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The Role of Actual and Purported Origin in e-Commerce Wine Pricing: Evidence From Italian and French Names on Labels

Annalisa Caloffi¹  | Amir Maghssudipour²  | Gianluca Stefani¹ 

¹Department of Economics and Management, University of Florence, Florence, Italy | ²Department of Economics and Management “Marco Fanno”, University of Padova, Padova, Italy

Correspondence: Amir Maghssudipour (amir.maghssudipour@unipd.it)

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ABSTRACT

The origin of a product, if associated with good quality, can contribute to building a positive collective reputation, leading to a potential price premium. However, it is conceivable that a producer markets a product by evoking symbols, images, words, and values typical of places other than where it was designed or produced, creating a “foreign sounding” effect. This study, which focuses on wines available for purchase online, examines whether and to what extent wines with actual or perceived associations with French and Italian production cultures enjoy a price premium. Through an empirical analysis using matched sampling in a multiple treatment framework, this study draws on an original database constructed using web-scraping and text-mining techniques. The database contains detailed information on over 17,000 bottles of wine offered online on three major English-language websites. Controlling for a variety of factors affecting wine performance—at the bottle, winery, and brand level—and segmenting by price range—the analysis finds that Made in France bottles command a price premium. Conversely, Made in Italy, Italian-sounding, and French-sounding bottles experience price penalties, with Italian wines suffering greater price penalties than Italian-sounding alternatives. These results have important implications. For example, wineries that rely on foreign-sounding branding may face consumer skepticism, leading to price penalties, as observed for French-sounding wines. Despite this, the better performance of Italian-sounding labels over Made in Italy wines suggests that certain branding strategies—such as using culturally evocative names—can partially enhance consumer perception even when it is purported.

JEL Classification: 057, L66, F2

1 | Introduction

It is known that the origin of a food product—whether expressed with a clear “made in” label or communicated in some other way—can influence consumers’ perception of the product and their purchase intentions (Knight et al. 2007; Ehmke et al. 2008; Curzi and Olper 2012; Unahanandh and Assarut 2013; De Filippis et al. 2022; Resce and Vaquero-Piñeiro 2022; Yeh and Hirsch 2023). Some industries experience this mechanism more than others. For example, the product

origin plays an essential role in influencing consumer perceptions and willingness to pay in markets such as food (e.g., regional specialties such as Italian Parmigiano Reggiano cheese, Winfree 2022), fashion (e.g., French haute couture for luxury clothing, Mazza and Alvarez 2017), and even technology (e.g., “Silicon Valley” for high-tech innovations, Bresnahan and Gambardella 2004). Studies have shown that specifically, collective reputation related to an origin increases consumer trust in product quality and authenticity across different categories, adding significant value to both regional and national brands

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(Deselnicu et al. 2013; Chen et al. 2021). This highlights the broader importance of origin-based reputation in shaping consumer expectations and premium pricing across different markets.

Particularly, in the case of wine, research has shown that when the place of origin is the bearer of positive values (e.g., because of the particular quality of the terroir or the specific competencies in winemaking), the origin contributes to the formation of a positive collective reputation (Tirole 1996), which is likely to increase consumers' willingness to buy and pay for such wines (Skuras and Vakrou 2002; Felzensztein et al. 2004; Veale and Quester 2009; D'Alessandro and Pecotich 2013; Agostino and Trivieri 2014; Hu and Baldin 2018; Magnusson et al. 2019). This collective reputation—together with other characteristics of the wine—also influences the price (Gergaud et al. 2017). Indeed, the former can shape consumers' expectations about the quality level of the product, which is one of the main determinants of price (Costanigro et al. 2010; Frick and Simmons 2013; Costanigro et al. 2015). Empirical research has demonstrated this relationship. In a study of Bourdeaux wines, Landon and Smith (1998) found that collective reputation is an important determinant of wine price. Trestini et al. (2020) found that in the case of Polish sparkling wine, the appellation of origin appears to be the most important determinant of price. Focusing on wines produced in the United States, Costanigro et al. (2010) divided their analysis into price bands and showed that the collective reputation embodied in an appellation mainly influences wines in the lower price bands, while the individual reputation associated with the producer's brand is more relevant at the high end.

The wine market represents an ideal case for studying these dynamics for several reasons. First, wine is a highly symbolic and culturally embedded product, where authenticity and perceived origin play a crucial role in shaping consumer expectations and willingness to pay (Pelet et al. 2020). Second, wine labels often incorporate linguistic and visual cues that can either reinforce or blur the actual origin of the product, making it an excellent context to examine how “foreign-sounding” elements influence price perception (Bonaiuto et al. 2021). Third, the global wine market is characterized by intense international competition, where branding strategies that are linked or just evoke prestigious origins are frequently used to gain a competitive edge (M. B. Beverland 2005; M. Beverland 2006).

But, what are the implications when a wine label claims a specific country or region of origin—particularly one with a strong and favorable reputation—despite not being produced there? Will its market value increase, benefiting from the perceived prestige of that origin, even if the connection is merely a construct of the producer? Notably, these important questions remain largely unexamined, with no specific quantitative studies addressing the impact of an “artifactual” origin claim. This gap has real implications for businesses, industry strategies and policies, making it a relevant, critical, and puzzling issue.

The term “foreign-sounding” has been coined by scholars to refer to cases in which a producer markets a product by referring to a set of symbols and words typical of a country that specializes in (and has a good reputation for) producing such goods, but without the product

being designed or manufactured in that country (Leclerc et al. 1994; Aichner 2014; Mandler et al. 2020; Melewar and Skinner 2020). This reference is not necessarily illegal, as in the case of counterfeiting (exact replicas of branded products), at least as long as producers do not falsify appellations of origin or specific trademarks (Luigi et al. 2008; Carreño and Vergano 2016; Romano et al. 2021). Nor is it directly and fully consistent with the concept of imitation, since an imitative product or service is one that, although not identical, is intentionally designed to be similar to a well-known product already in the market (Le Roux et al. 2016), while foreign-sounding products may lack the intentional intent to imitate.

Indeed, there are many products that are marketed using symbols and words of a country, but do not claim to be produced in that country (Luigi et al. 2008; Bonaiuto et al. 2021). For example, Australian or Californian wine producers might use Italian words to market their product on the global market simply because these producers are of Italian origin and use their native language on the wine label to emphasize their affiliation with the Italian culture. Or French words and images might be used by Australian or Californian producers to emphasize the fact that they use a typically French production method (Helzer 2001).

