

## Fine wine pricing in a small and highly competitive market

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### **Purpose**

This study aims to identify the price determinants of fine wines in a small and competitive market. These characteristics are found in many lesser-known wine-producing countries and are often difficult to analyse due to a lack of data.

### **Study design/methodology/approach**

We hand-collect and transcribe wine-related data for 149 Swiss wineries and 2,454 individual wines over the period 2014-2018 directly from wine lists provided by wineries. We use multivariate ordinary least squares (OLS) regressions to analyse the relation between wine attributes and prices and to assess the effect of a currency shock caused by the sudden appreciation of the Swiss franc in 2015 as well as a reduction in information asymmetries induced by the novel coverage of Swiss wines by The Wine Advocate.

### **Findings**

Prices mainly depend on collective reputation, production techniques, and product positioning. Surprisingly, following a sharp appreciation of the Swiss franc, producers did not reduce prices. The arrival of a highly influential wine expert on the market also had a positive price effect on rated wines and producers. Both hint at wineries attempting to position themselves relative to competitors.

### **Originality/value**

Few studies examine the price drivers in lesser-known wine markets, where competition is fierce. Our results show that wine pricing differs from other more famous and larger wine regions. In addition, we are also the first to analyse the impact of a currency shock and a reduction in information asymmetries on wine prices.

**Keywords:** pricing; wine; reputation; currency shock; information asymmetries;

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# 1 Introduction

The last two decades have been marked by a substantial expansion of the market for fine wines. The arrival of new customers, especially from Asia, has led to a surge in demand (Masset et al., 2016). At the same time, several wine-growing regions have emerged from relative anonymity and are now recognised for their quality (Johnson and Robinson, 2019). Simultaneously, a dedicated academic literature has developed (see Storchmann (2012) for a survey). Wine is an interesting research avenue because it is more than a simple good: it is an experience good (Nelson, 1970)<sup>1</sup> with a strong cultural dimension.

The extant literature suggests that quality<sup>2</sup>, reputation, and status explain a substantial part of wine prices. Even though all three dimensions complement each other, there are natural linkages between them. Quality is generally the main driver and starting point. It must be recognised to establish a reputation gradually. Once reputation is anchored or even institutionalised (through an official ranking, for example), it will generate a particular status. Quality is difficult to measure. Some authors estimate it via natural endowments (Gergaud and Ginsburgh, 2008, Cross et al., 2011) and/or weather conditions (Ashenfelter, 2008, Lecocq and Visser, 2012, Ashenfelter and Storchmann, 2016, Oczkowski, 2016). Others assess it based on expert opinions (Hadj Ali et al., 2008, Dubois and Nauges, 2010). A related literature stream evaluates the impact of expert scores on prices. Evidence suggests that, apart from Robert Parker, experts exert only a limited influence (Hadj Ali and Nauges, 2007, Hadj Ali et al., 2008, Masset et al., 2015, Oczkowski and Doucouliagos, 2015). In addition to quality, individual and collective reputation effects also appear to influence prices (Landon and Smith, 1997, Oczkowski, 2001, Costanigro et al., 2010, Castriota and Delmastro, 2015). Lastly, wines enjoying a strong status (displaying a high rank within a classification system) tend to be more expensive (Malter, 2014).

The lion's share of research has focused thus far on large and famous wine-producing

regions such as Bordeaux, Burgundy, Italy or Spain. However, observations from these regions do not necessarily apply to lesser-known wine markets. They also do not account for the many business models prevalent in this industry, which may have different price determinants (Alonso-Ugaglia et al., 2019). Generally speaking, all these business models face similar issues: how can producers set their prices when variables considered essential (e.g., reputation, status, information about quality) are lacking? How does the price level affect the competitive position of those countries in the global wine market? What role should be given to international experts? The lack of research on these issues can be explained by the difficulty in accessing relevant data in such countries. This article focuses on Switzerland, which provides an excellent laboratory for investigating these issues and an appropriate context to run precise and robust analyses.

The Swiss market's specificities, similar to those found in less famous wine-growing regions (e.g. Valtellina or Alto Piemonte in Italy (Basile, 2018, Olivetta, 2019), Canada (Masson, 2016) or Savoy in France), suggest that variables usually used to determine wine prices in regions such as Bordeaux or Burgundy are likely to be ineffective to a certain degree. Expert scores, measures of individual reputation, and classification systems were, until recently, almost inexistent. It thus appears relevant to investigate the variables that drive the prices of a highly differentiated good such as wine in a small and competitive market. Two recent events deepen our analysis. In January 2015, the Swiss National Bank unexpectedly abandoned the 1.2 Swiss franc a euro peg after three years in existence. The immediate 18% appreciation in the franc's value has weakened local wine producers' competitiveness compared to foreign counterparts. The second event corresponds to the beginning of regular coverage of Swiss wines by *The Wine Advocate* (*TWA*). Between 2014 and 2018, around 350 wines were reviewed. *TWA*'s arrival has provided a sudden and strong change in the visibility of the rated wines.

Switzerland is a small country<sup>3</sup>, but several reasons make it ideal for investigating questions

related to the price determinants of fine wines. The country shares important similarities in terms of wine quality and industry organisation with world-famous neighbouring regions such as Burgundy, the Rhône Valley or Piedmont.<sup>4</sup> There are, nonetheless, notable differences as well. First, the vineyards are highly fragmented, and the number of microclimates and grape varieties make Swiss wines complex to understand even for local customers (Delaquis et al., 2015). Second, Swiss wines suffer from low visibility because international experts, until recently, did not pay much attention to the country's wines. This is reinforced by the fact that only a tiny fraction of Swiss wines are exported because domestic consumption exceeds national production.<sup>5</sup> Third, Switzerland is an open wine market with low trade barriers and many wine merchants, resulting in aggressive pricing of imported wines. Coupled with high production costs, it makes for a very competitive environment for domestic wines.<sup>6</sup>

This article uses a multivariate regression approach and exploits a unique dataset to examine the determinants of Swiss fine wine prices. Our sample contains the prices of 2,454 wines over the period 2014-2018. The hand-collected data is directly obtained from wine producers. Most wineries handle almost all aspects of production, from grape-growing, winemaking and marketing of their wines that they predominantly sell directly to end consumers (Masset and Weisskopf, 2019). These conditions ensure a high degree of homogeneity and precision in the dataset. Moreover, as most wineries are relatively small and generally family-run, they do not have the organisational flexibility to store bottles from past vintages. Therefore, they need to ensure that a particular vintage's production is sold before the harvest of the next vintage. Thus, the producers set the prices to ensure that there will be enough demand for the whole production to be sold before the new vintage is bottled (Masset and Weisskopf, 2019, Masset et al., 2020a).

This article contributes to the existing literature in multiple ways. We first show that readily observable variables explain a substantial part of wine prices. These are related to grape varieties, winemaking techniques and differentiation attributes (used by producers as substitutes

for the lack of information on quality, reputation, and status). Thus, producers determine prices primarily based on the incurred costs and differentiate their products by creating particular attributes. Apart from a few star winemakers, producers' names do not add much explanatory power. This illustrates that most Swiss wineries have not yet built their individual reputation. Collective reputation and status effects exist but are limited to regions that have been long recognised for their quality.

