

Premia for differentiated products at the retail level: can the market put a value on the mountain attribute?

Cesar REVOREDO-GIHA[1*] and Philip LEAT[1]

[1]Food Marketing Research Team, Land Economy and Environment Research Group, Scottish Agricultural College (SAC), King's Buildings, West Mains Road, Edinburgh, EH9 3JG, UK

"So much is missed in the word mountain food – there is culture but it is not a mountain culture, it is a Highland culture"

"When you mentioned mountain food, I thought of goats and Heidi and Switzerland"

"I wouldn't want to buy Venison from anywhere, like the South of England"

Some comments about mountain food products from focus groups held in Edinburgh, Aberdeen and Fort William, August 2008 (Scotland, UK).

ABSTRACT

The purpose of this paper is, by comparing products with a mountain provenance with those from non-mountain areas, to explore whether the market puts a premium on the 'mountain attribute'. First, we present a theoretical framework on attributes and cues that helps answering the question what is "mountain" representing in a products or in other term, is it an attribute or a cue. Second, based on a shelves survey collected as part of the EuroMARC, we analyse for several products (apples, sausages, water and cheese) and countries (Austria, France, Norway, Scotland and Slovenia) using a hedonic price regression approach whether a premium is paid for mountain food products in comparison with identified similar non-mountain food products. The results indicate that the answer is mixed and depends on the product and country. Thus, premia was found only in the case of cheese and for Austria, Norway and Slovenia.

Key words: mountain quality food products, attributes and cues, hedonic regression

INTRODUCTION

The concept of mountain food product is a complex one because it evocates different images to consumers. This can be observed in the diversity of opinions reflected in the three comments, cited at the beginning of the paper, from focus groups held in Scotland in August 2008.

The purpose of this paper is to explore whether the market puts a value to the mountain attribute at the retailer level or in other terms whether consumers are willing to pay an additional amount (i.e. a premium) for buying a mountain quality food product. This is studied using prices from products representative from several European ranges -Highlands, Alps, Scandinavia, Massif Central.

The motivation for studying the current situation of mountain food products (or prices actually paid) instead of hypothetical ones expressing consumers intentions is due to the fact that there is always discrepancies between hypothetical and actual behaviour (MAFF 2000). Thus, whilst consumers may show high interest on mountain quality food products when responding a hypothetical survey this is not always reflected in their buying behaviour or in their willingness to pay the higher price that products of a higher quality may carry and therefore, in practice, one may not observe a premium for mountain quality food products.

As mentioned, the concept of mountain food is a complex one and this has been transmitted to consumers in several ways. Thus, the mountain origin of the products has been displayed to consumers in several ways and including a number of pieces of information, such as through the word 'mountain' itself, the mention of a geographic name of a famous mountain range or region, but mainly via images of

**Correspondence to:*
E-mail: cesar.revoredo@sac.ac.uk

mountains without compliance with procedures of origin. In some cases, nutritional information or positive claims such as 'farm products', 'traditional products', 'natural', 'extra', 'typical', 'without preservatives' are mentioned.

Within a more general framework, the interest on the marketing of mountain products is associated to find "market driven" ways for adding value to mountain food products as a prerequisite for the survival and the management of rural and cultural mountain diversity. This is motivated by the new orientation of the Common Agriculture Policy which looks to promote "market driven" type of production where European Union farmers will be expected to respond to market signals (Sylvander 1993, Ilbery 1998, Leat et al. 2000).

Mountain areas, which represent at least half of the area of six European States, with the greatest proportions in Austria (73 per cent), Greece and Slovenia (78 per cent), and Slovakia (62 per cent) and more than 90 per cent of both Norway and Switzerland- represent an important challenge for Europe to achieve sustainable development, including quality of life and the continued production of high-quality food, deriving mainly from environmental and cultural factors (Nordregio 2004).

The structure of the paper is as follows. First, we present a theoretical framework on attributes and cues that helps answering the question what is "mountain" representing in a products or in other term, is it an attribute or a cue. Second, based on information provided by a shelves survey collected as part of the EuroMARC project, we analyse for several products (apples, sausages, water and cheese) and countries (Austria, France, Norway, Scotland and Slovenia) using a hedonic price regression approach whether a premium is paid for mountain food products in comparison with identified similar non-mountain food products.

Theoretical framework - attributes and cues

In the 1960s, Kelvin Lancaster pioneered a new approach to consumer theory in which he broke away from the traditional idea that goods are the direct objects of utility, and that instead it is the properties or characteristics of the goods from which utility is derived (Lancaster 1966). Subsequent literature relating to the quality attributes of goods and services (e.g., Nelson 1970, Darby and Karni 1973, Andersen 1994) makes a distinction between 3 types of attributes (see also OECD 1997):

- *Search attributes* - which can be ascertained prior to a product's purchase (e.g., the colour of a cheese, or the thickness of fat cover on a piece of meat).
- *Experience attributes* - which cannot be determined prior to purchase but which can be ascertained during consumption (e.g., the creaminess and taste of a cheese, or the taste and tenderness of meat).
- *Credence attributes* - which cannot be determined prior to purchase or during consumption (e.g., the level of welfare experienced by a lamb during its life, or in some cases whether a product's ingredients were actually produced in a mountain area).

