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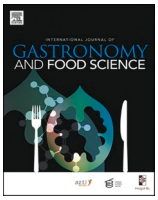

Country-of-Origin as bias inducer in experts' wine judgments - A sensory experiment in a world wine fair

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ABSTRACT

The main objective of the present study was to evaluate whether wine origin induces implicit biases in wine experts' judgments. Twenty-two wine traders from 10 different countries were asked to rate liking and to provide a sensory description of eight Pinot Noir wines from four different countries (Argentina, Brazil, France, and Switzerland) in both blind and informed conditions at the *ProWein International Wine and Spirits Fair*" 2018 edition in Dusseldorf, Germany. In the informed condition, the country of origin (COO) of the wine was provided to the participants. Our research reveals that COO bias affects wine traders. Once the COO was disclosed, the likeability ratings of wines from Argentina and Brazil dropped. The COO also inferred bias in the way assessors described/judged the wines in the three evaluation conditions: visual, orthonasal, and mouthfeel. Brazilian and Argentinean wines are often described using negative hedonic descriptors under informed conditions. The opposite trend was also observed. When assessors were aware of the origin of wines, they often described French and Swiss wines by adding positive sensory descriptors. These findings are helpful for wine consumers, producers, the gastronomy industry and for policymakers who make decisions about COO-labeling laws and export promotions.

Ethical compliance

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

1. Introduction

It is a well-recognized fact that critics and experts play an important role in shaping consumers' judgment in terms of experience goods. This is particularly true in the food and beverage industry, where the Michelin Guide for restaurants (Kiatkawsin & Han, 2019) and the Parker Guide for wine (Humphreys and Carpenter, 2018) play an important role in consumer purchasing decisions (Hilger et al., 2011; Anderson and Magruder, 2012). As experts address information asymmetries between sellers and consumers (Lizzeri, 1999), bias in product reviews can have negative welfare effects for consumers. When the reviewers in question are traders tasked with making procurement decisions at a preeminent commercial wine trade fair, their inherent biases may lead to the omission of certain deserving wines not only from a restaurant's wine list but also from the consideration of an entire country. As a consequence, stereotypes and prejudices directed towards certain wine regions can lead to the unavailability of wines possessing distinct sensory characteristics and styles for the wine and food pairing experiences recommended by chefs and sommeliers.

Since Schooler (1965) first demonstrated the influence of the country in which a product is made on its evaluation, country-of-origin (COO) effects have been the subject of many studies. Reviews of the COO literature (Verleigh and Steenkamp, 1999; Peterson and Jolibert, 1995; Keith, 2004) suggest that COO is a rather complex extrinsic cue whose effect might depend on the type of product, other available cues (e.g., price or brand), or the knowledge of the evaluator. While some studies have shown that COO impact is weak and brand becomes the determinant factor in the presence of other extrinsic cues, (e.g., Ahmed et al. (2004) for bread and coffee), Schaefer (1997) argued that COO is a

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salient cue for consumers in their evaluation of lager, especially for knowledgeable consumers. As it is the case for beer, COO has been shown to be relevant for consumers in the wine sector, especially for medium-and high-quality wines (Veale and Quester, 2009). For example, these authors demonstrated that price and COO effects were more relevant to the perception of wine quality than its actual taste. Wang and McCluskey (2010) showed that when COO information was mentioned, Chinese consumers in Beijing and Shanghai were willing to pay more for "Old World" wines than for "New World" wine. More recently, Valentin et al. (2021) reported that French and South African consumers have different representations of Chenin Blanc wines, and that providing information on the origin of the wines affected the French more than the South African participants. While COO has received much attention in the marketing literature, in economics, most trade researchers implicitly assume that consumers and producers are fundamentally objective about COO. One exception is Brooks (2003), who concluded, using data of US wine imports, that average prices are significantly affected by COO even after controlling for blind-tasted quality, varietals, age, exchange rates, and beverage industry real wage levels.

Most previous studies on wine COO effects have focused on consumer evaluation; however, may these effects be generalized to wine experts? Only a few studies have addressed this issue, such as Tamaş (2016), who reported a strong correlation between wine COO and perceived quality by Romanian winemakers and masters of wines. In a previous study (Rodrigues et al., 2020b), we examined the mental representation of wine traders from countries with different involvement within the wine industry regarding wine from producing countries with different levels of involvement in wine export markets (Argentina, Brazil, France, and Switzerland). Three main findings emerged from this study: first, the COO of wines was more important in guiding participants' representations than the category of countries the traders came from; second, participants' evocations were more precise and specific for traditional (Argentina and France) wine-exporting countries than for less traditional (Brazil and Switzerland) ones. Finally, the lack of traders' familiarity with wines from non-traditional wine-exporting countries leads to associations and beliefs related to the image of the country itself.