Second, we document a surprising reaction of Swiss wine producers to the exogenous currency shock in January 2015. Given the intense competition from foreign wines, we expect local producers to reduce prices. However, they raised them by 5% on average (corresponding to an increase of around 20% in euros) over the post-shock period (2015-2018). Inflation, which remained negative in Switzerland, cannot explain this. Two reasons motivated the Swiss producers' decision not to adjust their prices downwards. First, the vintages (2013 and 2014) sold in 2015 yielded below-average harvests in terms of quantity. Thus, certain producers dared to increase their prices to maintain some of their revenues (Mondoux, forthcoming) even though the currency shock deteriorated their competitiveness. Second, some producers seem to have exploited favourable market conditions to reposition their wines. Indeed, while retail wine prices, in general, only increased by around 1.5% between 2015 and 2018 (Mondoux et al., 2022), this was not the case for fine wines produced in some neighbouring regions. In particular, Burgundian Pinot Noirs have almost doubled in price over the sample period (liv-ex.com). Examining our data more closely the 5% price increase is due to around one-quarter of sample wines (consisting of reputable producers and/or high-quality Pinot Noir cuvées). Thus, it appears that producers who could exploit this opportunity to position themselves more durably in the fine wine category did so to gain a reputation through which they would become more comparable in terms of market, quality and prices to similar wines from neighbouring regions (Masset et al., 2020b). Overall, this strategy appears rational in a country that has built its success

on innovations developed to overcome a structurally strong currency (Auer et al., 2018) and adds to the literature on the impact of trade frictions in the wine trade (Dal Bianco et al., 2015, Santeramo and Lamonaca, 2019, Santeramo et al., 2019).

Third, we document that the release of tasting notes and scores has reduced information asymmetries on Swiss wine quality. In a difference-in-difference setting we further find that articles published in *TWA* led to price increases for those wines and producers awarded high scores. Moreover, the ratings in 2015 and 2016 had less impact on prices than those from subsequent years. This is because the first wines tasted by TWA were from producers who were already relatively well known. In 2017 and 2018, it expanded its coverage of Switzerland and tasted lesser-known producers, who benefited more from this reduction in information asymmetries. This demonstrates that more precise quality information allows producers to position their wines coherently and complements literature on the linkage between information asymmetry and consumer behaviour (Bonnet et al., 2020).

## **2 Data**

### *2.1 Sample*

The sample of wine producers in this study draws from two criteria. First, we identify a comprehensive list of Swiss fine wine producers from the following sources: *Gault & Millau* (GM), *Schweizerische Weinzeitung* (SWZ), and *Mémoire des Vins Suisses* (MDVS). GM and SWZ propose a Top 100 of the best wineries in Switzerland, while MDVS offers a list of the country's most representative producers. All three have an excellent reputation and benefit from substantial coverage in Switzerland.<sup>7</sup> Second, we apply two filters to ensure that the price data is representative and correct. First, we only consider producers for whom we can obtain a complete price list and who sell their wines directly to end customers. In the spring of each year, producers update their wine list for the latest vintage. We hand-collect the respective wine list directly from them. The only producers missing are those who do not publish their prices

on their website or did not want to send us their price list upon request (less than 5% of the premium segment). Second, we only consider white and red wines due to the scarcity of other wine types (such as rosés and sparkling wines).

Overall, the sample covers an exhaustive list of fine wine producers with all their red and white wines. Compared to the overall Swiss wine market, these fine wine producers represent up to 10% in terms of the number of wine producers. Therefore, our sample covers a premium segment whose proportion relative to the total market is similar to that of other wine-growing regions. For example, in Bordeaux, classified growths account for 5% of the total surface, while in Burgundy Grand Cru and Premier Cru wines represent around 12% of total production. The final sample contains 10,250 price observations for 2,454 wines and 149 producers<sup>8</sup> over the period 2014 to 2018. Prices are in CHF, include VAT, and are inflation-adjusted.

## 2.2 *Descriptive statistics*

Table 1 presents descriptive statistics on wines originating from the various regions of Switzerland. Our sample reflects the Swiss wine market in terms of the vineyards' surface area. Most wines come from Valais, Vaud, and the German-speaking part of the country. Each producer offers, on average, 16 different red or white wines. This allows producers to provide a comprehensive line-up to customers and to adapt to changes in preferences. However, this wide choice may lead consumers to struggle to understand the Swiss wine market. Overall, white wines are slightly less present than red wines throughout the country, but regional variations exist. For example, in Vaud whites dominate, whereas in Ticino reds are most popular.

< Table 1 >

The most expensive wines are found in Ticino and Valais. Wines from Geneva and Vaud

are the least expensive as, in these cantons, the most common varietals (such as Chasselas) offer higher-than-average yields (Verdenal et al., 2018). Average prices increased in all regions, except Geneva, over the sample period. Price dispersion is highest in Ticino, with the least expensive wine selling for around CHF 12 and the most expensive for CHF 139 for a 75cl bottle.

### 3 Research design

We use a multivariate regression approach inspired by the hedonic regression methodology proposed by Rosen (1974) to analyse the price determinants of Swiss wines. This approach assumes that the price of a good depends on its intrinsic attributes and has been widely applied in a variety of contexts in the wine economics literature<sup>9</sup>. These attributes can be related to the quality of a particular wine (Masset et al., 2015), the individual and collective reputation of a producer (Costanigro et al., 2010, Rickard et al., 2015), status (Malter, 2014), production conditions (Ashenfelter, 2008), and other specificities such as colour, varietal(s), and winemaking techniques.

Our model takes the generic form presented in equation [1] and is based on a log-linear OLS specification. In this, our model deviates from a classic hedonic regression approach in two ways. First, we use variables that cannot always be considered, strictly speaking, product attributes, and second, we employ ask prices instead of transaction prices.<sup>10</sup>

$$p_i = \beta_0 + \sum_{k=1}^K \beta_k x_{ki} + \varepsilon_i \quad [1]$$

Where  $p_i$  denotes the log-deflated price of wine  $i$  and  $X$  is a matrix whose row  $i$  column  $k$  element contains information about the  $k$ -th attribute of wine  $i$ .  $\beta$  is a vector of regression coefficients corresponding to the implicit value attached to each wine attribute. The attributes are often modelled using dummy variables. For instance, an “aged-in-oak-barrel” variable



would take the value one if the wine has been barrel-aged and zero otherwise.<sup>11</sup> Based on equation [1], we consider three sets of specifications, each of which examines several issues about the Swiss wine market.

The first specifications examine the determinants driving prices in the Swiss fine wine market. We consider variables related to individual (dummies for each producer and for “iconic” producers according to *GM*) and collective reputation (regions and appellations), status (famous and historic varietal-terroir combinations<sup>12</sup>), product attributes (varietals/blends, and ageing technique), and positioning/labelling (old vines, reserves, and flagship wines<sup>13</sup>). Contrary to more mature markets such as Bordeaux or Burgundy, the reputation of most producers remains relatively limited in Switzerland. Therefore, we expect prices to be set on the wine's individual characteristics rather than on the producer's.

The second set of specifications studies the effect exchange rates have on wine prices. More specifically, these specifications assess how producers reacted to the 2015 currency shock. In Switzerland, wine pricing is rooted in high production costs. Moreover, the quantities produced are rather limited and do not cover the demand for wine in Switzerland. Thus, it is, a priori, unclear if producers would adjust their prices downward to counter an adverse exchange rate effect. To study this question, we include year of sale dummies in the regression model. We further add interaction terms to control whether renowned producers have been affected differently by the currency shock and control whether specific wine characteristics mitigate the currency shock.

The third set of specifications examines the relationship between rating availability, visibility, and prices. Producers whose wines have been rated by experts should benefit from increased visibility, which should increase demand and prices. Therefore, in specifications 3 we add variables related to *TWA*'s ratings on Swiss wines since 2014. We consider whether a producer has received a rating for at least one of its wines as well as the specific score of each

of the rated wines. We finally examine if the *TWA* effect has served as a substitute for ratings awarded to producers already recognised by *MDVS* or *Gault-Millau*.

To estimate the effect of *TWA* ratings on wine prices, we define the following difference-in-differences model with multiple time periods:

$$p_{it} = \beta_0 + \sum_{k=1}^K \beta_{1k} x_k + c_i + \delta_t + \beta_2 D_{it} + \varepsilon_{it} \quad [2]$$

Where  $p_{it}$  denotes the log-deflated price of wine  $i$  at time  $t$ , the term  $\sum_{k=1}^K \beta_{1k} x_k$  follows model [1],  $c_i$  is an individual fixed effect, and  $\delta_t$  a time (year) fixed effect.  $D_{it}$  is the treatment indicator equalling 1 if wine  $i$  in year  $t$  is linked to a producer rated at least once by *TWA*, and zero otherwise.  $\beta_2$  is, therefore, the coefficient measuring the average treatment effect on wine prices for a producer rated by *TWA* in year  $t$ .