This study focuses on wine sold online to evaluate whether wines with labels that evoke Italian or French origins—despite not being produced in Italy or France—command a price premium. Additionally, we seek to quantify the extent of this potential premium. By focusing on the online wine market, it addresses the specific dynamics of e-commerce, where consumers face intense product competition on virtual shelves and must rely on digital cues to assess quality. Unlike traditional retail, online platforms lack physical sensory experiences and face-to-face recommendations, so consumers turn to product information such as expert ratings, peer reviews, and brand reputation to guide their choices. These factors are particularly influential in e-commerce, where reputation—whether individual (brand-based) or collective (location-based)—has a significant impact on pricing (Rui et al. 2025). Thus, the online marketplace reveals the importance of reputation and consumer perception, highlighting the unique pricing mechanisms in the digital environment.

We chose to focus on Italy and France because these countries have an iconic and positive collective reputation in the global wine industry. Both Italy and France have consistently been leaders in wine production and exports, particularly in the high-end market segment (Anderson and Pinilla 2020; Carbone, Demaria, et al. 2021). While French and Italian wines share this global prominence, they exhibit notable differences in quality range, promotional strategies, and investment patterns (Pomarici et al. 2021). French wines benefit from a centralized regulatory system that supports luxury positioning and quality standards, while Italy's more decentralized governance fosters a diverse market profile. These different approaches, along with their global leadership, make the study of Italian and French wines interesting for understanding different strategies in the competitive international wine market.

Our empirical strategy relies on matched sampling (Sudman 1976; Rossi et al. 2013). Many variables can affect the price of wine in the

market. In contrast to regression-based hedonic price approaches, we do not attempt to model their influence on prices directly, but instead adjust for their influence using a matching technique. We apply this technique in the case of multiple treatments, following the recent literature on matching algorithms with more than two treatments (Scotina and Gutman 2019). This novel approach allows us to make all-but-equal comparisons and assess whether there is a significant price difference in favor of wines that are, or appear to be, of Italian or French origin.

Our paper makes at least three contributions. First, it is the first to quantitatively estimate the economic impact of foreign-sounding strategies, focusing specifically on Italian- and French-sounding labels in the wine market. It sheds light on whether such labels—without corresponding production origins—can command price premiums, thus filling a critical gap in the literature. Second, by comparing the price effects of wines with authentic French and Italian origins to those with foreign-sounding labels, this paper provides new evidence on how origin-based collective reputations influence consumer perceptions and pricing. This comparison reveals the complex interplay between authenticity, perception, and pricing in a globalized wine market. Third, the study applies a matching algorithm in a multiple-treatment context. This technique allows for robust, unbiased comparisons across different wine categories and price ranges.

The paper is organized as follows. Section 2 reviews the literature on the relationship between place of origin and price, as well as foreign-sounding strategies. Section 3 describes the empirical context, while Section 4 presents the data sources, study variables, and descriptive statistics. Section 5 presents the methodology used for the quantitative analysis. Section 6 presents the main findings. Finally, Section 7 discusses the findings and concludes.

2 | Literature Review

2.1 | Places of Origin and Prices

The online wine market is characterized by high competition between different bottles on the virtual shelf (Tanford 2006). Investments in quality and advertising are among the most common product differentiation strategies implemented by wineries, which can help them manage the competition and gain some pricing power. Both types of investment have a positive effect on price margins. Indeed, the price charged by wineries is positively correlated with both their individual reputation (Schamel and Ros 2021)—built through investments in the intrinsic quality of the wine and brand recognition—and their collective reputation (e.g., a denomination of origin) (Costanigro et al. 2010; Frick and Simmons 2013; Marchini et al. 2014; Gergaud et al. 2017; Winfree 2022).

Recent research underscores how e-commerce is reshaping pricing strategies and consumer perceptions, particularly with respect to origin. Cavallo (2018) highlights that online retailers are increasingly using dynamic pricing algorithms, which allow for rapid adjustments based on competitor prices and market data. This agility in pricing is unique to online environments

and contrasts with traditional, more static retail models. In addition, online consumer reviews have a significant impact on perceived quality, which can affect prices (De Maeyer 2012). Moreover, price transparency in digital marketplaces makes origin-based differentiation even more crucial: when products are easily comparable, a strong collective reputation can serve as a key factor in justifying premium pricing (Wang et al. 2024). In addition, firms strive for price consistency across online and offline platforms, a critical factor in maintaining brand loyalty as consumers can now easily compare prices across sources.

These types of reputations are particularly relevant in the case of an experiential good like wine—and especially wine sold online (Fedoseeva 2020). Wine consumers are willing to pay for quality. However, since the quality level of the product is not known *ex ante*, they can formulate their expectations based on a range of information available on the seller's online platform. First, they can look at the quality level of similar bottles (e.g., the same wine produced in the same year) that have been tasted by experts and rated according to a well-defined standard (e.g., the Winespectator ranking) (Costanigro et al. 2010). If the wine is sold online, in addition to or even instead of the (often criticized) expert judgment, consumers can rely on the judgment of other consumers who have already purchased and tasted the wine (Kopsacheilis et al. 2022). The type of wine can also influence the price. Second, the expected level of quality is influenced by the brand of the winery. The more a positive (individual) reputation is associated with the latter, the more positively it will influence the price (Costanigro et al. 2010; Frick and Simmons 2013). Finally, the place of production influences the price (Skuras and Vakrou 2002; Awada and Yiannaka 2012; Pouliot and Sumner 2014). If the former is associated with a positive collective reputation, the consumer receives additional elements to formulate a (positive) quality judgment about the wine he or she is about to buy. The place of production does not always have to be certified by a formal appellation of origin (Gangjee 2017). It can also be implicit, that is, inferred by the consumer from certain distinctive elements on the bottle. One important clue for consumers to identify the origin is the language in which the name of the wine, the name of the winery, or other elements of the label are expressed. Another is the use of images or color combinations that are clearly associated with a place (e.g., a typical French castle or Italian monument, or the use of the white-red-blue combination with stars and stripes, which is reminiscent of the colors of the US flag) (Melnik et al. 2012).

