

THE INFLUENCE OF WINE ATTRIBUTES ON REGION OF ORIGIN EQUITY: AN ANALYSIS OF THE MODERATING EFFECT OF CONSUMER'S PERCEIVED EXPERTISE (REFEREED)

*Jean-Philippe Perrouty, Agro-Montpellier, France
François d'Hauteville, Agro-Montpellier, France
Larry Lockshin, University of South Australia, Australia
perrouty@ensam.inra.fr*

Abstract

A fairly broad consensus contends that the wine region of origin adds value in consumers' eyes as it represents a significant choice criterion (Gil and Sanchez, 1997, Quester and Smart, 1998, Tustin and Lockshin, 2001), for which consumers are prepared to pay the price (Schamel, 2000, Schamel and Anderson, 2001). As a general rule, all of these studies also recognise the fact that consumers attribute value to other signs of quality present on a wine label, whether it be the grape variety, price or brand. On the other hand, very few of them consider the hypothesis that the value of a region of origin can vary depending on other signals with which it is associated. To our knowledge, only Tustin and Lockshin (2001) take this factor into account and show that there are significant interactions between price level and type of region, but didn't find any between region of origin and brand (Tustin and Lockshin, 2001).

The results obtained by Tustin and Lockshin (2001) are quite surprising, insofar as an extensive literature exists, which shows that the country of origin equity is a function of the type of brand and the price level with which it is combined on the label (Chao, 1989, Cordell, 1992, 1993, Han and Terpstra, 1988, Wall, Liefeld and Heslop, 1991). Moreover, some other researchers have shown that other attributes like warranties (Thorelli, Lim and Ye, 1988) or intrinsic attributes (Cordell, 1991) may significantly moderate the country of origin equity. In parallel, Van Ittersum (2001) has shown that the theoretical literature on country of origin is useful and pertinent to analyse how the region of origin affects the consumer choice process. Thus, we could expect that the region of origin equity is significantly moderated by the type of brand, the level of price and the other wine attributes with which it is combined on the wine label.

The aim of this paper is to show that the region of origin equity is moderated by wine attributes, with the significance or strength of this moderating effect depending on the level of consumer expertise. In the first section we will discuss the theoretical underpinnings the moderating effects of attributes on country of origin equity and the rationale leading to consider the influence of consumer expertise on the significance or strength of these moderating effects. In the second section we will present the research hypotheses and the methodology adopted to test them. The third section will deal with the discussion and analysis of results, before concluding with the contribution and limits of the research.

1. The theoretical underpinnings of the moderating effects of brand and price

The brand strength hypothesis

The brand strength hypothesis is a common theoretical way to explain why a significant brand by country of origin interactions effect exists. Following this hypothesis, the country of origin effects will be stronger for products, which carry weak brand names rather than strong ones. In an experiment using the conjoint analysis method Cordell (1992) investigates the case of brands of watches where the company decides to manufacture in Pakistan (a country with low production costs), rather than in Germany, a country, which enjoys an excellent reputation for manufacturing this type of product. The author shows that a well-known brand will see its market share decrease only marginally (-6.5%), whereas the market share of a little known brand will decrease by a significant amount (-74%). In support of the brand strength hypothesis other empirical evidence is available on other dependant variables as willingness to pay (Cordell, 1993), perceived quality (Han and Terpstra, 1988), performance product attributes (Tse and Lee, 1993) or purchase intentions (Wall, Liefeld and heslop, 1991).

Cordell (1992) interpreted his findings in the light of the accessibility-diagnostic theoretical rationale. In this perspective, a quality cue is diagnostic if the consumer is familiar with it and diagnostic if it can help him to solve a choice problem (Feldman and Lynch, 1988). If the consumer wants to assess the quality of a product, he can rely on a well known brand. If the brand is not well known, he will rely on other available cues,

such as the country of origin of the product. Thus, the country of origin will affect the choice process only if it is combined with a weak brand.

Other researchers have shown that the strength hypothesis is adequate to explain how prices moderate the country of origin equity (Chao, 1989, Ahmed and d'Astous, 1993). Consistent with strength theory, purchase intentions for goods manufactured in a country carrying a good image will be far less sensitive to price decrease. As a general rule, weak countries of manufacture can compensate for their poor images by decreasing the price and, as a consequence, the purchase intention will increase. Finally, Thorelli, Lim and Ye (1988) have shown that a good warranty combined with a good store image can compensate for a poor country of origin image.

The congruity hypothesis

Haübl and Elrod (1999) suggest an alternative theory to the brand strength hypothesis. In their view, the extent of a relationship between brand and geographical origin depends on the perceived degree of fit between the brand and the country of production. Considerable value is added to the Rossignol ski brand, for example, when the skis are produced in France, rather than in Austria, Slovenia or Germany (Haübl and Elrod, 1999). These findings are similar to those of other research, in which it has been shown that the perceived product hedonism is significantly and positively influenced by the equality between the language of pronunciation of the brand and the country of manufacture (Leclerc, Schmitt and Dubé, 1994). Conversely, the perceived hedonism is negatively influenced when there is a discrepancy between the brand pronunciation and the country of manufacture. Chao (2001) examined the influence of various dimensions of country of origin on attitudes and intentions of purchase of televisions and stereos. They found that interactions between "country of assembly of components" and "country of design" significantly influenced attitudes and intentions of purchase of stereos. Moreover, interactions between "country of assembly of components" and "country of production of components" significantly influenced attitudes and intentions to purchase for televisions. All the interactions terms were consistent with the congruity hypothesis. For instance, televisions received higher intentions of purchase when the components were manufactured and assembled in the United States, rather than manufactured in Mexico and assembled in the United States.

