



China's Wine Import Industry: An Economic Analysis of Influencing Trade Factors

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Abstract. In recent years, China is undergoing a huge economic transformation since joining in World Trade Organization (WTO) and it has showed an increasing demand for wine. As China's wine consumption market is increasingly larger, the European market is becoming increasingly saturated, more and more wine foreign trade and foreign capital have chosen to enter China. Since 1996, China's wine imports have gradually increased and the trade deficit has significantly expanded. Thus, the objective of this study is to analyze the China's competitiveness of wine in the international market. We mainly focus on the factors that most influenced the performance of imported wines from 1995 to 2014. The aim is to testify if the wine imports affect the China's own wine industry and examine which factors influence the Chinese wine industry most. This study uses Constant Market Share (CMS) econometric model to analyze the influencing factors of China's grain import fluctuation. The deep introduction on wine trade has important practical significance for the development of international trade and the improvement of industrial policies. The procured result of empirical model demonstrates that competitiveness is not always a predominant factor throughout the period, especially in wine industry.

Keywords: CMS model · Import · Wine · Competitiveness

1 Introduction

Over the past two decades, with the improvement of people's living standards, the rate of China's economic growth has an amazing pace. Although China has a long-term traditional to consume grain alcohol production in holidays, with the improvement of living standards and the influence of Western culture, more and more people especially educated young professionals and government campaigns led a trend to drink wine and an increase in wine consumption. (Sun 2009), Undoubtedly, under the background of global economic integration, the continuous increase in wine imports has largely guaranteed domestic demand, making China a very promising exporting market (Mitry et al. 2009). Furthermore, the reduction of import duties after participating in the WTO

in 2001, the import volume of wine has presented a strong momentum. Today, compared with other countries, China's wine industry is still largely undeveloped and has great potential for development. Since joining WTO and the implementation of the wine import tariffs reduced policy, the wine industry has been greatly impacted by imported wine, China has urgently needs to promote the development of the domestic wine industry and improve the international competitiveness of its own wine industry.

However, the income growth and cost effectiveness of imported wine has changed the consumption situation remarkably. Because the low price and better taste of imported wine, more and more people prefer imported wine especially the traditional European products. In order to deal with this situation, China has expanded its area of vineyards and rising from 15th in 2001 to fifth largest wine producer in the world, according to OIV report in 2015.

Consequently, the tremendous consumption market has made China became a much more attractive destination for foreign vintners. The import volume of wine has grown strongly during the last decades. According to United Nation's Commodity Trade Statistics Database, in the case of a general expansion of import demand in the world, China's wine yield hovered from 25 million liters to 112 million liters. Furthermore, the average wine consumption per person rises from 0.20 L in 1990 to 1.24 L in 2015. However, compared with the world average, China's wine consumption only accounts for 36.7%. With the influx of a large number of imported wines, there are still technical barriers in wine industry such as wine production, transportation and preservation. Because of these problems, there is still a big gap between Mainland China and other old wine production countries like France. Infrastructure, consumption, and market competition have made a big gap in the wine industry.

In regards to the massive trade deficit, is it for China to decrease wine import and to develop its own wine industry? At present, the domestic research on wine trade is mostly descriptive. This paper intends to empirically analyze the fluctuation of China's wine import trade and its causes through the CMS model. We also discussed what measures the Chinese government and wine producers should take to reduce the impact of imported wine on domestic wines. In addition, how to use its rich geographic resources and low import tariffs to benefit from its wine industry is a basic contribution of this paper. These questions should be deep thinking in this process.

In this paper, we first analyze the status of China's wine import and export to see why China's wine trade deficit is surging. Then we use the Constant Market Share (CMS) model to verify the fluctuation of wine import trade in China. We analyze the impact of structure, competitiveness, and secondary structure and competitiveness from three perspectives to determine the main factors affecting our wine industry. Through the empirical research, we could provide a strong policy support and reference for import and export trade of related product.

2 Literature Review

Many previous researches had a deep research on the wine development in China. But there are few domestic researchers focus on the fluctuation of import trade of wine contrast by the export trade of agricultural products as a whole at present and they also have done a great deal of research on it from theory to practice. There is not much research on wine imports. Most research methods only focus on the statistical analysis of economic indicators. The research objects are wines, and there are few researches on the factors and causes of the fluctuations of the wine import trade at home and abroad.

