AMERICAN ASSOCIATION OF WINE ECONOMISTS

AAWE WORKING PAPER No. 3

Editor
Victor Ginsburgh

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April 2007

www.wine-economics.org

AAWE
Working Paper No. 3

How Do Consumers Use Signals to Assess Quality?

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We thank our colleagues at CEREBEM, CES-TEAM, OMI and seminar participants at the Enometrics XII Conference in Macerata (Italy), and at the 3rd International Wine Business & Marketing Research Conference in Montpellier (France) for helpful comments and suggestions.

Abstract

This article analyses the way some 6,000 European wine consumers, both connoisseurs and non-connoisseurs, use a set of available signals (price, umbrella branding, goodwill, past consumption) to assess the quality of Bordeaux wines where price is the main source of information on quality. Connoisseurs use this signal less intensively than non-connoisseurs. Price represents a substitute for umbrella branding where consumers are not aware of who is beneath this umbrella, and where this signal is thus of no help to them. This could explain why such wines tend nowadays to lose market share in favor of branded wines that are easier to evaluate.

Key Words: Quality signals, perceived quality, Bordeaux wines.

JEL Codes: D12, L15, L66

1. INTRODUCTION

In this article, we analyse the way some 6,000 European wine consumers, according to whether they are connoisseurs or non-connoisseurs, use a set of available signals (price, umbrella, goodwill, past consumption[1]) to assess the quality of Bordeaux wines. The question raised is the following: how do consumers assess quality when information is costly to acquire, when a good consists mainly of what economists call experience and credence characteristics, that is to say characteristics that are respectively discovered or not discovered after the product has been consumed? Do they use all available quality signals? How do they combine them to discover quality?

Understanding the way consumers learn quality has been an important issue both in economic literature[2] and marketing literature at least since Akerlof (1970) showed that a market may disappear when consumers are not able to assess accurately the quality of the good supplied. To induce consumers to buy their products, producers of complex goods send quality signals, such as the price of the product, a given level of advertising expense, its brand name or a specific warranty, etc. (see Kirmani and Rao, 2000 for a detailed review of literature). According to the economic theory of signal, the cost of signalling borne by the producer is intended to convince the consumer that the good supplied is of a high quality (see Spence, 1973, and Nelson, 1974, among others). Furthermore, a repeat purchase mechanism is expected to offset the initial signalling expenditure. Whereas for Ippolito (1990), the commitment to quality is proportional to the cost of signalling, a considerable volume of empirical literature casts doubt on whether there is in fact a robust relationship between the

[1] Past consumption is to be seen more as a potential source of information on quality rather than a quality signal.

[2] The term “reputation” used in economic literature is equivalent to that of “perceived quality” used in marketing. Both expressions refer to the same concept of expected quality.

signal itself and the level of ‘objective’ quality as released for instance by consumer reports (see for instance Gerstner, 1985 in the case of price; Caves and Greene, 1996 and Thomas et al., 1998 in the case of advertising).

The level of perceived quality, defined by Zeithaml (1988, p. 3) as “the consumer’s judgment about a product’s overall excellence or superiority”, is supposed to be based on either a single signal or a variety of quality signals (Schiffman and Kanuk, 2004). A popular issue in marketing literature is to discover what types of quality signals are used by consumers to infer quality, while other articles strive to assess the average intensity with which consumers use the relevant signals. Empirical research on consumer responses to multiple signals is prolific. However, available studies do point in different directions and the way signals are combined by consumers to infer quality remains unclear (see Rao and Monroe, 1988 for a review of literature). For example, classical hypotheses, according to which perceived quality would be a monotonic increasing function of price and/or advertising expense, have been rejected in several studies. By way of illustration, Kirmani (1990, 1997) shows that excessive expenditure suggests to consumers that the firm is desperate. In this case the relationship between advertising expenditure and perceived quality is not monotonic and exhibits an inverted U-shape. As for Jones and Hudson (1996), they show that price does not act systematically as a signal in the consumer’s mind, but has a dual role. In particular, there is a critical price above (or below) which price is (or is not) used as a quality signal.

In the case of wine, consumers mainly rely on the label to infer quality (Gluckman, 1990). Price (Lockshin and Rhodus, 1993) and awards (Orth and Krška, 2002) also seem to act as major quality signals. However, the way these different information sources are used remains unclear.