## 4 Results

### 4.1 Determinants of fine wine prices

Table 2 reports the results for the first set of specifications. The baseline model in specification 1a includes producer fixed effects and results in an  $R^2$  of 0.64. Thus, it explains prices substantially and is in line with previous studies (Angulo et al., 2000, Haeger and Storchmann, 2006, Panzone and Simões, 2009). It also provides evidence on prices for the most common varieties in the sample. Chasselas (the reference variety) is the least expensive white wine, while Gamay is the most inexpensive red variety. The highest prices go to Petite Arvine, a white wine produced almost exclusively in Valais. It fetches a premium of around 59% (i.e.,  $\exp(0.464)-1$  for specification 1a) versus Chasselas prices. For red wines, the most expensive variety is Syrah (premium of 38%) which is predominantly produced in the Valais region. For varieties which are not amongst the top 10 most represented in the sample, international and

domestic varietals and blends appear to be priced relatively similarly, with 30 to 40% higher prices than Chasselas. Overall, red wine is more expensive by around 8% than white wine. Finally, we find that the ageing technique (use of oak barrels) strongly influences prices, yielding around 49% higher prices than ageing in steel tanks.

< Table 2 >

In specification 1b, we drop producer fixed effects to analyse whether individual and collective reputation effects explain Swiss fine wine prices. We report that a producer's reputation (member in the *MDVS* ranking or an Icon in the *Gault-Millau* guide) has a significantly positive effect on prices. A regional and, therefore, collective reputation effect also exists. Ticino and Valais produce the highest-priced wines, while Vaud and Geneva wines sell at a significant discount. The Three-Lakes and German-speaking part of Switzerland only display non-significant positive coefficients. This corroborates results in the Spanish market, where region is one of the two most influential characteristics of wine prices (Angulo et al., 2000). To refine our regional analysis, we add interaction terms combining famous terroirs and their varietals. We find a significant premium of around 27% for Chasselas from the Lavaux (Vaud), a UNESCO world heritage site widely considered to deliver some of the finest Chasselas (Aké Béda and Buss, 2014). We also find a similar effect for Merlot from Ticino but not for Pinot Noir from Graubünden.

Results from specification 1c indicate that labelling and marketing of wines play an important part in wine prices. Producers specifying that their wine is from old vines, a reserve, or a Grand Cru yield 9% to 12% premiums. Rare or unique wines lead to a similar premium. Finally, flagship wines generate a substantial premium of around 53%. These results confirm findings in the Argentinian (San Martín et al., 2008) and Italian (Roma et al., 2013) markets,

where labelling influences wine prices.

The omission of producer dummies in specifications 1b and 1c only moderately reduces explanatory power (especially once labelling and positioning are considered). In unreported results, we find that the top and bottom ten producers mainly explain the drop in R2 in terms of pricing. They are few in number, but their regression coefficients are large and therefore have a significant impact on the model's explanatory power. Among the least expensive, we find many producers from Geneva who are subject to the most intense competition (as France and Vaud surround the region). Among the most expensive, we find wineries from Graubünden, which benefit from the proximity to Greater Zurich metropolitan area and the strong demand for Pinot Noir. A few wineries from Ticino and Valais have also built a solid reputation. Once we explicitly control for these producers or entirely drop them from the sample, R2 decreases less. Thus, most producers appear to have a uniform pricing structure. It indicates that it is not individual producers' winemaking talent that primarily drives wine prices but rather grape varietal (and therefore production complexity and costs) and collective reputation effects. Therefore, individual reputation effects are economically significant, but only for a few wineries.

#### *4.2 Effect of the currency shock*

On 15 January 2015, the Swiss National bank suddenly announced that it would abandon the 1.2 Swiss francs per euro peg. This peg had existed for three years, and the announcement shocked markets and companies alike as the euro dropped below parity for a short while. This exogenous and unexpected shock has had profound repercussions on the Swiss economy (Auer et al., 2018, Efing et al., 2019, Bonadio et al., 2020). Table 3 reports the impact of this shock on the price of Swiss fine wines.<sup>14</sup>

< Table 3 >

We find evidence in specification 2a that Swiss fine wine producers did not reduce prices to counter the increased competition from wine imports. Wine prices increased by around 1.6% to 3.5% (depending on the exact specification) in the year of the shock (2015), and then again, in 2016 to reach an overall increase of around 4.7% to 6.8%, which remained until 2018. This was mainly driven by wines from the German-speaking part of the country and producers or wines that were already in the upper price segment. We argue that the price effect is due to three phenomena. First, the vintages (2013 and 2014) sold in 2015 yielded below-average harvests. Thus, certain producers dared to increase their prices to buoy their revenues and margins (Mondoux, forthcoming). Second, some producers seem to have used this sudden appreciation to reposition their wines and brand to better align their products with those of similar quality from abroad. Indeed, the overall price increase is driven by just one-quarter of sample wines, which are those from reputable producers and/or made out of Pinot Noir. While the retail prices of most foreign wines remained relatively stable over the sample period (Mondoux et al., 2022), this was not the case for fine wines. In particular, according to Liv-ex data, Burgundy wines saw their prices increase by nearly 100% between 2014 and 2018. The preponderance of Pinot Noir in several parts of Switzerland may explain why prices rose to remain aligned with Burgundy and to benefit from a unique opportunity to raise prices without customers being able to purchase a substitute. This argument is supported by the fact that prices further increased in the subsequent years, even though the 2016 vintage yielded above-average harvests in terms of volume. Third, Switzerland's low cost-elasticity and high costs did not allow producers to reduce prices. Instead, they shifted towards producing higher quality wine to increase prices and remain competitive. In a personal interview, a Swiss-German wine producer stated that “demand has switched to bigger names. The market has become more difficult for low-quality producers. The remaining winemakers became larger and now sell at higher prices because their

efficiency and quality have increased”.

In specifications 2b and 2c, we examine in greater detail whether certain market and wine characteristics have moderated the response following the currency shock. We observe that *Gault-Millau* Icons reacted less to the CHF appreciation. These well-established producers already had a steady clientele willing to pay higher prices to gain access to the country’s most renowned wines. Therefore, a strong positioning was already in place before the currency shock. This adds to evidence that high-end goods are more resilient during economic downturns (see, for example, Kosová and Enz (2012) for the hotel industry). We also find that wine prices based on domestic varietals saw a lower price increase than international varietals. We interpret this as evidence that international competition has led Swiss producers to realign their prices and positioning. Higher price anchors of better known and more visible, but similar, wines from abroad helped producers convey the message that Swiss wines were a bargain for similar quality (Masset et al., 2020a). They then chose to close some of the price gaps by increasing prices.

#### *4.3 Expert ratings, visibility, and prices*

In the context of experience goods, customers can only know the true quality of a good once consumed. Thus Nelson (1970) asserts that “recommendations of others will be used more for purchases of experience goods than search goods”, showing that reliable information, such as expert reviews, should be crucial for consumers to make informed decisions. Several articles have analysed the effect reviewers have on product prices and revenues. On the book market, Sorensen and Rasmussen (2004) show that a New York Times book review leads to higher book sales. These reviews assist consumers by providing information on a book’s existence and content. Ashworth et al. (2010) further show that winning a book prize leads to higher sales. Both articles suggest that just being visible through reviews or prizes affects sales. Dubois and Nauges (2010) indicate that expert ratings influence Bordeaux wine prices beyond simple quality features. This is confirmed by Friberg and Grönqvist (2012), Cardebat et al. (2014), or

Masset et al. (2015). They show that mainly *The Wine Advocate* (*TWA*) influences prices in the Bordeaux market.