Caswell et al. (1998) consider the grouping of attributes into 'process' and 'product' attributes. Northen (2000), in developing the work of Caswell et al. (1998), distinguishes five types of product attribute, covering: food safety; nutrition; and sensory, functional and image attributes.

Process attributes relate to features of the production process. Whilst consumers may purchase products in order to consume physical product attributes, they may also be concerned about process attributes - such as artisanal production methods or organic production - and therefore purchase a particular product in order to purchase these as well. Beyond the farm gate, features of the processing and marketing channel, such as length of meat maturation, may also constitute a process attribute.

In some cases process attributes may influence the physical product, but in many instances this causal relationship - where it exists – may be weak. For example, it may be claimed that the extensive production environment of a beef animal in a mountain area may affect the final meat product, but it may be questionable as to whether this can be detected by consumers. In the case of organic production, the influence of this process attribute may well be detectable for some products and some consumers. Similarly, traditional production methods in a rural mountain setting may give rise to discernible taste, smell or appearance features.

These two classifications of attributes into 'search', 'experience' and 'credence', as well as 'process' and 'product' attributes can be combined as shown in Table 1, where the focus is on an organic meat product from a mountain area. It should be recognised that some attributes may be of more than one type, e.g., the juiciness of a piece of meat might be apparent prior to purchase (a search attribute) but also confirmed during consumption (an experience attribute). Furthermore, there is clearly a linkage between some attributes, e.g., the fat content of a piece of meat or of a cheese may well influence its taste.

The communication of quality attributes: the deployment of quality cues

The question arises as to how quality attributes are communicated to consumers prior to purchase. Consumers' perceptions of quality prior to purchase are based on quality cues; stimuli which lead to the perception of certain quality attributes being present and *which determine when, where and how a person responds* (Kotler 1980).

Quality cues may be categorised into intrinsic and extrinsic cues (Olson and Jacoby 1972, Olson 1977, Bello Acebron and Calvo Dopico 2000). Thus:

- *Intrinsic quality* cues cannot be changed or manipulated without changing the physical characteristics of the product itself.

- *Extrinsic quality* cues are related to the product but are not physically part of it.

As noted by Oude Ophuis and Van Trijp (1995), extrinsic cues can be manipulated by marketing activity, without the need to change the product itself. Consequently, extrinsic cues need to be carefully developed and deployed if a product is to be sold to best effect.

In the case of meat, the intrinsic quality cues will include

Table 1: Categorisation of potential 'process' and 'product' quality attributes of organic meat production from a mountain area

Process Attributes	Product attributes				
	Food Safety	Nutrition	Sensory	Functional	Image
Animal welfare (C)	Absence of Residues (C)	Fat content (S, E, C)	Appearance (S)	Product life (S and E)	Prestige Value (S, E, C)
Biotechnology (C)	Absence of artificial Hormones (C)	Energy content (C)	Taste (E)	Preparation Convenience (S and E)	
Organic production (C)	Absence of Additives (C)	Vitamins and minerals (C)	Texture (E)	Consumption Convenience (E)	Prestige value (S,E,C)
Traceability (C)	Absence of Toxins (C)		Tenderness (E)		
Feed and Feeding system (C)	Absence of Physical contaminants (E and C)		Juiciness (S and E)		
Mountain Production Environment (C)			Freshness and Taste (S and E)		Prestige value (S,E,C)
Treatment(s) in processing (C)			Smell (S and E)		

Note: S = Search attribute, E = Experience attribute, C = Credence attribute. The classification of the attributes into search, experience and credence is that of the authors. (Source: Developed from Northen (2000))

physical definitive features of the product such as lamb of a particular origin, as well as visual cues such as colour, leanness or fat cover, degree of marbling, juiciness and the type of cut. Smell may also be an intrinsic cue. For cheese, the intrinsic quality cues may again include its provenance, along with the colour, smell, texture, etc. Many of these cues may not be perceived by consumers either because they are ignored or because information is not provided (Bello Acebron and Calvo Dopico 2000).

Extrinsic quality cues may include the price of a product, its brand name, packaging, labelling and label information, point of sale information, other promotional activities, presentation in the sales outlet, the place of purchase (reputation/status of the outlet), and the influence of the salesperson (Steenkamp 1989).

The communication of attributes via cues is represented in Figure 1. It indicates that product attributes are capable of being communicated by intrinsic cues. The attributes concerned will be of the 'search' type.

It is important to note that, as Table 1 has indicated, a significant number of product attributes are of the 'experience' and 'credence' types. Andersen (1994) has argued that credence attributes cannot be communicated by intrinsic cues, and it may be that some particular experience attributes, such as tenderness and texture are not readily predicted from intrinsic cues. Thus extrinsic cues, along with intrinsic cues, are important in communicating product quality attributes.