The next step to better understand wine COO effects is to evaluate whether wine COO information can affect experts' wine sensory perception. To address this issue, we conducted a follow-up study in the "*ProWein International Wine and Spirits Fair*" edition in Dusseldorf, Germany, where our initial study was conducted in 2018 (Rodrigues et al., 2020b). This study aimed to verify whether wine COO is a potential bias inducer of the response given by wine experts when they judge wines sensorially.

2. Theoretical framework

2.1. The concept of bias and its shaping components

The term "bias," sometimes referred to as "response bias," denotes the displacement of people's responses along a continuum of possible judgments (Greenwald and Krieger, 2006). An important body of research (Brownstein and Zalta, 2019) suggests that people can be consciously biased, but they can also act based on prejudice and stereotypes without intending to do so (Brochet, 2000; Blair, 2013). Research on prejudice and stereotype shaping bias have a long history in the disciplines of anthropology and sociology (Sumner, 1906) but it was with the masterpiece "*The Nature of Prejudice*" by Gordon Allport (1954) that solid foundations of knowledge on bias, stereotype and prejudice were built. First conceptualized by Lippman (1922) as "pictures in our heads," stereotypes are now operationalized as cognitive schemas used by social perceivers to process information about others (Hilton and von Hippel, 1996). Prejudices, on the other hand, have an affective or attitudinal dimension, as they can be defined as a predisposition to react unfavourably to a person on the basis of belonging to a class or category (Dovidio et al., 2010). Besides their cognitive functions of simplification and categorization, these components of bias generate behavioural expectations and have behavioural consequences (Rodrigues et al., 2020a). However, what do we know about these phenomena in the context of wine sensory judgements?

2.2. Implicit biases and the judgement of wines

The inherent individual traits of experts, coupled with their physical and psycho-emotional states susceptible to the impact of random, uncontrollable factors, contribute to subjectivity in the sensory evaluation of wines (Khalafyan et al., 2021). According to Allport (1954), mere exposure to a stimulus target is sufficient to stimulate categorical thinking and promote judgemental thoughts. The effects of reputation in consumer choices has been covered by several studies. Chocarro and Cortinas (2013) shows that experts' ratings have an impact on the consumers' ratings during a wine tasting, Similarly, Mueller et al. (2009) shows the influence of medals and ratings on consumer choices using a simulated retail shelf. Benfratello et al. (2009) shows that sensorial traits, the reputation of wines and producers, as well as objective variables are all important factors influencing the consumers' willingness to pay for a wine. In the domain of wine judgement, one of the most frequently cited bias inducers is the price (Lockshin and Timothy Rhodus, 1993). For example, Plassmann et al. (2008) showed that increasing the price of wine increases both subjective reports of flavor pleasantness and activity of a brain region that is involved in the experience of pleasure. Besides price, information on the back labels of wine bottles has been shown to positively influence consumer preferences, as well as emotions related to wine (Danner et al., 2017). D'Alessandro and Pecotich (2013) finds that wine novices experience difficulty in evaluating quality and that they use brand names in a limited fashion and relied mainly on COO information to differentiate the quality of wines from different origins. Implicit biases can also be negative, as demonstrated by Ashton (2014) in a study comparing American wines from either California or New Jersey. While no difference between the two wines emerged from blind tasting, providing information on the potential origin of the wines led participants to prefer the wine they believed to be from California than when the identical wine was believed to be from New Jersey, regardless of whether the wine was actually from New Jersey or California. More globally, the context in which the wine is tasted has been shown to act as a 'bias inducer.' In a recent study, Rodrigues et al. (2023) showed that wines were described differently according to the presence and type of flower arrangement (*delicate* or *robust* color pattern of flower arrangements) present in the room during wine tasting. Tannat wines, known for their *robust* character, were clustered together with Pinot Noir wines (normally sensorially assumed as more "delicate"), when tasted in the presence of *delicate* flower arrangements and were described as more *delicate* than when the same wine was tasted in a control room where no flower arrangement was present. Our work is also related to Mueller and Szolnoki (2010) that shows how different external attributes affect informed hedonic liking and purchase intent for wine by combining a blind hedonic test with an informed tasting of the same wine packaged in different product concepts.

3. Objective and hypotheses

The main objective of this study was to evaluate whether wine COO induces implicit biases in wine experts' judgements. Wine professionals from 10 different countries were asked to rate liking and to provide a sensory description of eight Pinot Noir wines from four different countries in both blind and informed conditions. In the informed condition, the COO of the wine was provided to the participants. Our hypotheses were:

Table 1
Selected Wine samples.