2.2 | “Foreign Sounding” Strategy

The producer could manipulate these characteristics to suggest a link to an area other than that of origin. In certain cases, this strategy can be fraudulent, when it mystifies the origin of the product to mislead the consumer by falsifying the components that legally define the origin of the wine and succeeds in charging higher prices than the producer would have been able to charge if the true origin of the product was known (Schaefer et al. 2018; Romano et al. 2021). This phenomenon has attracted the attention of policymakers both at the European level (e.g., EU Regulation 1169/2011; Alston and Gaeta 2021) and at the national level (e.g., for Italy, Federalimentare 2019; for France,

Plasseraud 2020). In other cases, the foreign-sounding strategy could be adopted without a completely mystifying intention, but with the aim of giving the consumer a suggestion—more or less based on the intrinsic characteristics of the product—about the quality of the wine (Leclerc et al. 1994; Aichner et al. 2017; Zanoni 2018). For example, Italian migrants may start producing wine in their adopted country using methods they learned in Italy and may want to use Italian terms to emphasize that they belong to an Italian tradition (Zanoni 2018; Turchetta and Ferrini 2022). At the same time, wines produced in Australia may be designed by French winemakers who adhere to production methods inspired by French wines or use French grapes (Anderson 2004).

Research highlights both potential benefits and risks associated with adopting a “foreign sounding” strategy. For example, Leclerc et al. (1994) show that the French sound of a brand can positively influence product perceptions, sometimes enhancing consumer impressions beyond the sensory qualities of the product. This suggests that certain foreign-sounding cues can add perceived value, and manufacturers can potentially use these cues to differentiate their products. However, this strategy is not without its drawbacks. Several studies suggest that when consumers perceive a product’s foreign-sounding branding as a deliberate attempt to disguise its true origin, it can negatively affect their quality expectations and willingness to pay. For example, Balabanis and Diamantopoulos (2011), Cakici and Shukla (2017), Hornikx and Van Meurs (2017), Bonaiuto et al. (2021), and Simeone et al. (2022) collectively emphasize that such consumer perceptions can lead to negative reactions, reduce purchase intentions, and undermine any premium pricing strategies based on perceived origin. Furthermore, Santeramo et al. (2020) emphasize that in the agri-food sector, origin-based differentiation is particularly effective when accompanied by credible geographical indication labels. In the absence of such labels, producers cannot rely solely on foreign-sounding strategies to justify higher prices relative to comparable non-foreign-sounding products.

Thus, while foreign-sounding branding can enhance perceived product value in certain contexts, it poses a risk if consumers perceive it as inauthentic. This skepticism has been observed across various sectors: in the home electronics sector, for instance, brands that adopt misleading origin cues may suffer reputational damage when consumers discover the true provenance (Balabanis and Diamantopoulos 2011).

These effects are even more important in the case of wine. The concept of wine terroir, or “the idea that the environmental and socio-historical characteristics of a place as used and interpreted by producers gives a unique and irreproducible shape to a product” (Charters et al. 2017, 749), is a major driver of the place-based authenticity of wine (Meloni and Swinnen 2018). This authenticity is a key driver of wine bottle purchase decisions and, consequently, wine sales (Famularo et al. 2010). This is especially true for medium and high-quality wines (M. B. Beverland 2005). Consumers expect transparency, and misleading branding risks undermining long-term trust and brand equity. Wine authenticity often appears to be more important than the sensory characteristics of the product in explaining its price (Schamel 2003).

3 | Empirical Context

Made in France and Made in Italy wines are generally considered to be high-quality products (Phillips 2000; Bettiol 2015; Ugaglia et al. 2019). Both countries have various collective labels that strictly certify the place of origin (Huysmans and Swinnen 2019). At the same time, French- and Italian-sounding products are proliferating. For example, as reported by Aichner et al. (2017), two-thirds of globally traded food products that appear to be of Italian origin are not actually produced in Italy. These products have Italian or Italian-sounding words in their branding, and/or their producers create advertising campaigns that include Italian or Italian-sounding words to promote them. This phenomenon extends beyond the issue of fake “Made in Italy” or “Made in France” labels (Carreño and Vergano 2016). On the contrary, according to the Italian Court of Justice, Italian-sounding products are born in compliance with labeling regulations, deviating from illegal practices such as counterfeiting (Ambrosetti 2022). Some food products refer to Italy—without being produced in the country—simply because Italy is a carrier of positive values regarding food (Giumelli 2016). At the same time, many products that are not produced in France are marketed using the French language to convey “esthetic sensitivity, refined taste, and sensory pleasure” (Leclerc et al. 1994, 264). However, according to some, there is an element of consumer deception because the producer uses symbols, images, and words that shift the focus from the real place of production to the supposed place of production. In this sense, a recent document produced by the Association of Italian Chambers of Commerce Abroad supports the point of view of a deceptive marketing strategy (Ambrosetti 2022). In fact, the EU Regulation 1169/2011 on the provision of food information to consumers establishes that the indication of the country of origin is mandatory, in particular “if the information accompanying the food or the label as a whole would otherwise imply that the food has a different country of origin” (art. 26).

Consumer deception is also addressed by other private and criminal law measures aimed at facilitating the functioning of the market. An example is Article 2598 of the Italian Civil Code, which sanctions the use of names or distinguishing marks that may lead to confusion with names or distinguishing marks lawfully used by others. Unlike the labeling regulations mentioned above, private law instruments leave the enforcement of the law to the individual (Ogus 2004). In the case of misleading country of origin claims, it will be the Italian or French producers that sue the foreign producers that adopt an Italian or French-sounding marketing strategy. However, because of the burden of legal costs, public support for national producers seems to be an important element for success in world markets, as promotional activities can pre-empt unfair competition.

We focus on Italian and French wine productions because they have set numerous records over the past 50 years (Anderson and Pinilla 2020). In recent decades, both countries have increased the total value of exported wines. In 2019, France is first and Italy is second in terms of the value of exported wines, while Italy is first and France is second in terms of the quantity exported. French wines have achieved excellent results in exports to the extent that their prices are, on average, about three times higher than those of Italian wines (Anderson and Pinilla 2020).

Italian and French wines usually benefit from the strong and positive image of the places where they are produced, with their culture and tradition (Ingaraio et al. 2020; Carbone 2021). However, French and Italian wines also differ in some respects (Ugaglia et al. 2019). Typically, French winemakers focus on excellent quality productions, often attributed to luxury goods (e.g., some infamous bottles from Champagne or Bordeaux). The range of Italian wines, especially those sold on international markets, is more heterogeneous, both in terms of production locations and quality levels. Moreover, although formally similar, France and Italy have—de facto—two different interpretations of the regulation and promotion of the wine industry. The French wine regulation is more shared and decentralized than the Italian one. According to Carter (2019), it has been effective in raising the quality and even the prices of French wineries, leading the whole system to enjoy an institutional comparative advantage. On the Italian side, institutional attempts to imitate the French policy success were dramatically less efficient and characterized by a much more fragmented and weak wine system (Carter 2018). Indeed, the Italian wine sector lacks shared governance, as the different actors are represented by different organizations (farmers' unions, cooperative unions, wine producer organizations, wine general associations, etc.), which makes negotiations more difficult (Ugaglia et al. 2019). Wine organizations at the international level, which are historically French-dominated and have “successfully institutionalized a French notion of quality based on terroir. [...] This gives French producers a kind of ‘first mover’ advantage in shaping the definition of quality for future market competitors” (Carter 2018, 490).

