Consumer preferences towards beef cattle in Chile: Importance of country of origin, cut, packaging, brand and price

Preferencias del consumidor hacia la carne bovina en Chile: Importancia del país de origen, corte, envasado, marca y precio

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ABSTRACT

A study was carried out to evaluate preferences for two cuts, four countries of origin, two forms of presentation, brand and different prices of beef cattle among supermarket buyers in southern Chile, and to distinguish the existence of different market segments, through a survey of 800 people. Using a fractional factorial design for conjoint analysis, it was determined overall that the origin was more important (44.5%) than price (20.8%), form of presentation (12.2%), cut (12.0%) and brand (10.5%), with preference for Chilean and Argentinean striploin, packaged on trays, with no brand at medium price. Using a cluster analysis, three market segments were distinguished. The largest (52.3%) placed great importance on origin and preferred the highest price. The second (27.5%) also valued origin with the greatest preference for Argentinean beef, and it was the only group that preferred the ribeye as the cut. The third (20.5%) placed the greatest importance on price, and was the only group that preferred Paraguayan meat. The segments differed in the importance of eating meat for their personal well-being. The low

RESUMEN

Se evaluaron las preferencias hacia dos cortes, cuatro países de origen, dos formas de presentación, marca y distintos precios de carne bovina en compradores de supermercados del sur de Chile, y la existencia de diferentes segmentos de mercado, mediante una encuesta a 800 personas. Mediante análisis conjunto de diseño factorial fraccionado se determinó, en general, que el origen fue más importante (44,5%), que el precio (20,8%), la forma de presentación (12,2%), corte (12,0%) y marca (10,5%), con preferencia por el lomo liso chileno y argentino, envasado en bandejas, sin marca a un precio medio. Mediante análisis cluster se distinguieron tres segmentos de mercado. El mayoritario (52,3%) dio alta importancia al origen y prefirió el precio mayor. El segundo (27,5%) también valoró el origen con la mayor preferencia por la carne argentina y fue el único que prefirió el lomo vetado al corte. El tercero (20,5%) dio mayor importancia al precio, siendo el único que prefirió la carne paraguaya. Los segmentos difirieron en la importancia asignada al consumo de carne para su bienestar personal. La baja importancia del envase y de la marca indica un bajo desarrollo comercial

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importance of packaging and brand indicates poorly developed marketing of this product. In order to properly insert brand beef in the Chilean market, communication strategies must be implemented that identify the product with superior quality and that position the brand in the consumer's mind.

en este producto. Para lograr una adecuada penetración de carne bovina con nombre de marca en el mercado chileno, se deben implementar estrategias comunicacionales que identifiquen el producto con una calidad superior y que posicionen la marca en la mente del consumidor.

INTRODUCTION

Meat consumption per inhabitant has increased in Chile, reaching 84.2 kg net in 2011. This puts Chile on a level that agrees with the FAO estimation for developed countries and doubles the average of 42 kg, which is considered the annual consumption per capita worldwide (24).

Increased meat consumption is mainly associated with greater poultry and pork consumption due to the substitution of some red meat for white meat, caused by higher beef prices and the effective promotion of poultry and pork as healthy, easy to prepare and with a greater variety of presentation than beef. This is why beef consumption in Chile today occupies third place after poultry and pork, at 21.7 kg per capita.

Chilean beef not only competes with the other meats, but must also compete with imported beef. Beef imports are very important for the sector, accounting for almost 50% of the volume available for public consumption. In 2012, net imports of this product amounted to 130,414 tons. This implies an average annual growth of 9.7% in the last five years. By contrast, although Chile exports beef, the country is not an exporter of volumes. Therefore, exports are aimed at niche markets.

Since 2005, when the highest export volume for this type of product (18 thousand tons) was reached, exports have been declining gradually, reaching less than 2000 tons in 2012.

Internal and external market conditions and the currency exchange rate discouraged deliveries abroad, and even led to abandoning some markets, such as the United States, which was the second destination of the product in 2010 and 2011, after Germany. Regarding the value of beef, domestic prices reflect the behavior of the international market, where prices have reached historically high levels the past three years (12).