Wine	*Vintage*	*Country-of-Origin and Region/AOC*	*Retail price USD*	*Award*
Trapiche Costa & Pampa Pinot Noir	*2015*	***Argentina**/Buenos Aires*	*18,65*	*Gold Argentine Wine Awards; Silver International Wine Challenge*
Aniello 006 Riverside Estate Pinot Noir	*2015*	***Argentina**/Rio Negro*	*18,38*	*93 pts. - James Suckling*
Miolo Reserva Pinot Noir	*2015*	***Brazil**/Campanha*	*16,73*	*Bronze Brazilian Wine Challenge; Gold Sakura Japanese Women*
Ana Cristina Villaggio Bassetti - Pinot Noir	*2015*	***Brazil**/Santa Catarina*	*25,00*	*Best Pinot Noir of Brazil; 91 pts Adega guide*
Domaine De L'Aigle Pinot Noir	*2015*	***France**/Pays de la Haute Vallée de l'Aude*	*11,48*	*Gold Mondial des Pinots*
Domaine Bourgogne-Devaux: "La Dalignière"	*2015*	***France**/Hautes-Côtes de Beaune*	*18,30*	*Gold Concours International de Lyon*
Alte Reben Eisenhalde Pinot Noir GVS Schachenmann	*2015*	***Switzerland**/Schaffhausen*	*20,00*	*Gold Grand Prix du vin Suisse*
Domaine du Chambet Pinot Noir	*2015*	***Switzerland**/Geneve*	*15,95*	*Silver Mondial des Pinots*

H1. COO is a reliable predictor of wine liking, even after controlling for the intrinsic likeability of the wine.

H2. The overall similarity between wines is affected by the tasting condition.

H3. Negative hedonic descriptors are used to describe wines from New World wine-producing countries when the origin of the wines is disclosed, whereas positive hedonic descriptors are used to describe wines from Old World wine-producing countries.

4. Research methodology

4.1. Participants

A total of 22 wine traders were randomly selected from the 201 wine traders who participated in Rodrigues et al., 2020b to join the wine sensory evaluation panel. To avoid the effect of prior information in the evaluation of the wines, the experimenter who conducted the tests for the first study did not conduct the tests for the second study. This experimenter invited the participants to join a panel to evaluate the wines of his "colleague", mentioning that his colleague (a confederate) was conducting another kind of academic experiment with different wines.

4.2. Wines

Eight commercial Pinot Noirs (Table 1) were used in this study. Two samples were selected from each country: Brazil, Argentina, France, and Switzerland. All wines were from the same vintage, aged one year in oak barrels, and all had medals and at least one expert score above 90. They were all in a similar price range. Wine bottles were stored in a climate-controlled dark cellar maintained at 11 °C. The day before the session, they were moved to a temperature room (20 °C). Finally, on the day of the session, the panel leader verified that the wines were free of cork taint and oxidation smells.

Table 2
Descriptive statistics for likeability for wines under the two conditions.

	Mean Likeability Blind	Standard Deviation Likeability Blind	Mean Likeability COO	Standard Deviation Likeability COO
ARG - Aniello 006 Riverside Estate Pinot Noir	4.23	1.48	4.13	1.32
ARG - Trapiche Costa & Pampa Pinot Noir	3.86	1.52	3.41	1.44
BRA - Ana Cristina Pinot Noir	4.09	1.57	3.86	1.25
BRA - Miolo Reserva Pinot Noir	4.23	1.15	4.00	1.41
FRA - Domaine De L'Aigle Pinot Noir	4.82	1.33	4.64	1.47
FRA -Domaine Bourgogne-Devaux: "La Dalignière"	3.91	1.27	4.77	1.27
SWI - Alte Reben Eisenhalde Pinot Noir GVS Schachenmann	5.05	1.29	5.36	0.90
SWI - Domaine du Chambet Pinot Noir	4.68	1.25	4.68	0.95

4.3. Procedure

The evaluations were conducted individually, face-to-face, during two successive days at the *ProWein Trade Fair 2018* in Düsseldorf, Germany. The samples (25 mL) were poured into INAO-approved wine glasses and labeled with three-digit random codes. Wines were served according to a Williams Latin Square design to balance presentation order. Evian water and unsalted crackers were available for palatal rinsing. Participants were asked not to swallow the samples but to expectorate into wine spittoons.

Participants had to perform a liking and free description task in both blind and informed conditions. On the first day, participants performed the liking and free description tasks without information on the wines (blind condition). On the second day, they received information on their wine COO (informed condition). It is noteworthy that no other information (e.g., terroir, bottle, label design, producer name, or price) was provided to the participants in the experiment.

For the liking task, samples were served monadically, and participants were asked to indicate how much they liked each sample using a seven-point hedonic scale ranging from "*I do not like it at all*" to "*I like it very much*". After completion of the liking evaluation, eight new glasses of wine with the same wines but different codes were served monadically, and the participants were asked to describe the wines first visually, then by orthonasal olfaction alone, and finally in the mouth. At the end of the session, the participants were invited to complete a short questionnaire about their wine preferences and key demographic information. All the tasks were performed in English (the official language of the wine fair).

4.4. Data analysis

For the liking evaluation task, the mean ratings across the treatment cells (condition of information × COO) were first calculated. Subsequently, regression analyses were performed to investigate the role of the factors affecting liking, using the methodology described by Depetris-Chauvin and Di Vita (2023). The descriptive statistics for the hedonic liking are reported in Table 2 below.

Table 3
COO likeability bias: Regression analysis with liking scores in the informed condition as dependent variable and liking scores in the blind condition and COO as explanatory variables. Control variables were participants and characteristics of the wines.

