

Each country has a positive scale effect during 2004-2012 because of the increase of total demand for imported wine in China. Among these countries, France has the highest scale effect than others, due to the favor of French Wine in China and its symbol of social status. From the first stage to second stage, the United States has a relatively high scale effect following behind France and Australia also indicating the increasing of total demand for those countries' wine in China's wine market. In this period, Spain has the lowest scale effect, but it is still positive. From the second stage to the third stage, there are decrease of scale effect in France, Australia, Chile and the US, on the contrary, Italy and Spain have an increasing scale effect, especially Spain,

which has significant growth on scale effect in this period and become the first place in terms of scale effect among six countries.

4.1.2 Competitive scale

Competitive scale indicates the change of competitiveness of a product from an export country results in the change of value for this product. In other word, if the result of competitive scale is positive, it reflects the increase of competitiveness of the product from this export country, vice versa. During 2004-2012, there are great changes in competitive effects among those six countries. From first stage to second stage, France, Australia and Chile have a positive competitive effect, which indicates the increase of competitiveness of those countries in China's wine market. Italy, Spain and the United States have negative competitive effects, reflecting the decrease of competitiveness of those countries in China's wine market. However, from second to third stage, Italy and Spain have a great increase of competitive effect and both turn into positive, which reflect the increase of competitiveness of those two countries in China' s wine market. France, in spite of a decrease in competitive effect from 11.97 to 3.79, it is still positive. Australia, Chile and the United States get negative competitive effects, which indicates the decrease of competitiveness in China's wine market.

4.1.3 Second-order effect

Second-order effect reflects the correlation between export growth and market share growth, indicating the exporting country's adaptive capacity. A positive second-order effect indicates the export country gain the market share in markets that grow rapidly, and lost market share in markets that grow slowly; while, a negative second-order effect means that the exporter has lost market share in markets that grow quickly, and gain market share in markets that grow slowly. From first to second stage, France, Chile and Spain have positive second-order effect;

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while Australia, Italy and the United States show negative second-order effect. Based on those results, it indicates that France, Chile and Spain gain the market share in which the market grows rapidly; while, as for Australia, Italy and the United States, they gain more market share in which the market grow slowly. From second to third stage, Chile lost its market share in a market that grows rapidly showing negative second-order effect, though it is positive from first to second stage; besides, Australia, Italy and the United States still get a negative second-order effect; France decreases from 58.16 to 11.10, but still positive; Spain has a significant increase of second-order effect from 16.06 to 123.74 indicating the great increase of market share in which the market grows rapidly.

4.2 Second level decomposition result

Previously, the paper explains that scale effect can be divided in to scale-aggregate growth effect (SAGE) which can be interpreted as an average scale effect if scale effect are uniform across markets and scale-market effect (SME) that is average impact of differential scale effect across markets. Besides, competitive effect divided in to competitive aggregate growth effect (CAGE) which means average competitive effect if competitive effects are uniform across markets and competitive market effect (CME) interpreted as average impact of differential for competitive effects across markets (Ahmadi-Esfahani, 2006). SAGE can be calculated as the growth from first to second stage, and from second to third stage, of China's total import from the world. CAGE can be calculated as the growth from first to second stage, and from second to third stage, of each exported country's total export to world.

Table 7. CMS model second level decomposition result

From first to second stage						
	France	Australia	Chile	Italy	Spain	US
SE	488.74	367.03	191.35	226.93	74.82	254.57
SAGE	311.49	311.49	311.49	311.49	311.49	311.49
SME	177.26	55.55	-120.13	-84.55	-236.66	-56.91
CE	11.97	2.79	18.62	-26.96	-53.84	-13.84
CAGE	372.94	353.53	118.34	145.01	27.35	184.21
CME	-360.98	-350.74	-99.73	-171.97	-81.19	-198.04
From second to third stage						
SE	294.86	176.93	119.41	252.20	393.74	139.10
SAGE	248.40	248.40	248.40	248.40	248.40	248.40
SME	46.46	-71.46	-128.99	3.81	145.35	-109.30
CE	3.79	-21.59	-17.47	2.11	68.62	-28.67
CAGE	275.35	201.73	91.4	207.26	346.12	71.41
CME	-271.56	223.33	-108.88	-205.15	-277.50	-100.08

4.2.1 Scale-aggregate growth effect

During 2004-2012, the scale-aggregate growth effects are positive in those six countries indicating the increase of export in each country follows the tendency of growing demand all over the world. That is to say, the increasing demand for imported wine in China's market plays

an important role in each export country. However, from second to third stage, there is a decrease of scale-aggregate growth effect in each country, compared with previous stage.