The congruity theory can be explained within the brand equity framework, in which congruity is defined as *“the extent to which a brand association shares content and meaning with another brand association”* (Keller, 1993, p. 7). In this view, a brand can be associated with its home country (Keller, 1993, 2003, Thakor and Kohli, 1996) and when products are manufactured in another country, it loses a great part of its equity. For instance, some authors have suggested the watch brand Rolex is closely tied to Switzerland and that these two cues share meanings, such as a long tradition of production, workmanship, technical skills and prestigious associations (Schweiger, Otter and Strebing, 1997).

From a theoretical point of view, we suspect that the congruity hypothesis is particularly well suited to explain potential interaction effects between a wine brand and a wine region of origin. For example, Thode and Maskulka (1996) have suggested that country, appellation of origin and vineyard are important components of Californian wine brands. More recently, Australian authors have suggested that region or locality and wine brands are all part of a system of cues in which the value of a cue depends not only on the consumers' perception of the cue, but also on the presence or absence of other items of information on the label (Lockshin, Rasmussen and Cleary, 2000). Thus, we could expect that congruity effects will occur between wine brand and region of origin, because consumers make strong associations between these two cues.

The refutation hypothesis

When formulating hypotheses about the moderating effects of brand and prices on country of origin equity, researchers must take into account the numerous studies which didn't find any interaction effects (Li, Monroe and Chan, 1994, Teas and Agarwal, 2000, Tse and Gorn, 1993, Ulgado and Lee, 1993). These studies report only insignificant or no empirical evidence of a relationship existing between a brand and the geographical origin of a product.

Moreover, some other researchers argue that relative to principal cue effects, the strength of interaction effects marginally affects the consumers' choice process (Ettenson, 1993, Tse and Lee, 1993). As a consequence, the researchers could estimate only the principal effects of the cues. These findings may contradict the above findings due to smaller sample sizes and the inability to accurately measure interactions.

The question of heterogeneity

The previous review of the literature has shown that a product's geographical origin equity can be broken in two components: the principal effect of the country (or region) of origin and the moderating effects of brand and price levels. However, some research has refuted the existence of these moderating effects.

In our view, a significant caveat to be added to these studies is that they do not take into account consumer heterogeneity in the explanation of the relative extent of these two components. All of these studies aim to explain the presence or absence of interaction effects between product attributes and a geographical origin simply by taking into account the nature of the signal. However, some studies have suggested that consumer heterogeneity could account for some part of the interaction effects.

In an intercultural study using conjoint analysis, Ettenson (1993) shows that the inclusion of relationships between the brand and the country of manufacture can allow us to better explain the choices of only 29% of the Polish sample and 27% of Russian and Hungarian samples. In their research, Häubl and Elrod (1999) have shown that the standard deviations for interaction parameters are stronger than the standard deviations of brand and country of manufacture main effects.

The main interest of these results is therefore to suggest that the relationships between product attributes are valued only by particular consumer segments, without indicating clearly the nature of the individual discriminating variable factor of these groups. The second section will now deal with highlighting one or several variables, which may explain the relative influence of moderator effects of products' attributes on the region of origin equity.

2. The consumer knowledge hypothesis

We have shown that on theoretical grounds, interaction effects can be explained by the accessibility-diagnostic and congruity theories. We shall now review the influence of consumer expertise on the valuation process of product attributes given both theories. But before that, let us briefly present the concept of consumer knowledge.

The concept of consumer knowledge

Consumers' knowledge can be split into two broad categories: familiarity, which represents the accumulated number of experiences with the product; and expertise, which corresponds to the capacity of successfully carrying out tasks linked to the product (Alba and Hutchinson, 1987).

As Park, Mothersbaugh and Feick (1994) stated, consumers' experiences lead to the acquisition of increased expertise in the class of products. "Experts" can be distinguished from "novices" in two respects: according to their knowledge structure, and the way they use this knowledge in evaluation tasks and choice. Compared with novices, experts are more knowledgeable regarding the product category and the cognitive structures encompassing this knowledge are both richer and organized around a greater number of dimensions (Mitchell and Dacin, 1996).

Furthermore, experts make use of more attributes than novices to evaluate and choose a product and they do not use the same attributes to evaluate different brands (Mitchell and Dacin, 1996, p. 229). Given that they have more highly developed cognitive structures than novices, these results demonstrate that experts tend to evaluate different products belonging to the same class according to different attributes. In a previous study Selnes and Troye (1989) showed that after the information-seeking phase, experts will decide on the evaluation criteria they will employ, in particular in terms of type of attributes used and relationships between these attributes, before moving onto the product evaluation phase. On the other hand novices often move from the information-seeking phase directly to the evaluation phase (Selnes and Troye 1989). These results suggest that novices tend to form their judgments based on a global and holistic evaluation of available information, whereas experts process the information in a deeper and more detailed way, in particular concerning relationships between attributes. This finding has important consequences for the study of brand and price moderating effects on product origin equity, as we will show in the next two sections.