In terms of promotion strategies, Italian producers and wine-related agents often focus on promoting the region or place of origin, mainly through local appellations and in a context where there is a high level of knowledge about wine quality, but it is hierarchically defined and not shared across different territories. In contrast, French producers typically emphasize both the region and individual wineries in their promotion. In fact, French producers are more likely to combine territorial promotion with the promotion of a single wine or winery (e.g., very few hectares) and in a context characterized by a more centralized (often nationally driven) conception of wine quality (Ugaglia et al. 2019). In terms of public investment, in the 2014–2018 programming period of the European Union, France allocated a larger budget to long-term investments, while Italy focused more on short-term measures (EU Report 2020). According to Sotheby's, private investment in the wine industry in 2020 was higher in France than in Italy (Sotheby's Market Report 2020).

In key wine-exporting markets like the US, UK, and Australia, French and Italian wines are perceived differently. French wines—especially from Bordeaux, Burgundy, and Champagne—are seen as prestigious and luxurious, often commanding higher prices (Charters 2006). Italian wines, though highly regarded, are typically seen as relatively more versatile and accessible, with a strong quality/price ratio. These perceptions influence demand and highlight contrasting branding strategies: whereas French wines capitalize on exclusivity, Italian wines often succeed through relative accessibility and variety.

4 | Data Source, Variables, and Descriptive Statistics

We focus on the online sale of wine in three English-speaking countries: the UK and the US are top wine importers, and the third, Australia, is a medium-sized importer. While the United States and the United Kingdom are significant importers of premium and high-end wines, reflecting a global trend toward higher-value wine consumption (Anderson and Pinilla 2018; IWSR 2023), Australia imports predominantly mid-priced wines, with bulk imports from countries such as New Zealand playing an increasing role in recent years (Wine Australia 2023). The three countries have different wine cultures and host different typologies of wine consumers. The UK is not a traditional wine producer but has a well-established wine culture in terms of wine consumption (Ritchie 2007). Both the United States and Australia are relevant examples of the new world of wine production, and the United States in particular is a large consumer market, including for high-end wines (Banks and Overton 2010).

These three countries are salient cases for our purposes. They are heterogeneous both in wine production and in wine demand (and more generally in wine culture), but they are all English-speaking countries, so they are similar from a linguistic point of view to give the same value to Italian and French words and to make the comparison work well.

To build our data set, we collected data from three major online wine sellers in the United States, Australia, and the United Kingdom: Wine.com (wine.com), Cellarmasters (cellarmasters.com.au), and Virgin Wines (virginwines.co.uk).¹ Data was collected using a web scraping technique to capture the information presented on the front label of the wine. Web scraping was used to collect data from online wine platforms due to its efficiency in capturing real-time, large-scale data sets directly from consumer-facing markets (Hillen 2019). This method is particularly suitable for our study because it provides access to detailed product information, including prices, descriptions, and labels, which reflect actual market dynamics. Furthermore, web scraping allowed us to analyze a diverse and representative sample of wines across price segments and origins, providing robust insights into the effects of foreign-sounding labels in online environments.

It is well known that communication with potential customers is largely conveyed through packaging and, in particular, through labels (Mueller et al. 2010; Rocchi 2006). The latter is designed both to provide relevant information about the wine (e.g., place of origin, year of production, type of wine, and producer) and to evoke feelings in the potential buyer (Thomas and Pickering 2003; M. Beverland 2006; Jarvis et al. 2010; Pelet et al. 2020). This is particularly relevant for wines sold online, where buyers cannot taste the product or see the bottle up close before receiving it at home (Cho et al. 2014). In addition to label information, we also collected other information about the wine provided on the website.

The database contained information on 17,139 bottles of wine that were available for sale in July 2020. After excluding some vintage wines priced over \$1200 that were unique and difficult to compare to others in the database, we ended up with 17,113

bottles of wine. Below, we describe the variables included in the empirical analysis.

4.1 | The Main Variable of Interest

Our main variable of interest is the price of wine as reported on websites as of July 2020. All prices were converted into US dollars. We considered the price of the bottle, excluding transportation and other types of costs (e.g., gift packaging). Table 1 shows that the average price of wine is relatively high (USD 63). However, the range is very wide: there are wines from USD 1 to USD 1199 per bottle. Figure 1 shows the distribution of prices of wine bottles under study. In addition, we also considered as outcomes two dichotomous variables indicating the positioning of the bottle in the high and low-price range (third and first price tertile, respectively).

4.2 | Variables Related to the Actual and Purported Origin of the Wine

To identify Made in Italy and Made in France wines, we select bottles whose origin is Italy (or an Italian region) and France (or a French region), respectively.

To identify both French- and Italian-sounding wines, we implemented a three-step procedure. First, we used text mining to identify all labels containing French and Italian words. Based on the content of the label, as presented on the website, we checked whether it contained words from the Italian or French language by matching the former with the vocabulary of the respective languages. Second, we excluded all French and Italian wines from the list. Third, we manually checked the supposedly French- and Italian-sounding labels to see if the words on the labels were actually French or Italian (without the wine being French or Italian).

We determined whether these words referred to the name of a grape variety, the name of the winery (perhaps derived from the owner's surname of Italian or French origin), or the name of the wine.² During this check, we excluded labels that contained French or Italian words that are commonly used to identify the type of grape or wine (e.g., “sauvignon” as in cabernet sauvignon, or “grigio” as in pinot grigio, or “rosé” to identify the type of wine). We also excluded labels that contained words that were only apparently French or Italian. For example, “estate” is an Italian word meaning summer, but most wine labels have the word “estate” as an English word referring to the winemaker's property. After this cleaning, we defined the two variables: *French-sounding wines* to identify wine bottles produced outside France but with a French term in the label, and *Italian-sounding wines* to identify wine bottles produced outside Italy but with an Italian term in the label. Both variables take the value 1 if the wine is Italian-sounding or French-sounding, and 0 otherwise.

To account for the origin of the wine, we created a categorical variable origin. The most common origin is Californian. The American online wine retailer (wine.com) is the largest of the three retailers we considered here, and its online catalogue

includes many Napa Valley bottles. Made in France wines, however, are well represented in the database, along with Italian and Australian wines. Notably, a large number of foreign-sounding wines come from California.