Table 4 reports results on the arrival of *The Wine Advocate* on the Swiss market. The purpose of the specifications is to analyse if the appearance of *TWA*'s coverage of Swiss wines has reduced information asymmetries. Indeed, foreign and Swiss wine consumers could discover Swiss wines (or at least the ones that were reviewed) thanks to *The Wine Advocate*'s coverage. This increased visibility should allow high-quality producers to distinguish themselves more easily and, consequently, reposition themselves into higher price categories. Specification 3a uses a difference-in-differences approach and finds a premium of 2.8% for producers with at least one of their wines rated by *TWA* in year<sub>t</sub>. Thus, producers rated in *TWA* have taken increased visibility and the ensuing surge in demand for their wines to reposition and charge higher prices.<sup>15</sup>

< Table 4 >

Specification 3b adds the average rating given to wines in specification 3a. We observe a general *TWA* effect on the entire wine range offered by a rated producer. Furthermore, rated wines increase proportionally in price with the awarded rating. Finally, in specification 3c, we test whether the individual reputation of producers (*MDVS* member or *Gault-Millau* icon) moderates the influence *TWA* has had on Swiss fine wine prices. For example, the probability of being rated by *TWA* is 64% if a producer is an *MDVS* member and 17% for non-*MDVS* producers. *TWA* positively affected all wine producers, confirming that the increase in visibility was positive for all rated producers and wines and was not restricted to a specific category of rated wine producers.

In unreported results, we also find evidence that receiving a lower than median rating versus

not receiving a rating yields a premium of 2.5% at the producer level. The premium for ratings above the median is 4.3% compared to not being rated. Finally, we examine whether ratings attributed during the first half of the sample period (2015 and 2016) had a different effect than ratings attributed in 2017 or 2018. We find a 1.9% premium in the first case and 4.2% in the second case, compared with producers not being rated at all. This can be explained by the fact that the first few times *TWA* came to Switzerland, they visited relatively well-known producers. When they returned in 2017 and 2018, they broadened their coverage (close to double the number of producers) and tasted lesser-known producers. This result is thus in line with a reduction in information asymmetries, especially for less famous producers.

#### 4.4 *Hedonic regressions and the use of ask prices*

This paper uses an approach conceptually close to the hedonic regression method. As indicated above, the two main differences are the use of (i) some variables that cannot unequivocally be considered product attributes and (ii) ask prices instead of transaction prices. In this subsection, we examine the impact of using ask prices on the regression coefficients and their interpretation.

The hedonic approach, as proposed by Rosen (1974), is based on market prices. This is a necessary prerequisite to ensure that the coefficients associated with each attribute can be interpreted as the price differential that a consumer would be willing to pay for the said attribute. However, it is difficult to obtain market prices in the case of wine. Indeed, the data available in the context of fine wines come mainly from the primary market: release prices at the winery or resale prices at a wine merchant/store. These are called ask prices. The secondary market remains fragmented, and the only type of data that satisfies the market price criterion is auction hammer prices.<sup>16</sup> Unfortunately, these data are difficult to collect and, above all, scarce except for a few wines. Consequently, most studies use ask price data (e.g., Combris et al. (2000) for Burgundy; Masset et al. (2015) for Bordeaux *en primeur* wines; Cardebat and Figuet (2009) for



Alsace, Beaujolais and Provence; and Benfratello et al. (2009) for Piedmont). The few studies that employ market price data focus on Bordeaux wines and rely on auction data (e.g., Sanning et al. (2008), Masset et al. (2016)). Interestingly, however, even the seminal study of Dimson et al. (2015) relies on a mix of auction hammer prices and ask prices from Berry Bros. & Rudd, an important London wine merchant.

In practice, the use of ask prices can lead to two problems. First, prices may be overly high. Indeed, it can be interesting for a merchant or for a producer to propose certain wines at very high or even too high prices. Such a strategy can be motivated by visibility, positioning, or quality signal reasons. Merchants and producers face financial and logistical constraints that make it impossible to apply such a strategy on a large scale. Concretely, it may be rational to apply it to a limited part of the production (to reduce logistical problems) and especially to premium wines (to maximise the effects in terms of visibility and/or positioning and/or quality signal). The second problem is the exact opposite: some wines may be sold at too low prices, i.e., the ask prices are such that a part of the demand remains unmet. In the short run, this can be explained by a desire to maintain a loyal customer relationship. However, only a strong risk-aversion can explain such a positioning in the longer term. The wines most likely to be affected by this bias are premium *cuvées* and wines from superstar producers. Indeed, these wines are the most likely to see their prices deviate substantially on the secondary market compared to their release prices (Masset and Weisskopf, 2013). These are, at least to some extent, the same wines as those discussed before. This suggests that the two problems (overpricing and underpricing) are likely to cancel each other out at least partially. In addition, this observation provides an opportunity to examine the robustness of our results. We discard those wines (flagship wines and wines with a strong signalling effect (= dummy taking 1 in one of the category C attributes)) that may be the most affected by the two concerns mentioned above. R2 and the coefficients remain very similar, suggesting that these wines do not drive our results.

This test ensures the robustness of the results *in general* but does not allow us to claim that the discarded wines are neither under- nor overpriced.

More generally, if we draw on other markets and assume that there may be a pricing bias, it is more likely that the coefficients of certain premium wines or famous producers are underestimated rather than overestimated. Indeed, it is well documented that prices on primary markets, in the case of stocks (Daily et al., 2003, Ljungqvist, 2007) or cultural goods (Krueger, 2001, Courty, 2003), are sometimes set too low by issuers to avoid the bad reputation following exaggerated prices. In a context that is more closely related to wine, Moroz and Pecchioli (2021) look at the whiskey market and compare the results of a hedonic analysis based on ask prices and market prices. They list several articles addressing the problem associated with the use of ask prices and note that “this approach [i.e., the use of ask prices] has been validated for wine by assuming that sellers have an accurate knowledge of price dynamics and potential buyer valuations.” They show that even in the context of whiskey, the results remain very similar for both data types. The only notable differences concern a few specific attributes (e.g., years of bottle ageing) whose value tends to be overestimated by producers. They explain these biases by the fact that the whiskey market is less mature than the wine market.

Overall, given the specificities of Swiss wines (family-owned wineries, high production costs, and limited storage and logistical capacities) and the preceding discussion, there is every reason to believe that the use of ask prices in the present context does not bias the results.

## **5 Conclusions, Implications, Limitations and Future Research**

This article analyses price determinants in a small and competitive market. The Swiss wine market combines characteristics from large wine-growing countries with specificities in developing wine markets. The diversity in climate and soil shapes wine growers’ choices and leads to a range of varieties that vary from region to region. The direct distribution channels, low regulation, a lack of expert coverage, and intense international competition

make this market interesting. Therefore, the article contributes to a better understanding of price determinants in non-classic wine-growing regions and provides a first glimpse into the Swiss wine market and its specificities.

Our results suggest that several attributes - exogenous and endogenous to wine producers - impact wine prices. Varietals, and collective reputational effects strongly and positively impact wine prices. Equally, additional information on the positioning and labelling of wines has an effect. We also document that producers could not reduce costs under a high-cost environment following the sudden Swiss franc appreciation. Instead, it positively impacted wine prices as some producers (the ones in a position to do so) took this opportunity to align their wines with the international context. Finally, we report that *TWA*'s arrival on the Swiss market has helped producers (especially lesser-known ones) to improve their wines' positioning and increase prices due to the higher visibility.