	Model 1 in levels (without controls)	Model 2 in levels with controls	Model 3 in differences (panel fixed effects)
Argentina	−0.80***	−0.95***	−0.61**
Brazil	−0.69***	−0.90***	−0.62**
Switzerland	0.10	0.03	−0.22
Blind liking	0.43***	0.42***	
Own country		−0.17	0.07
Years of experience		−0.01	
Gender		0.11	
Price		0.04	
R-square	0.33	0.34	0.04
Adjusted R-square	0.31	0.31	0.02
Observations	176	176	176

For the free description task, descriptors that referred to the same semantic universe were combined to form categories through a triangulation categorization process. Three experts in the sensory evaluation of wines participated in this step, each forming their categories separately. The categories of the three researchers were then compared, and the final categories were consensually decided. The resulting categories were sorted based on the nature of the descriptors: visual, orthonasal, and oral perceptions. For each type of assessment, correspondence analysis (CA) was performed on wine using a category frequency table. All the multidimensional analyses were performed in R using The FactoMineM Package (Lê et al. (2008).

5. Results and discussion

5.1. Effect of bias on liking evaluation

Two different approaches were used: ordinary least squares in levels and panel data regression. Both studies provided the same qualitative results.

For the regression approach in levels, we run the following empirical model:

$$Likeability_{ijk2} = \alpha + \beta * Likeability_{ijk1} + \boldsymbol{\gamma}' CountryInformation_k + \boldsymbol{\delta}' X_i + \theta' Z_j + \mu_{ij} \quad (1)$$

The dependent variable of the model is the liking score wine trader i gave to wine j coming from country k in the informed condition (i.e., when the information on the COO of the wines is revealed). The first explanatory variable was the liking score assigned to the same wines in the blind condition. This variable captures wine traders' intrinsic likeability of that specific wine. The second variable, country information, is the main explanatory variable in our analysis and captures information on the COO of wines provided in the informed condition. This is a vector of three dummy variables capturing the "Argentinean", "Brazilian, and "Swiss" effects (relative to France). A positive (negative) γ implies a favorable (unfavorable) country bias effect. In our analysis, we also controlled for a vector X_i of wine traders' characteristics, including years of experience in the wine industry, gender, and whether the person came from the same country as one of the wines. Finally, we controlled for wine characteristics (Z_j) that could not be fully captured by the liking score in the blind tasting (vintage year, method of production, terroir, medals and experts' scores, price, bottle and label design, producers' name, etc.). Although the wines were selected considering all these criteria, there was some variability; therefore, we controlled for these variables. The results for the variables of interest are listed in Table 3.

The first regression shows the results for a specification of the model without any control variables, whereas the second regression presents the results when we consider all our control variables. Our experiment shows a clear negative bias against Argentinean and Brazilian wines among wine traders in our sample. In the second specification, the liking score of the wines for both countries decreases by almost one point when information on the COO of the wines is revealed and after controlling for the other explanatory variables. This result is statistically significant at the 1% level for both countries. However, the bias is not significantly different from zero for Swiss wines. Among the control variables, the liking score obtained in the blind condition was the only one that seemed relevant. The estimated coefficient was positive and significantly different from zero at the 1% level. This implies that, despite the bias created by the wine COO, the wine traders could still partially recognize the intrinsic likeability of the wine.

A potential problem with a cross-sectional regression approach is the difficulty in accounting for all the relevant control variables. This could have created omitted variable biases. However, the panel structure of our data allows us to control for individual and wine-fixed effects. Model 3 specification presents the results of the estimation of the differences. In this case, the dependent variable was the change in the likeability score between informed and blind conditions. The explanatory variables to explain the potential change in scoring were the COO of the wines and whether the wines came from the participants' country. Once again, the results show a significant negative bias against wines from Argentina and Brazil in comparison with French and Swiss wines, which are not affected by the provision of this information.

Our econometric results provide partial empirical evidence in favor of our first hypothesis. When compared to French wines, the COO negatively affects wine liking scores regarding wines of other countries, even after controlling for the intrinsic likeability of those wines. These results, however, only apply to the New World producing countries in our sample but not to Switzerland, the other Old World producing country in the study.

5.2. Effect of bias on sensory and hedonic description

Three separate correspondence analyses were performed for the visual, orthonasal, and mouthfeel assessments in each testing condition (blind vs. informed).

5.2.1. Visual assessment

The first two dimensions of the CA explain 72% of the variance in the blind condition and 80% of the variance in the informed condition (Fig. 1a and b).

In the informed condition (Fig. 1b), the wines are clearly separated in the New World (left side–the overlap among BRA1, BRA2, ARG1, and ARG2) described as being rather "brown", "aged", "orange" or "light", "pale low intensity" vs. Old World (right side – the overlap among SWI1, SWI2, FRA1, and FRA2) wines described as being "beautiful", "purple", "deep", "good", "fine tears", and "dark" compared to the blind evaluation condition (Fig. 1a). The effect of this information is particularly striking in French wines: when tasted blind, FRA2 is overlapping New World wines.

