

A ROSÉ BY ANY OTHER NAME

*Mohua Podder, Department of Accounting and Business Analytics, Alberta School of Business
3-23 Business Building, University of Alberta, Edmonton, AB T6G 2R6, 780-492-0393,
mohua1@ualberta.ca*

*Subhadip Ghosh, Department of Decision Sciences, MacEwan University
10700-104 Avenue, Edmonton, AB T5J 4S2, 780-633-3147, ghoshs3@macewan.ca*

ABSTRACT

A remarkable finding on analyzing the wine consumption data since the turn of the century has been the spectacular rise of the popularity of the Rosé wine. In the time period 2002-2018, the worldwide wine consumption of Rosé wine has increased by 20%. It accounted for 10.5% of the total still wine consumption in 2019. Indeed, the US has been one of the drivers of this rise in the popularity of the Rosé wine, with an increase of 118% in rose wine volume from 2015 to 2020. This paper tries to examine the consumer preferences behind this astounding rise in Rosé wine, using wine rating data from the Wine Spectator website. Comparing consumer ratings of similarly priced Rosé wines with some popular wines of other varieties, we obtained some exciting insights using several data visualization and regression techniques.

INTRODUCTION and LITERATURE SURVEY

One of the famous quotes from William Shakespeare's celebrated play "Romeo and Juliet" is, "A rose by any other name would smell as sweet"[11]. While this is true in the context of flowers, we try to examine whether this statement holds in the context of wines as well. Lately, the consumption of still wine has stagnated in many countries. In contrast, in the time period 2002-2018, worldwide wine consumption of Rosé wine has increased by 20%. It accounted for 10.5% of the total still wine consumption in 2019 [13]. This paper will examine the consumer preferences behind this rise in popularity in Rosé wine.

Not too far back in the past, Rosé was not considered a "serious" wine by the oenologists, as noted in Manfull (2017) [8]. For example, in 1975, the famous British oenologist and wine writer Pamela Vandyke Price stated, "Pink wines are not among the great classics"[3]. Given this background, the rise in production and popularity of the Rosé wine in the past 30 years has been astonishing. Some authors like Lorey (2021) have linked this with the millennial preference for Rosé wine [7].

Further, this increasing popularity of Rosé wine is not limited to a handful of regions. Instead, it is worldwide. France, which consumes 35% of the total volume of Rosé wine globally, is the largest consumer. Its consumption tripled in the last 25 years. It is followed by the United States, which consumes 15% of the global consumption [12].

We start with a brief survey of the existing literature on Rosé wine. There is a vast literature studying economics and consumer preference of wine in general. However, the literature on Rosé wine is nowhere as substantial. A detailed history of how and where the different varieties of Rosé wine were initially produced and how their popularity spread in other regions is in Gabay (2018) [3].

A growing body of literature postulates the upswing in popularity of the Rosé wine in the past two decades is because the millennial generation prefers it (Lorey (2021) [7], Iazzi et al. (2019) [4]. In addition, the latter found that the preferences of the millennials in France and Italy vary concerning the attributes they value in Rosé wine. Using social network platforms, Capitello et al. (2018) also reported that the Italian consumers who drink Rosé in the wine bar are "younger, more open to new experiences" [1].

Peres et al. (2020) deduce that color plays a crucial role in the brand of Rosé wine chosen by the consumers [9]. They hypothesized that the color signals the consumer's odors, aromas, and tastes of Rosé wines. Using a sample of 106 participants from the Bordeaux region of France, they noted that those consumers preferred the "apricot" shade rather than a "lychee" shade of Rosé wines. However, one limitation of their result is that all respondents were from the same region of France. Other studies like Iazzi et al. (2019) had noted people from different areas preferred different attributes of Rosé wine [4].