Consumer knowledge and the accessibility-diagnostic theory

Rao and Monroe (1988) examined the way high and low knowledge consumers use price and intrinsic attributes to judge product quality. They included both main and interaction attribute effects as independent variables in the data analysis. The results clearly showed that relative to the novices' group, these interactions effects are higher for expert consumers. The authors interpreted this finding by arguing that experts use

price only when intrinsic attributes are not sufficiently diagnostic to allow them to judge the product quality correctly. However, novices do not have this knowledge and use attributes independently of their diagnostic value.

Maheswaran (1994) measured the effects of both intrinsic attributes and country of origin on consumers' product judgement process. They showed that when intrinsic attributes are ambiguous (*i.e.* not highly diagnostic), expert consumers use country of manufacture to make a judgement on the product. When intrinsic attributes are unambiguous, experts will focus their attention on intrinsic attributes, while novice consumers always use country as the main cue to judge the product.

Thus, we can expect that if accessibility-diagnostic theory is pertinent to explain the moderator effects of brand and price on region of origin equity, these interaction effects will be significant and strong in the expert segment. Because novices do not have the relevant knowledge, they always use the country of manufacture to make a judgement, whatever is the diagnostic value of intrinsic cues. As a consequence, interaction effects should not be significant, or should be very weak in the novices' segment.

Consumer knowledge and the congruity hypothesis

The concept of congruity is very similar to the concept of fit in the brand extension literature. In this view, a good fit indicates that the original product and the product extension share similar associations and the consumer makes a judgement about the extension by taking into account both his attitude toward the brand and the fit between the two products (Aaker and Keller, 1990).

Park, Milberg and Lawson (1991) have shown that a good fit can be explained by both the product fit and the brand fit: the brand extension should share similar associations with the original brand. Other researches have focused their attention on the effects of consumer knowledge on the evaluation of brand extensions. Two of them have shown that when evaluating the extensions, high knowledge consumers give a high weight to the brand-fit rather than to the attitudes toward the brand (Broniarczyk and Alba, 1994, Gregan-Paxton, 2001). Conversely, novices focus their attention on their attitudes toward the brand, which determines for a large part the evaluation of the extension. Finally, Simonin and Ruth (1998) have shown that relative to the attitudes

toward the brand, the importance of brand-fit in the evaluation of the extension of a co-branded product is higher in the high knowledge consumers group. Conversely, the relative importance of the attitude toward the two brands is higher in the low knowledge consumers group.

The main interest of the previous studies is to show that by acquiring knowledge in a product category through their experience, consumers give a relatively increasing influence to the brand fit in evaluating a direct brand extension or a co-branded product extension. Insofar as the concept of brand-country congruity is very close to the concept of brand-fit, we could expect that, relative to low knowledge consumers, this congruity effect is higher for high knowledge consumers.

3. Synthesis and research hypotheses

We have shown in the first section that the moderating effect of product attributes on the geographical equity of the product can be explained by both the accessibility-diagnostic and the congruity theories. In the second section, we have presented theoretical and empirical evidence showing that these two theories are likely to hold only for high knowledge consumers. Based on this literature, we can form the general hypothesis that the degree of consumers' expertise is a moderating variable on the relative influence of product attributes' moderating effects on wine region equity. The next part of this paper therefore continues with discussion of the research hypotheses and the methodology employed to test them.

Research hypotheses

Following Keller (1993, p. 8), the region of origin of a product will have positive (negative) equity if consumers react more (less) favorably to the other product attributes than they do to the same mix of attributes, but without the presence of the region of origin. The country of origin literature review suggested that the geographical origin equity is significantly moderated by the other attributes of the product. Thus, we develop the hypothesis that region of origin equity is significantly moderated as follows:

Hypothesis 1: region of origin equity can be explained by its main effect on consumer choice on the one hand and by other product attributes acting as moderator effects on the other hand.

We have developed a general hypothesis whereby the perceived expertise of a consumer is likely to explain the significance and/or the strength of the attribute moderator effects. A pre-requisite for this hypothesis is that significant differences in the way experts and novices consumers value wine choice cues (attributes) exist. Therefore, these two considerations lead us to formulate the two following hypothesis:

Hypothesis 2: there are significant differences in the valuation process of wine choice cues (attributes) between expert and novice consumers.

Hypothesis 3: relative to novices, the moderating effect of product attributes (choice cues) on region of origin equity is stronger for expert consumers.

4. Methodological framework of the research

Selection of discrete choice modeling methodology

Our study focuses on consumer choice, i.e. at the level of the final stage of the decision-making process. To test our research hypothesis we needed a methodology that is able to measure both the wine region of origin influence on consumer choice and the moderator effects of product attributes on this cue. Thus, the methodology should be able to measure the interaction effect between the region of origin on the one hand and other product attributes on the other hand. We adopted the methodology of discrete choice modeling because it enables us to measure both of these effects, as it has been shown in brand equity research (Erdem *et al*, 1999, Rangaswamy, Burke and Oliva, 1993).