4.3 | Other Variables

We constructed the categorical variable *Consumers' ratings* to account for the judgments made by consumers. It can influence purchase decisions (Schiefer and Fischer 2008), especially in online sales, as consumers cannot taste the products before purchasing. Consumer ratings range from 1 to 5. About 33% of the bottles in our database received 3.5–5 points, which means they can be considered as medium to high-rated wines.

As a proxy for the strength of the winery's brand, we defined the variable *Winery's status*. Status is a judgment by others about the quality of one or more attributes of an agent (Katz 1953; Marin and Wellman 2011). Status has been studied in the wine industry because it can significantly affect the economic performance of wineries (Benjamin and Podolny 1999; Maghssudipour et al. 2020). We measured it as the percentage of each winery's bottles rated 95 or higher by Winespectator.

The categorical variable *Type of grape*³ refers to the different grapes used in the production of wine. Wines are made from fermented grapes, and different grape varieties are critical factors in different wine styles and flavors. In addition, grape varieties are important because they are directly linked to a specific growing environment and terroir. This aspect is often reinforced by the fact that the vast majority of legal appellations, which govern specific wine production, limit, among other things, the number of grapes allowed in the wine production process. In most cases, these are internationally known grapes such as Pinot, Cabernet, or Chardonnay. However, the heterogeneity is high.

The categorical variable *Year* refers to the year in which the grapes were harvested. The year of production has a strong influence on the taste and quality of the bottle, since the climate or, in particular, the natural phenomena that occurred in that year can affect the quality of the grapes. About 37% of the wines in the database were produced between 2018 and 2020, about 39% between 2016 and 2017, and about 16.5% between 2013 and 2015. Older wines are less common, as they require specific production processes and storage systems to be maintained over time and are aimed at the niche of expert consumers.

Finally, the categorical variable *Source* indicates the websites from which the information was collected (Wine.com, from which we obtained the largest number of data, Cellarmasters, and Virgin wines).

Table 1 summarizes our variables and presents descriptive statistics.

Data on expert ratings and wine popularity (number of reviews a wine has received from consumers) were initially collected. We did not include them in the empirical analysis because they

TABLE 1 | Variables' description.

Variable		Description	Mean	Standard deviation	Min	Max
Price		Price as listed on the website (net of transportation costs)*	63.08	94.39	0.99	1199.99
Winery's status		Percentage of bottles that are rated 95 or more by Winespectator	7.63	9.06	1	70
Variable	Categories	Description	N	Percentage		
Type of FS wines	Italian-sounding wines	Type of wines regarding foreign-sounding categories	1064			
	French-sounding wines		658			
Origin	California	Place of production	5924	34.6		
	France		3943	23.1		
	Australia		1852	10.8		
	Italy		1837	10.7		
	Spain		1178	6.9		
	Chile and Argentina		784	4.6		
	Other		1578	9.2		
Type of grape	Pinot	The main grape of the bottle	2870	16.8		
	Cabernet		2623	15.3		
	Chardonnay		2007	11.7		
	Bordeaux		1117	6.5		
	Syrah		854	5.0		
	Non-vintage sparkling wine		580	3.4		
	Merlot		340	2.0		
	Malbec		265	1.5		
	Grenache		249	1.5		
	Other		6192	36.2		
Year	0	Until 1999	119	0.7		
	1	From 2000 to 2012	1220	7.1		
	2	From 2013 to 2015	2820	16.5		
	3	From 2016 to 2017	6643	38.9		
	4	From 2018 to 2020	6295	36.8		
Consumers' ratings	Low to medium-low	From 1 to 3.5	378	2.2		
	Medium-high to high	From 3.5 to 5	5609	32.8		
Source	Wine.com	Data from www.wine.com	15,398	90.1		
	Cellarmasters	Data from www.cellarmasters.com.au	1126	6.6		
	Virgin wines	Data from www.virginwines.co.uk	573	3.4		

Note: 28 bottles priced over 1200\$ were excluded from our estimations.

are significantly correlated with the winery reputation and consumer ratings variables, respectively. Moreover, the latter is not significant in explaining the probability of belonging to one of the five treatments adopted in the empirical strategy.

5 | Empirical Strategy

To assess the potential price premium associated with foreign-sounding labels, we use a matching technique to isolate the

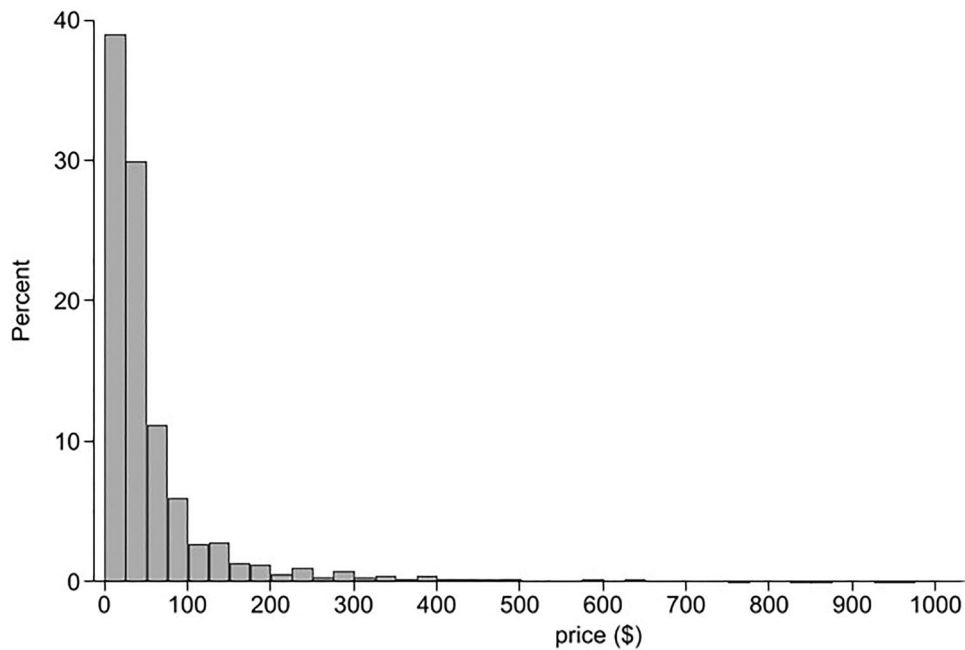


FIGURE 1 | Distribution of prices of wine bottles under study.

effect of label type on price while controlling for key wine characteristics (Sudman 1976; Rossi et al. 2013). Matching techniques are used to balance samples with respect to a set of covariates so that meaningful comparisons can be made between bottles of wine with different labels. In our case, balancing of 12 covariates across groups of differently labeled bottles was attempted using five different algorithms. The goodness of fit was assessed with a single statistic summarizing the discrepancies in the means of all covariates across all label groups. The goal was to group wine bottles that share all key characteristics—such as grape variety and vintage—except for their labeling (i.e., whether or not the label includes Italian or French terms). By forming these comparable groups that differ only in the characteristic of interest, we can analyze their average prices and interpret the observed price difference as a price premium or penalty. If this price difference is positive (negative) in favor of the set of interest and significant, it means that the set of interest will enjoy (suffer) a price premium (penalty) over the comparison set equal to the amount of this difference.