Corsinovi et al. (2013) examined consumer behavior toward Rosé wine and the profile of its typical consumers, using the Best Worst (BW) method [2]. They used respondents from Italy for their analysis. In their study, most Rosé wine consumers preferred the sparkling Rosé. Further, the main characteristics driving the consumers' choice of Rosé wines in the restaurants are their region of origin and their match with the food they consume. Wang et al. (2015) examined the preference of Chinese wine professionals toward Rosé wine through blind tasting in three large Chinese cities [12]. They considered a variety of Rosé wines produced in Australia, France, and China for their analysis.

Wine is an experience good. Hence, consumers' choice is often influenced by quality evaluations by experts, available in rating by Wine Spectator, Wine Advocate, and other such consumer reports. Several scholars have noted this, such as Roberts and Reagans [10]. We have also used data from the Wine Spectator website for our analysis, the largest source of online data on wine. Previous studies have focused on wine ratings using the Wine Spectator database, though, to the

best of our knowledge, none of them considered ratings on the Rosé wines. Landon and Smith did one of the earlier empirical research projects using Wine Spectator data in 1997, but they only considered Bordeaux red wines [5]. An extensive review of consumers' behavior towards wine purchase has been done by Lockshin and Corsi [6].

In what follows, we first describe the data obtained from the Wine Spectator website that we have used for our exploratory data analysis. We begin by providing the list of the Rosé wine producing countries, the share of their worldwide production, and their average price and experts' scores from the Wine Spectator website. Next, we examine the relationship between the price and scores for the Rosé wines for each country that produces them, which allows us to conduct a comparative study across these countries. We also compare the average price of the different categories of Rosé wines (classic, good, outstanding, and very good) specified in the Wine Spectator website for France and the USA to gain further insights. We have included two popular red and white wine varieties (Cabernet Sauvignon and Chardonnay, respectively) in our comparative study as well.

DATA

As mentioned before, we have used data from the Wine Spectator website. The unique Wine Spectator database consists of more than 400,000 wine samples. We have manually extracted wine rankings data for a popular red wine varietal-type (Cabernet Sauvignon), a popular white wine varietal (Chardonnay), and all the Rosé wines from the Wine Spectator website [Dec 31, 2021] (<<http://www.winespectator.com>>), including winery, country, vintage, market-determined price, and individual score [13]. Data on the Rosé wines are extracted across the world. Whereas data on Cabernet Sauvignon and Chardonnay are obtained from France and Napa-valley of the USA regions for comparative study with the Rosé wines. A selected set of attributes from this database that we have explored so far using in our current data visualization are listed below:

- Wine Spectator rankings – raw scores are blindly assigned by the Wine Spectator editors on 0 – 100 scales. We have considered only good quality wines for our analysis, in the sense that we have limited ourselves to considering wines that have a (Wine Spectator) score between 80 to 100 (limited wines were available with scores below 80).
- Market derived price (per 750 ml) with a maximum cut-off value of \$300 for comparison across varieties and countries.
- Country/Regions/Brands as combined categories limited to Wine Spectator production region specification (location of individual wineries)

Wine Scores are further categorized under the following rankings as recommended in the Wine Spectator website

- Classic – score between 95 and 100
- Outstanding – score between 90 and 94
- Very Good – score between 85 and 89
- Good – score between 80 and 84

Utility or satisfaction from a good quality wine is assumed to be represented by a score obtained from the Wine Spectator rankings assigned by a list of highly qualified wine experts through blind tasting. It is believed that the experts' rankings reflect the consumers' preferences towards good quality wines [5]. Worldwide wine lovers choose preferred wines following the Wine Spectator Rankings [13].

This paper presents different visual and tabular summarizations exploring the distributions of the market-derived price and Wine Spectator scores for the Rosé wines across the USA and France. In this process, the results are also compared with two other popular red and white wine varietals, including Cabernet Sauvignon and Chardonnay samples from France and the Napa Valley region in the USA.