This approach is based on the theory of random utility, which considers that preferences can be measured by means of their latent utility. McFadden (1973) extended Thurstone's paired comparisons to multiple comparisons, hypothesizing that the random component of utility is distributed according to Gumbel's Law, which leads to statistical processing by means of the multinomial logit model. This method was then

tested and developed within the framework of transport economics (Louviere and Woodworth, 1983). According to this approach the total utility of an alternative in a bundle of choices can be divided according to two dimensions (Louviere, Hensher and Swait, 2000, p. 38):

$$U_{iq} = V_{iq} + \varepsilon_{iq}$$

U_{iq} represents the utility of the i^{th} alternative for the q^{th} individual, V_{iq} the systematic component of utility, i.e. the utility evaluated by the consumer and ε_{iq} the random component of utility, i.e. the error estimation of the utility measurement by the method of evaluated preferences. V_{iq} represents the utility of the alternative, which can be expressed in the following form¹:

$$V_{iq} = \sum \beta_{ik} X_{ikq}$$

β_{ik} is the parameter associated by the q^{th} individual to the k^{th} attribute of the i^{th} alternative and X_{ikq} is a vector of the k attributes of the i^{th} alternative presented to the q^{th} individual (Louviere, Hensher and Swait, 2000). A parameter is therefore associated with each attribute of the alternative, which corresponds to the perceived utility of the level of the attribute present in the alternative. Expressed more simply and when the functions of the relationships are included in the model, the previous equation becomes (Rangaswamy, Burke and Oliva, 1993):

$$U (\text{Product}) = U (\text{physical attributes}) + U (\text{brand}) + U (\text{brand*physical attributes})$$

The utility of a product is therefore the sum of the perceived utility of the product physical attributes, the brand perceived value, and the perceived utility of the interaction effects between the brand and physical attributes. By extension, we represent therefore region of origin equity by means of the following expression:

$$U (\text{region}) = U (\text{region X}) + U (\text{region *attributes})$$

$U (\text{region})$ represents the total equity of the region, $U (\text{region X})$ the value accorded to its direct effect and $U (\text{region*attributes})$ the interactions between the region

¹ This supposes an additive model, i.e. without interactions

and a product attribute(s), which corresponds to the moderating effects of the later on the former.

Data collection and processing

The data was collected in supermarkets via face-to-face surveys with French, German, Austrian and British consumers, who had bought at least one bottle of wine during the previous month. The method was convenience sampling, but different days and times were utilized to provide a range of consumer types. The questionnaire was composed of three parts: the first and final parts consisted of closed questions seeking to collect personal data (perceived expertise, age, involvement etc.). In the second part each respondent was required to make 15 choices, each task consisting of choosing a wine label from three offered. Each label contains a brand, a region, the absence or presence of a grape variety, the type of bottler and the price. The main objective of this procedure was to simulate in the most realistic way possible a normal purchasing environment. Therefore, the option "I would choose none" was available in each set of options. We tested six different levels for the "brand" attribute, six regions, two levels of grape variety (absence or presence), four levels of bottler and three price levels (see Annex 1 for the exact levels. Since the surveys were carried out in four different countries, four brands and four regions are identical in each country, and two brands and two regions are specific to each of them, the reason being to test brands and regions which are well-known and little known in each country (locally). For example, two German brands and two German regions were specific to Germany. The collected data was then entered into Excel and imported into Sawtooth Software CBC.

In order to test whether the interaction effects are significant or not we have followed the methodology suggested by Louviere, Henscher and Swait (2000). We begin by calculating the maximum likelihood (LL0) of a model without interaction effects (with only main effects) for the whole of the sample. This model is then used as reference model (or zero model). We then calculate the maximum likelihood (LL1) for a model which this time includes interaction effects. Wilks (1962) showed that twice the difference between these two maximum likelihoods ($2*[LL1-LL0]$) is distributed according to χ^2 . If the test allows us to reject the zero hypothesis we can therefore conclude that

the inclusion of the interaction effects significantly improves the goodness-of-fit of the model and therefore the explanation of the choices.

The examination of hypothesis 3 requires us to test whether significant differences in the evaluation process of wine choice cues exist between expert and novice consumers. In order to test this hypothesis we employ the same methodology used to test relationships. The reference model used is the one, which analyses the choices of the entire sample, resulting in a first maximum likelihood (LL0). Next we analyze the choices for the following three samples: the "very expert" (n=389), the "moderately expert" (n=348) and the "novices" (n=375). These three analyses result in three new maximum likelihoods, respectively LL1, LL2 and LL3. We then calculate the following formula: $2*((LL1+LL2+LL3)-LL0)^2$ which is distributed according to χ^2 .

Measurement of perceived expertise

In order to measure consumers' expertise level, we could use an objective or a perceived measure. In their research on the effects of expertise in wine choice, Aurier and Ngobo (1999) have shown that perceived expertise is a better predictor of the type of cues consumers use while choosing a wine. Thus, we will measure perceived expertise to form the expert and novice groups. We measured consumers' perceived expertise using four items taken from Flynn and Goldsmith's six-point scale (Flynn and Goldsmith, 1999). Use of this scale in an international framework and based on wine preferences has enabled us to reduce it to four items (d'Hauteville and Goldsmith, 1998):

Table 1: the items of perceived expertise

"I don't understand much about wine"
"I feel competent about in my knowledge of wine"
"Among my friends, I am the one who is the wine expert"
"Compared to others, I know less about the subject of wine"

Scales from 1 (strongly disagree) to 7 (strongly agree)

² We would very much like to thank Professor Jordan Louviere (University of Sydney) for having suggested this procedure during discussions on this study in May 2003.