As mentioned above, many foreign researchers have made intensive studies on the Chinese wine industry. Muhammad et al. (2014) examined Chinese wine imports from wine consumption patterns perspective. He thinks that one-off structural changes may not reflect the changes in demand over the past decade. When China joins WTO successfully in 2001, researchers have found that some of the WTO's rules on tariff reduction help the development of the wine industry and demonstrate that open deals are feasible. More importantly, the evidence had shown that China's market share in wine industry was not affected by the financial crisis (Guo and Feng 2013). Other researchers analyze the effect of the globalization in Chinese wine industry. They proposed that China had considerable potential in wine consumption, while there may be huge potential for export as well. Besides, another group of researchers analyze export competitiveness. They discuss the positive and negative aspects of free trade from both theoretical and empirical levels.

Although quantitative analysis has been limited, most of researches on wine import trade mainly focus on measuring the economic benefits of different tariffs or quota policies, rarely analyzing the influencing factors and causes of the fluctuation of wine prices at home and abroad. They use theoretical methods to analyze the different type of wine products' patterns.

These studies have important implications for the analysis of the factors affecting the import development of China and wine industry. What is the reason for the growth of wine imports in China? Is it because of the increase of competitiveness of foreign wines or the expansion of domestic demand? Although these researchers have made significant contributions in this field, we should make a new industry synthesis analysis to better understand the Chinese wine industry because of the rapid growth of wine imports.

3 An over Overview of Chinese Wine Market

Chinese people are used to drink alcohol at special occasion like social banquets and business meetings, besides when going to friends' home they usually bring it as gift (Liu and Murphy 2007). With the continuous growth of the national consumption demand and the improvement of the living standard, Chinese wine market continues to grow, and the wine import scale expands rapidly (Huang and Rozelle 1998).

Due to the accession to the World Economic and Trade Organization and increasing demand for wine in China in recent years, the openness of the market has gradually increased and the imports of wine has increased significantly which makes

China risen form 9th to 5th in the world. Figure 1 shows a time series plot of Chinese wine import over the post 2002–2016. As the figure shows import of wine has shown dramatically increase since 2008. From 2002 to 2016, wine yield in China has risen by a tremendous 1987%, exceeding the world average of 20%. At the same time, China’s average purchase price for wine from 2002 was 1.67 CNY/g in 2012 at 3.29 CNY/g, with a compound annual growth rate of 7% which was related to the demand for wine. This may be due not only to the increase in the share of domestic wines but also to the increasing cost rising cost of production. China has imported a lot of a lot of wine in bulk to reduce the cost of wine production.

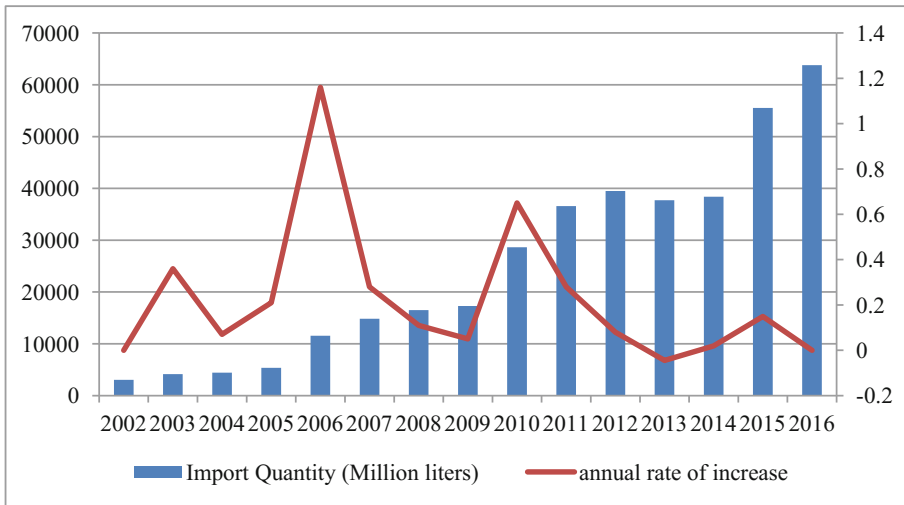


Fig. 1. Chinese wine import quantity and annual rate of increase in China in 2002–2016

At present, there are about 500 wineries in China. Many of them are very small, geographically dispersed and have insufficient capacity. With good natural conditions and low labor costs, there is great potential for domestic wines development. The extent to which Chinese wine consumption and production are developed is a problem that many foreign wine manufacturers are very concerned about. Because of the current global economic climate, wine import and consumption have slowed down. This long-term trend will reverse as income increases (Chaney 2008). Due to the competitions of foreign suppliers, the domestic market share of domestic wines gradually declined. To a certain extent, brand loyalty is still one of the important factors affecting consumers’ purchase of wine which is also a benefit to Chinese wine manufacturers. The domestic wine industry, which is at a comparative disadvantage, is facing increasingly fierce international competition.