4.2.2 Scale-market effect

Scale-market effect in this paper reflects how an export country concentrates on the wine product that has fast or slow growing demand in China's market. The positive result indicates the export country mainly concentrates on the wine product that has rapidly growing demand in China's market. According to the result, most countries have great changes during those three stages. From first to second stage, only France and Australia have positive scale-market effect which indicates those two countries' exports concentrate on the product that has rapidly growing demand in the market, in other words, the distribution of export products are reasonable and easy to win the market share; on the contrary, Chile, Italy, Spain and United States have negative scale-market effect, indicating those countries' exports concentrate on the product that have slow growing demand in the market, that is to say, the unreasonable distribution of product from export countries restricts the increase of value of export in this period.

From second to third stage, France decreases its scale-market effect, but still keep it as positive. Australia changes its scale-market effect from positive to negative, which indicates the loss of concentration on rapid growing demand products in China's market. Italy and Spain's scale-market effect turn into positive, showing an adjustment on export product distribution in Chinese imported wine market based on the country's demand. The United States still have a negative scale-market effect in this period.

4.2.3 Competitive aggregate growth effect

Competitive aggregate growth effect is related to the change of overall competitiveness in an export product, in other words, if other condition is constant, the increase of overall

competitiveness from an export product cause the increase of export value. During 2004-2012, the competitive aggregate growth effect in the six countries are positive, indicating that during this period, the overall competitiveness of each country's products is increasing. From first to second stage, France take the highest competitive aggregate growth effect followed by Australia and the United States; Spain has the lowest competitive aggregate growth effect; however, from second to third stage, Spain has a great increase in competitive aggregate growth effect and becomes the first place of it. The United States decreases from 184.21 to 71.41 and turns in to last one of competitive aggregate growth effect. All in all, all countries have positive competitive aggregate growth effect and their overall competitiveness of products get improved during these periods.

4.2.4 Competitive market effect

Competitive market effect is related to product competitiveness. Given other condition is constant, if the product's competitiveness increase from export country, it export value is also increased. During 2004-2012, all countries competitive market effects are negative, which indicates the decrease of competitiveness of product from each export country. From this perspective, the decrease of product competitiveness slows down the pace of increasing exports from each country.

4.3 Analysis of factors affecting the increase of import wine from the United States

Overall, the most important factor of the increase of export wine from the United States to China is the gradual increasing of demand for imported wine in China's market, however, the decrease of product competitiveness and the uneven market distribution of American wine in China's market restrict the increase of export wine from the United States.

After entering World Trade Organization (WTO), China gradually reduced the import tariff for wine. At the beginning of 2004, China lowered its wine import tariff rate from 65% to 14% (bottled wine) and 20% (bulk wine), excluding consumption and VAT tariff, creating more opportunities for foreign countries to export wine to China and compete China's domestic product which has an advantage in price (Webley, Jiang, Balmer, & Ridley 2010). Under this beneficial circumstance, the United States has a great increase in exporting wine to China. In addition, with the development of economy in China and the increase of income among Chinese people, the purchasing and consumption capacity for foreign wine are enhanced as well. As one of the most important representatives as a New World wine, compared with European wine with traditional vinification and relatively expensive price, American wine can satisfy with both good quality and reasonable price. Due to these two reasons, there is an increasing demand for American wine in China.