Our research offers managerial implications for Swiss producers and producers in other regions facing a comparable situation. For Swiss producers, the results suggest that differentiation is essential. However, most producers appear to use the same limited set of levers (ageing technique, old vines and reserve labels). It is surprising that, for example, not more producers are creating a flagship wine as this appears highly effective in terms of differentiation and positioning. Similarly, in several regions (Valais, Vaud, Three-Lakes), producers often work with various varietals but rarely propose blends. This leads to a long line-up for many producers, even though this wealth of varietals could be exploited to create distinctive blends. Finally, the German-speaking part of Switzerland benefits from the strong demand for Pinot Noir, but it has also adapted to consumers looking for terroir wines. It is not unusual to find several cuvées using the same grape varietal. These range from simple, everyday wines (typically a “village” wine in the spirit of Burgundy) to more complex wines with excellent ageing potential (a “grand cru”) to elegant but less distinctive wines (a “premier cru”) in

between. French-speaking Switzerland could replicate this with several of its emblematic grape varieties: Chasselas (Vaud), Syrah and Petite Arvine (Valais), Gamaret (Geneva) and Pinot Noir (Three-Lakes). Finally, the visibility effect induced by *The Wine Advocate* suggests that producers have a solid incentive to get tasted and rated. To do so, they need to work at attracting tasters. They may, for example, work more closely with brokers and retailers, increase their presence in fine-dining restaurants, and participate in tasting events – even outside Switzerland.

The lessons for other comparable regions are also numerous. The results show how difficult it is to differentiate oneself in a market where national production does not cover domestic consumption. The inability to meet local demand has prevented Swiss producers from exporting their wine. This appears to be the wrong approach. As in other industries (Fernie et al., 1997, Yang et al., 2009) a minimum level of international visibility is necessary to build brand awareness and guarantee long-term success in a globalised wine market. The arrival of TWA and its impact in Switzerland is a good example. For other countries wishing to develop their wine production, this study suggests that it is important for producers to try to export some of their production and attract as many foreign players (e.g., wine experts, journalists) as possible.

This article also raises questions that should be addressed in future research. In particular, it would be relevant to better identify the factors that explain how a small region can transform the disadvantage of low visibility into a positive rarity effect. Indeed, such an effect may help support demand and lead to higher prices. Some regions bordering Switzerland have succeeded in this transition (the best example is Barolo, which suffered from low demand 30 years ago and is now a world-leading wine region). Therefore, answering this question could help Switzerland and other comparable regions strengthen their wines' positioning and demand in international markets.

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**Table I:****Descriptive statistics per region of production**

	<b>Valais</b>	<b>Vaud</b>	<b>Geneva</b>	<b>Three Lakes</b>	<b>Ticino</b>	<b>German Switzerland</b>	<b>Total</b>
Nb. Producers	53	24	9	13	15	35	149
Nb. Wines (All)	1133	408	162	180	181	390	2454
White	521	227	73	110	52	185	1168
Red	612	181	89	70	129	205	1286
Average Price (All)	24.1	21.9	16.5	23.3	30.1	26.0	23.9
in 2014	23.8	20.8	16.9	22.8	28.5	24.7	23.1
in 2015	23.6	21.0	15.7	22.8	28.9	25.1	23.2
in 2016	24.1	22.1	17.2	23.3	30.9	26.3	24.1
in 2017	24.4	22.3	16.0	23.5	30.7	26.3	24.2
in 2018	24.7	23.1	16.3	23.8	30.8	27.2	24.7
Median	22.0	20.0	16.0	20.0	25.0	24.0	21.0
Standard deviation	10.9	8.7	5.3	10.5	18.2	10.0	11.2
Minimum	8.3	9.5	8.0	11.3	12.2	12.0	8.0
Maximum	100.0	80.0	60.0	89.0	139.0	78.0	139.0

This table presents descriptive statistics in terms of prices and sample composition for the six official wine-growing regions of Switzerland and the entire country. All prices are in CHF for 0.75l bottles and include VAT.

**Table II:**  
**Reputation, production and positioning and their effect on Swiss wine prices**

Variables	Specification						
	1a		1b		1c		
<b>A. Individual &amp; collective reputation and status:</b>							
Producer	149 producers		no		no		
Reference producer	MDVS producer		0.035***	(0.012)	0.018	(0.011)	
Iconic producer	Gault-Millau Icon		0.107***	(0.033)	0.080***	(0.028)	
Region	German-speaking Switzerland		0.021	(0.019)	0.015	(0.018)	
	Ticino		0.063	(0.041)	0.069*	(0.039)	
	Three-Lakes		0.008	(0.022)	-0.015	(0.018)	
	Vaud		-0.046**	(0.019)	-0.057***	(0.018)	
	Geneva		-0.319***	(0.019)	-0.301***	(0.017)	
Famous T-V combination	Chasselas Lavaux		0.239***	(0.032)	0.197***	(0.028)	
	Merlot Ticino		0.194***	(0.036)	0.178***	(0.027)	
	PinotNoir Graubünden		-0.069	(0.059)	-0.129**	(0.052)	
<b>B. Product attributes:</b>							
Varietals	Chardonnay		0.229***	(0.021)	0.274***	(0.026)	
	Pinot Gris		0.343***	(0.034)	0.386***	(0.037)	
	Petite Arvine		0.464***	(0.030)	0.505***	(0.037)	
	Sauvignon Blanc		0.292***	(0.024)	0.318***	(0.029)	
	Pinot Noir		0.138***	(0.025)	0.188***	(0.030)	
	Merlot		0.265***	(0.030)	0.348***	(0.038)	
	Syrah		0.322***	(0.029)	0.399***	(0.035)	
	Gamay		-0.032	(0.028)	0.023	(0.035)	
	Gamaret		0.158***	(0.034)	0.183***	(0.043)	
	Other international varietals		0.267***	(0.016)	0.294***	(0.020)	
	Other domestic varietals		0.334***	(0.023)	0.375***	(0.028)	
	International blends		0.360***	(0.037)	0.415***	(0.045)	
	Domestic blends		0.266***	(0.060)	0.368***	(0.078)	
	Colour	Red wine		0.078***	(0.020)	0.056**	(0.024)
Aging technique	Oak		0.399***	(0.013)	0.396***	(0.014)	
<b>C. Positioning and labelling:</b>							
Flagship	Flagship				0.425***	(0.024)	
Rare/unique features	Rare or unique wines				0.112***	(0.033)	
Labelling	Reserve				0.109***	(0.025)	
	Selection				0.001	(0.031)	
	Old vine				0.088***	(0.031)	
	Grand Cru				0.109***	(0.027)	
	Clos				-0.118**	(0.050)	
Intercept			2.680***	(0.037)	2.683***	(0.016)	
<b>Nb. Wine-Year observations</b>		<b>10'250</b>		<b>10'250</b>		<b>10'250</b>	
<b>Nb. Wines</b>		<b>2'454</b>		<b>2'454</b>		<b>2'454</b>	
<b>Adjusted R-squared</b>		<b>0.640</b>		<b>0.513</b>		<b>0.608</b>	

This table presents results on the price determinants of Swiss fine wines over the sample period 2014 to 2018 and 149 producers. Robust standard errors are in parentheses. \*\*\*, \*\* and \* denote significance at the 99%, 95% and 90% level respectively.