To better understand the way consumers combine signals (as substitutes or complements), this paper analyses the intensity with which they use the price (the main signal here) according to several factors: consumer's knowledge of wine (connoisseur, non-connoisseur), country of origin (a proxy for cultural differences) and the intensity with which they use other available signals, such as a collective brand name or umbrella, goodwill, and their past consumption experiences. All intensities used in this application have been estimated from a rich dataset according to an econometric methodology developed earlier by Gergaud and Livat (2005).

The layout of this paper is the following : Section 2 presents the theoretical and empirical background; Section 3 details the empirical strategy; Section 4 presents the econometric analysis and Section 5 draws some conclusions.

2. SIGNAL USE: THEORETICAL AND EMPIRICAL BACKGROUND

This section is concerned with the following questions: do all consumers use quality signals in the same way[3] ? If not, what factors affect the way they make use of available information on quality? Two main factors emerge in the literature: cultural norms and beliefs and knowledge of the product.

2.1. Impact of cultural norms and beliefs on signal use

Psychologists show that cultural norms and beliefs are powerful forces shaping consumers' perceptions, dispositions and behavior (Triandis, 1989; Markus and Kitayama,

[3] The strategical use of signals by producers is beyond the scope of this section.

1991). In international marketing, many authors see culture as an important factor (Usunier, 2000; Hofstede, 2001). Hofstede (2001) developed a model that identifies four primary dimensions to assist in differentiating cultures: Power Distance, Individualism, Masculinity, and Uncertainty Avoidance.

Members of individualist societies give importance to their own well-being and are favorable towards differentiation and uniqueness. On the collectivist side, we find societies in which people are inserted in a social network and are more favorable towards building relationships. The individualism/collectivism dimension is widely employed in cross-cultural consumer behavior research (e.g. Kim et al., 1994). Uncertainty avoidance refers to the extent to which people feel uncomfortable in the presence of vagueness and ambiguity. The masculinity dimension indicates the degree to which a given culture values assertiveness, achievement, and the acquisition of wealth. Power distance is the extent to which people accept that power is distributed unequally and is related to conservatism.

On the empirical side, Dawar and Parker (1994) show that differences in the matter of signal use are independent of cultural factors and better explained by personal differences, whereas for Erevelles et al. (2001), signal use in the case of services is determined by cultural factors.

2.2. Impact of knowledge on signal use

Knowledge can be viewed as a personal factor acting upon the assessment of quality. For Alba and Hutchinson (1987), consumer knowledge is made up of two components: *familiarity*, as defined by the number of product-related experiences accumulated by consumers, and *expertise*, which is the ability to perform product-related tasks successfully. On the one hand, knowledge modifies both the type of information used and information processing (Bettman and Park, 1980; Johnson and Russo, 1984; Brucks, 1985). It implies,

among other things, that connoisseurs use accurate information only. On the other hand, knowledge is seen to influence signal use. For Rao and Monroe (1988), the way knowledge impacts on signal use is based on a distinction between intrinsic cues (e.g. product size, color) and extrinsic cues (e.g. brand or price). By definition, the former are physically linked to the product, whereas the latter are not. In this model, beginners use extrinsic signals such as price to assess quality. Once a minimal threshold of knowledge is reached, consumers become less reluctant to consider intrinsic information and tend to rely less on extrinsic cues. In this context, a connoisseur is seen as someone who is able to detect whether or not an extrinsic cue conveys accurate information on quality and who makes use of signals like price accordingly[4]. As a result, the propensity to use price as an indicator of quality first decreases and then increases with knowledge (U-shaped curve) in situations where price and quality are positively correlated. This relation between knowledge and signal use, however, will remain monotonic, where quality and price are poorly associated in the marketplace. Indeed, connoisseurs will not use extrinsic cues and will substitute them for intrinsic ones. This substitution process will intensify as knowledge improves. In this sense, using price as a quality signal is a rational behavior and reflects learning about price-quality correlations established in the marketplace, as developed earlier by Scitovszky (1945).

Empirical evidence tends to support the idea that signal use is a function of consumer knowledge. Jacoby et al. (1971) suggest that consumer knowledge may mediate the effect of price on perceived quality. While novices rely on product characteristics (intrinsic cues), experts use signals such as brand (Bettman and Park, 1980). In the case of wine, price is used by novices to infer quality (Lockshin and Rhodus, 1993), while the way brands are perceived varies according to the level of wine knowledge (Lockshin et al., 2000).

[4] "Low-familiar consumers are more likely to use extrinsic information, based on their belief that a quality-extrinsic cue relationship exists in the marketplace. [...] [H]ighly familiar consumers use extrinsic information based on their knowledge that a quality-extrinsic cue association exists in the marketplace" (Rao and Monroe, 1988, p. 262).