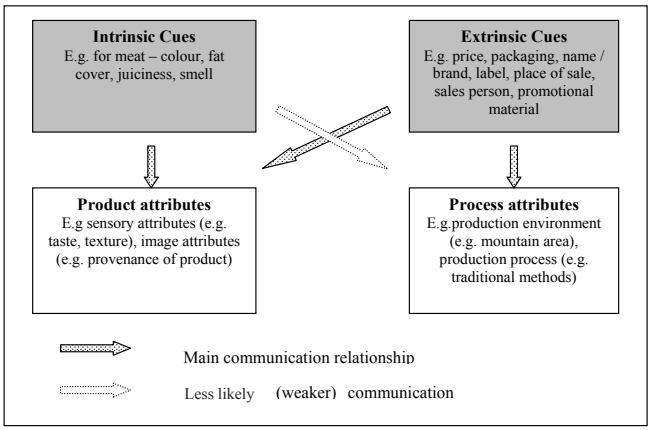

Figure 1: The relationship between cues and attributes (source: according to Northen, 2000)

Process attributes are very largely credence in nature, so that the effective communication of process attributes - including the production environment, animal welfare and traditional production systems - is largely dependent on extrinsic cues.

Mountain as an attribute and as cue

Within this framework of concepts, the mountain attribute may embody both product and process attributes, which can be regarded as a:

- Search attributes (where the provenance is clearly indicated by a verified source)
- Experience attributes (where the product's attributes give rise to a different experience to that of the non-mountain product, such as a different taste)
- Credence attributes (where the purchaser and consumer have to believe that the mountain provenance is real and that this conveys additional utility).

The cues which convey the mountain attribute may in some instances be intrinsic, such as the smell and colour of mountain heather honey, but in many instances the mountain attribute and its various aspects may need to communicated by extrinsic cues in the form of labelling, packaging, a relatively high price, information from the sales person, etc.

It should be noted that when the term 'mountain' is used in a label, the way that it is normally communicated to consumers, the label 'mountain' becomes a cue of a number of attributes associated with the specific mountain product, which can be product and process attributes.

In this paper we examine whether price, through the existence of a price premium, is being effectively used and accepted as a cue for the mountain attribute.

MATERIAL AND METHODS

Input data

The data used in this paper come from shelves surveys conducted in Austria, France, Norway, Romania, Scotland and Slovenia. The data from Romania was not used because it did not contain information about the prices of alternative non-mountain food products.

The main purpose of the shelves surveys was to study how Mountain Quality Food Products are currently marketed, covering issues such as whether the products are marketed as mountain products, whether labels are used in the shop or whether the products are presented together, and information amount prices of mountain food products and of similar non-mountain food products, etc.

As regards the way the shelves surveys were planned and conducted, it is important to note that they were not constructed following any sampling procedure, i.e., based on any known population. Strictly speaking, the sampling population was all the retailers that market mountain quality food products, however, the characteristics of this population are unknown. In this respect, the type of sampling used was random sampling with replacement, since each country was committed to collect 90 shelves.

Table 2 presents a summary of all the information collected by the shelves surveys. In total information corresponding to 564 shelves was collected, which resulted in 1,765 products (i.e., a product in the analysis consists of each element comprising a shelf; therefore, if the same product is sold in two different shops, it counts as a two products). In addition, this information was collected from a total of 351 different outlets (i.e., shops).

As regards of shelves, 59.6 per cent of them where collected in mountain areas and 40.4 per cent of the outlets were also from mountain areas. As regards the distribution by country, the two extremes were Norway, with a higher proportion of non-mountain shelves (43.8 per cent mountain /56.2 per cent non-mountain) and on the other extreme was Austria, where a substantial part of the shelves where from mountain areas (92 per cent mountain /8 per cent non-mountain).

Even if controlling by repeated products the diversity of these was high. In order to make the analysis possible, the products from the survey were classified into 18 food product categories: mineral water, soft drink, cheese, other dairy, apples, pears, beef, fish, pig meat, sheep meat, poultry products, venison, moose, ham, sausage, other meat products, bread, honey and other food products. These products were further classified into 6 groups: beverages, dairy, fruits, meats, meat products and other products. The most popular product in the sample was cheese, with information was collected in 5 of the countries (except in Romania). It was followed by mineral water and sausages, which were collected by 4 countries.

As regards the sampled outlets, these were classified into the following categories: cash and carry, discount shop, factory outlet, farmers shop, farmers market, foreign supermarket, hypermarket, mini-market, national supermarket, regional supermarket, specialty shop, vending machine and web shop. Most of the shelves collected came from national supermarkets (146 shelves or 26.8 per cent), specialty shops (97 shelves or 17.8 per cent), mini-markets (94 shelves or 17.3 per cent), and farmers markets (44 shelves or 8.1 per cent).

As mentioned, the shelves surveys collected information about prices for mountain and similar non-mountain food products, which are the basis for the empirical work done in this paper. Table 3 present the information about the all the mountain food products for which an equivalent non-mountain food product price was present in the database. As shown, overall 22.7 per cent of the products had an equivalent non-mountain food product price recorded in the database. However, this percentage varied dramatically from one product to another and from one country to another. It should be noted that whilst this may reflect problems in the data collection, it can also be due to the fact that some of the products do not have equivalent non-mountain ones.

Methodology

As pointed out by Combris et al. (1997) the hedonic price method is a useful approach to study the price-quality relationship of a product. The method consists of a regression analysis of the price on the characteristics of the product. It has been used for both durable (e.g., automobiles) and non-durables (e.g., wine, cereals)[1].

[1] See Combris et al. (1997) for references about hedonic regressions analysis applied to the different type of products.

