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Supply Chain Analysis of the German Bulk Wine Market

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Abstract

◦*Purpose:*
The bulk wine trade plays a very important role for the wine business in Germany as it covers a large quantity of the market. The aim of this study is to contribute to the understanding of the German bulk wine market complexities and the long-term development, focusing on the period 2000-2012.

◦*Design/methodology/approach:*
The study is based on an exploratory analysis about the trade flow of bulk wine. A new database of the bulk wine transports in the Rhineland-Palatinate region in combination with official statistics provide a detailed insight into the structure and changes of the market.

◦*Findings:*
The trade flow of the transported bulk wine volume shows different developments within the wine-growing regions. Structural changes on a long-term basis are motivated by the improvement of wine quality management requested by the customers and successful strategic management of the companies. The concomitant creation of a two-step-trade-model reflects the intensive networking including a division of labor and as such represents a concentration process in the German wine business. Vintage-related short-term variability, however, doesn't show a great impact on the trade flow organization of German bulk wine.

◦*Practical implications:*
The detailed overview about the development of the bulk wine market is interesting for all managers concerned as well as politicians to assess the competitiveness of their own or the domestic wine production regarding prospective strategic decisions.

Key words: Supply chain, bulk wine market, trade flow

1. Introduction

The recent development of the international wine trade clearly shows the great importance of the bulk wine market, the section with the highest increase in the wine business (Mariani, et al., 2012). The same goes for Germany where we find a specific and unique structure of the wine market. First of all Germany is known for a relatively high total wine consumption which is actually about 20 million hectoliter and with that approximately in fourth place after the USA, Italy and France (Anderson & Nelgen, 2011; Anderson, 2004). Especially the combination of domestic production (ca. 9 million hectoliters in 2012), a significant import rate (ca. 14.9 million hectoliters in 2012) and remarkable export rate (ca. 3.9 million hectoliters in 2012) is specific for the German wine consumption (Deutsches Weininstitut, 2013). The wine trade in general is improved by a free market without trade restrictions or taxes (Europäische Gemeinschaft, 1992). This open market, however, increases the competition between the domestic wine production and the imported products, especially in the low price segment mainly dominated by bulk wine. According to current estimations this low price segment in the German retail trade is up to 10.8 million hectoliters (of that 5.7 million hectoliters in discounters) reaching approx. 51 % of all sales (Deutsches Weininstitut, 2013). This enormous share illustrates the great significance of the bulk wine market for the German wine business. Furthermore, the bottling activity of imported bulk wines in German wineries and the re-export of bottled wine have become increasingly important (Rheinschmidt, 2014). Nevertheless, the internal structure of the bulk wine market is little known and there are only few studies because of very limited data available. For Germany a new database now offers the possibility to bring some more light into this complex submarket. The detailed information about the bulk wine transports in the land Rhineland-Palatinate covers an overwhelming market share regarding to the high wine production in this region (ca. 66 % of the total wine production in Germany) and the seat of some key companies in terms of distribution (Deutsches Weininstitut, 2013; Weinwirtschaft, 2014). Hence, the analysis of the bulk wine market in Rhineland-Palatinate may reflect the development of German wines in the low price segment with reference to trade activity, substitutability and other influences.

2. Methodology

This study analyses the growth of the German bulk wine market with a focus on the trade flow in the Land Rhineland-Palatinate. The data source is a data base on transfer documents of bulk wine transports over the period of time from the year 2000 to 2012. According to the EU regulation no. 439 it is obligatory to use these papers for all transports of wine, must and grapes (Europäische Gemeinschaft, 2009). The documents are consecutively numbered and collected by the vineyard register keeping chamber of agriculture. Responsible for the control and data maintenance is the national chemical investigations office (Landesuntersuchungsamt). The information in the transport form is very detailed and gives an exact overview of the sending and receiving company, their address, the transport date, the volume, the quality level, the variety, and many other factors. For reasons of data privacy protection the data base provided for this study was anonymized and categorized before. This analysis combines furthermore the trade data with the official statistics of the German wine business such as the yield or grapevine area. The data of the quality control tests (Amtliche Qualitätsweinprüfung) were also provided by the chamber of agriculture in a detailed but anonymized and categorized data base.[1] To illustrate the long-term development of the market this analysis is based on annual data sets.

[1] It is a legal requirement that all wines with a quality level of at least quality wine have to pass an examination before coming into market which is carried out and recorded by the chamber of agriculture (Landwirtschaftskammer) (§§ 19 ff WeinG).