This brief review of the literature indicates that debate on the universality of the signal theory for products and services is still rife, with many questions still left open. Nevertheless, it suggests that not all quality signals are systematically used by every consumer and that signals may, in some situations, be used in combination.

3. EMPIRICAL STRATEGY

3.1. Data

The data used for this study are private survey data, collected in 2001 by *Sociovision* for the *Conseil Interprofessionnel du Vin de Bordeaux* in seven European countries: Belgium (1,028 wine consumers), Denmark (613), Germany (1,133), France (819), the Netherlands (1,258), Switzerland (584), United Kingdom (959). In all, 6,394 wine consumers[5] were surveyed on their perception of Bordeaux wines in general and of a series of nine related appellations: Saint-Emilion, Bordeaux Supérieur, Sauternes, Médoc, Graves, Margaux, Premières Côtes de Bordeaux, Entre-Deux-Mers and Côtes de Bourg[6].

The survey contains the usual socio-economic information like gender, age and socio-economic category at the respondent level. All participants were also asked to position themselves as connoisseurs or non-connoisseurs regarding wine.

For each appellation, respondents had to determine whether or not they:

1. had already heard about it in the past (goodwill),

[5] In this survey, a wine consumer drinks wine at least once a quarter.

[6] There are three distinct appellation levels within the Bordeaux region: regional level (Bordeaux), sub-regional level (here Entre-deux-mers, Médoc and Graves) and local level (in the sample Saint-Emilion, Margaux, Côtes de Bourg, Premières Côtes de Bordeaux, Sauternes). Bordeaux Supérieur, which does not correspond to any geographical area, is considered as a generic appellation.

2. considered it as expensive (perceived price),
3. had consumed it during the past twelve months (past consumption),
4. perceived it as associated to quality wines (perceived quality):
    a. Bordeaux: collective or umbrella reputation,
    b. Related appellations: individual reputations.

All these indicator-signals are dummy variables which take the value one if the respondent answered positively to the item, otherwise zero.

As far as goodwill is concerned, it is connected to the idea that advertising acts as a quality signal (see Milgrom and Roberts, 1986). Goodwill is also associated with market share, whose impact on customers' perception of product quality has been analyzed by Hellofs and Jacobson (1999).

Perceived price refers to how consumers see the price: high, low or fair (Schiffman and Kanuk, 2004). High price is generally associated with high quality (Moore et al., 2003) and seen as an attribute of success (Jiang and Rosenbloom, 2005).

Past consumption is considered in this framework as another potential source of information for consumers because it reveals experience characteristics. Past consumption is associated with the experience accumulated in the past with the product. It is not a typical quality signal: not costly to produce and not provided or sent by producers.

The notion of perceived quality in marketing is close to that of reputation in economics, as mentioned earlier (see Shapiro, 1983 and related papers). A reputation is said to be collective when it produces spillover effects over a series of products operating under a common brand or umbrella (Wernerfelt, 1988). As defined by Montgomery and Wernerfelt

(1992), umbrella branding corresponds to the use of the same brand name over several products, here, Bordeaux and the nine related appellations. The umbrella is associated with the collective reputation phenomenon (Cabral, 2000). This view is confirmed by Winfree and McCluskey (2005) for whom regional products often share a collective reputation.

Table 1 reports some sample statistics, while Table 2 describes the way each appellation is perceived and consumed on average.

Table 1: Sample Structure

	Mean	Proportion (in %)
Age	46.2	
Gender (women)		51.21
Socio-professional category:		
Upper		21.63
Middle		60.65
Lower		17.18
No answer		0.54
*Knowledge of wine:**		
Connoisseurs		32.14
Non-connoisseurs		67.03
No opinion		0.82

* As perceived by consumers themselves.

Table 2: Average Consumer's Opinion and Past Consumption (%)

Appellation	Goodwill	Perceived quality	Perceived price	Past consumption
Regional (Umbrella):				
Bordeaux	33.95	50.08	38.24	23.55
Generic:				
Bordeaux Supérieur	2.74	25.21	29.29	10.15
Sub-regional:				
Entre-deux-mers	2.6	7.65	11.2	7.77
Médoc	3.63	21.14	20.3	18.63
Graves	3.52	19.32	19.87	7.6
Local/village:				
Saint-Emilion	10.12	25.6	29.62	20.55
Margaux	3.14	19.21	26.1	5.86
Côtes de Bourg	2.08	7.57	6.96	4.72