**Table III:  
Swiss wine prices under demand shock**

Variables		Specification					
		2a		2b		2c	
<b>A. Individual &amp; collective reputation and status:</b>							
Reference producer	MDVS producer	0.018*	(0.011)	0.016	(0.012)	0.019	(0.012)
Iconic producer	Gault-Millau Icon	0.082***	(0.028)	0.116***	(0.033)	0.118***	(0.033)
Region	German-speaking Switzerland	0.016	(0.018)	0.016	(0.018)	0.014	(0.018)
	Ticino	0.067*	(0.039)	0.067*	(0.039)	0.066*	(0.039)
	Three-Lakes	-0.014	(0.018)	-0.015	(0.018)	-0.016	(0.018)
	Vaud	-0.056***	(0.018)	-0.056***	(0.018)	-0.058***	(0.018)
	Geneva	-0.300***	(0.017)	-0.301***	(0.017)	-0.302***	(0.017)
Famous T-V combination	Chasselas Lavaux	0.198***	(0.028)	0.198***	(0.028)	0.199***	(0.028)
	Merlot Ticino	0.177***	(0.026)	0.177***	(0.026)	0.173***	(0.026)
	PinotNoir Graubünden	-0.127**	(0.052)	-0.127**	(0.052)	-0.127**	(0.052)
<b>B. Product attributes:</b>							
Varietals	Chardonnay	0.325***	(0.025)	0.325***	(0.025)	0.276***	(0.027)
	Pinot Gris	0.439***	(0.037)	0.439***	(0.037)	0.389***	(0.038)
	Petite Arvine	0.525***	(0.034)	0.525***	(0.034)	0.523***	(0.033)
	Sauvignon Blanc	0.363***	(0.028)	0.363***	(0.028)	0.314***	(0.030)
	Pinot Noir	0.159***	(0.029)	0.159***	(0.029)	0.113***	(0.030)
	Merlot	0.365***	(0.034)	0.365***	(0.034)	0.315***	(0.036)
	Syrah	0.383***	(0.033)	0.383***	(0.033)	0.332***	(0.035)
	Gamay	0.008	(0.035)	0.008	(0.035)	-0.042	(0.037)
	Gamaret	0.202***	(0.039)	0.202***	(0.039)	0.199***	(0.039)
	Other international varietals	0.328***	(0.020)	0.328***	(0.020)	0.278***	(0.022)
	Other domestic varietals	0.375***	(0.027)	0.375***	(0.027)	0.376***	(0.027)
	International blends	0.430***	(0.045)	0.430***	(0.045)	0.380***	(0.046)
	Domestic blends	0.368***	(0.058)	0.368***	(0.058)	0.368***	(0.058)
Colour	Red wine	0.084***	(0.023)	0.084***	(0.023)	0.085***	(0.023)
Aging technique	Oak	0.317***	(0.013)	0.317***	(0.013)	0.316***	(0.013)
<b>C. Positioning and labelling:</b>							
Flagship	Flagship	0.423***	(0.024)	0.423***	(0.024)	0.397***	(0.026)
Rare/unique features	Rare or unique wines	0.113***	(0.033)	0.113***	(0.033)	0.091***	(0.034)
Labelling	Reserve	0.108***	(0.025)	0.108***	(0.025)	0.108***	(0.025)
	Selection	0.001	(0.031)	0.001	(0.031)	0.003	(0.031)
	Old vine	0.088***	(0.031)	0.088***	(0.031)	0.087***	(0.031)
	Grand Cru	0.108***	(0.027)	0.108***	(0.027)	0.108***	(0.026)
	Clos	-0.117**	(0.050)	-0.117**	(0.050)	-0.117**	(0.050)
<b>D. Impact of the Swiss currency shock:</b>							
Year	2015	0.016***	(0.002)	0.017***	(0.003)	0.034***	(0.005)
	2016	0.048***	(0.003)	0.049***	(0.004)	0.066***	(0.006)
	2017	0.047***	(0.004)	0.048***	(0.004)	0.065***	(0.006)
	2018	0.048***	(0.004)	0.049***	(0.005)	0.065***	(0.006)
Shock-interactions	Post2014 MDVS-producer			0.003	(0.006)	-0.000	(0.006)
	Post2014 Gault-Millau Icon			-0.043*	(0.024)	-0.044*	(0.024)
	Post2014 domestic varietals					-0.063***	(0.014)
	Post2014 flagship					0.030*	(0.015)
	Post2014 rare unique					0.028**	(0.014)
Intercept		2.620***	(0.015)	2.619***	(0.015)	2.657***	(0.017)
<b>Nb. Wine-Year observations</b>		<b>10'250</b>		<b>10'250</b>		<b>10'250</b>	
<b>Nb. Wines</b>		<b>2'454</b>		<b>2'454</b>		<b>2'454</b>	
<b>Adjusted R-squared</b>		<b>0.610</b>		<b>0.610</b>		<b>0.612</b>	

This table presents results on the effect of the January 2015 currency shock on the prices of Swiss fine wines from 2014 to 2018 for 149 producers. Robust standard errors are in parentheses. \*\*\*, \*\* and \* denote significance at the 99%, 95% and 90% level respectively.

**Table IV:  
Swiss wine prices and visibility effects**

Variables		Specification					
		3a		3b		3c	
<b>A. Individual &amp; collective reputation and status:</b>							
Reference producer	MDVS producer	0.019	(0.012)	0.019	(0.012)		
Iconic producer	Gault-Millau Icon	0.116***	(0.033)	0.116***	(0.033)		
Region	German-speaking Switzerland	0.008	(0.018)	0.008	(0.018)	0.007	(0.018)
	Ticino	0.068*	(0.039)	0.068*	(0.039)	0.071*	(0.039)
	Three-Lakes	-0.020	(0.018)	-0.020	(0.018)	-0.021	(0.018)
	Vaud	-0.059***	(0.018)	-0.059***	(0.018)	-0.059***	(0.018)
	Geneva	-0.300***	(0.017)	-0.300***	(0.017)	-0.298***	(0.017)
Famous T-V combination	Chasselas Lavaux	0.196***	(0.028)	0.193***	(0.028)	0.194***	(0.028)
	Merlot Ticino	0.175***	(0.026)	0.172***	(0.026)	0.171***	(0.026)
	PinotNoir Graubünden	-0.127**	(0.052)	-0.128**	(0.052)	-0.130**	(0.052)
<b>B. Product attributes:</b>							
Varietals	Chardonnay	0.276***	(0.027)	0.280***	(0.027)	0.280***	(0.027)
	Pinot Gris	0.389***	(0.038)	0.392***	(0.038)	0.393***	(0.038)
	Petite Arvine	0.523***	(0.033)	0.523***	(0.033)	0.523***	(0.033)
	Sauvignon Blanc	0.312***	(0.030)	0.315***	(0.029)	0.315***	(0.029)
	Pinot Noir	0.113***	(0.030)	0.112***	(0.030)	0.113***	(0.030)
	Merlot	0.314***	(0.035)	0.318***	(0.035)	0.320***	(0.035)
	Syrah	0.332***	(0.035)	0.334***	(0.035)	0.335***	(0.035)
	Gamay	-0.044	(0.037)	-0.041	(0.037)	-0.040	(0.037)
	Gamaret	0.201***	(0.039)	0.203***	(0.039)	0.202***	(0.039)
	Other international varietals	0.278***	(0.022)	0.281***	(0.022)	0.281***	(0.022)
	Other domestic varietals	0.374***	(0.027)	0.376***	(0.027)	0.375***	(0.027)
	International blends	0.380***	(0.046)	0.384***	(0.046)	0.384***	(0.046)
	Domestic blends	0.370***	(0.058)	0.374***	(0.058)	0.376***	(0.058)
Colour	Red wine	0.085***	(0.023)	0.085***	(0.023)	0.084***	(0.023)
Aging technique	Oak	0.315***	(0.013)	0.312***	(0.013)	0.313***	(0.013)
<b>C. Positionning and labelling:</b>							
Flagship	Flagship	0.398***	(0.026)	0.400***	(0.026)	0.410***	(0.027)
Rare/unique features	Rare or unique wines	0.093***	(0.034)	0.095***	(0.034)	0.095***	(0.034)
Labelling	Reserve	0.104***	(0.025)	0.102***	(0.025)	0.101***	(0.025)
	Selection	0.004	(0.031)	0.004	(0.031)	0.004	(0.031)
	Old vine	0.088***	(0.031)	0.090***	(0.030)	0.092***	(0.030)
	Grand Cru	0.106***	(0.026)	0.102***	(0.026)	0.101***	(0.026)
	Clos	-0.117**	(0.050)	-0.116**	(0.049)	-0.117**	(0.049)
<b>D. Impact of the Swiss currency shock:</b>							
2015	2015	0.031***	(0.006)	0.032***	(0.006)	0.020***	(0.006)
2016	2016	0.063***	(0.006)	0.064***	(0.006)	0.052***	(0.007)
2017	2017	0.057***	(0.007)	0.056***	(0.007)	0.044***	(0.007)
2018	2018	0.055***	(0.007)	0.054***	(0.007)	0.042***	(0.008)
Shock-interactions	Post2014 MDVS-producer	-0.017**	(0.008)	-0.018**	(0.008)	0.000	(0.013)
	Post2014 Gault-Millau Icon	-0.043*	(0.024)	-0.048**	(0.024)	0.067**	(0.029)
	Post2014 domestic varietals	-0.063***	(0.014)	-0.062***	(0.014)	-0.061***	(0.014)
	Post2014 flagship	0.028*	(0.015)	0.019	(0.016)	0.009	(0.017)
	Post2014 rare unique	0.027**	(0.014)	0.023*	(0.013)	0.023	(0.014)
<b>E. Impact of TWA's arrival:</b>							
Producer rated	Rated by TWA	0.028***	(0.010)	0.022**	(0.010)	0.023**	(0.010)
Average score by wine cuvée	Avg. TWA score by wine			0.001***	(0.000)	0.001***	(0.000)
Intercept		2.658***	(0.017)	2.658***	(0.017)	2.669***	(0.017)
<b>Nb. Wine-Year observations</b>		<b>10'250</b>		<b>10'250</b>		<b>10'250</b>	
<b>Nb. Wines</b>		<b>2'454</b>		<b>2'454</b>		<b>2'454</b>	
<b>Adjusted R-squared</b>		<b>0.612</b>		<b>0.613</b>		<b>0.612</b>	