This pattern partially validates our second hypothesis. For Old World wines, we may see an increase in within-country similarities (FRA1-FRA2; SWI1-SWI2) and between-country dissimilarity (France and Switzerland) in the way assessors describe the wines. This is less clear for New World wines, where an overlap between Argentinean and Brazilian wines has been observed. Regarding Hypothesis 3, our results show a clear prejudice effect for wines FRA1 and ARG2. When blind-tasted, FRA1 was described along ARG2 as being "thin," "bright" and "light." When knowing the origin of the wines, participants described the same French wine sample as being still "bright", but positive wine descriptors were added to their descriptions, such as "ruby" and "good", replacing "thin" and "light".

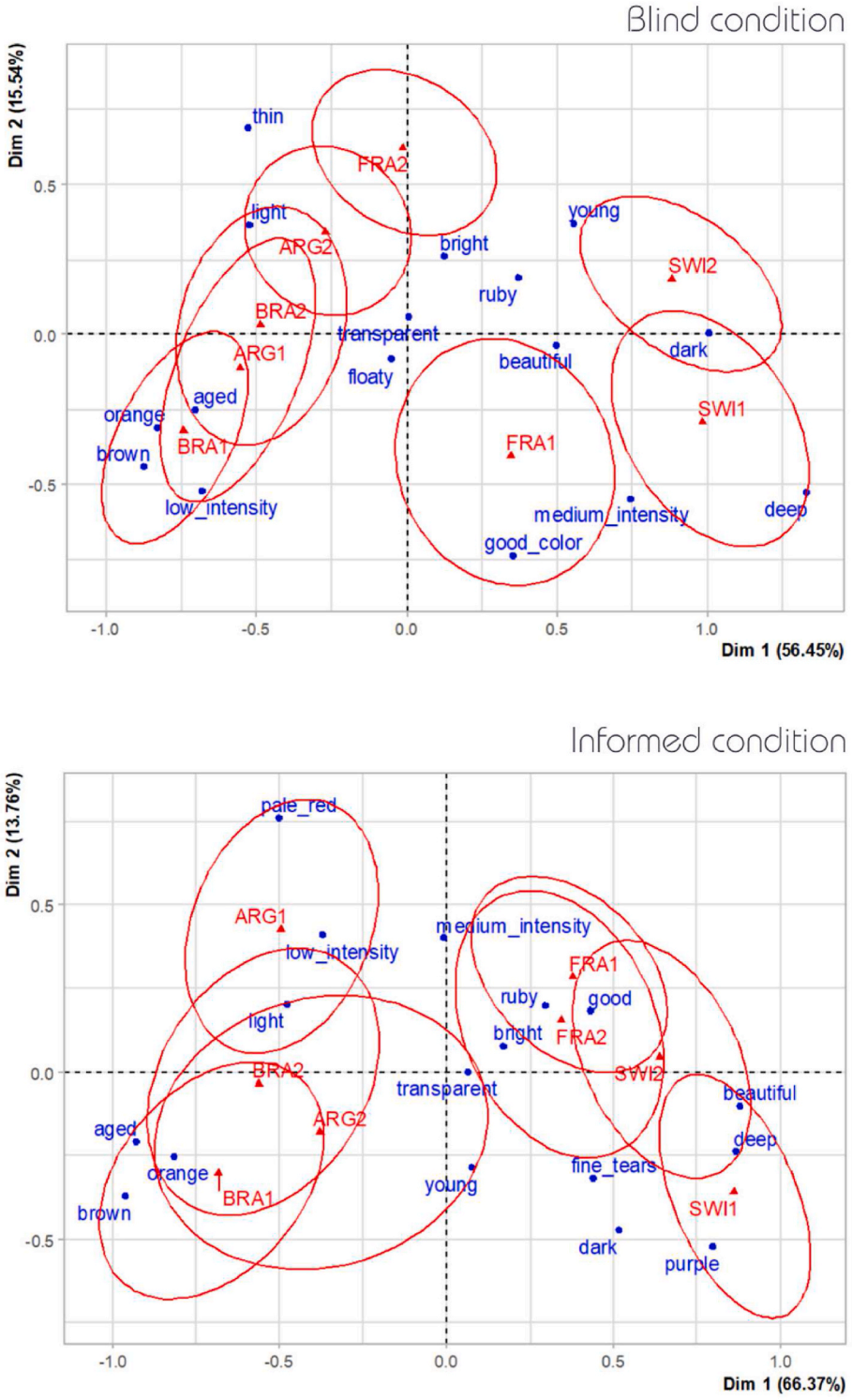

Fig. 1. Correspondence Analysis of the visual appearance of the eight wines (ARG1 and ARG2 - Argentina; BRA1 and BRA2 – Brazil; FRA1 and FRA2 – France; SWI1 and SWI2 – Switzerland) assessed in the a) blind condition (participants did not know the origin of the wines) and b) informed condition (participants were aware of the origin of the wines they were tasting). Only variables >10% of frequency of elicitation were considered for the CA.