Premières Côtes de Bordeaux	1.58	13.85	17.45	4.69
Sauternes	4.1	23.02	32.36	11.23

After Bordeaux, which is unsurprisingly credited with the highest scores, Saint-Emilion is the most popular appellation in the sample with both the highest rate of goodwill (10.12%) and level of perceived quality (25.6%) among all individual appellations. Wines originating in this region are also perceived as expensive by more than one third of the sample (38.24%). Respondents appreciate Médoc wines as well. The reason for such scores is undoubtedly that a large fraction of the best Bordeaux wines, ikon wines such as Mouton-Rothschild, Lafite-Rothschild, Margaux and the like come from this area.

3.2. Empirical Model

In this section, the following system of equations is estimated on different sub samples to get a quantitative measure of the average intensities with which consumers use available signals (price, goodwill, umbrella and past consumption) to build their quality opinion (perceived quality):

$$\begin{cases} q_{ij}^{e} = \alpha_1 + Signals_j\ \beta_1 + \chi_1\, q_{iu}^{e} + u_{ij1} & (1) \\ q_{iu}^{e} = \alpha_2 + Instruments_{iu}\ \ \chi_2 + u_{iu2} & (2) \end{cases}$$

where *i* is the consumer , *j* is the appellation and *u* is the umbrella. Equation (1) states that consumer *i* evaluates the quality of appellation *j* (q_{ij}^{e}) from a series of available *Signals* (here Price, Goodwill and Past consumption) and from his/her opinion of the umbrella under which the appellation stands (q_{iu}^{e}). The problem with the umbrella signal is that it is not independent of the error term u_{ij1} . Indeed, it is very likely that consumers also build their

opinion on Bordeaux wines (q_{iu}^{e})from what they think about its different components (q_{ij}^{e}). Without controlling for this endogeneity problem of q_{iu}^{e} in (1) with respect to q_{ij}^{e}, we would get biased estimates of χ_1. To prevent the results being distorted by this econometric pitfall, we instrument q_{iu}^{e} through Equation (2) and estimate the system simultaneously using a bivariate probit procedure. This estimation procedure is well-adapted to this kind of model where both the dependent variable and the right-hand side endogenous variable are of the binary type.

The instruments that we use for Bordeaux perceived quality (q_{iu}^{e}) are the perceived quality of some other famous French regional appellations, such as Burgundy, Languedoc-Roussillon, Alsace, Loire, which were available from the survey. The intuition lying behind these instruments is that consumers imagine the quality of Bordeaux wines in comparison to the quality of wines from other famous French wine regions. Indeed, there is reasonable chance for their opinion on Bordeaux wines to be based, among other things, on a ranking of the main wines produced in France. In the process of building their quality opinion on Bordeaux wines, it is logical to think that people have in mind for instance that a Bordeaux is as good as a Burgundy and/or that a Bordeaux is better than another region and so on. However, while it is reasonable to imagine that consumers will compare a Bordeaux with another regional wine, it is less likely that he/she will compare a sub-appellation such as Premières Côtes de Bordeaux with a Burgundy wine for instance. The main reason for this is that these appellations do not have the same position in the French wine classification system: regional appellation (Burgundy) versus local appellation (Premières Côtes de Bordeaux). For all these reasons and in particular the fact that they are correlated to q_{iu}^{e} and independent of q_{ij}^{e}, these variables seems valid instruments for q_{iu}^{e}.

The estimation procedure described above was replicated on two sub-samples: connoisseurs and non-connoisseurs[7]. The calculations were run country by country and appellation by appellation on each sub-sample. In all, 67 systems of the above type were estimated. From equation (1), we get the following impacts on the perceived quality of each appellation related to Bordeaux:

1. Price: $\hat{\beta}_{1P}$,
2. Umbrella (collective reputation): $\hat{\chi}_1$,
3. Past consumption: $\hat{\beta}_{1PC}$,
4. Goodwill: $\hat{\beta}_{1G}$.

All these estimated coefficients form a new sample made of 67 observations and 4 variables. These data are used in the following section to understand the way consumers use these different signals to build their opinion on Bordeaux wines.

3.3. Information used to infer quality: some descriptive statistics

Table 3 indicates how frequently $\hat{\beta}_1$ and $\hat{\chi}_1$ came out significant in the estimation procedure. It contains information on the intensity with which each type of information-signal is used on average. A signal is said to have a significant impact on q_{ij}^{e} when its coefficient has a significance level lower than 10%.