Although during 2004-2012, American wine is keeping an increasing export to China, the speed is obviously slowing down from second to third stage. The major reasons for this are low product competitiveness and unreasonable market distribution as it discussed before. As for American wine, though it is a great alternative for expensive European wine, it has many constraints to be accepted by Chinese customers. First and foremost, distribution situation is the most crucial concern for American wine entering in China's market. As mentioned in the first chapter, there are four major distribution channels in China: on-trade, supermarket, specialist retailers and warehouse, however, for foreign wine gets from port to consumer, only one way can be provided that is through specialized wine importing and distribution agents (Rozelle, Huang, & Sumner, 2005), such as Montrose, Don St. Pierre and Summergate as the main centers for foreign wine consumption and establishing offices in Beijing, Shanghai and Guangdong. While,

those big agents already have wineries they represent. It is hard for American wineries to be on the list of those most famous distributors. According to a survey of wineries in California, the most severe constraint is that there is not a reliable agent inside China that can serve as the wineries local representative office (Rozelle, Huang, & Sumner, 2005).

The second constraint confronted by American wine is lack of understanding about American wines. There are few wine specialist agents could explain clearly about American wine, compared with the knowledge they have about European wine.

All in all, the distribution situation and the low popularization about American wine to the public restrict the development of American wine in China.

CHAPTER V

SUMMARY, CONCLUSION, SUGGESTION AND LIMITATION

5.1 Summary and conclusion

This study explores the factors responsible for the growth of U.S wine exports in China between 2004 and 2012. The constant market share (CMS) analysis model of export growth was adopted in order to capture the first level, including scale effect, competitive effect and second-order effect and second level containing scale-aggregate effect, scale market effect, competitive-aggregate effect and competitive market effect for the period of 2004-2012.Through analyzing those seven effects and their implications with respect to six countries including the United States, France, Australia, Chile, Italy, Spain, there are several factors of importance.

First of all, China joining in WTO has been greatly promoting the import wine trade and providing beneficial opportunities for those countries that export wine to China. Reducing tariff, to some degree, is accelerating this situation. At the same time, with the development of Chinese economy, increasing of income in Chinese people and the rising of middle-upper class, the demand for foreign wine is growing gradually. Foreign wine is not only a symbol of good taste and western lifestyle, but also high social status and wealth. What's more, with the fierce competition among foreign wine and domestic wine, consumers have more options to choose which one is better for them—a famous but little expensive old world wine such as French, Italian, and Spanish wine; or good quality with reasonable price new world wine such as American, Australian or Chilean wine; or cheap domestic wine.

In this paper, it takes American wine as an example to illustrate this phenomenon and it concludes that the gradual increasing of demand for imported wine in China's market plays a fundamental role in the growth of exporting wine from the United States to China. However, the

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decrease of product competitiveness and the lack of proper market distribution channels of American wine in China's market restrict the increase of export wine from the United States.

5.2 Suggestions

In order to further strengthen the capacity of American export to China, the paper makes the following suggestions: first and foremost, as for those wine business organizations and decision makers, reinforce product competitiveness of American wine and promote the brand image and awareness to the public in China's market. Through cooperating with China's social media and network such as Weibo, Tmall in China, it will help American wines to establish positive and vivid image in China. At the same time, participating in each wine related events and activities, such as Vinexpo, Annually Top 100 Wine Evaluation in order to get more exposures to the public. Secondly, as for marketing and sale departments, develop and expand the distribution channels for American wine in order to reduce the cost of middleman and constrains from large wine specialist representatives, and train sales representatives of American wine, popularizing the American wine knowledge and culture to local people. Lastly, as for policy makers, strive for advocating and conducting the establishment of Free Trade Agreement (FTA) with China. There are lots of examples showing the advantage of FTA. So far, China has reached FTA with New Zealand and Chile, promoting the wine exports from these two countries.

5.3 Limitation and suggestion for further study

In this paper, it mainly discusses the period of 2004-2012, which is quite short period compared with the long term of wine trade. From this perspective, the further study could be conducted for a long term investigation, which is more precise and comprehensive. On the other hand, in this paper, it doesn't consider the exchange rate of USD to RMB. From 2004 to 2012, the exchange rate is fluctuating: in 2004, 100 $UDS equals to 827.68 ￥RMB; however, in 2012,

100 $USD equals to 631.25 ￥RMB. Thus, for further study, it may take the exchange rate of

currency into consideration.

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