5.2.2. Orthonasal assessment

The first two dimensions of the CA explain 51.20% of the variance in the blind condition and 52.37% in the informed condition (Fig. 2a and b). Again, we observe a clearer separation between old world wines and new world wines in the informed condition than in the blind one.

With respect to Hypothesis 2, an increase in within-country similarity in the informed condition is only observed for Swiss (SWI1 and SWI2) and Argentinean (ARG1 and ARG2) wines. Surprisingly, the results were contrary to our initial hypothesis for Brazilian and French wines (these later ones were assessed as similar in the blind condition), and we can observe a decrease in within-country similarities for these wines.

As for hypothesis 3, we may observe an important effect of bias for the judgement of both Brazilian (BRA1 and BRA2) and for one of the

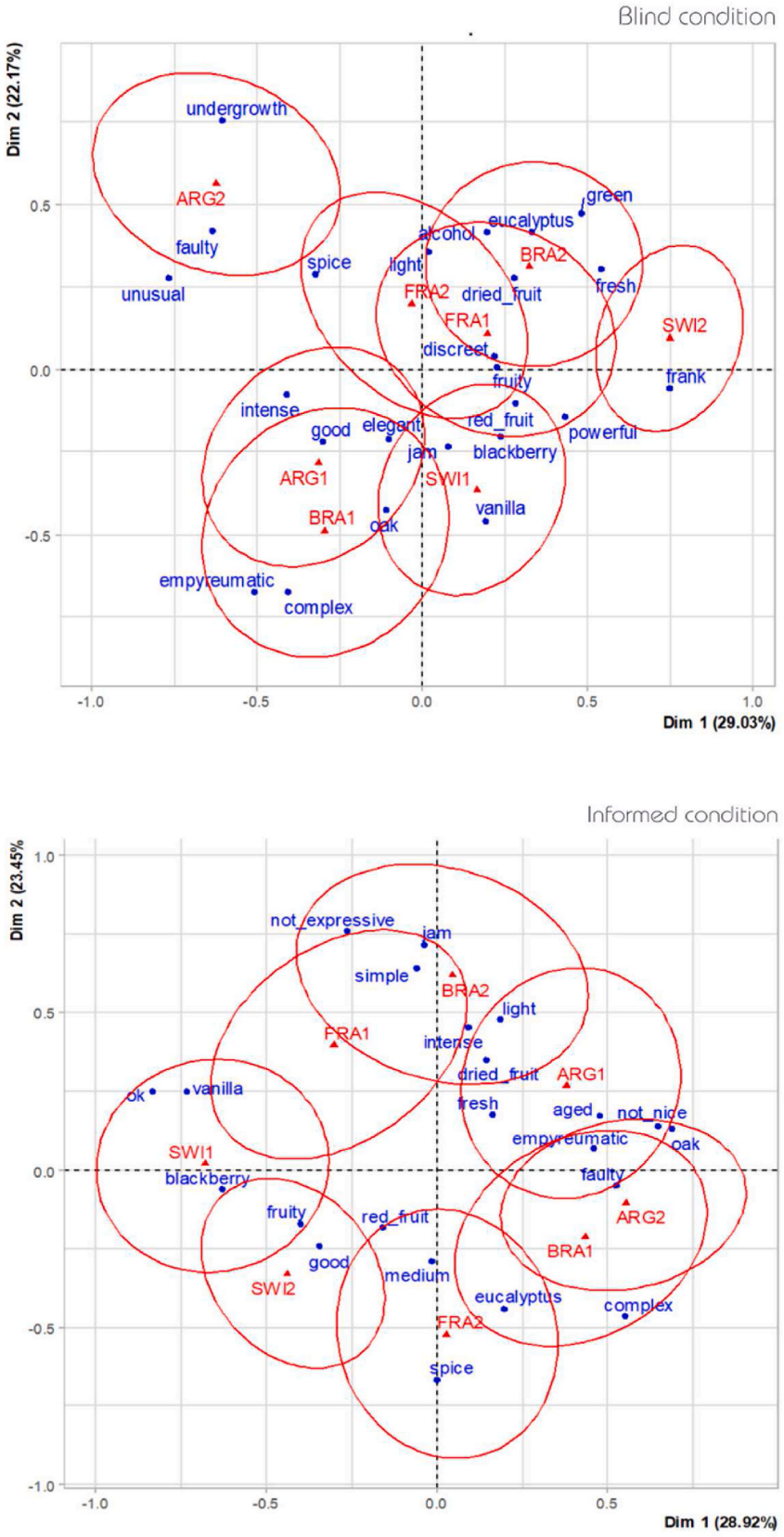

Fig. 2. Correspondence Analysis of the orthonasal evaluation of the eight wines (ARG1 and ARG2 – Argentina; BRA1 and BRA2 – Brazil; FRA1 and FRA2 – France; SWI1 and SWI2 – Switzerland) assessed in the a) blind condition (participants did not know the origin of the wines) and b) informed condition (participants were aware of the origin of the wines they were tasting). Only variables >10% of frequency of elicitation were considered for the CA.