Table 3: Information used to infer quality

Source of information	Significant* impact	Significant* and positive impact	Significant* and negative impact
Price	97.7	97.7	0

[7] The detailed results are not reported here but are available from the authors upon request.

Umbrella	40.5	27.4	13.1
Past consumption	38	38	0
Goodwill	24.3	22.9	1.4

* % of significant $\hat{\beta}_1$ and $\hat{\chi}_1$ at the 10% level.

Price is the most influential source of information. Indeed, consumers use almost systematically (nearly 100%) what they think about price to infer quality in the case of Bordeaux wines. Umbrella and past consumption have a significant impact in only about 40% and 38% of the estimated models respectively. Goodwill is the least influential signal (25% of significant coefficients). Consumers seem to need more information than only a name to infer quality for a Bordeaux wine. Except in the case of Umbrella, most of the coefficients are positive. Table 4 points out some differences between connoisseurs and non-connoisseurs in the matter of quality evaluation.

Table 4: Signals used by connoisseurs and non-connoisseurs

	Significant impact*	
Source of information	Connoisseurs	Non-connoisseurs
1. Price	95.4	100
2. Umbrella	48.8	32.6
3. Past consumption	31.4	44.4
4. Goodwill	23.5	25
Mean	49.6	50.5

* % of significant $\hat{\beta}_1$ and $\hat{\chi}_1$ at the 10% level.

Connoisseurs use, on average, as many signals as non-connoisseurs (around 50% of significant coefficients). Price is used with the same frequency by connoisseurs and non-connoisseurs, while the other signals are used differently. Connoisseurs use Umbrella more frequently than non-connoisseurs (49% versus 32%) even though we will see later with the

econometric analysis that they use it less intensively. This is not so surprising when one considers that connoisseurs have a better knowledge of Bordeaux wines than non-connoisseurs. Conversely, non-connoisseurs seem to base their quality opinions more on their past consumption (44% versus 31%). The difference concerning the use of goodwill is quite negligible. The low percentages that we get for Umbrella might suggest that: (i) connoisseurs are aware that Bordeaux is not an accurate quality signal and is not likely to reflect a precise level of quality, (ii) in most cases non-connoisseurs are unaware that an appellation (Entre-deux-Mers for instance) is a Bordeaux wine.

Tables 5 and 6 present the probability for two signals to be used jointly by connoisseurs and non-connoisseurs respectively.

Table 5: Probability for two signals to be used jointly (connoisseurs sub-sample)

	Umbrella	Price	Goodwill	Past Consumption
Umbrella	-	48.8	9.4	15.2
Price	-	-	23.5	31.4
Goodwill	-	-	-	6.1
Past consumption	-	-	-	-

* % of significant impacts at the 10% level.

Table 6: Probability for two signals to be used jointly (non-connoisseurs sub-sample)

	Umbrella	Price	Goodwill	Past Consumption
Umbrella	-	32.6	5.6	13.9
Price	-	-	25	44.4
Goodwill	-	-	-	5.6
Past consumption	-	-	-	-

* % of significant impacts at the 10% level.

Price is combined fairly frequently with umbrella and past consumption by connoisseurs (48.8% and 31.4% respectively) and with past consumption and umbrella by non-connoisseurs (44.4% and 32.6% respectively). Price and goodwill are also associated in almost a quarter of the sub-samples used: 23.5% for connoisseurs and 25% for non-connoisseurs.

4. ECONOMETRIC ANALYSIS

For a better understanding of the way these signals are combined by consumers, to know whether they are used independently or as substitutes or complements, we regress the use of Price (dependent variable: $\hat{\beta}_{1P}$) as a quality signal on the use of the other signals: Past consumption ($\hat{\beta}_{1PC}$), Goodwill ($\hat{\beta}_{1G}$) and Umbrella ($\hat{\chi}_1$). Country dummies are added to control for potential cultural differences (*CD*) as well as a dummy connoisseur (*Conn*) for the level of knowledge of wine. The equation is as follows:

$$\hat{\beta}_{1P} = \pi_O + \pi_1 \hat{\chi}_1 + \pi_2 \hat{\beta}_{1PC} + \pi_3 \hat{\beta}_{1G} + CD\,\pi_4 + \pi_5 Conn + \varepsilon \quad (3)$$

Here, both the regressand and the regressors are estimates carried over from the first-stage regressions (equation 1). Such sampling errors could cause heteroscedasticity problems in the second-stage regression. For Gawande (1997), such regressors should be modelled as variables measured with error. To account for the heteroscedasticity introduced by the sampling error, we adjust the standard errors using a standard Huber-White correction.