Table 2: All the countries: Results of the shelves survey - results per country (counts)

	Austria	France	Norway	Romania	Scotland	Slovenia	Total
Number of shelves	100	91	105	90	88	90	564
By type of shelf							
Beverages	27	34	10	90	0	0	161
Dairy	73	12	34	0	43	65	227
Fruits	0	44	0	0	0	0	44
Meats	0	0	25	0	31	0	56
Meat products	0	1	15	0	14	25	55
Other products	0	0	21	0	0	0	21
By type of outlet							
Cash and carry	11	0	0	1	0	0	12
Discount shop	4	10	23	0	0	0	37
Factory outlet	0	0	0	0	3	11	14
Farmers shop	0	1	0	0	19	13	33
Farmers market	13	7	3	0	1	20	44
Foreign supermarket	0	0	0	0	0	11	11
Hypermarket	0	28	0	0	0	0	28
Mini-market	0	9	6	89	10	0	114
National supermarket	22	29	61	0	18	16	146
Regional supermarket	18	1	0	0	0	2	21
Speciality shop	26	6	11	0	37	17	97
Vending machine	0	0	1	0	0	0	1
Webshop	6	0	0	0	0	0	6
According to mountain area							
In mountain areas	92	47	46	44	53	54	336
Out of mountain areas	8	44	59	46	35	36	228
Number of products	410	230	283	246	232	364	1765
Beverages	94	95	34	246	0	0	469
Mineral water	91	95	32	246	0	0	464
Soft drink	3	0	2	0	0	0	5
Dairy	316	23	95	0	84	271	789
Cheese	293	23	59	0	76	155	606
Other dairy	23	0	36	0	8	116	183
Fruits	0	74	0	0	0	0	74
Apples	0	66	0	0	0	0	66
Pears	0	8	0	0	0	0	8
Meats	0	0	68	0	109	0	177
Beef	0	0	4	0	34	0	38
Fish	0	0	0	0	11	0	11
Pigmeat	0	0	10	0	13	0	23
Sheepmeat	0	0	44	0	15	0	59
Poultry products	0	0	1	0	8	0	9
Venison	0	0	3	0	28	0	31
Moose	0	0	6	0	0	0	6
Meat products	0	36	39	0	39	93	207
Ham	0	14	0	0	0	2	16
Sausage	0	22	39	0	15	35	111
Other meat products	0	0	0	0	24	56	80
Other products	0	2	47	0	0	0	49
Bread	0	0	17	0	0	0	17
Honey	0	1	2	0	0	0	3
Herbs and spices	0	0	20	0	0	0	20
Other food products	0	1	8	0	0	0	9
Total number of different outlets	68	77	35	90	37	44	351
In mountain areas	64	33	11	44	19	28	199
Out of mountain areas	4	44	24	46	18	16	152

The implicit price of a characteristic is defined as the derivative of the price with respect to the product attribute. Rosen (1974) has shown under which market conditions the implicit price can be interpreted as the value consumers place on an additional unit of the characteristic. If the estimated implicit price is not significantly different from zero, then the characteristic is not valued by consumers, or the characteristic is not considered important or relevant in connection with the product.

Thus, the starting point is the estimation of the following equation:

Table 3: All the countries: Distribution of cases for which the price of an equivalent "non-mountain" product was recorded in the database

	Austria	France	Norway	Romania	Scotland	Slovenia	Total
Number of products	162	114	63	0	14	49	402
Total	410	230	283	246	232	364	1765
Beverages	45	55	0	0	0	0	100
Total	94	95	34	246	0	0	469
Mineral water	43	55	0	0	0	0	98
Total	91	95	32	246	0	0	464
Soft drink	2	0	0	0	0	0	2
Total	3	0	2	0	0	0	5
Dairy	117	5	31	0	14	40	207
Total	316	23	95	0	84	271	789
Cheese	107	5	12	0	14	20	158
Total	293	23	59	0	76	155	606
Other dairy	10	0	19	0	0	20	49
Total	23	0	36	0	8	116	183
Fruits	0	30	0	0	0	0	30
Total	0	74	0	0	0	0	74
Apples	0	24	0	0	0	0	24
Total	0	66	0	0	0	0	66
Pears	0	6	0	0	0	0	6
Total	0	8	0	0	0	0	8
Meats	0	0	3	0	0	0	3
Total	0	0	68	0	109	0	177
Beef	0	0	1	0	0	0	1
Total	0	0	4	0	34	0	38
Fish	0	0	0	0	0	0	0
Total	0	0	0	0	11	0	11
Pigmeat	0	0	0	0	0	0	0
Total	0	0	10	0	13	0	23
Sheepmeat	0	0	2	0	0	0	2
Total	0	0	44	0	15	0	59
Poultry products	0	0	0	0	0	0	0
Total	0	0	1	0	8	0	9
Venison	0	0	0	0	0	0	0
Total	0	0	3	0	28	0	31
Moose	0	0	0	0	0	0	0
Total	0	0	6	0	0	0	6
Meat products	0	23	9	0	0	9	41
Total	0	36	39	0	39	93	207
Ham	0	11	0	0	0	1	12
Total	0	14	0	0	0	2	16
Sausage	0	12	9	0	0	1	22
Total	0	22	39	0	15	35	111
Other meat products	0	0	0	0	0	7	7
Total	0	0	0	0	24	56	80
Other products	0	1	20	0	0	0	21
Total	0	2	47	0	0	0	49
Bread	0	0	16	0	0	0	16
Total	0	0	17	0	0	0	17
Honey	0	1	0	0	0	0	1
Total	0	1	2	0	0	0	3
Herbs and spices	0	0	0	0	0	0	0
Total	0	0	20	0	0	0	20
Other food products	0	0	4	0	0	0	4
Total	0	1	8	0	0	0	9

$$Y_i = \alpha_0 + \alpha_1 Z_{1i} + \alpha_2 Z_{2i} + ... + \alpha_n Z_{ni} + u \quad (1)$$

Where Y_i are the product prices, the Z_i are the attributes and the α_i are the parameters of the regression.