In order to construct a composite measurement from these four items, we carried out a factor analysis of principal component, which suggests that the measurement appears to be both valid and reliable. The main axis has an eigenvalue of 2.5 and accounts for 62% of the total variance. The Cronbach alpha is 0.79 and deteriorates if we omit any one of the items. The sample was split into three sub-samples, each of them corresponding to a specific expertise score range³:

Table 2: General presentation of sub-samples "experts" and "novices"

Group	Perceived expertise mean scores	Sub-sample size	% of the overall sample
Experts	[1.00 - 3.50]	476	41%
Moderately experts	[3.75 - 4.00]	210	18%
Novices	[4.25 - 7.00]	476	41%

5. Research results

The total sample size is 1,162 respondents, divided equally between the four countries (approximately 25% from each of them). 48% of the sample is under 35 years of age; 55% being men and 43% of the respondents consume wine more than once per week.

Hypothesis 1

Here we hypothesize that the region of origin equity can be explained by its main effect on the one hand and by the other product attributes' moderator effects on the other hand. Therefore we test first a model without interaction effects (reference model), then we check that the inclusion of a relationship function (interaction effects) leads to a significant improvement in the maximum likelihood of the reference model. The following results were obtained (n=1,162):

³ As suggested by Quester and Smart (1998), the expert group is composed of the top 40% of respondents who obtained the highest scores on perceived expertise. The novice group is composed of the 40% of respondents who obtained the lowest scores. This methodology should provide a purified measure of consumers' perceived expertise.

Table 3: Evaluation of discrete choice models on the overall sample

Discrete choice models	Maximum Likelihood	χ^2 value	Degrees of freedom	χ^2 threshold value	Null hypothesis accepted/rejected
Null Model	- 22 290				
Region of Origin (ROO)	-21 506	1,568	5	11	Rejected
Brand	-21 474	63	5	11	Rejected
Price	-21 373	204	2	6	Rejected
Bottler	-21 300	146	3	8	Rejected
Varietal	-21 260	80	1	4	Rejected
ROO*Brand	-21 228	65	25	38	Rejected
ROO*Price	-21 221	14	10	18	Accepted
ROO*Bottler	-21 216	24	15	25	Accepted
ROO*Varietal	-21 218	20	5	11	Rejected

As shown by χ^2 values, we can reject the null hypothesis relative to the effects of region of origin ($\chi^2 = 1\,568$, $df = 5$, $p < 0.005$), which means that the inclusion of this factor significantly improves the goodness-of-fit of the model. We can therefore conclude that consumers give value to the region of origin of a wine.

On the interaction effects side, we can reject null hypothesis relative to the interaction "region of origin x brand" ($\chi^2 = 64$, $df = 25$, $p < 0,005$) on the one hand and "region of origin x varietal" ($\chi^2 = 20,16$, $df = 5$, $p < 0,005$) on the other hand. It can be concluded that brand and varietal significantly moderate the region of origin influence on consumer choice process, i.e. region of origin equity.

However, we cannot reject the null hypothesis relative to the interactions "region of origin x price" ($\chi^2 = 13,60$, $df = 10$, $p > 0,1$) and "region of origin x bottler" ($\chi^2 = 23,68$, $df = 15$, $p > 0,05$). Thus, Bottler and price do not seem to moderate region of origin equity.

Insofar as two interactions effects are significant, we can conclude that H1 is partly validated.

The other results show that we can reject the null hypothesis for the effects of brand ($\chi^2 = 62.98$, $df = 5$, $p < 0.005$), price ($\chi^2 = 204.18$, $df = 2$, $p < 0.005$), bottler ($\chi^2 = 145.64$, $df = 3$, $p < 0.005$) and varietal ($\chi^2 = 79.82$, $df = 1$, $p < 0.005$). This means that consumers give value to all of this four wine choice cues.

Hypothesis 2

Hypothesis 2 suggests that experts and novices value wine choice cues differently. After having estimated three discrete choice models for each of the three groups of consumers, we check that this segmentation significantly improves the overall model goodness-of-fit. The following results are obtained:

Table 4: The evaluation of convergent validity of "experts" and "novices" discrete choice models

Model	Sample size	Maximum Likelihood	Degrees of freedom
Total	1 162	-21 207	61
Experts	476	-8 214	51
Moderately experts	210	-3 875	16
Novices	476	-8 883	36
χ^2 value		470	42

The division of the sample into three distinct segments, as well as testing it in relation to the reference model leads to the rejection of the null hypothesis ($\chi^2 = 470.28$, $df = 42$, $\alpha < 0.005$). Consideration of the perceived expertise of consumers results in a significant improvement in the goodness-of-fit of a wine choice model. **Hypothesis 2 is therefore validated.**

Hypothesis 3

Here we formulate the hypothesis that the relative influence of the attributes' moderator effects on region of origin equity is greater in the case of "experts" than in the group of "novices".