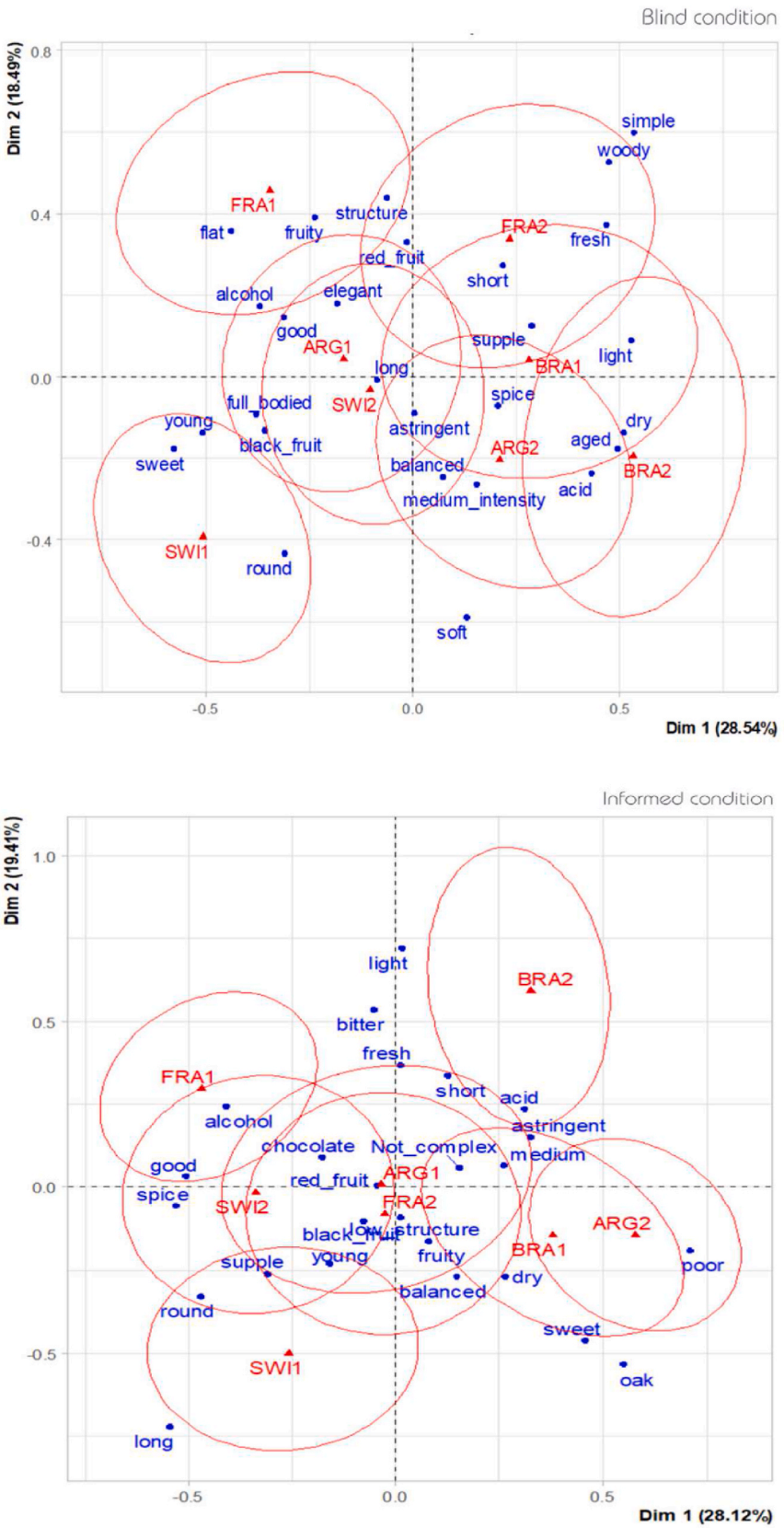

Fig. 3. Correspondence Analysis of the in-mouth evaluation of the eight wines (ARG1 and ARG2 – Argentina; BRA1 and BRA2 – Brazil; FRA1 and FRA2 – France; SWI1 and SWI2 – Switzerland) assessed in the a) blind condition (participants did know the origin of the wines) and b) informed condition ((participants were aware of the origin of the wines they were tasting). Only variables >10% of frequency of elicitation were considered for the CA.

Argentinean wines (ARG1). In the blind condition, ARG1 and BRA1 were described as "good" and "oak, whereas in the informed condition, they were described with negative descriptors such as "aged", "not nice", and "faulty".

5.2.3. Mouthfeel assessment

The first two dimensions of the CA explain 47.03% of the variance in the blind condition and 47.53% in the informed condition (Fig. 3a and b).