The concept of matched samples originates from causal inference research (Imbens and Rubin 2015), where matching techniques are used to estimate average causal effects under very strict assumptions that there are no unobserved confounders. Although our study does not focus explicitly on causal claims as we cannot rule out confounding factors, we adopt this framework to structure our analysis. Matched samples provide a way to compare prices across treatment groups without depending on hedonic regression models, which may be susceptible to misspecification or omitted variable bias—such as the exclusion of important interactions or nonlinear effects. Furthermore, when treatment assignment is not random, some covariates may influence both the label type and the price, leading to biased estimates in a hedonic pricing model (D'Elia et al. 2020).

Using matching, we simulate a hypothetical experiment in which bottles are identical in all characteristics except for the type of label, allowing us to estimate its relationship with price.

The experiment randomly assigns the unlabeled bottles to one of five nominal treatment levels: Made in Italy, Made in France, Italian-sounding, French-sounding, Others. A potential outcome can then be defined for each unit (a bottle) and for each treatment level (the type of label).

Let $T_i = \{t_1, t_2, t_3, t_4, t_5\}$ be the treatment support for the total of five treatments whereas the set of potential prices that the i^{th} bottle would experience under the five treatments be

$Y_i = \{Y_i(t_1), Y_i(t_2), \dots, Y_i(t_5)\}$, under the usual assumptions there are $\binom{5}{2} = 10$ possible estimands⁴ of average treatment effects (ATE) of the type $\tau_{jk} = E[Y(t_j) - Y(t_k)]$ for $j, k \in T$ and $J \neq k$ that condenses to 4 if we take as a reference treatment group the label type “others” so that the expression above reduces to:

$$\tau_{5k} = E[Y(t_5) - Y(t_k)] \text{ for } k \in \{1, 2, 3, 4\} \quad (1)$$

or

$$\tau_{5k}^t = E[Y(t_5) - Y(t_k)] \mid T = t_5 \quad (2)$$

in the case of ATE on the sub sample treated with t_5 (ATT).

In observational studies, these estimates cannot be derived by simply comparing the average prices of wines across the five labeling groups, as the assignment of labels is not random and may be influenced by various factors. Specifically, wineries are likely to choose their labeling strategy based on both intrinsic characteristics (such as grape variety and quality and other covariates) and extrinsic factors (such as market demand and regional reputation) or other factors that we cannot observe. These same factors may also influence the wine's price, making it essential to account as many of them as possible in the analysis.

When we observe the price of the “other group,” we assume that we would have observed the same price in the, say, Italian-

sounding group if it were not labeled as such, since the two groups are interchangeable as far as the covariates we considered are concerned.

Our ultimate goal is to make comparisons of outcomes between units that are similar across the X vector. To this end, we use matching techniques. Matching can be understood in two ways: as a method for selecting comparable cases from different treatment groups within a larger data set or, alternatively, as a nonparametric adjustment technique used when simple parametric regression models are deemed unreliable due to potential biases (Winship and Morgan 2015, 141).

Standard matching algorithms designed for binary treatments have been extended to multiple treatment scenarios enabling generalization across all treatment groups simultaneously (Lopez and Gutman 2017). To this purpose, algorithms should be employed that are specifically designed to achieve balance across all elements of the covariate vector, ensuring greater comparability among treatment groups.

A distance measure is needed to define the degree of similarity between units to be matched in a multidimensional space. The distance is measured in the higher-dimensional space of the original covariates. A simple Euclidean distance or a Mahalanobis distance can be used, the latter being less sensitive to the correlation structure of the covariates.

Following Scotina and Gutman (2019), we evaluate various multi-treatment matching algorithms based on their effectiveness in balancing the distribution of original covariates across matched treatment groups (see Supporting Information Methodological Appendix) ending up with finding that, in our case, the simple nearest neighbor matching on a Mahalanobis distance, over the 12th dimensional space defined by the original covariates, achieves the highest degree of similarity. The matching algorithm operates with replacement, meaning that for each unit i , the closest units in the other four treatment groups are selected as matches according to the pre-defined distance metric, with the possibility of a unit being chosen multiple times.

The goal was to form groups of units (in this case, bottles of wine) that share all relevant characteristics, with the sole exception of labeling (i.e., the presence or absence of Italian and French terms on the label). Once two sets of comparable objects are established, differing only in the key characteristic under investigation, the average prices within each group are compared. The resulting price differential is then interpreted as either a price premium or penalty. If this price difference is both positive (or negative) and statistically significant in favor of the set of interest, it indicates that this set commands a price premium (or penalty) relative to the comparison set, with the magnitude of the difference reflecting the premium or penalty.

Without necessarily claiming causality to estimate the pricing power of foreign-sounding strategies, we made the four comparisons of Equation (2), all things being equal, between each of the label types of interest (Italian-sounding, French-sounding, Made in Italy and Made in France) and the fictitious label “other wines,”

mostly Californian, labeled neither as Made in Italy, nor as Italian-sounding, nor as Made in France, nor as French.

After trying different specifications, we selected as covariates consumer ratings, winery status, seven grape varieties, and 3 year classes for a total of 12 covariates (see Table 2).

6 | Results

Having obtained a good similarity of the five matched samples with respect to the 12 covariates thanks to the matching algorithm, we can proceed to compare the means of the price variables across groups, bearing in mind that the reference treatment is the “other wine” group, composed mainly of Californian wines. While we report in the Supporting Information S1: Appendix (Table A.1) the tabulation of the difference in means with the other algorithms, (Figure 2 and Supporting Information S1: Table A.2 in the Appendix) presents the difference in mean prices between different wine label categories and “other wines” using the COVnc algorithm.

The differences in means are strikingly different before and after matching, confirming that a simple comparison of mean prices on the raw treatment groups would have been misleading. In fact, most of the observed price differences before matching may be due to intrinsic wine characteristics such as grape variety, age, or quality as judged by consumers. Characteristics that may covary with label type (either true or sounding), thus confounding the effect of the latter.