The attributes considered in the analysis were introduced by means of dummy variables (i.e. dichotomous variables that take the value of 1 when a characteristic is present and 0 otherwise). The procedure used to introduce the dummies into the regression was the one in Oczkowski (1994), which avoids choosing a base category for the comparisons. For instance, one could consider in the case of the mineral water regressions, the category base 'still water from non-mountain origin sold in non-mountain areas by non-specialised stores' and all the parameters of the dummy variables in the regression would indicate deviations with respect to the base category. Thus, the parameter associated to a variable "mountain origin" would indicate whether 'still water from mountain origin sold in non-mountain areas by non-specialised stores' would receive a different price than the base category. Instead one may consider that all the parameters from the dummies indicate deviations with respect to the mean price but this requires reformulating the typical approach used when dealing with dummy variables.

The procedure used in this paper to introduce the dummy variables into the regression -presented here for completeness sake- can be explained by means of a simple two dummy variable model, $Y = \alpha_0 + \alpha_1 D_1 + \alpha_2 D_2 + u$ where D_1 is the first dummy variable that takes the value of 1 if say, the store is in a mountain area and 0 otherwise; D_2 is the second dummy variable that takes the value of 1 if the store is in a non-mountain area and 0 otherwise. By construction the two dummies add up to 1 (i.e. the store can be either in a mountain area or outside of it) and therefore, only one should be considered in the regression. However, it is possible to impose a constraint in the regression such that the parameters associated to the dummies become deviations with respect to the mean of the dependent variable (which is measured by the intercept, i.e., $\alpha_0 = \bar{Y}$). Thus, using the constraint that $\alpha_1 D_1 + \alpha_2 D_2 = 1$, it is possible to estimate all the parameters from the model by running the following two regressions (2') and (2"):

$$Y = \alpha_0 + \alpha_1 \left[D_1 - \left(\frac{P_1}{P_2} \right) D_2 \right] + u \quad (2')$$

$$Y = \alpha_0 + \alpha_2 \left[D_2 - \left(\frac{P_2}{P_1} \right) D_1 \right] + u \quad (2'')$$

The dummy variables in the analysis comprised four groups: first, attributes associated to whether the product was a mountain product, which included three dummy variables: (1) the mountain product did not have an equivalent product in the database, (2) the mountain product has an equivalent non-mountain products in the database and (3) non-mountain food products. Second, attributes associated to the location of the stores, which consisted of two dummies: (1) the shop was in a mountain area and (2) the shop was not in the mountain area. Third, attributes associated to the type of store, which comprised three dummies: (1) small non-specialised shop (i.e., discount shop, mini-market, vending machine and web shop.), (2) specialised (shop factory outlet, farmers shop, farmers market, specialty shop and regional supermarket), (3) supermarkets and similar stores (i.e., cash and carry, foreign supermarket, hypermarket, national supermarket). Fourth, attributes associated with the product types (e.g., type of apples), which depended on the product and can be found on the regression notes.

RESULTS AND DISCUSSION

The results are presented in Table 4 and Table 5. Although the regressions could have been run for all the products in the database as far as the product price was recorded, the main idea of the paper was to compare the price of similar mountain and non-mountain products. Therefore, only those cases where a sizable number of non-mountain food products was present (at least 4 cases). In addition, the analysis was performed differentiating by products and countries.

The statistical significance of the parameters associated to the variables x1 and x2 in the table indicate that the prices of the mountain food products (in the group without and with equivalent product) are different from the mean (above or below depending on the sign of the parameters). This was the case for sausage in France and cheese in Austria, France and Norway. In the case of Scotland and Slovenia the prices were not different than the mean value.

The parameters corresponding to x2 and x3 allow testing the hypothesis whether mountain food products carry a premium with respect to the non-mountain products. A premium was found only on the case of cheese and only for Austria, France (though favouring non-mountain products), Norway and Slovenia. In Austria the parameter of x2 was not statistically different than zero but the non-mountain products was -1.125 €/Kg (i.e., 1.125 was the size of the premium). In the case of Norway, the premium was found to be more substantial and equal to 23.1 €/Kg and in Slovenia, it was 2.5 €/Kg.

As regards whether the location of the store had effect on prices (related to variables x4 and x5) it was only found positive in the case of Austria and Slovenia. In the case of Austria mountain areas carry a higher price in the case of water (in the case of cheese, the same is observed but it is not statistically significant). In the case of cheeses in Slovenia, the situation is just the opposite and it is store in non-mountain areas the ones that carry a premium.

Variables x7 to x9 indicate that in some case specialised shops carry prices above average (this is for all the products not just mountain products). This is found for the case of cheese and water in Austria and only water in France.

As for the remaining variables (product type) several characteristics brought differences in prices but not in a systematic way.