RESULTS BASED ON EXPLORATORY DATA ANALYSIS

Data from the Wine Spectator websites on Rosé wines are summarized with respect to the country of origin in Table 1. More than 50% of the worldwide Rosé wines are produced in France, whereas the USA contributes 22% of the Rosé wine samples as evaluated by the Wine Spectator editors. Average scores are comparable across the different wine-producing countries. In contrast, when we compare the average price, it is observed that the average price of Rosé wines is significantly higher in France compared to the other countries.

Table 1 Average price and score for the Rosé wines worldwide

	Rosé Count per Country	% Production	Average of Price	Average of Score
Argentina	82	1%	13.04	84.17
Australia	108	1%	18.19	86.57
Austria	52	1%	25.81	85.94
Chile	77	1%	12.45	84.29
France	4915	54%	38.97	87.56
Italy	870	10%	22.54	85.55
New Zealand	59	1%	19.31	86.63
Portugal	125	1%	13.78	85.21
South Africa	117	1%	13.63	84.44
Spain	743	8%	13.81	85.17
USA	1981	22%	23.35	86.49
Grand Total	9129	100%	30.39	86.79

Source: Wine Spectator Website, Dec-2021

Figure 1 shows the overall relationship between the market-derived price and wine score for the Rosé wines across different regions. Figure 1 also indicates that there are a large number of high quality Rosé wine samples at higher price levels. The fitted model of the score on the Price for all 9129 Rosé wine samples is $\widehat{\text{Score}} = 78.217 + 2.7676\ln(\text{Price})$ with a R^2 value of 0.4598.

Figure 2 includes the log-linear fitted lines across different production regions showing the empirical relation between the Wine Spectator score with the market-derived price. Both Figure 1 and Figure 2 indicates similar results; the scores monotonically increase with prices but at a decreasing rate.

Table 2 shows the percentage of wine production between the USA and France for the Rosé wines compared with Cabernet Sauvignon, a popular red wine varietal, and Chardonnay, a popular white wine varietal. For the Cabernet Sauvignon and Chardonnay, we have selected samples only from the Napa Valley region. However, the Rosé wines samples have been chosen throughout the USA. Still, the percentage of white and red wine (relative to Rosé wines) produced in the USA is much higher than in France in the Wine Spectator database.

Table 2 also shows that Rosé wines have a similar average score compared to the representative samples of popular white (Chardonnay) and red (Cabernet Sauvignon) wine varietals. Both Table 2 and Figure 3 show that the average score of the Chardonnay and Rosé wines produced in France is higher than those produced in the USA. In contrast, the US Cabernet Sauvignons had a higher average score than their French counterparts. Based on the sample data, the honor of highest average score (90.51) goes to the Chardonnay wines from France. On the other hand, the lowest average score of 86.49 was received by the Rosé wines produced in the USA.

Table 2 Average Score for three wine varietals across France vs. the USA

Row Labels	Count	Percentage within country	Average of Score
Cabernet Sauvignon and Blend	18802	66.98%	88.23
France	7681	40.85%	87.46
USA	11121	59.15%	88.75
Chardonnay	4205	14.98%	88.78
France	1750	41.62%	90.51
USA	2455	58.38%	87.54
Rosé	6896	18.04%	87.25
France	4915	71.27%	87.56
USA	1981	28.73%	86.49
Grand Total	29903	100.00%	88.08
Source: Wine Spectator Website, Dec-2021			