This table presents results on the effect of The Wine Advocate's arrival in Switzerland on the prices of Swiss fine wines over the sample period 2014 to 2018 and 149 producers. Robust standard errors are in parentheses. \*\*\*, \*\* and \* denote significance at the 99%, 95% and 90% level respectively.

## Appendix I: Producers in the sample

Wine producer	Region	Wine producer	Region	Wine producer	Region
Domaine des Balisiers	Geneva	Domaine Saint-Sébastien, Saint-Blaise (NE)	Three-Lakes	Henri Vallotton	Valais
Domaine du Clos des Pins	Geneva	Javet & Javet	Three-Lakes	Histoire d'Enfer	Valais
Domaine Dugerdil	Geneva	Jean-Daniel Chervet, Praz/Vully (FR)	Three-Lakes	Jean-Claude Favre	Valais
Domaines Les Parcelles	Geneva	Jean-Denis Perrochet, NE	Three-Lakes	Jean-Louis Mathieu	Valais
Dupraz	Geneva	Louis-Philippe Burgat, NE	Three-Lakes	Jean-René Germanier	Valais
Emilienne & Jean Hutin (Les Hutins)	Geneva	Martin Hubacher BE	Three-Lakes	La Tornale (Jean-Daniel Favre)	Valais
Jean-Pierre Pellegrin	Geneva	Sabine und Lukas Hasler	Three-Lakes	Le Banneret, Carlo & Jean-Charles Maye	Valais
Philippe Villard	Geneva	Agnoloro SA (Tenimento dell'Ör)	Ticino	Leukersonne	Valais
Roger Burgdorfer	Geneva	Barbara Kopp von der Crone & Paolo Visini	Ticino	L'Orpailleur (Frédéric Dumoulin)	Valais
Andreas Meier (Weingut zum Sternem), (AG)	German CH	Brivio Vini	Ticino	Madeleine & Jean-Yves Mabillard-Fuchs	Valais
C Hermann (GR)	German CH	Daniel Huber	Ticino	Marie-Bernard Gillioz-Praz	Valais
Domaine Donatsch (GR)	German CH	Fattoria Moncucchetto	Ticino	Marie-Thérèse Chappaz	Valais
Erich Meier (ZH)	German CH	Fratelli Meroni	Ticino	Maurice Zufferey	Valais
Famille Zahner (ZH)	German CH	Fratelli Valsangiacomo	Ticino	Nicolas Zufferey	Valais
Georg Fromm (GR)	German CH	Giorgi Rossi (Azienda Mondo)	Ticino	Philippe Constantin	Valais
Georg Schlegel (GR)	German CH	Maison Gialdi	Ticino	Philippe Darioli	Valais
Hermann Schwarzenbach (ZH)	German CH	Mike Rudolph (Tenuta San Giorgio)	Ticino	Philippoz Frères	Valais
Irène Grünenfelder (GR)	German CH	Tamborini Vini	Ticino	Robert Taramaraz	Valais
Johannes Meier, Schloss Bachtobel, (TG)	German CH	Tenuta Bally	Ticino	Romain Papilloud	Valais
M Broger Weinbau (Ottoberg, TG)	German CH	Tenuta Castello di Morcote	Ticino	Sankt-Jodernkelleréi, Visperterminen	Valais
Markus Ruch (SH)	German CH	Werner Stucky	Ticino	Serge Roh	Valais
Obrecht (Weingut zur Sonne) (GR)	German CH	Zanini (Castello Luigi / Vinattien)	Ticino	Simon Maye et fils	Valais
Peter Wegelin, Scadenagut	German CH	A. & C. Bétrisey	Valais	Thierry Constantin	Valais
R & B Baumann (Oberhallau, SH)	German CH	Adrian & Diego Mathier	Valais	Vin d'œuvre	Valais
Stäger Weine	German CH	Alexandre Delétraz (cave des Amandiers)	Valais	Vins des Chevaliers	Valais
Thomas Studach (GR)	German CH	André Fontannaz (La Madeleine)	Valais	Blaise Duboux	Vaud
U. & J. Liesch (Weingut Treib) (GR)	German CH	Anne-Catherine & Denis Mercier	Valais	Christian Dugon	Vaud
Urs Jauslin (BL)	German CH	Benoît Dorsaz	Valais	Croix Duplex (Simon Vogel)	Vaud
Urs Pircher (ZH)	German CH	Catherine & Meinard Gaillard, Le Vidomne	Valais	Domaine Bovy	Vaud
Weinbau Lampert	German CH	Cave Chanton	Valais	Domaine Henri Cruchon	Vaud
Weinbau Otiger	German CH	Cave Cornulus (Stéphane Reynard & Dani Varone)	Valais	Etienne & Louis Fonjallaz	Vaud
Weinbau Peter & Rosi Hermann	German CH	Cave du Rhodan	Valais	Frères Dubois	Vaud
Weinbau von Tschamer	German CH	Cave La Romaine	Valais	Vincent Chollet - Domaine Mermetus	Vaud
Weingut Aagne vom Schopf (Familie Gysel)	German CH	Cave La Siseranche	Valais	J & F Pélichet	Vaud
Weingut Adank	German CH	Cave Pierre-Maurice Carruzzo	Valais	Jean-François Chevalley	Vaud
Weingut Annatina Pelizzatti	German CH	Caves d'Anchettes, Simon & Jérôme Favre - Berclaz	Valais	Jean-François Neyroud Fonjallaz	Vaud
Weingut Burkhardt	German CH	Christophe Abbet	Valais	Kursner Vins	Vaud
Weingut Ciprian	German CH	Claudy Clavien	Valais	La Maison du Moulin	Vaud
Weingut Daniel & Monika Marugg (Bovel)	German CH	Clos de Tsampéthro	Valais	Les Fils Rogivue	Vaud
Weingut Davaz	German CH	Daniel Magliocco	Valais	Les Frères Dutruy (La Treille et La Doye)	Vaud
Weingut Jann Marugg	German CH	Défayes & Cretienand	Valais	Louis-Philippe Bovard	Vaud
Weingut Jürg Saxer	German CH	Didier Joris	Valais	Luc Massy	Vaud
Weingut Schloss Salenegg	German CH	Domaine du Mont d'Or	Valais	Marco & François Grognoz	Vaud
Weingut Wolfer	German CH	Domaine La Rodeline	Valais	Noémie Graff (Le Satyre)	Vaud
Beat Burkhardt	Three-Lakes	Dominique Passaquay	Valais	Philippe Gex	Vaud
Charles Steiner BE	Three-Lakes	Fabienne Cottagnoud	Valais	Pierre Monachon	Vaud
Château de Praz	Three-Lakes	Famille Boven (cave Ardévaz)	Valais	Pierre-Luc Leyvraz	Vaud
Christian Vessaz (Cru de l'Hopital), FR	Three-Lakes	Gérald & Patricia Besse	Valais	Terroir du Crosex Grillé	Vaud
Domaine de la Grillette, NE	Three-Lakes	Gilbert Devayes	Valais	Violaine & Raymond Paccot	Vaud
Domaine de Montmollin, NE	Three-Lakes	Gregor Kuonen	Valais		

Note: "German CH" stands for the German-speaking part of Switzerland.