According to our analysis of the matched samples, neither the Italian nor the French label could secure a price premium for the wineries using these strategies. Estimates suggest a price penalty of \$4.28 for Italian-sounding wines and \$9.70 for French-sounding wines. This penalty was quite substantial, as it applied to bottles that cost an average of \$63.08 (see Table 1).

TABLE 2 | Selected covariates for matching algorithms.

Covariates		Mean	SD
X1	Type of grape = Bordeaux	0.07	0.25
X2	Type of grape = Cabernet	0.20	0.40
X3	Type of grape = non-vintage sparkling wine	0.03	0.18
X4	Type of grape = Chardonnay	0.12	0.32
X5	Type of grape = Grenache	0.01	0.12
X6	Type of grape = Merlot	0.02	0.14
X7	Type of grape = Pinot	0.17	0.37
X8	Consumers' ratings	1.47	2.02
X9	Winery's status	0.48	0.38
X10	Year = From 2018 to 2020	0.37	0.48
X11	Year = From 2016 to 2017	0.39	0.49
X12	Year = From 2013 to 2015	0.16	0.37

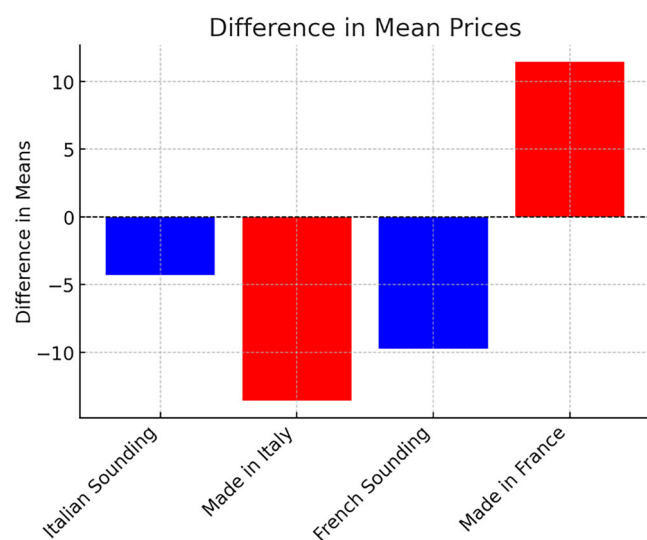


FIGURE 2 | Results: Difference in means with respect to “other wines” (COVnc algorithm). *Note:* Most of the “other wines” are from California (51%) and made from Cabernet grapes (29%). Other common origins include Australia (18%), Spain (11%), and Chile (6%).

Even for Made in Italy wines, we find a price penalty of about \$13.56. The picture is different for Made in France wines. On average, they benefit from a significant⁵ price premium of US\$11.4.

Among the different ways to segment the wine market and to identify product classes, certainly distinguishing by price ranges is relevant (Costanigro et al. 2007). Thus, a further analysis has been carried out on the differences in percentage points between the share of high (low) priced bottles across treatment groups. This is meant to provide some hints on whether the pattern observed for average prices is likely to change across price segments. For this purpose, we considered as outcome dummies for high (low) priced bottles in the highest (lowest) price tercile. Descriptive statistics are included in Figure 3 and Supporting Information S1: Table A.3 in the Appendix. Notably, a substantial share (51.74%) of Made in France wines falls into the high-price category, while only 26.64% of Made in Italy wines are classified as high-priced. In contrast, a higher percentage of Made in Italy and Italian-sounding wines belong to the low-price segment compared to Made in France wines, suggesting a potential variation in perceived value or market positioning across different origin claims.

Figure 4 reports the difference in the share of high-priced and low-priced bottles relative to “other wines” (see also Supporting Information S1: Table A.4 in the Appendix). Findings highlight a significant difference between before and after matching. While for the high-priced bottles (see Figure 4) we observe the same pattern of differences in mean price described above, a distinct trend emerges within the low-priced segment (see Figure 4). Namely, both Italian-sounding and Made in Italy wines have a smaller share of low-priced bottles compared to the other wines, while the pre-matching share of low-priced bottles was higher for Italian than for other wines. More interestingly, we observe opposite patterns for French and French-sounding wines. French-sounding wines show a smaller share of low-priced bottles than other wines, in contrast to

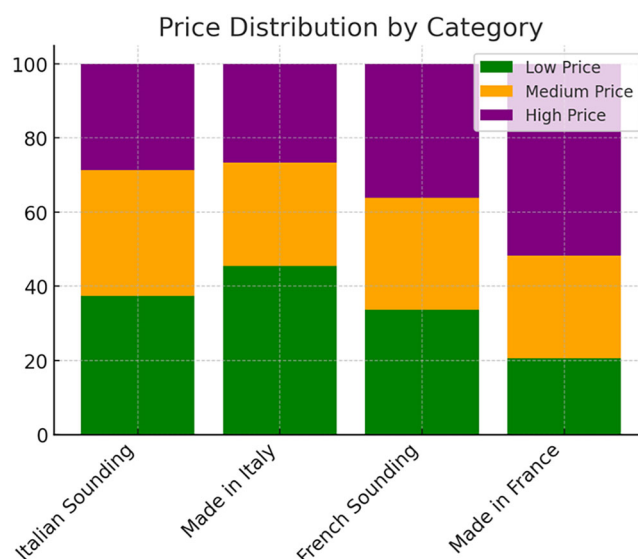


FIGURE 3 | Number and share (%) of low, medium, and high priced bottles across wine types.

the lower prices observed in the average price comparison. Conversely, we have a slightly higher share of low-priced bottles for Made in France wines, in sharp contrast to the higher price of these wines relative to the comparison group and the much lower share of low-priced bottles observed in the pre-match comparison.

7 | Discussion and Conclusion

Even in a globalized world, geographical origin remains a powerful signal of product quality (Z. G. Li et al. 2000; Usunier 2006; Magnusson et al. 2011).

However, our findings show that in the wine sector, not all origins yield the same economic returns. On the digital platforms analyzed, a French origin clearly commands higher prices—particularly in the premium segment—while Italian origin, though positively perceived, does not provide similar pricing power except in lower price ranges. This supports the widely recognized strength of France’s international positioning (Anderson and Pinilla 2020), but challenges the idea of a generalized market premium for Made in Italy products (Galati et al. 2017; Fortis and Sartori 2016).