Concerning the experts, the following results were obtained:

Table 5: Evaluation of discrete choice models for expert consumers

Discrete choice models	Maximum Likelihood	χ^2 value	Degrees of freedom	χ^2 threshold value	Null hypothesis accepted/rejected
Null model	-9 091				
Region of Origin (ROO)	-8 361	1 462	5	11	Rejected
Brand	-8 356	10	5	11	Accepted
Price	-8 323	76	2	6	Rejected
Bottler	-8 290	112	3	9	Rejected
Varietal	-8 267	47	1	4	Rejected
ROO*Brand	-8 233	68	30	44	Rejected
ROO*Price	-8 223	19	10	18	Rejected
ROO*Bottler	-8 214	19	15	25	Accepted
ROO*Varietal	-8 214	19	5	11	Rejected

Concerning the interaction effects, the null hypothesis about "ROO x Brand" ($\chi^2 = 68.18$, $df = 30$, $p < 0,005$), "ROO x Price" ($\chi^2 = 18.72$, $df = 10$, $p < 0.05$) and "ROO x Varietal" ($\chi^2 = 17.82$, $df = 5$, $p < 0.005$) can be rejected. However, the null hypothesis relative to the interaction effect "ROO x Bottler" cannot be rejected ($\chi^2 = 18.86$, $df = 15$, $p > 0.10$).

Note that conversely to other main effects, we cannot reject the null hypothesis postulating that brand parameters are not significantly different from 0 ($\chi^2 = 9.66$, $df = 5$, $p > 0.05$). We will interpret this finding in the research results synthesis.

For the novices, the following results were obtained:

Table 6: Evaluation of discrete choice models for novice consumers

Discrete choice models	Maximum Likelihood	χ^2 value	Degrees of freedom	χ^2 threshold value	Null hypothesis accepted/rejected
Null Model	-9 181,42				

Region of Origin (ROO)	-9 062,25	238	5	11	Rejected
Brand	-9 040,25	44	5	11	Rejected
Price	-8 950,16	180	2	6	Rejected
Bottler	-8 916,84	67	3	8	Rejected
Varietal	-8 905,48	23	1	4	Rejected
ROO*Brand	-8 889,07	33	25	38	Accepted
ROO*Price	-8 899,81	11	10	18	Accepted
ROO*Bottler	-8 890,88	29	15	25	Rejected
ROO*Varietal	-8 882,62	17	5	11	Rejected

We can confidently reject the null hypothesis concerning the interaction effects "ROO x Bottler" ($\chi^2 = 29.20$, $df = 15$, $p < 0.025$) and "ROO x Varietal" ($\chi^2 = 16.52$, $df = 5$, $p < 0.01$). This means that for novice consumers, region of origin equity is significantly moderated by the bottler and the varietal. However, the brand ($\chi^2 = 32.82$, $df = 25$, $p > 0.10$) and the price ($\chi^2 = 11.34$, $df = 10$, $p > 0,10$) don't moderate the region of origin effects on consumer choice process. Note that concerning the main effects, all the null hypothesis can be rejected at acceptable levels of confidence.

In order to evaluate the influence of the interaction effects in the choice, we proceed in the same way as in the case of conjoint analysis, by calculating the difference between maximum and minimum utilities of each function. The following results were obtained:

Table 7: The relative importance of principal and interactions wine choice cues effects for expert and novice consumers

	Model	
	Experts	Novices
Principal effects		
Region of origin (ROO)	19%	21%
Brand	<i>(non significant effect)</i>	12%
Price	12.5%	20%

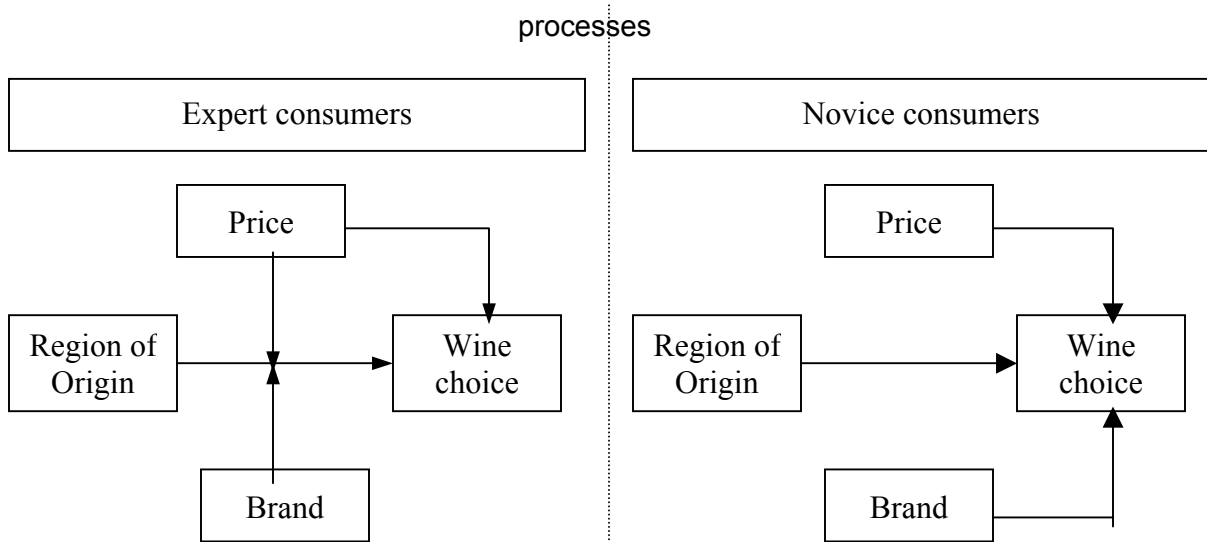
Bottler	16%	16%
Varietal	9%	7%
Interactions effects		
ROO x Brand	24%	<i>(non significant effect)</i>
ROO x Varietal	8%	11%
ROO x Price	12%	<i>(non significant effect)</i>
ROO x Bottler	<i>(non significant effect)</i>	13%
Total effects	100,00%	100,00%