Figure 1 Score vs. Price for the Rosé wines with a common logarithmic trend line

Wine Spectator Score vs. Price for Rosé Worldwide

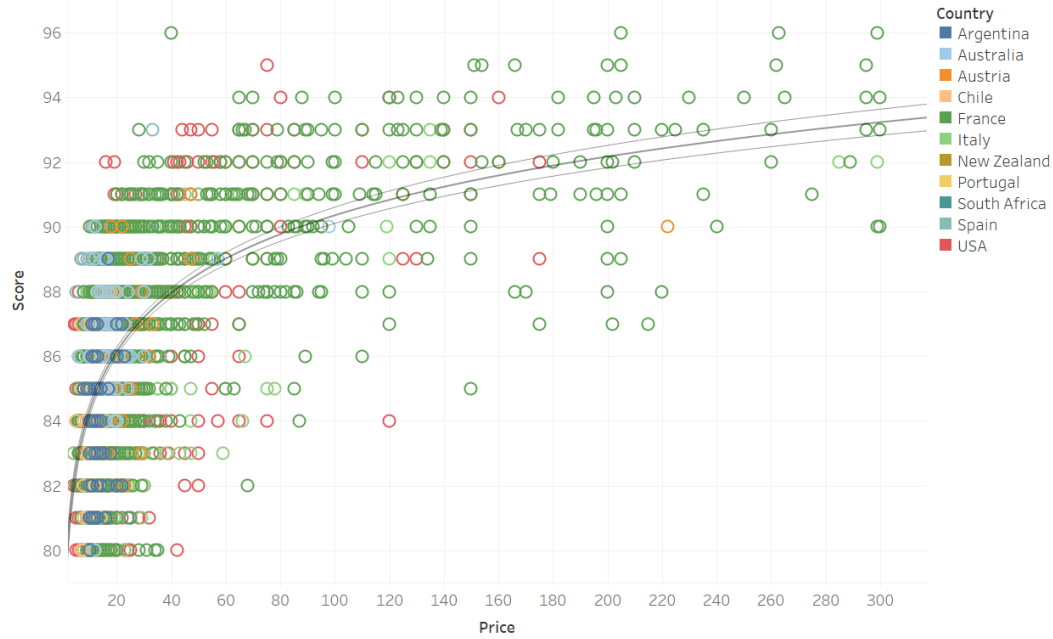


Figure 2 Score vs. Price for the Rosé wine with country-specific logarithmic trend lines

Wine Spectator Score vs. Price for Rosé Worldwide



Figure 3 Average Score for three wine varietals across France vs. the USA

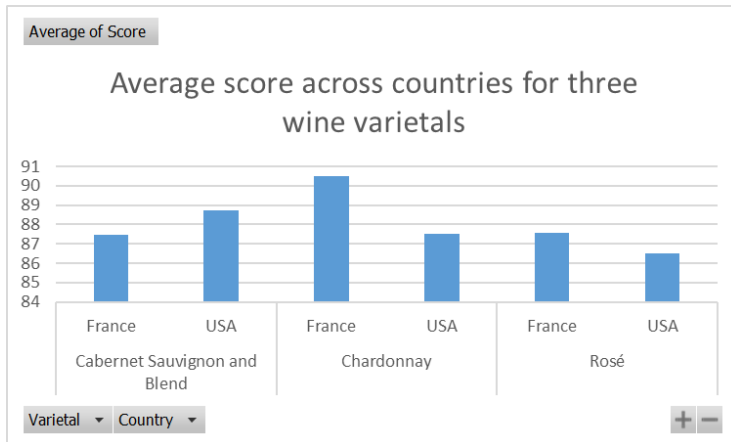
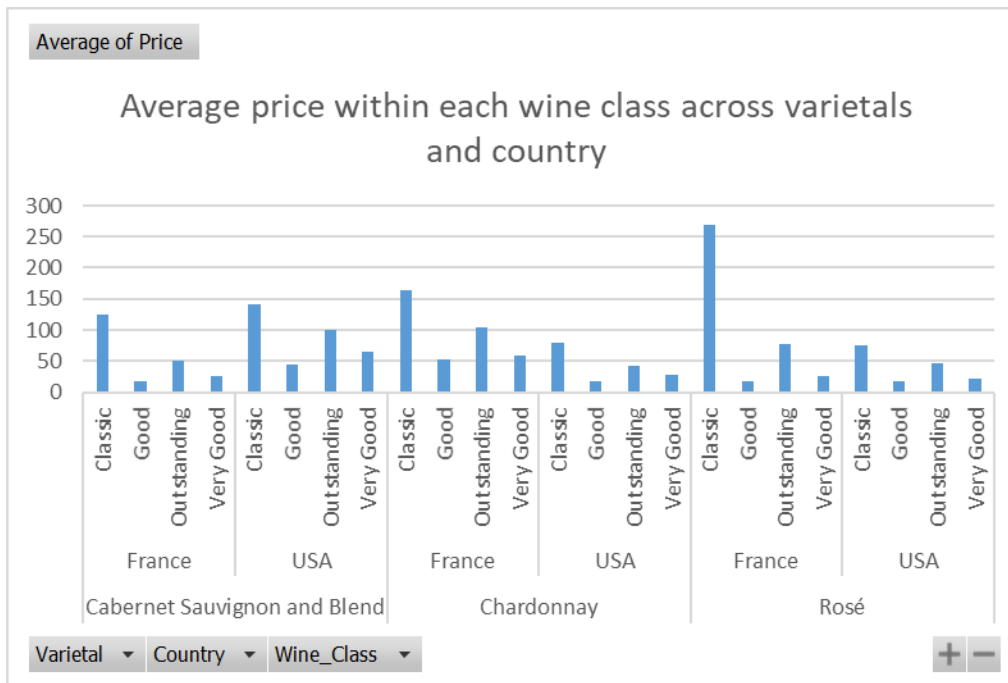