Table 7 presents the results for three equations of the above type estimated respectively on: (1) the full sample (67 observations), (2) the connoisseurs sub-sample (31 observations) and (3) the non-connoisseurs sub-sample (36 observations). A positive

(negative) coefficient indicates that price (regressand) and the considered signal are complements (substitutes). Non-significant coefficients indicate that the signals are used independently of one another.

Table 7: Intensity with which consumers use price to infer quality

Regressand: $\hat{\beta}_{1P}$

	(1) Full sample	(2) Connoisseurs	(3) Non-connoisseurs
Connoisseur	-1.064	-	-
	(2.58)*		
Signals[8]:			
Umbrella ($\hat{\chi}_1$)	0.011	0.034	-0.225
	(0.25)	(0.70)	(2.50)*
Past Consumption ($\hat{\beta}_{1PC}$)	0.059	0.103	-0.076
	(0.37)	(0.39)	(0.38)
Goodwill ($\hat{\beta}_{1G}$)	0.197	0.315	0.156
	(1.02)	(1.13)	(0.63)
Country of Origin (CD):			
France	dropped	dropped	dropped
	-	-	-
Belgium	1.550	0.579	1.816
	(2.22)*	(0.59)	(2.09)*
United Kingdom	-1.828	-1.083	-3.243
	(2.42)*	(1.01)	(3.39)**
Switzerland	-1.636	-1.056	-2.825
	(2.35)*	(1.07)	(3.24)**
Germany	0.076	-1.483	0.463
	(0.10)	(1.29)	(0.49)
Denmark	-0.453	-0.209	-2.259
	(0.59)	(0.19)	(2.17)*
The Netherlands	1.510	1.699	0.912
	(2.07)*	(1.63)	(1.03)
Connoisseur (*Conn*)	-1.064	-	-
	(2.58)*		
Constant	5.102	3.918	6.046
	(9.11)**	(5.38)**	(8.72)**
Observations	67	31	36
R-squared	0.47	0.44	0.69

[8] Intensity with which consumers use the signal.

Absolute value of t statistics in brackets.
* significant at 5%; ** significant at 1%.

From the full sample equation, we learn that connoisseurs use price less intensively than non-connoisseurs. Several cultural differences also appear. With all other things being equal, the Belgian and Dutch consumers make the most intensive use of Price, followed by the French, Danish and German consumers. The Swiss and British consumers, on the contrary, rely least on Price.

As far as the connoisseurs' sub-sample is concerned, the estimated coefficients show that this category of consumers uses price independently of the other signals. It is also interesting to note that there is no cultural difference in this equation.

On the contrary, non-connoisseurs seem to consider price as a substitute for umbrella (negative sign for $\hat{\pi}_1$). Non-connoisseurs would therefore tend to put all the more faith in price since umbrella is of no help to them. We also see that the main cultural differences observed in the full-sample equation derive mainly from non-connoisseurs.

5. CONCLUDING REMARKS

This article analyzes the way a sample of European wine consumers combine a series of quality signals to evaluate the quality of the main wines produced in the Bordeaux region.

Price is the main source of information on quality. Price also represents a substitute for umbrella where consumers perceive themselves as not very knowledgeable about wine. Most of them are unaware of the various and numerous appellations related to the umbrella, which is therefore of no help to them. Umbrella is used less frequently where consumers perceive themselves as knowledgeable about wine. If price is the major quality signal here, it is

probably because consumers lack a better source of information on quality such as that provided, for instance, by private brands in other industries or wine regions such as the champagne region.

This result is not surprising from consumers who are aware that Bordeaux as an appellation is much too large and complex to be considered as an accurate signal of quality. This is in line with the results obtained earlier by Rasmussen and Lockshin (1999) in the case of Australian wines: a small number of consumers use regional branding as a cue in their choice process. A conclusion is that on average consumers prefer to rely on individual signals rather than on collective signals.

This paper, by pointing out the weakness of large umbrellas such as Bordeaux in the world of wine, helps to understand why these wines are tending nowadays to lose market share –according to a mechanism described earlier by Akerlof (1970)– in favour of more accessible wines produced by new world winegrowers. Indeed, these growers have adopted a simpler brand-based strategy which is proving to be more efficient than the confusing terroir-based strategy of old-world producers (see Barham, 2003 on this issue). Such a trend will continue in the future if French producers do not adopt a more effective communication strategy about the quality of their wines.

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