

## Padua 2017 Abstract Submission

### I want to submit an abstract for:

Conference Presentation

### Corresponding Author

Florine Livat

### E-Mail

[florine.livat@kedgebs.com](mailto:florine.livat@kedgebs.com)

### Affiliation

KEDGE Business School - Bordeaux campus, France

### Co-Author/s

Name	E-Mail	Affiliation
Jean-Marie Cardebat	Université de Bordeaux, France	jean-marie.cardebat@u-bordeaux.fr
Julian Alston	University of California, Davis, USA	julian@primal.ucdavis.edu

### Keywords

wine, appellation of origin, reputation, substitution, cointegration

### Research Question

This paper seeks to assess whether wine consumers understand and use the information conveyed by PDO, in seeking to identify which wines are perceived as substitutes.

### Methods

Analysis of price transmission relationships thanks to a time series approach. VECM applied to Bordeaux wine prices (monthly prices), to analyze substitution relationships among Bordeaux PDOs over the period 1999–2013.

### Results

Choice among Bordeaux appellations primarily according to semantic elements (i.e., treating similar names as carriers of reputation). The tradeoffs are driven by PDO names, more than terroir or price.

### Abstract

Wine is perhaps the most highly differentiated of all consumer goods and wine is a typical experience good, creating information problems. This paper seeks to assess whether wine consumers understand and use the information conveyed by Protected Designations of Origin (PDOs). The approach consists in seeking to identify which wines are perceived as substitutes by consumers, and the roles of PDOs in product differentiation: if wines from two different PDOs are perceived as perfectly substitutable by consumers, then they have missed their target of differentiation; alternatively if the system of PDOs conveys complete information to consumers then each PDO would be seen as distinct, and different PDOs would be complementary to one another in differentiating wines. Although cross-price elasticities that can be derived from demand equations might seem to be the most natural measure of cross-price effects, the data necessary to generate good estimates are usually difficult to obtain. Another, more tractable approach for investigating substitution relationships is based on statistical characteristics of price series. In this article, we focus on analysis of price transmission relationships, a classical topic in agricultural economics, as a way of investigating the nature and extent of substitution among differentiated products. A time-series econometrics approach, specifically a Vector Error Correction Model (VECM), is applied to an exhaustive and unique database on Bordeaux wine prices, to analyze substitution relationships among Bordeaux PDOs over the period 1999–2013. This kind of modeling is appropriate to detect substitution among differentiated products when supply is exogenous, which is reasonably the case for wine. In this case, price movements are mainly caused by demand-side factors. Some coefficients of the cointegrating vectors within the VECM are the long-run elasticities of price transmission. They will signify whether Bordeaux wine consumers regard Bordeaux appellations as substitutes.

The wine market employs several different types of quality signals on wine labels: individual and collective ones, private and public ones. This proliferation and even redundancy of information, labels and appellations can induce consumers' lack of trust or misunderstanding. While the economic literature recommends using quality signals as instruments for mitigating information asymmetry, the proliferation of such signals generates information costs for consumers. As a consequence, it can be rational for the consumer to remain at least somewhat uninformed because of the costs of information, primarily opportunity costs of information processing, especially in the food industry.

There are 16 grand vineyard areas in France, with 357 Appellations of Origin (AOs) for French wines, including 57 just in the Bordeaux region. Our hypothesis is such a large number of AOs represents too much information for the typical consumer and that AOs, as quality signals, are too complex and difficult for most consumers to process. If so, consumers will use characteristics other than AOs to distinguish between wines and hence will treat some wines coming from different appellations as (quasi) perfect substitutes. To test this conjecture we investigate the cointegrating vectors among a set of 11 price series for Bordeaux red wines, provided monthly by a trade body that records all the transactions among wine producers and wine merchants.

The main issue is identifying cointegrated prices, i.e. in our case the wines that belongs to the same cointegrating vectors, and are potential substitutes. The necessity to incorporate a priori information to identify cointegrating vectors and permit them to be given an economic interpretation has been stressed in the econometrics literature. We propose different theoretical a priori restrictions that we impose and test empirically. Specifically, under the hypothesis that consumers identify as substitutes groups of wines with similar features, we will test three alternative hypothesis about the basis for that grouping of wines among cointegrating vectors:

(1) similar terroir, (2) price proximity, and (3) semantic closeness.

According to the terroir hypothesis (1), consumers regard as substitutes wines that have similar intrinsic properties. Specifically, each AO is associated with a given terroir and regulations over its vinicultural practices. Hence, we can postulate that consumers group together and perceive as substitutes appellations that use similar blends of varieties and are close geographically (i.e., with similar soil and weather conditions). This hypothesis presumes that consumers are well informed or that they are able to identify the quality signals conveyed by the AOs and to use them as intended. The terroir hypothesis relies on efficient signaling, associated with low information costs, more than on full information.

Hypothesis (2) proposes that consumers use price to compare wines. In other words, wines that are similar in price will be considered as able to satisfy similar wants. Price is often the main source of information for ill-informed consumers, especially for experience goods like wine. This means indirectly that consumers do not use the other quality signals. The price proximity hypothesis relies on high information costs associated with wine market quality signals.

Hypothesis (3) emphasizes reputation as a key variable in wine markets. We consider here that the consumer compares AOs according to their names. Sharing a name appears to be a mechanism for informational leverage, as in the case of brand extension or of umbrella branding, or reputation spillover. Consumers might consider that two appellations sharing a common word should also share some quality characteristics. This hypothesis suggests that consumers are not well-informed by other signals and that they use something simpler, i.e. less costly in terms of information processing.

According to our cointegrating analysis of price series, the semantic hypothesis is accepted while both the terroir hypothesis and the price hypothesis are rejected. The results from estimating the normalized cointegrating vectors confirm substitution relationships. It seems, therefore, that consumers assess and choose among Bordeaux appellations primarily according to semantic elements (i.e., treating similar names as carriers of reputation). Substitution exists and there is a kind of competition among Bordeaux wines but the tradeoffs are driven by names, more than terroir or price. An intriguing finding here is that intrinsic characteristics of wines, associated with terroir and translated by the appellation of origin, do not allow consumers to identify wines as substitutes. This suggests that appellations of origin do not convey information efficiently. To account for this finding, we suggest that, on the demand side, processing costs associated with these quality signals are too high to allow them to be used by most consumers to infer wine quality. As a consequence, it seems these signals are not being used by consumers in the ways intended by producers in devising the appellations. This result confirms that the current AOs, which may well serve a small minority of cognoscenti among producers and consumers, are too complex to address the broader informational issue in wine markets.

In such a context, the return on investing in the quality signals is not certain and incentives to leave the appellation can emerge. On the supply side, this competition means that the rents associated with the certification of origin can be dissipated. An implication is that some appellations could merge and use more generic names,

meaning less horizontal differentiation, making the full set of appellations easier to understand. On the demand side, a reduction in the number of appellations would decrease the costs associated with acquiring information and processing the signals.

The findings suggest consumers and producers would benefit from a simplification of the 'Protected Designation of Origin' system that might be based sensibly on the merger of some appellations that have similar names. This finding could be extended to other wine regions or to other highly differentiated agricultural products, like cheese, both in France, and in other countries (e.g., Spain, Italy). It might provide a basis for some policy reforms to provide more useful information to consumers more economically.