One particularly striking result concerns foreign-sounding labels. Wines that evoke a French origin without actually being produced in France experience a price penalty, especially in high-end segments, likely due to consumer sensitivity to authenticity and perceived misrepresentation (Samiee et al. 2005). In contrast, Italian-sounding wines often outperform authentic Made in Italy wines. This “Italian sounding paradox” suggests that cultural associations with Italy—linked to craftsmanship, lifestyle, and culinary excellence—are sometimes more effectively leveraged by foreign producers than by Italian ones themselves (Donati et al. 2022; Cinotto 2012). These strategies may not be deceptive per se, especially when foreign wineries emphasize real or perceived heritage connections (e.g., an Italian surname), thus creating a narrative that blends authenticity and symbolic value (Helzer 2001; Luigi et al. 2008).

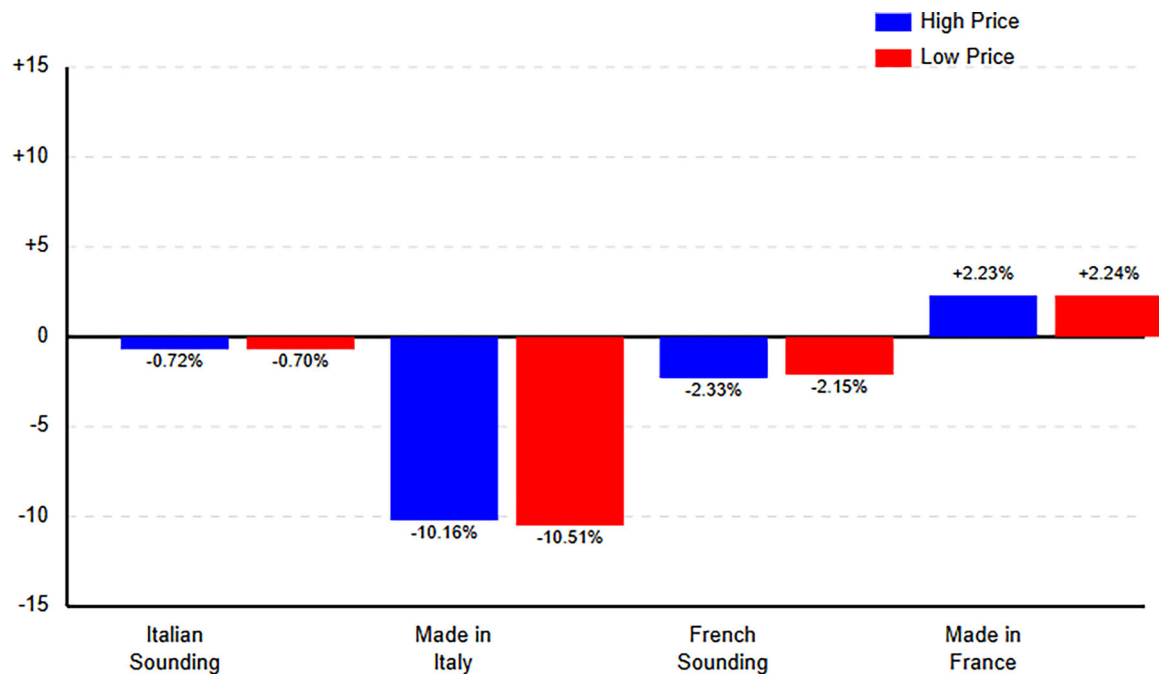


FIGURE 4 | Results: Difference in the share of high-priced and low-priced bottles with respect to “other wines” (COVnc algorithm) in percentage points.

This disparity in performance between actual and perceived origins reflects differences not only in intrinsic product quality but also in promotional capacity, branding coherence, and strategic communication. France’s strong institutional support and consistent global image likely amplify the economic value of its wine origin, while Italian producers appear less able to convert cultural capital into pricing power—an issue also raised by Ambrosetti (2022) and Vedovelli (2022) in broader discussions on Italian-sounding strategies.

Methodologically, this study contributes to literature by applying a multiple-treatment matching algorithm (Scotina and Gutman 2019), offering more robust estimates than simple pre-matching comparisons. This approach reveals nuanced dynamics across different price segments and label types, providing new quantitative evidence on the impact of foreign-sounding strategies—an area previously addressed mainly through qualitative or anecdotal insights.

The implications are significant for both managers and policymakers. For managers, the findings suggest that foreign-sounding branding may be strategically effective in mid-price segments but carries reputational risks at the high end, especially for French-sounding wines. Italian producers may need to strengthen their collective branding efforts to close the gap between real and perceived value. Authentic storytelling, emphasizing regional identity and producer heritage, could mitigate the limitations of origin effects, particularly in e-commerce contexts where consumers rely heavily on symbolic cues.

From a policy perspective, the findings call for updated labeling regulations that account for the economic and reputational impact of foreign-sounding practices. Clearer standards could help protect both consumers and authentic producers, without stifling legitimate cross-cultural branding. Moreover, as noted by Menapace and Moschini (2012) and Meloni and Swinnen

(2018), policy tools around geographical indications may need to evolve to address the complex semiotic and economic landscape of global food and wine markets.

This study has several limitations. It does not account for visual, olfactory, or tactile elements of branding (Chandler 2002), nor for information from the back label or website quality (Cho et al. 2014). Unobserved variables such as marketing budgets or distribution networks may also influence results. Finally, the focus on French and Italian wines excludes other important wine-producing countries, such as Spain, which could enrich the comparative framework.

Future research should explore how consumer education influences perceptions of authenticity in online contexts and expand the analysis to include additional countries and multi-sensory branding cues. Investigating how symbolic and cultural signals interact with origin claims could further refine our understanding of value creation in global wine markets.

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Ethics Statement

The authors have nothing to report.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are openly available in Limeg at <https://www.limeg.it/>.

Endnotes

- ¹We selected Wine.com, Virgin Wines, and Cellarmasters as representative sources for the online wine markets in the US, UK, and Australia, respectively, because of their prominent roles in importing and distributing a wide range of wines (Wine Enthusiast 2020).
- ²In both French sounding and Italian sounding wines, most bottles (more than 50% of the initial lists of Italian and French-sounding wines) use a French or Italian common noun, adjective or verb as the name of the wine (e.g., “amore”—love, in Italian or “fleur”—flower in French). This is followed by cases where the word in French/Italian refers to the winery name, grape variety name or place names.
- ³All categorical variables were transformed in dummy variables to carry out the analysis.
- ⁴In fact, there are only 10 possible different pairwise comparisons across the five types of wines. In a traditional setting with only two groups, there is only $\binom{2}{2} = 1$ possible comparison, the traditional treated controls comparison of binary treatments.
- ⁵About six times larger than the standard error of the difference in mean estimate.

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Supporting Information

Additional supporting information can be found online in the Supporting Information section.