In the following presented some selected key findings of a comprehensive exploratory study are presented. The results focus on the supply chain and organization of the bulk wine trade ignoring the value and pricing effects. Although the bulk wine prices are very important and well recorded there might be a time lag between the contract conclusion and the registered transport. Hence, the bulk wine transport data do not give information about the value of the traded quantities in the short-term. Therefore the value aspect was not included into this analysis.

3. Results

Over the period of this analysis since the year 2000 the traded bulk wine quantity measured by the transfer documents shows a steady decline. The aggregated data on full-year basis do not show any significant influence of the vintage-related yield and the traded bulk wine quantity. The yield of vine grapes over the period of the years 2000 to 2012 was in average about six million hectoliters of must in all vine growing areas in Rhineland-Palatinate together. Excluding the harvest in 2010 the wine production was relative stable.[2] The transportation documents show a volume of traded bulk wine with nearly the same amount. But taking into account that a certain quantity will be transported several times during the production process, the total trade volume contains some redundancy. To exclude these multiple census the traded volume can be differentiated by form of the company. The real bulk wine quantity comes only from wine-growing estates including cooperatives and producers' association (see "Trade Volume (Producer)" in Fig. 1). This trade course shows, first, less fluctuation than the yield and, second, also a declining development. Nevertheless it is noticeable that in 2012 almost 62 % of the grape harvest was traded on the bulk wine market. In addition, the differentiation between the growing areas gives us the information that this declining is mostly located in the area Pfalz, followed by the Mosel. The biggest region Rheinhessen, however, had a constant amount of bulk wine production. The different developments in these three major wine-growing areas in terms of transported bulk wine indicates that there is a structural change in the market until the year 2000.

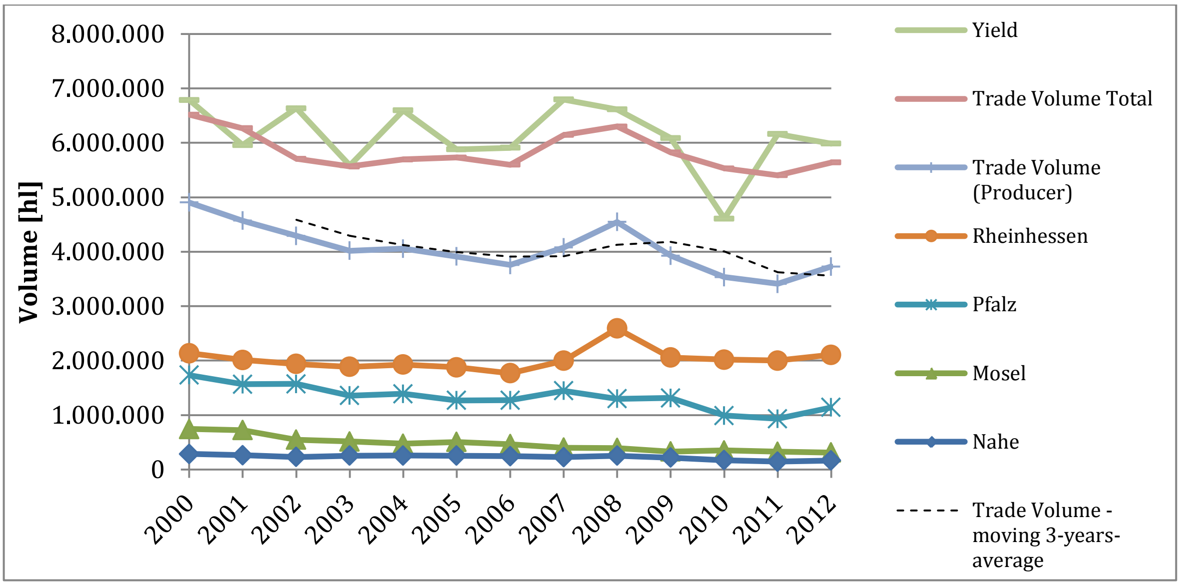

Figure 1: Supply of bulk wine by growing area

[2] For this analysis the yield of must was chosen instead of the statistical wine production because the latter contains already some bulk wine transports in form of must and would bias the results.