For expert consumers, the region of origin is the most important cue in consumer choice process (18.81%). But this main effect must be qualified by the three significant interaction terms, which account for 43.90% of the total effects. For novice consumers, the interaction effects account for only 23.79% of the total effects. We can infer from these results that wine attributes' moderator effects on region of origin equity are weaker for novice compared to expert consumers and **H3 is therefore validated**.

Complementary results

The empirical results have shown that the moderator effects of wine attributes on region of origin are stronger in the expert group. One very interesting finding of this study is the role of wine brand and price in the wine choice process. These results can be summarized in the following figure:

Figure 2: the effects of brand and price on experts and novices wine choice



As shown in the previous figure, brand and price intervene very differently in the choice process of expert and novice consumers. For the novices, the brand and the price don't moderate the region of origin equity and their effects on wine choice are limited to their main effects. Thus, we can conclude that novices use the cues independently one from another.

For experts, price intervenes through both its main effect and as a moderator of the region of origin equity. Interestingly, the results suggest that for expert consumers, the brand is a perfect moderator⁴ of the region of origin equity. Moreover, the relative importance shows that the brand exerts the strongest moderator effect on the region of origin equity.

⁴ If the moderator variable doesn't exert a significant effect on the dependant variable and the interaction effect is significant, then the moderator variable is called a "perfect moderator" (Baron and Kenny, 1986).

The following table presents an exhibit of the interaction parameters between the brand and the region of origin :

Table 8: The moderating effects of wine brand on region of origin equity for expert consumers

Region of origin principal effects	Effect (t-value)
Barossa Valley	-0.16 (-3.6)
Côtes-du-Rhône	+0.4 (+10.5)
Local low awareness	-0.14 (-3.3)
Interactions effects	
Jacob's Creek x Southeast Australia	+0.21 (+2.2)
Jacob's Creek x Côtes-du-Rhône	-0.24 (-2.6)
Hardy's Stamps x Coteaux du Layon	-0.24 (-2.4)
Hardy's Stamps x Côtes-du-Rhône	-0.15 (-1.7)
Hardy's Stamps x Southeast Australia	+0.34(+3.6)
Cellier des Dauphins x Côtes-du-Rhône	+0.19 (+2.2)
Cellier des Dauphins x Local low awareness region	-0.32 (-3.1)
Local low awareness brand x Southeast Australia	-0.36 (-3.4)

The main effect of the Barossa Valley, Côtes-du-Rhône and the local low awareness region are significant, which means that these three regions can be used to understand the results. However, these three regions are affected by interaction effects. These results are clearly contradictory to the accessibility-diagnostic theory, which predicts that only non-diagnostic region of origins will be affected by interaction effects.

For all the regions, their value diminishes when they are associated with a brand of a different nationality and improves when they are associated with a brand of the same nationality. This finding support the work of Haübl and Elrod (1999) and suggests that for expert consumers, the congruency theory is adequate to describe how wine brand affects the region of origin equity.

6. Conclusion

The aim of this study was to show that taking into account wine attributes' moderating effect on region of origin equity can lead to a better understanding of consumers wine choice. Before commenting on the contributions of this work, we should point out the limits of this research. We should first of all carry out complementary analyses to corroborate the inter-cultural validity of these results. The question we must ask is double-edged: Is the division of a regional value into two components, direct and interactions, corroborated when the results of the four tested countries are compared? Furthermore, does perceived expertise systematically play the role of moderating variable of the relative influence of the associative component? We must further stress the fact that we only tested a situation with choices: the consumers interviewed had to choose between three wines for a particular type of consumption ("dinner this evening with friends"). On the basis of his analysis of French consumers' choices, Philippe Aurier shows that the consumption context is a discriminating variable in the consumers' assessment of the perceived value development of the choice cues (Aurier, 1997). Quester and Smart (1998) obtained similar results in the context of Australian consumers. The study of the influence of intended consumption context at the time of choice represents an area of research, which should contribute to an improved understanding of the development of region of origin equity. Of course the standard disclaimers due to convenience sampling mean that our study does not represent the population of wine consumers in the countries surveyed.