Overall the mixed results obtained from the empirical analysis may indicate that probably in not all the cases the mountain attribute can operate as a creator of value (i.e. a source of differentiation in the eyes of consumers or buyers) and this may differ by product and country. Table 6 is an attempt to organise the possible cases that may arise.

Table 6 considers three degrees of differentiation: a

Table 4: Hedonic regressions for apples, sausages and water for selected countries

Variables	Apples 2/			Sausages 2/						Water 2/					
	France			France			Norway			Austria			France		
	Coefficient	t-statistic	Signif.	Coefficient	t-statistic	Signif.	Coefficient	t-statistic	Signif.	Coefficient	t-statistic	Signif.	Coefficient	t-statistic	Signif.
Dependent variable: Price in €/Kg				Dependent variable: Price in €/Kg						Dependent variable: Price in €/Litre					
Intercept 1/	1.848	28.543	0.000	15.887	16.672	0.000	32.526	6.314	0.000	0.489	15.308	0.000	0.330	26.680	0.000
x1	0.105	1.077	0.285	-4.118	-2.231	0.034	4.216	0.907	0.371	0.145	2.725	0.007	-0.016	-0.666	0.507
x2	-0.080	-0.622	0.536	1.427	1.132	0.268	-8.607	-0.652	0.519	-0.108	-2.372	0.019	-0.022	-1.267	0.207
x3	-0.116	-0.865	0.389	1.318	1.046	0.305	-8.860	-0.671	0.507	-0.024	-0.524	0.601	0.033	1.963	0.052
x4	0.082	0.718	0.475	--	--	--	-1.150	-0.265	0.793	0.022	2.025	0.045	-0.011	-0.826	0.410
x5	-0.073	-0.718	0.475	--	--	--	2.972	0.265	0.793	-0.223	-2.025	0.045	0.011	0.826	0.410
x6	-0.419	-1.977	0.052	-4.849	-0.863	0.396	-0.915	-0.125	0.901	-0.163	-2.271	0.025	-0.018	-0.703	0.483
x7	0.128	1.804	0.075	5.481	0.976	0.338	-18.536	-0.504	0.618	0.192	4.569	0.000	1.092	7.237	0.000
x8	0.027	0.504	0.615	-0.021	-0.076	0.940	3.696	0.556	0.582	-0.169	-2.770	0.007	-0.004	-0.566	-0.566
x9	0.086	1.113	0.269	--	--	--	-9.848	-1.031	0.310	-0.065	-0.609	0.544	-0.005	-1.363	-1.363
x10	-0.437	-1.817	0.073	--	--	--	29.073	1.853	0.073	-0.049	-1.140	0.257	--	--	--
x11	0.076	0.251	0.803	--	--	--	-5.727	-0.501	0.620	0.438	2.053	0.042	--	--	--
x12	-0.018	-0.211	0.834	--	--	--	16.401	0.387	0.701	0.052	0.949	0.345	--	--	--
x13	--	--	--	--	--	--	-0.289	-0.034	0.973	--	--	--	--	--	--
R^2	0.17			0.23			0.21			0.28			0.30		
Obs.	89			32			43			125			146		

Notes:

1/ The intercept is the mean of the dependent variable, the other coefficients are intepreted as deviations from that mean.

2/ '--' indicates that the variable was not included in the regression.

Variables

x1 = Dummy mountain product (without no equivalent non-mountain product in the database)
x2 = Dummy mountain product (with equivalent non-mountain product in the database)
x3 = Dummy non-mountain product
x4 = Dummy shop in the mountain area
x5 = Dummy shop not in the mountain area
x6 = Dummy shop type 1 - Small non specialised
x7 = Dummy shop type 2 - With some or more specialisation
x8 = Dummy shop type 3 - Large establishments (e.g., supermarkets)

For apples

x9 = Dummy apple variety - Golden
x10 = Dummy apple variety - Royal Gala
x11 = Dummy apple variety - Fuji
x12 = Dummy apple variety - Other

For sausages

x9 = Dummy sausage type - Sheep
x10 = Dummy sausage type - Reindeer
x11 = Dummy sausage type - Moose
x12 = Dummy sausage type - Beef
x13 = Dummy sausage type - Not specified

For water

x9 = Dummy water type - Still
x10 = Dummy water type - Sparkling
x11 = Dummy water type - Flavoured (not in France)
x12 = Dummy water type - Not specified (not in France)