4 Methods

Based on the consideration of many internal and external influences, we use the CMS model to explore the fluctuations in China's import trade since 1995 and its causes, providing a basis for the adjustment and formulation of wine industry policies. Hence, to infer China's wine imports, this research explores and discusses these questions by using the Constant Market Share (CMS) model. The CMS (Constant Market Share) model is a constant market share model. It was initially proposed by Tyszynski (1951) and has been revised and refined by Stern and other scholars. It has become the main method for studying export competitiveness and market trade growth at present. For decades, foreign scholars have generally used this model to study the national export competitiveness and trade fluctuations and have been widely used by domestic scholars in recent years. In terms of export competitiveness, more scholars use the CMS model to study the dynamic changes in export competitiveness. This modeling approach is based on market share as a constant amount as a research hypothesis. Now let's briefly introduce this model.

First, consider the market share in exporter's market may be defined as follow, where S represents the focus country's share of the market, q is the focus country's exports and Q is the exports of the standard.

$$S = q/Q \tag{1}$$

The standard's exports of commodity i to market j is defined as Q_{ij} . Differentiating with respect to time yields, the change in the share of market share between an initial year (time 0) and year t is

$$\Delta q = \sum_i \sum_j S_{ij}^0 \Delta Q_{ij} + \sum_i \sum_j Q_{ij}^0 \Delta S_{ij} + \sum_i \sum_j \Delta S_{ij} \Delta Q_{ij} \tag{2}$$

strucrual effece competitive effect second-order effect

This equation can be rewritten as following:

$$\begin{aligned} \Delta q = & S^0 \Delta Q + \left[\sum_i \sum_j S_{ij}^0 \Delta Q_{ij} - \sum_i S_i^0 \Delta Q_i \right] + \left[\sum_i \sum_j S_{ij}^0 \Delta Q_{ij} - \sum_i S_j^0 \Delta Q_j \right] \\ & \text{growth effece} \quad \text{market effect} \quad \text{commodity effect} \\ & + \left\{ \left[\sum_i S_i^0 \Delta Q_i - S^0 \Delta Q \right] - \left[\sum_i \sum_j S_{ij}^0 \Delta Q_{ij} - \sum_i S_j^0 \Delta Q_j \right] \right\} + \Delta S Q^0 \\ & \text{stuctural interaction effect} \quad \text{general competitive effect} \\ & + \left[\sum_i \sum_j \Delta S_{ij} Q_{ij}^0 - \Delta S Q^0 \right] + (Q^1 / Q^0 - 1) \sum_i \sum_j \Delta S_{ij} Q_{ij}^0 \\ & \text{specific competitive effect} \quad \text{pure second-order effect} \\ & + \left[\sum_i \sum_j \Delta S_{ij} \Delta Q_{ij} - (Q^1 / Q^0 - 1) \sum_i \sum_j \Delta S_{ij} Q_{ij}^0 \right] \\ & \text{dynamic strucrual residual} \end{aligned} \tag{3}$$

Where

$$\sum_i \sum_j S_{ij}^0 \Delta Q_{ij} = S^0 \Delta Q + \left[\sum_i \sum_j S_{ij}^0 \Delta Q_{ij} - \sum_i S_i^0 \Delta Q_i \right] + \left[\sum_i \sum_j S_{ij}^0 \Delta Q_{ij} - \sum_i S_j^0 \Delta Q_j \right] + \left\{ \left[\sum_i S_i^0 \Delta Q_i - S^0 \Delta Q \right] - \left[\sum_i \sum_j S_{ij}^0 \Delta Q_{ij} - \sum_i S_j^0 \Delta Q_j \right] \right\} \tag{4}$$

$$\sum_i \sum_j Q_{ij}^0 \Delta S_{ij} = \Delta S Q^0 + \left[\sum_i \sum_j \Delta S_{ij} Q_{ij}^0 - \Delta S Q^0 \right] \tag{5}$$

$$\sum_i \sum_j \Delta S_{ij} \Delta Q_{ij} = (Q^1 / Q^0 - 1) \sum_i \sum_j \Delta S_{ij} Q_{ij}^0 + \left[\sum_i \sum_j \Delta S_{ij} \Delta Q_{ij} - (Q^1 / Q^0 - 1) \sum_i \sum_j \Delta S_{ij} Q_{ij}^0 \right] \tag{6}$$