Despite its limits the benefits of our study can be considered both at a conceptual level, as well as at the level of region and wine brand management. At the conceptual level, we show that consumer expertise is a moderating variable of the relative influence of a region of origin associative component. In our view the main benefit of this result is that it shows the significance of the relationship, which can occur between geographical origin and other product attributes, is not only dependent on the nature of the signal. As other authors have already pointed out, taking into account the consumer's knowledge is important if the researcher wants to better understand the brand strength hypothesis (Maheswaran, 1994, Rao and Monroe, 1988) or the brand fit theory (Broniarczyk and Alba, 1994, Simonin and Ruth, 1998).

In a similar way we believe that perceived expertise can also lead to a better understanding of how brands and regions of origin are perceived and valued. In particular, the results of the research suggest that during their learning process consumers tend to allocate less value to regions, brands or prices alone and an increasing degree to combinations between these signals.

One interesting finding is that despite its small effect, the type of bottler exerts a moderating effect on region of origin equity only for novice consumers. We could have expected the reverse on theoretical grounds, insofar as this moderating effect should be stronger for expert consumers. We suggest that novices give extra-attention to wine origin cues, like the bottler, but that when they increase their knowledge in the wine category, their interest in interactions shifts from the bottler to other more indicative wine choice cues, like brand and price. This suggestion provides an interesting track for future research.

At the management level we show that there is a consumer segment which values brands and regions of origin when they present particular combinations. For the most expert consumers, for example, the Côtes du Rhône region is valued most highly when it is associated with the brand « Cellier des Dauphins », but depreciated when it is combined with « Jacob's Creek ». Cellier des Dauphins is therefore an association, which adds value to the Côtes du Rhône region, as well as a French brand which can add value to a French region of origin, as an Australian brand can add value to an Australian region. Wine brands are often presented as a means of reaching consumer segments, who do not have the necessary knowledge to decode wine quality signals which have become too complex, in particular *appellations d'origine* (Berthomeau, 2001, Kapferer, 1990, Lockshin, Rasmussen and Cleary, 2000). We show that the most expert consumers can also be interested in brands, which are not incongruent with the region, but combine the brand with the region in a positive way.

ANNEX 1 : RESEARCH DESIGN

	France	Allemagne	Autriche	Grande-Bretagne
Region of Origin	<ol style="list-style-type: none"> 1. Coteaux du Layon 2. Barossa Valley 3. Southeast Australia 4. Côtes du Rhône 5. Uruguay 6. Italie 	<ol style="list-style-type: none"> 1. Coteaux du Layon 2. Barossa Valley 3. Southeast Australia 4. Côtes du Rhône 5. Pfalz 6. Franken 	<ol style="list-style-type: none"> 1. Coteaux du Layon 2. Barossa Valley 3. Southeast Australia 4. Côtes du Rhône 5. Donauland 6. Wachau 	<ol style="list-style-type: none"> 1. Coteaux du Layon 2. Barossa Valley 3. Southeast Australia 4. Côtes du Rhône 5. Uruguay 6. California
Brand	<ol style="list-style-type: none"> 1. Jacob's Creek 2. Hardy's Stamps 3. Mouton Cadet 4. Cellier des Dauphins 5. Vieux Papes 6. Beaumanoir (Carrefour) 	<ol style="list-style-type: none"> 1. Jacob's Creek 2. Hardy's Stamps 3. Mouton Cadet 4. Cellier des Dauphins 5. Rebian 6. Classic 	<ol style="list-style-type: none"> 1. Jacob's Creek 2. Hardy's Stamps 3. Mouton Cadet 4. Cellier des Dauphins 5. Servus 6. Katzensprung 	<ol style="list-style-type: none"> 1. Jacob's Creek 2. Hardy's Stamps 3. Mouton Cadet 4. Cellier des Dauphins 5. Blossom Hill 6. Montana
Varietal	<ol style="list-style-type: none"> 1. Cabernet-Sauvignon 2. 	<ol style="list-style-type: none"> 1. Cabernet-Sauvignon 2. 	<ol style="list-style-type: none"> 1. Cabernet-Sauvignon 2. 	<ol style="list-style-type: none"> 1. Cabernet-Sauvignon 2.
Bottler	<p>« Mis en bouteille... :</p> <ol style="list-style-type: none"> 1. à la coopérative 2. à la propriété 3. par Castel Frères 4. par Carrefour 	<ol style="list-style-type: none"> 1. Racke 2. Lorch Weingut 3. Peter Mertes 4. Abfüller : Kaufland 	<ol style="list-style-type: none"> 1. Winzer Krems 2. Weingut Bauer 3. Lenz Moser 4. Abfüller : SPAR 	<ol style="list-style-type: none"> 1. bottled by the cooperative 2. Estate Bottled 3. Bottled by the Orlando Group 4. Bottled by the retailer
Price	<ol style="list-style-type: none"> 1. 1,9 € (12,5 francs) 2. 3,5 € (23 francs) 3. 6,9 € (45 francs) 	<ol style="list-style-type: none"> 1. 2,49 € 2. 3,99 € 3. 6,19 € 	<ol style="list-style-type: none"> 1. 2,5 € 2. 4,5 € 3. 7,5 € 	<ol style="list-style-type: none"> 1. 3,49 € 2. 4,99 € 3. 7,49 €

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