Table 5: Hedonic regressions for cheese for selected countries

Variables	Cheese 2/													
	Austria			France			Norway			Scotland			Slovenia	
	Coefficient	t-statistic	Signif.	Coefficient	t-statistic	Signif.	Coefficient	t-statistic	Signif.	Coefficient	t-statistic	Signif.	Coefficient	t-statistic
Dependent variable: Price in €/Kg (or £/Kg in Scotland)														
Intercept 1/	13.086	44.615	0.000	10.642	22.781	0.000	32.536	8.845	0.000	15.199	33.103	0.000	9.607	35.178
x1	0.763	2.698	0.007	0.633	1.720	0.099	8.398	2.418	0.019	0.255	0.636	0.527	0.283	1.541
x2	-0.410	-0.900	0.369	-2.085	-2.035	0.054	-9.676	-1.045	0.301	0.663	0.548	0.585	0.253	0.264
x3	-1.125	-2.470	0.014	-0.195	-0.190	0.851	-23.075	-2.492	0.016	-1.791	-1.480	0.143	-2.521	-2.636
x4	0.087	1.027	0.305	--	--	--	-10.874	-1.742	0.088	-0.254	-0.307	0.760	-1.657	-6.272
x5	-0.896	-1.027	0.305	--	--	--	4.401	1.742	0.088	0.133	0.307	0.760	1.974	6.272
x6	-3.184	-4.777	0.000	-0.223	-0.185	0.855	--	--	--	-0.484	-0.267	0.791	--	--
x7	0.696	5.212	0.000	0.441	0.827	0.417	3.424	0.571	0.571	0.209	1.182	0.241	-0.144	-0.842
x8	-0.973	-1.847	0.066	-0.494	-1.220	0.235	-0.445	-0.187	0.853	-4.792	-5.654	0.000	0.710	0.842
x9	0.458	0.755	0.451	--	--	--	-4.177	-0.724	0.472	1.377	1.621	0.109	0.452	0.846
x10	-0.090	-0.227	0.820	--	--	--	--	--	--	--	--	--	0.904	1.061
x11	-0.106	-0.394	0.694	--	--	--	-15.393	-1.428	0.160	-1.255	-2.548	0.013	2.075	5.286
x12	-0.843	-0.618	0.537	--	--	--	-0.692	-0.063	0.950	-1.265	-0.403	0.688	-4.024	-8.150
x13	--	--	--	--	--	--	-11.389	-0.514	0.610	2.589	2.269	0.026	--	--
x14	--	--	--	--	--	--	8.948	1.597	0.117	--	--	--	--	--
x15	0.718	0.655	0.513	--	--	--	--	--	--	-4.758	-1.840	0.070	2.324	2.166
R^2	0.13			0.21			0.20			0.43			0.47	
Obs.	385			28			59			90			160	

Notes:

1/ The intercept is the mean of the dependent variable, the other coefficients are intepreted as deviations from that mean.

2/ '--' indicates that the variable was not included in the regression.

Variables

x1 = Dummy mountain product (without no equivalent non-mountain product in the databas
x2 = Dummy mountain product (with equivalent non-mountain product in the database)
x3 = Dummy non-mountain product
x4 = Dummy shop in the mountain area
x5 = Dummy shop not in the mountain area
x6 = Dummy shop type 1 - Small non specialised
x7 = Dummy shop type 2 - With some or more specialisation
x8 = Dummy shop type 3 - Large establishments (e.g., supermarkets)
x9 = Dummy cheese type - Soft
x10 = Dummy cheese type - Semi hard
x11 = Dummy cheese type - Hard
x12 = Dummy cheese type - Cream
x13 = Dummy cheese type - Blue
x14 = Dummy cheese type - Brown
x15 = Dummy cheese type - Not specified

Table 6: Hedonic regressions for cheese for selected countries

Degree of Differentiation	Product provenance	Role of the 'mountain' attribute
Homogeneous product (no differentiation)	The product is produced in **both** mountain and non-mountain areas.	The attribute 'mountain' does not produce any discernible differentiation.
Partially differentiated product	The product is produced in **both** mountain and non-mountain areas.	The attribute 'mountain' may differentiate the product, relative to the non-mountain substitute product, due to a special raw material, production environment, or production process. The 'mountain' attribute may create value, relative to the non-mountain product, and can be combined with other value creating attributes (e.g., Cairngorm Mountain Farmhouse Cheese). The 'mountain' attribute can be the basis of a quality label.
Totally differentiated product	The product is **only** produced in mountain areas.	With no direct substitute, the 'mountain' attribute may be enhanced with other value creating attributes (e.g., Cairngorm Mountain Heather Yoghurt) for differentiation from other mountain products. However, 'mountain' can still be the basis for a 'quality' label.

first degree is that one for which the term 'mountain' does not provide any sort of differentiation in the eyes of consumers or buyers. This is because the products (both from mountain and non-mountain provenance) can be consider homogeneous. The second case occurs when the attribute 'mountain' indicates some special raw material or production process that differentiates the mountain product from the non-mountain version. The third case consists of those products that are totally differentiated, i.e., there is not a non-mountain version of the product. In this case, the term 'mountain' cannot be used a differentiation label (although it can be a quality label). In this last case, other attributes are required to differentiate amongst similar versions of mountain products.

CONCLUSIONS

The purpose of the paper has been to analyse the prices for mountain and non-mountain food products collected as part of shelves survey carried around six countries (although only information from five were used due to the fact that the data from Romania do not contain information about non-mountain food product prices).

The paper starts presenting a theoretical framework on attributes and cues that helps answering the question what is "mountain" representing in a products or in other term, is it an attribute or a cue. The analysis indicates that the cues which convey the mountain attribute may in some instances be intrinsic, such as the smell and colour of mountain heather honey, but in many instances the mountain attribute and its various aspects may need to communicated by extrinsic cues in the form of labelling, packaging, a relatively high price, information from the sales person, etc. However, a different way of seeing it happens when the term 'mountain' is used in a label, the way that it is normally communicated to consumers, the label 'mountain' becomes a cue of a number of attributes associated with the specific mountain product, which can be product and process attributes.