Figure 4 Average price distribution across varietals/countries/wine-classes



Average price distributions for each of the four wine classes (Classic, Good, Outstanding and Very Good) across varietals for both France and the USA are shown in Figure 4. The average price for the Classic Rosé wines produced in France is much higher than the Classic Rosé wines produced in the USA. Moreover, the French Classic Rosé wine prices are higher than the Classic red and white wine varietals from both France and the USA considered in this paper. This result strengthens our earlier finding in Figure 1 that the average price of the French Rosé wine is higher than that of the other countries. In that context, this result allows us to determine that the higher average price of the French Rosé wines is propelled by the significantly higher price of its "Classic" Rosé wines relative to the other countries.

Figure 5 Association between Score vs. Price for the three different wine varietals from France and the USA

Fig 5.1

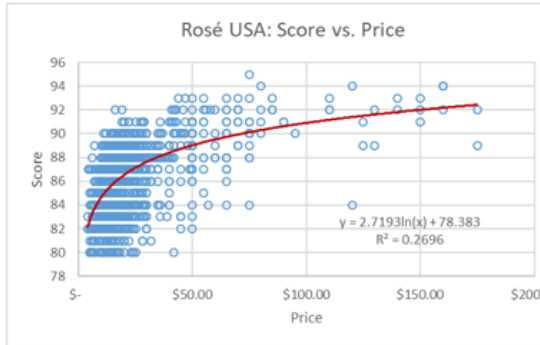


Fig 5.2

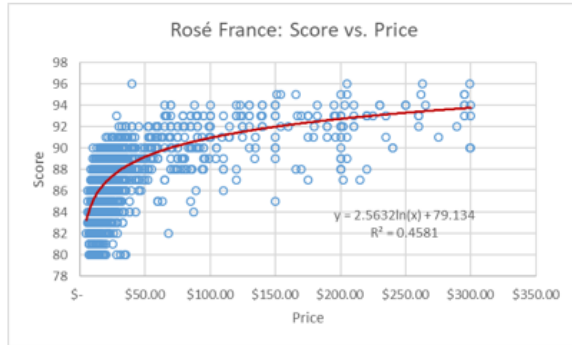


Fig 5.3

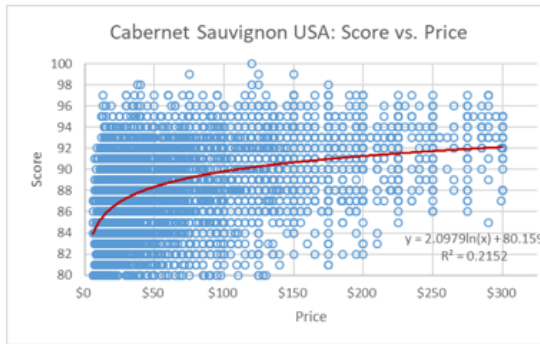


Fig 5.4

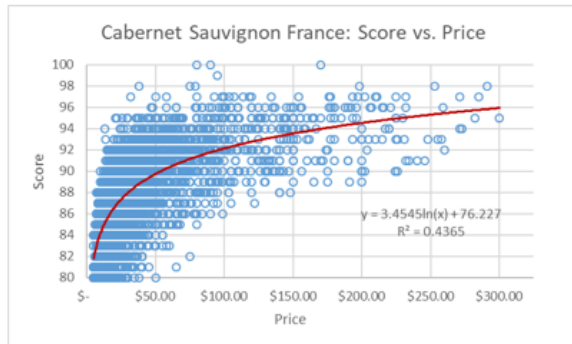


Fig 5.5

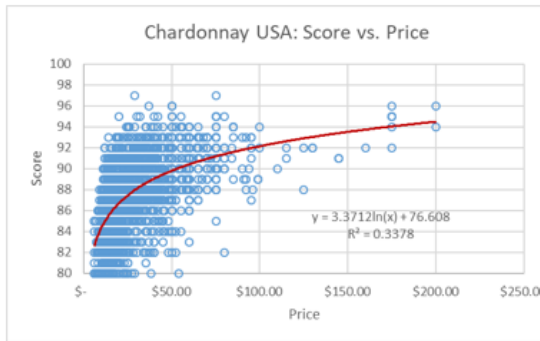
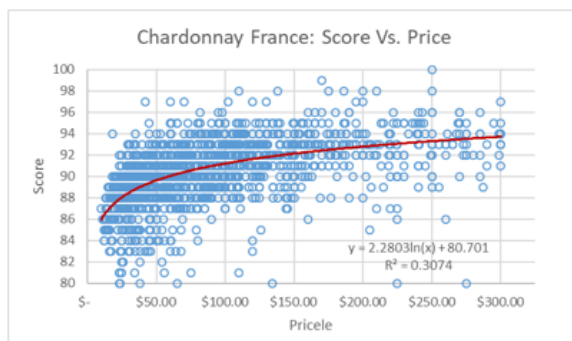


Fig 5.6



We have depicted the relationship between individual scores and price for the Chardonnay, Cabernet Sauvignon, and Rosé wines from France and Napa Valley in Figures 5.1-5.6. It can be noticed from Figure 5 that the Rosé wines produced in France have the strongest association between Score and Price. Figure 5 further reveals that the wines produced in France tend to show a stronger association between price and Wine Spectator scores for all three types of wines examined here.

CONCLUDING REMARKS

In the background of the rising popularity of the Rosé wine in the last three decades, we have attempted to examine some features of this market. Using data from the Wine Spectator website, we have compared the production, average price and scores based on expert ratings of the Rosé wines from each country that produces them. Our exploratory data analysis revealed that the average price of the French Rosé wines is higher than that of the other countries. On further investigation, we found that this higher price is driven by a specific category of French Rosé wine, namely the "Classic" ones. We found that for the Rosé wines produced from every country, higher scores were associated with higher prices using data visualization.

We have also compared prices and scores of Rosé wines with a popular red wine varietal (Cabernet Sauvignon) and a white wine varietal (Chardonnay) produced in France and the Napa Valley region. Expanding our analysis to more wine varieties and areas will provide more evidence to our results. We have also limited ourselves to exploratory data analysis and data visualization. We intend to expand our study with more rigor, i.e., using statistical models to examine these issues, leading to further insights.

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