During the mouthfeel assessment, we observed that the similarity among wines was not affected by the tasting condition, contrary to our second hypothesis. Wines from the same country did not converge under the informed condition. However, with the exception of FRA2 and ARG1, which project in the middle of the CA space, a division of wines following their place of origin is observed (Old World in the left part of the plot; New World in the right side of the plot). Interestingly, the ARG1 wine when blind tasted was clustered amongst Old World wines, and closer to SWI2, being described as "long," "good," "elegant" and "full bodied." When tasted in the informed condition, the same wine was described as having "low structure," "not complex," "short," "medium," and "red fruit." The other Argentinean sample (ARG2) in the blind condition was described as being a "balanced" wine, while in the informed condition it was described as a "poor" wine. Balance is a sensory descriptor often used to describe the quality of wines (Charters and Pettigrew, 2007), so the fact that the same wine is described as "balanced" in the blind condition and "poor" in the informed condition suggests an implicit biased behavior against New World wines, particularly against Argentinean wines. Both Brazilian wines were also object of prejudice, even if lighter prejudice seemed to occur, when compared to their Argentinean counterparts. Despite the facts the Brazilian did not receive any hedonic descriptor associated to lower quality wines in the informed condition, the wines were often described as being "light." "Light," was recently reported by Rodrigues et al. (2023) as a descriptor that predicts less likeability of wines during mouthfeel wine judgements. In that study, the authors demonstrated that assessors preferred red wines with a more "robust" or "structured" sensory profile more than those with a more "light" or "delicate" profile.

6. Conclusion

The main objective of this study was to evaluate whether wine origin induces implicit biases in wine experts' judgments. Wine trade professionals from ten different countries were asked to evaluate their liking and to provide a sensory description of eight Pinot Noir wines from four different countries in a blind and informed condition. In the informed condition, the COO of the wine was provided to the participants.

Our research reveals that COO bias affects wine traders. Once the origin nation was disclosed, likeability ratings for the same wines from Argentina and Brazil dropped. The COO also inferred bias in the way assessors described/judged the wines in the three evaluation modes, namely, visual, orthonasal, and mouthfeel. Brazilian and Argentinean wines are often described using negative hedonic descriptors under informed conditions. The opposite trend was also observed. When assessors were aware of the origin of wines, they often described French and Swiss wines by adding positive sensory descriptors. Our results are comparable to the findings of Boon and Foppiani (2019), who found that online reviews by wine experts use different languages to describe wines from different countries. According to the authors, expert reviewers may have bias based on their level of knowledge and/or interest in particular countries.

To our knowledge, this is the first time that this kind of research has been conducted at the most significant wine trade show, where millions of dollars in wine deals are made. Previous research on wine sensory bias has largely focused on consumers or wine review critics, whose statements can largely affect consumers' views on the purchase intentions of wines. Wine traders comprised our panel of experts because they have a direct impact on the local availability of wines from other countries through their selections (Villanueva et al., 2023). Consequently, the fact that wine traders are susceptible to COO bias may contribute to pricing discrepancies between wines of comparable quality but from different origins. These findings are helpful for wine consumers, producers, the food service industry, and for policymakers making decisions about COO-labeling laws and export promotions.

Our work has a number of limitations. First, it is important to note that correspondence analysis (CA) is an interdependence technique aimed at depicting associations between wines and descriptors, and some of the descriptors used by the experts relate to aesthetics (e.g., structured, not-complex, round, balanced, etc.), which are more subjective than sensory attributes of color, taste, flavor, and mouthfeel. In this respect, the primary goal of summarizing data with CA was to generate a perceptual map rather than to make predictions. Second, the current study is exploratory in nature due to the small sample size of 22 wine traders at a wine show. Despite their precise assessment of Argentinean and Brazilian wines, there is a gap between their expectations and connoisseurship and consumer perceptions and preferences. In this regard, additional study should be conducted with a larger and more diverse sample of wine experts to understand how their perspectives on wines influence consumer decisions.

Implications for gastronomy

Our paper studies country of origin biases in wine traders in the context of the largest commercial wine trade fair. The existence of these biases reduces the international trade and local availability of wines from specific regions. Some of these wines have unique sensory profile and styles. As a result, these biases have negative consequences for wine food pairing by chefs and sommeliers.

CRediT authorship contribution statement

Nicolas Depetris Chauvin: Conceptualization, Data curation, Formal analysis, Funding acquisition, Methodology, Project administration, Resources, Software, Supervision, Validation, Writing – original draft, Writing – review & editing. **Dominique Valentin:** Conceptualization, Formal analysis, Methodology, Resources, Software, Supervision, Writing – original draft. **Jorge Herman Behrens:** Conceptualization, Formal analysis, Funding acquisition, Project administration, Writing – original draft, Writing – review & editing. **Heber Rodrigues:** Conceptualization, Data curation, Formal analysis, Funding acquisition, Methodology, Writing – original draft, Writing – review & editing.

Declaration of competing interest

None.

Data availability

Data will be made available on request.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ijgfs.2024.100883.

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