Especially in Mosel and Palatinate the traded bulk wine volume was continuously declining, but for different reasons. At the Mosel we have at the same time a significant reduction of vineyards followed by a decline of the whole production volume. The reduction of vineyards however is a specific phenomenon in this region because of the terroir and the difficulties handling steep slopes. But the decline in traded bulk wine is bigger than the reduction of vineyards so there has to be at least a second reason for this decrease. Even more significant is the development of the region Palatinate. While the acreage and the average production remain stable, there is a considerable reduction in traded bulk wine. This leads to the hypothesis, that successful wine-growing wineries increasingly keep their yield producing more own-labeled wine instead of selling the wine on the bulk wine market. This might to be discernible in changes of bottling activity by producers (Erzeugerabfüllung) recorded by the quality control tests of quality wines (Amtliche Qualitätsweinprüfung). To test this assumption the data of the quality wine certification were included in this analysis.

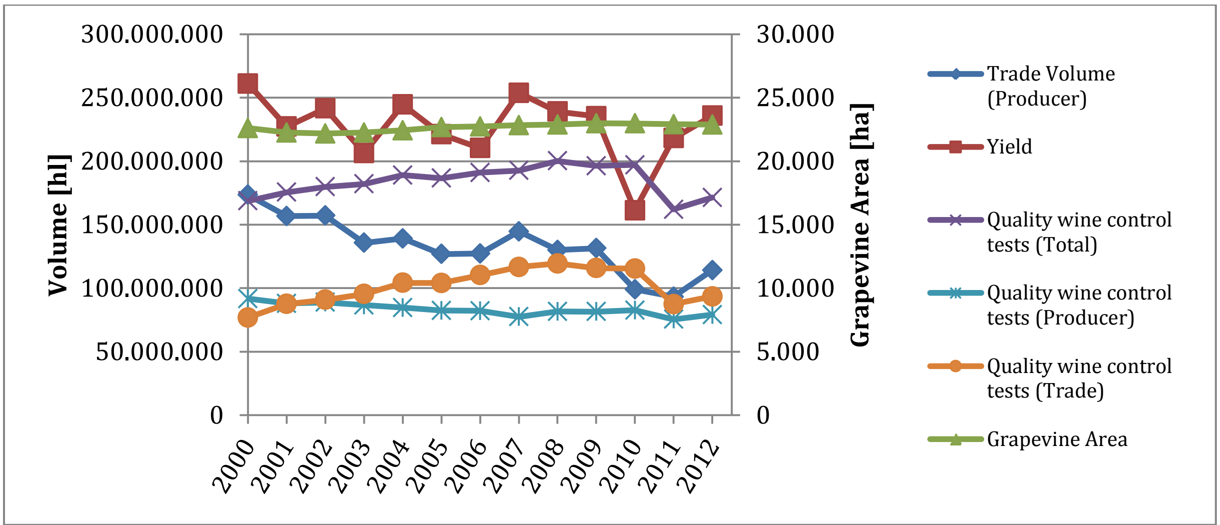

Figure 2: Development of the growing area Palatinate

Over the analyzed period the volume of certified quality wine coming from non-wine-growing wineries in Palatinate increased and at the same time the quantity of quality wines from producing wineries remained constant. Hence, the hypothesis of more bottling by the producer (Erzeugerabfüllung) has to be rejected first. The decreasing development of transported bulk wine conflicts with the increasing volume of quality wine by non-wine-growing companies. Taking into account, however, the entry of the bulk wine trade data there opens the possibility of the influence of successful wine-growing wineries by definition of the categories. The differentiation between wine-growing winery and wine-buying winery is linked to the amount of wine production from self-produced grapes or else bought grapes or wine. Depending on the vintage and the demand of their costumers some wineries might switch the category from one year to another. Secondly, some successful wine-growing wineries separated their wine production and range into two companies, one for wines from self-produced grapes and one for additionally bought wines or grapes. This is a distinct tendency especially in the Palatinate region according to experts' assessments. But for data protection reasons it is not possible to quantify this phenomenon statistically so far.

In addition another factor has to be taken into account regarding the data collection at the very beginning. In principle it is a legal requirement to have a transportation document for any bulk wine (grape or must) transfer, with one exception: for transports of unfermented grapes, must or mash from the vineyard to the winery within a radius of 40 kilometers: it is recommended but not necessary to have a transportation document, according to the EU-regulation No. 436 (Europäische Gemeinschaft, 2009). In several situations this exception may extended up to a radius of 70 kilometers which covers a large area of the whole wine-growing region. Therefor the declining trend of the bulk wine trade may also be a consequence of more grapes and must transports without documents.