Equation (4) is the structural effect which means changes in China’s wine imports are caused by changes in the overall import demand for wine in the world. Then, it could be divided into growth effect, market effect, commodity effect and structural interaction effect. Equation (5) is competitive effect which measures the influence of changes in China’s wine imports caused by changes in the gravity of China’s wine imports. Competitiveness refers to the import competitive attraction of China’s wine consumer market to other countries. As for Eq. (6) is the second-order effect. It measures the changes in import value caused by changes in the competitiveness of China’s wine imports and changes in the world’s wine import demand. This model has made empirical analysis of factors affecting the growth of Chinese imported wine and analyzed the degree to which the importer gains market share without changing the pattern of world exports and destinations

5 The CMS Decomposition Results

The CMS model decomposition was based on years, and the end of each stage is the beginning of the next stage. The result of the selected cycle is then represented by the average of the annual decomposition results. Using this method, it does not affect the final results when selecting the year as the start of the entire period. We utilize CMS model to make empirical research in the view of wine and classification to analyze the impact on China’s wine industry from 1995 to 2014, such as China’s wine industry, influence import factors, market structure and market. Then reveal the extent of the impact. We divided the year into 6 periods.

The data used in this model is product data according to HS classification. This data mainly derived from the COMTRADE database created by the UN Statistical Office, World Trade Organization reports and other data about China’s wine imports from. Since the implementation of the HS code in 1988, there has been a fourth revised edition of the HS2007 commodity classification method which is used in parallel with

the HS2002 commodity classification method and the sample period is 1995–2014. Furthermore, we divide it into 6 periods.

Table 1 presents the two levels of decomposition results in each one period by using CMS model. According to the table, China increased its wine imports during that period and China's wine import fluctuations are the result of structural effects, competition effects, and second-order effects. However, there are significant differences in the direction and degree of action of the three forces at different stages on wine imports. In the first level CMS decomposition, the results show that the growth of imported wine trade from 1995 to 2014 was mainly due to competitive effects. In terms of percentage, the proportion of China's wine imports in the world's total imports rose from 0.023% to 4.21%, nearly 183 times in 20 years. The contribution of the competitive effects to the increase in imports ranged from -66.00% (period II) to 135.81% (period VI). The second level CMS decomposition results further indicate that the fluctuation of China's wine import trade can actually be attributed to domestic macroeconomic factors, world economic factors, market structure factors, commodity structure factors, import gravitational factors, and the effects of the interaction of these factors. Furthermore, the result of second-order effect means there is a connection between the imports value and structural effects, competitive effects.

Table 1. Constant market share model for wine imports of China

Items	1995–1998		1998–2001		2001–2006		2006–2009		2009–2012		2012–2014	
	Average	%	Average	%	Average	%	Average	%	Average	%	Average	%
Δq	26.75	100	-11.63	-100	111.85	100	262.10	100	1078.51	100	-62.82	-100
Structural effect	0.85	3.19	-0.50	-4.29	16.94	15.14	-13.01	-4.96	97.98	9.08	125.33	199.52
Growth effect	0.96	3.57	0.44	-3.78	16.11	14.41	17.01	6.49	114.50	10.62	83.20	132.45
Market effect	0.07	0.28	4.43	38.10	-39.80	-35.58	-39.80	-15.18	-25.11	-2.33	46.93	74.72
Commodity effect	0.28	1.06	-1.99	-17.08	2.97	2.65	14.41	5.50	-16.51	-1.53	132.69	211.24
Interaction effect	-0.46	-1.72	-3.38	-29.08	37.65	33.66	-4.64	-1.77	25.09	2.33	-137.49	-218.88
Competitive effect	25.89	96.77	-7.68	-66.00	56.36	50.39	272.97	104.15	912.03	84.56	85.31	135.81
General competitive effect	23.10	86.35	-12.41	-106.67	58.70	52.48	269.10	102.67	808.08	74.93	-158.41	-252.18
Specific competitive effect	2.79	10.42	4.73	40.67	-2.34	-2.09	3.87	1.48	103.95	9.64	243.72	388.00
Second-order effect	0.01	0.04	-3.46	-29.71	38.55	34.47	2.14	0.82	125.33	6.35	-273.46	-435.34
Pure second-order effect	10.76	40.21	-0.09	-0.81	38.09	34.06	33.58	12.81	228.25	21.16	4.98	7.94
Dynamic structural residual	-10.75	-40.17	-3.36	-28.91	0.46	0.41	-31.43	-11.99	-159.75	-14.81	-278.44	-443.27

5.1 Structural Effect

The structural effect reflects the impact of the change in the wine imports on its import performance. Among the six periods, China has a positive growth effect which implies that the increase of Chinese wine imports is consistent with the world market demand

growth trend for wine. All the whole years, Chinese wine import value increased from 85 million to 1.25 billion US dollars. In the past 20 years, the import demand of the world market has increased by 25.796 billion U.S. dollars, an increase of 256.83%.