**Appendix II:  
List of (omitted) variables in the regressions**

Variables	Variables	Omitted variables
<b>A. Individual &amp; collective reputation and status:</b>		
Producer	Dummy variables for each producer present in the database.	Producer A. & C. Bétrisey
Reference producer	Dummy variables for each of the producers that are listed by "Mémoire des Vins Suisses"	Producer not listed by "Mémoire des Vins Suisses"
Iconic producer	Dummy variables for each of the producers that are considered as "iconic" by Gault-Millau.	Producer not considered as "iconic" by Gault-Millau
Region	Geneva, German-speaking Switzerland, Three-Lakes, Ticino, Valais, Vaud,	The region "Valais"
Famous terroir-varietal combination	Chasselas - Lavaux; Pinot Noir - Graubünden; Merlot - Ticino.	All wines not included in these three terroir-varietal combinations
<b>B. Product attributes:</b>		
Varietal	Chardonnay; Petite Arvine; Pinot Gris; Sauvignon Blanc; Gamaret; Gamay; Merlot; Pinot Noir; Syrah; other domestic varietals; other international varietals	The "Chasselas" varietal
Blend	Domestic blends; international blends	The "Chasselas" varietal
Color	Red wines; white wines	White wines
Aging technique	Barrel-aging; other types of ageing (steel tank, amphore, etc.)	Wines that are not barrel-aged
<b>C. Positioning and labelling:</b>		
Flagship	Dummy variables for wines that are positioned as a "flagship" wine.	Wines that are not positioned as "flagship"
Rare / unique features	Dummy variables for wines that have rare / unique features (e.g., rare varietal such as Completer, vineyards with a specific status such as Dézaley/Calamin)	Wines without rare/unique features
Labelling	Dummy variables to control if the label states that the wine under consideration is from old vines, from a specific vineyard, or if it is a reserve.	Wines without these specific label attributes
<b>D. Impact of the Swiss currency shock:</b>		
Year of sale	Years of sale: 2014, 2015, 2016, 2017, 2018	Wines from the vintage 2014
Post-2014 × Reference producer	Interaction term between the "Years 2015-18" and the "Reference producer" dummy variables.	Wines that are either from vintage 2014, not a reference producer or both
Post-2014 × Iconic producer	Interaction term between the "Years 2015-18" and the "Iconic producer" dummy variables.	Wines that are either from vintage 2014, not an iconic producer or both
Post-2014 × Domestic varietals	Interaction term between the "Years 2015-18" and the "Domestic varietals" dummy variables.	Wines that are either from vintage 2014, not from domestic varietals or both
Post-2014 × Flagship	Interaction term between the "Years 2015-18" and the "Flagship" dummy variables.	Wines that are either from vintage 2014, not flagship wines or both
Post-2014 × Rare	Interaction term between the "Years 2015-18" and the "Rare/Unique features" dummy variables.	Wines that are either from vintage 2014, not rare or both
<b>E. Impact of TWA's arrival:</b>		
Producer rated	Producers having a wine rated by TWA; producers without wines rated by TWA	Producers with no wines rated by TWA
Average score by wine cuvée	Average TWA score by wine	Continuous variable

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<sup>1</sup> Nelson (1970) gives the following example of an experience good. “Paint is not a good whose quality variation can be determined by search. The properties of paint can be determined prior to use only with the greatest difficulty. Hence it makes sense to classify paint as an experience good.” He further indicates liquor as an example of an experience good. The wine economics field widely accepts that wine is an experience good following Nelson’s definition. However, while classification into search and experience goods is testable, it very often remains untested. In line with the wine economics literature, we also assume that wine is an experience good without formally testing this hypothesis in this paper.

<sup>2</sup> Oczkowski and Doucouliagos (2015) provide a meta-analysis on the relation between wine prices and quality attributes.

<sup>3</sup> Switzerland ranks respectively 19<sup>th</sup> and 21<sup>st</sup> in terms of wine consumption and production (OIV, 2019).

<sup>4</sup> The size and organisation of the wineries (relatively small and mostly family-run), the landscape and the type of soils (marked by the proximity to mountain ranges, lakes and rivers), as well as the climate and latitude are very similar in all of these regions.

<sup>5</sup> Though production averaged 100 million litres per year over the 2010s, domestic consumption has always been higher. Thus, Switzerland heavily relies on wine imports (around 160 million litres per year, on average), and only exports a negligible proportion of its production (around 1.1%) (Bundesamt für Landwirtschaft, 2019).

<sup>6</sup> See, e.g., Masset and Weisskopf (2019) or Storchmann (2018) for more details about the specificities of Swiss wines.

<sup>7</sup> As Cardebat et al. (2018) show, similar wine rankings to ours (e.g. the Wine Spectator Top 100) may display limits. To overcome these, we also consider other lists such as: the 100 best wineries in the French-speaking part of Switzerland published in the Swiss-French magazine *L’Hebdo*; the 50 best wines of the 2013 Best Sommelier of the World, Paolo Basso; the guide of the 50 best wine producers in Switzerland in Buss et al. (2011). There is a very substantial overlap between those lists and the ones we base our selection on.

<sup>8</sup> The list with the 149 producers used in the sample can be found in appendix I.

<sup>9</sup> See Jones and Storchmann (2001) or Costanigro et al. (2007) on the wine market, Chanel et al. (1996) or Beggs and Graddy (2009) on the arts market or Wallace and Meese (1997) or Sirmans et al. (2005) on the real estate market.

<sup>10</sup> A more in-depth discussion on the effect ask prices have on hedonic regressions can be found in subsection 4.4.

<sup>11</sup> Appendix II shows the descriptions of the variables as well as the variables omitted from the specifications.

<sup>12</sup> Chasselas from the Lavaux and more specifically from Dézaley and Calamin have enjoyed an outstanding reputation since the Middle-Ages. Likewise, the villages of Malans, Jenins, Maienfeld and Fläsch, in Graubünden, are considered as the home of the best Pinot Noir in Switzerland.

<sup>13</sup> We manually collect information on this dimension by screening producers’ websites for specific wines marketed as flagship.

<sup>14</sup> We also run a specification with macroeconomic and wine market related variables (in line with Jiao (2017)) around the currency shock. We find a significantly positive effect of GDP growth, monetary policy (M3) and global wine production on Swiss wine prices but an insignificant coefficient for global wine consumption.

<sup>15</sup> In unreported results, we analyse whether wine producers who were rated by TWA have increased prices over the long run or whether they misunderstood their market and its receptiveness to higher prices and had to lower prices for subsequent vintages. We find evidence that between the end of the sample period in 2018 and 2021 prices have not significantly increased in an economic or statistical way. They, however, have not dropped either.

<sup>16</sup> Liv-ex may represent an alternative. However, the liquidity on this platform remains limited and most of the available data concerns a limited number of famous wines.