The structural change in the wine-growing regions becomes even clearer looking at the destination of bulk wine transports (Fig. 3). It is significant that Rheinhessen is not only the most important production area for bulk wine but also the area where since 2004 the most consignees for the bulk wine transports directly from the producer are located, very closely followed by the Mosel area. Over the analyzed period the development of the consignee companies in Rheinhessen remained quite stable, while the tendency at the Mosel was slightly decreasing. The demanded bulk wine volume by companies in the Palatinate area, however, was still declining and recently reached the level of insignificance.

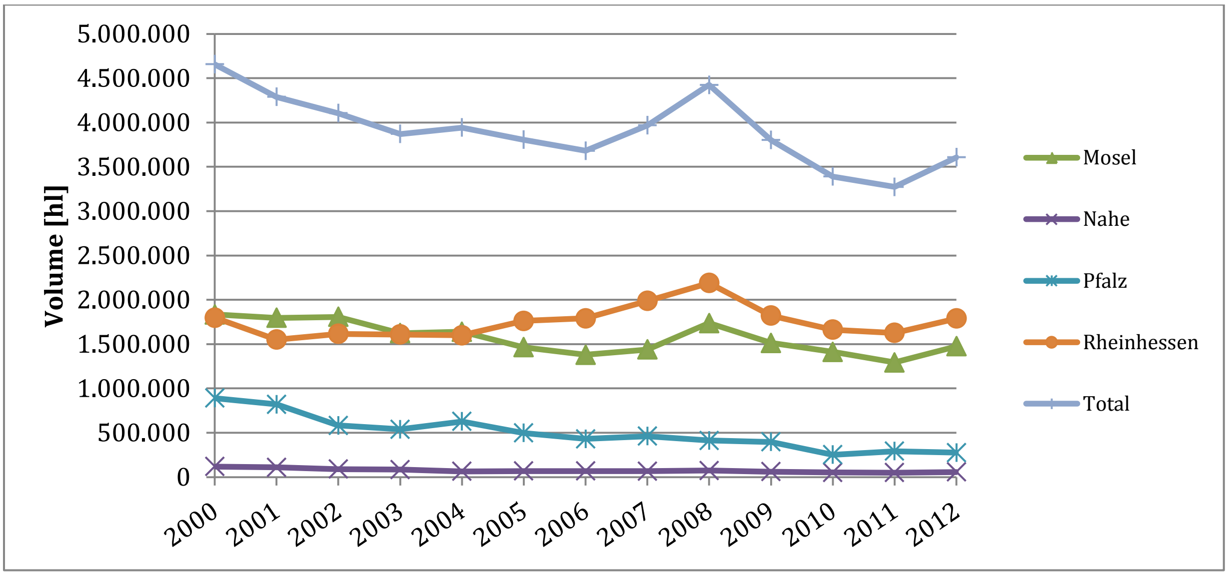

Figure 3: Consignees of bulk wine by growing area

While the total bulk wine trade volume coming from wine-growing wineries (and cooperatives) has been declining since the year 2000, the trade volume between non-wine-growing wineries is rising significantly (see Figure 4). Per definition non-wine-growing wineries do not have own vineyards and grape production and therefor they are dependent on buying wine (or grapes) on the bulk wine market. Classically these firms are acting as demander on this market. It is remarkable that these companies are also acting increasingly as supplier for wine.