Especially in recent years, the domestic macroeconomic development has been gradually optimistic. The increase in GDP has been maintained at more than 7% and consumption in the commodity market has become increasingly active. In 2014, the total retail sales of consumer goods in China reached 26.2 trillion CNY, a year-on-year increase of 12.0%, and a real increase of 10.9% after deducting price factors. The income of residents increased substantially, an increase of 9.0% over the previous year. Due to the recovery of China's economy and the implementation of policies to expand domestic demand, import barriers have also gradually declined. In addition, the reduction in import tariffs on wine and the improvement in the living standards of residents have also stimulated the import of Chinese wine. With China's accession to WTO in 2001, the economy is getting better. Especially in the period 6, the contribution rate of growth effect is 132.45%, compared with the first initial stage of rise 37 times.

With the rapid growth of the world economy, the structural effects have become more and more influential. The optimization of the import structure compensates for the lack of competitive growth. China's wine import trade has grown steadily under the interaction of structure and competitiveness. The reduction of tariffs has greatly reduced the cost of imports, and favorable domestic macroeconomic factors will push China's wine import trade to the next high point. The effect of world economic development to China's wine imports is increasingly important, especially after accession to WTO and financial crisis. From the results, we can also infer that about one-third of the growth of China's wine imports is brought by the overall growth of world economy.

5.2 Competitive Effect

According to the Table 1, in the 20 years from 1995 to 2014, the competitiveness effects were the main factors affecting the growth of China's wine imports. Competitiveness effect can reflect the impact of China's wine import gravity on import trade which can be further divided into general competitive effect and specific competitive effect. From period 1 to period 6, the general competitive effect has changed from 86.35% to -252.18%. Based on the above analysis, we can see that the huge demand for wine has been the main reason for the rapid growth of Chinese wine imports throughout the year. And competitive effects are easily affected by the external economic environment like Asia financial crisis.

5.3 Second-Order Effect

From the years of 1995 to 2014, the pure second-order effect has always been positive which indicates that China's import of wine is consistent with the changes of world wine demand. From period 1 to period 6, the dynamic structural residual changes from 40.17% to -443.27%. It also reveals that China's imports of wine is irrational

distribution. By the way, China's share of imports growth in France, Spain and other major countries is slow which indicates that trade with less developed country is one of the main factors resulting in the reduction of Chinese wine imports.

6 Conclusions

Based on the empirical study of wine import trade in China, the results show that:

First, the increase in China's wine imports from 1995 to 2014 was mainly due to competitive effects. In the last decades, wine consumption and production in China has achieved tremendous advancements in development. Even though the global financial crisis broke out in 2008, China's wine imports have not been affected and the competitive effect has remained high. The improvement of the commodity structure and the growing demand for wine by the people has given China a strong attraction to wine imports. At the same time, the competitiveness of China's wine imports fluctuates with the fluctuations of the world economy. The direction of change in import competitiveness is consistent with the change in the overall world wine import demand. The development of import trade has enabled China's wine industry to coexist with risks and interests. In 2014, Chinese per capita consumption of wine was 1.17 L but only one third of foreigner.

Secondly, from a data point of view, there are certain problems in the structure of China's wine import market, and the market structure has no obvious advantage. From the view of dynamic structural residual, imported wines have a relatively slow increase in their import share in the category of goods with rapid growth in export demand, and there is a certain gap with the world export level. The exporting countries for wine are mainly Chile, Australia, France and the United States.

Finally, this paper highlight an analysis of the factors affecting China's imported wine. The result shows that in order to withstand risks and develop domestic and foreign markets, we should rationally adjust the import structure, actively coordinate and stabilize regional economic development, guide industrial integration, and take the road of industrialized management. Moreover, creating a good external environment, establishing industry legislation and strengthening industrial supervision are also effective measures. Effective competition and learning, timely exchange of international experience and technology; continue to explore comparative advantages, pay attention to the cultivation of competitiveness; market demand as a guide to promote the coordinated development of domestic import trade and domestic industries.

Acknowledgements. The financial support was from the China Agricultural Research System (CARS-30).

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