As regards the empirical analysis its main purpose was to test whether mountain carry a premium associated to higher quality with respect to non-mountain products. The analysis was carried out using hedonic price regressions for the following products and countries: apples in France, sausages in France and Norway, water in Austria and France and cheese for Austria, France, Norway, Scotland and Slovenia.

The results indicated that in the case of sausage in France and cheese in Austria, France and Norway mountain products prices are above average. In the case of Scotland and Slovenia the prices were not different than the mean value.

As regards whether mountain food products carry a premium with respect to the non-mountain products, a premium was only found on the case of cheese and only for Austria, France (though favouring non-mountain products), Norway and Slovenia. In Austria the parameter of x2 was not statistically different than zero but the non-mountain products was -1.125 €/Kg (i.e., 1,125 was the size of the premium). In the case of Norway, the premium was found to be more substantial and equal to 23.1 €/Kg and in Slovenia, it was 2.5 €/Kg.

Whilst the diversity of products creates challenges for the comparison, overall the results indicate that not all mountain products receive a premium, but in some cases the non-mountain products are more expensive. Thus, the existence of a premium appears to be very situation specific – depending on the product type, the mountain area (and possibly its association with food), the other value creating attributes embodied in the product, and the existence of substitutes.

ACKNOWLDGEMENTS

This paper derives from work funded under the EU co-funded EuroMARC (SSPE-CT-2006-044279) and by the Scottish Government Rural Affairs and the Environment Portfolio Strategic Research Programme 2011-2016, Theme 5: Efficient and resilient supply chains for food (http://www.scotland.gov.uk/Topics/Research/About/EBAR/Strategic/Research future-research-strategy/Themes/Theme5). A preliminary version of this paper was presented at the Workshop "The development of mountain quality food products: Consumption, Production, Distribution" held in Brussels, November 06, 2008. We would like to acknowledge the participation of the EuroMARC consortium in the data collection process, which was comprised by Enita-Clermont, France; Euromontana, Belgium; ICDM, Romania; ISARA-Lyon, France; OIR, Austria; Perth College, UK; SAC, UK; SIFO, Norway; UIBK, Austria and UMFK, Slovenia.

REFERENCES

1. Andersen ES. The evolution of credence goods: a transactions approach to product specification and quality control. MAPP Working Paper, 21: Aarhus School of Business, 1994.
2. Bello Acebron L, Calvo Dopico D. The importance of intrinsic and extrinsic cues to expected and experienced quality: an empirical application for beef. Food Qual. Pref., 2000;11:229-238.
3. Caswell JA, Bredahl ME, Hooker NH. How quality management metasystems are affecting the food industry. Rev. Agr. Econ., 1998;20:547-557.
4. Combris P, Lecocq S, Visser M.. Estimation of a Hedonic Price Equation for Bordeaux Wine: Does Quality Matter? The Econ. J., 1997;107:390-402.
5. Darby MR, Karni E. Free competition and the optimal amount of fraud. The J. Law Econ., 1973;16:67-88.
6. Ilbery B, Kneafsey M. Product and place: promoting quality products and services in the lagging rural regions of the European Union. Eur. Urban Reg. Stud., 1998;5:329-341.
7. Kotler P. Principles of Marketing, Prentice Hall, New Jersey, 1980.
8. Lancaster K. A new approach to consumer theory. J. Polit. Econ., 1966;74:132-157.
9. Leat P, Williams F, Brannigan J. Rural competitiveness through quality and imagery across lagging regions of the European Union. Paper to conference on 'European rural policy at the crossroads', University of Aberdeen, Scotland, July, 2000.
10. MAFF. Consumer Attitudes to food labelling, February, London, HMSO, 2000.
11. Nelson P. Information and consumer behaviour. J. Polit. Econ., 1970;78:311-329.
12. Nordregio. Mountain areas in Europe: Analysis of mountain areas in EU Member States, acceding and other European countries. Report 1, Stockholm, Nordregio, 2004.
13. Northen JR. Quality attributes and quality cues: effective communication in the UK meat supply chain. Brit. Food J., 2000;102:230-245.
14. Oczkowski E. A hedonic price function for Australian premium wine. Aust. J. Agric. Econ., 1994;38:93-110.
15. OECD. Uses of Food Labelling Regulations, OCDE/GD(97)150, Paris, 1997. Available online at: http://appli1.oecd.org/olis/1997doc.nsf/linkto/ocde-gd(97)150.
16. Olson JC. Price as an informational cue: effects in product evaluation. In: A.G. Woodhouse, J.N. Sheth, P.D. Bennet Consumer and industrial buying behaviour. North-Holland Publishers, New York. pp. 267-286, 1977.
17. Olson JC, Jacoby J. Cue utilization in the quality perception process. Adv. Consum. Res., 1972;3:167-179.
18. Oude Ophuis P, Van Trijp H. Perceived quality: a market driven and consumer oriented approach. Food Qual. Pref., 1995;6:177-183.
19. Rosen SM. Hedonic prices and implicit markets: product differentiation in pure competition. J. Polit. Econ., 1974;82:34-55.
20. Steenkamp JBEM. Product Quality: An investigation into the concept and how it is perceived by consumers, Van Gorcum Assen: Maastricht, 1989.
21. Sylvander B. Quality products: an opportunity for rural areas, LEADER Magazine, 1993;spring 3:8-2.

Received: June12, 2012
Accepted in final form: September 26, 2012