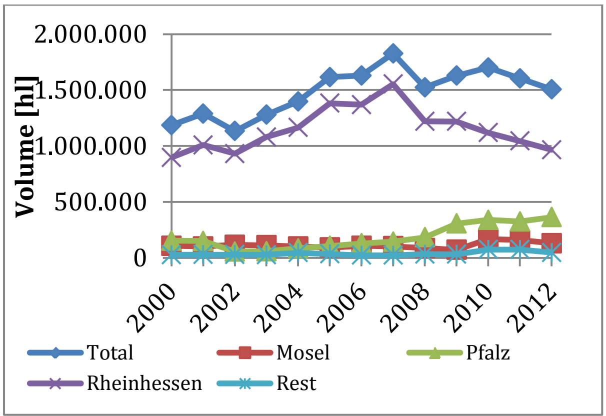

Figure 4: Internal trade flow of wineries by supplying area

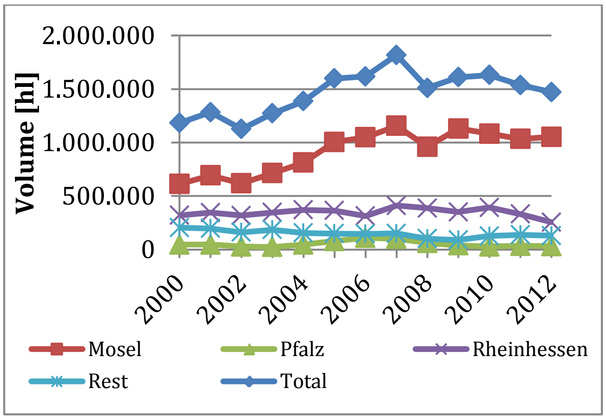

Figure 5: Internal trade flow of wineries by destination area

The most important supplying wineries are located in the Rheinhessen area. In fact this bulk wine volume amounts up to 85 % of the whole trade volume between non-wine-growing wineries until 2007. With the year 2008 also wineries in the Palatinate area participate in this intra-wineries-trade and the share of Rheinhessen is decreasing. All other regions do not have a significant influence on this development. The destination of this internal trade is first of all located in the Mosel region, followed again by companies in Rheinhessen (see Figure 5).

Bringing together both trade flows, first from wine-growing wineries and second the internal trade of non-wine-growing wineries, it is obvious that a clear supply chain structure of a large amount of bulk wine has developed. The most important volume of bulk wine is produced by vine-growers in the Rheinhessen area. These wines are given either directly to a bottling winery (mostly located at the Mosel) or they go first to a wine-making winery (mainly in Rheinhessen) and in a second step to the bottling winery. This two-step-production-model has become more and more important for the German wine business during the last decade and was the only growing segment on the bulk wine market. Recently in 2012 the most important trade flow is composed of 0.8 million hectoliters bulk wine produced by vine-growers in Rheinhessen and transported directly from the producer to wineries at the Mosel and 0.67 million hectoliters bulk wine coming from vine-growers in Rheinhessen and fermented in "service-wineries" in Rheinhessen and then bottled at the Mosel. In total, this two trade flows cover ca. 70 % of the bulk wine volume grown in Rheinhessen or almost 25 % of the yield in the whole Rhineland-Palatinate region.

4. Implication and Conclusion

The analysis of the bulk wine trade in Rhineland-Palatinate shows first of all little importance of vintage related variability which obviously can be balanced by storage. Even more conspicuous is the structural change within the several wine-growing areas with very different alignments. Especially the apparently paradox development in the Palatinate region may describe an improvement in wine quality at the same time as growth of many successful wine-growing wineries. On the other hand the main trade flow of German bulk wine is highly concentrated within Rheinhessen (production) and Mosel (bottling). This tendency is dominated by a few leading non-wine-growing wineries (Weinwirtschaft, 2014). The structural change in these areas is still an indicator for successful strategic company management. Especially the development of the two-step-production-model and the formation of so-called "service-wineries" are congruent with the assumption of more grape transport (without transportation documents). The main business of the "service-wineries" is the real wine-making process, while the second wineries are more specialized in bottling and distribution. On the one hand this represents a classical division of the workflow and specialization leading to a better economic benefit because of economies of scale. On the other hand there is a second enological reason in terms of wine quality. In the past the quality of bulk wines was very heterogeneous relating to the vintage and winemaking process. To guarantee a stable and good wine quality even in the low price segment it is the best to control the production process from the very beginning. Therefore the wineries turned to buying grapes instead of already fermented wines and conduct the real wine production with application of new technologies and well educated know-how. Insourcing the whole production, however, requires new logistical structures because of the huge production volume. Furthermore, the concentration of the bottling activity of bulk wine in the Mosel area is congruent with the international development. Even worldwide there is the tendency to focus the bottling process into the final market (Mariani, et al., 2012).

The motivation to improve the wine quality in this low price segment and the sustainable management of the business at the same time might be initiated by the most important customers of these low price wines: the retail sector, notably the discounters. Because in

Germany a substantial amount of wine is sold in the retail sector (Deutsches Weininstitut, 2013) the quality improvement demanded by the quality management of the discounters has a very positive effect on the image of German wines in general. This connection between the wine quality in the retail sector and the structural change in the bulk wine market, however, is based on long-term market observation of experts and is not statistically valid so far.[3] The finding match also with the development on the international wine market, where the rising bulk wine importance is driven by changes in consumer demand or establishing of new organization schemes as a result of seeking cost reduction and environmental sustainability (Mariani, et al., 2012). To support the results of this exploratory analysis this study will prospectively replenished with a qualitative survey in the form of experts interviews and also a statistical time series analysis.

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[3] Source: Unpublished experts' interviews.