The domestic beef market has recently undergone several changes. One of these is the diversification of the countries of origin of imports. While Brazil was the main

country of origin between 2000 and 2006, between 2007 and 2011 the greatest volume of imports came from Paraguay and Argentina. To this was added meat from the USA and Australia starting in 2008. Although the imports from the USA are low, this is not the case of Australia, which accounted for 11% of the total in 2011 (24).

It is important to study the effect of this greater diversity of the imported beef supply because an increase in competition between imports and the domestic market may possibly alter consumers' preferences (20). In addition, a greater supply of packaged meat has been observed in supermarkets because the imported meat is sold almost entirely in this fashion. Likewise, although most beef is marketed as a commodity, today it is possible to buy brand-name domestic and imported beef, an attribute which has not been evaluated in developing countries in terms of importance and acceptance.

Intrinsic and extrinsic cues are used by consumers to ascertain the presence of important meat quality attributes. In the case of retail beef purchasing decisions, without extrinsic cues, consumers use cues such as color and fat content to make beef purchasing decisions (30). Numerous studies agree that consumers prefer beef with a low fat content, an attribute of high relevance in the purchase (15, 19, 29). However, when the quality of a product is difficult to determine in the store, as is the case with beef, consumers rely more heavily on extrinsic quality cues such as packaging, brand and price. The information given by the package is an extrinsic factor and a quality cue that influences consumer behavior (16); however, some studies indicate that the relative importance of packaging is secondary when purchasing beef (8, 27) because this attribute affects the intention to purchase but not the satisfaction during consumption (8).

Among quality cues, brand has been found to be one of the most important indicators of product quality in beef, where consumers select brand names more often than other cues to infer product quality (3). However, there is also evidence that brand is not considered so important in the beef purchasing decision (5). Also, consumers perceived price to be a quality indicator, with higher price linked to higher beef quality (4). When the product does not carry a strong brand, price may be used to reduce the purchase risk and to re-identify the product. However, while some investigations have concluded that this attribute is very important in beef (34), others indicate that it is secondary to the decision to purchase (27, 28, 33). Also, there is evidence that consumers prefer the cheapest beef (27, 30, 33).

The quality association derived from indicators of origin determines an effect on the value perceived by the consumers and consequently on their confidence, thus reducing the risk associated with the purchase. In beef, origin is particularly associated with quality (3, 23) and harmlessness of the production process (23, 30).

Numerous studies report on the importance of the origin of beef in the purchase choice (2, 5, 10, 20, 23, 25, 27, 28), and likewise on the normal preference for beef produced in the home country (2, 10, 27, 28, 30, 34) or imported from countries nearby or with a similar culture (2, 30), which is indicative of ethnocentric tendencies that influence the purchasing habits of the consumer by generating loyalty to their own

country and rejection of others (10). Nonetheless, there is also evidence of preference for imported beef (7, 25, 33) and of the existence of different consumer segments according to the acceptance of beef of different origin (25, 27, 28).

In this regard, consumer preferences have been found to vary between cities. Villalobos *et al*. (33) found differences in preferences towards domestic and imported beef in a study of consumers in two cities in central Chile (Rancagua and Talca) and in the capital city, Santiago. While consumers from Rancagua and Talca preferred Chilean meat and rejected meat imported from Brazil and Argentina, in Santiago consumers preferred meat imported from Argentina, followed by Brazil, and rejected the Chilean meat. However, in another study conducted in two cities in Chile, Temuco and Talca, Schnettler *et al*. (27) found that the preference for beef imported from Chile and Argentina did not differ between those two cities.

Other investigations have determined that the origin does not present a significant effect in consumer beef preferences (15). Nevertheless, it must be mentioned that the relative importance of this attribute might be associated with the attributes with which the country of origin is compared. In Belgium, Verbeke and Ward (32) found that consumer interest regarding beef is generally low for traceability, moderate for origin and high for direct indications of quality, like a quality guarantee seal or expiration date.

In the US, Yong *et al.* (34) studied the relative importance of different attributes in beef. The order of importance of the attributes evaluated by these authors was price, tenderness guarantee, country-of-origin label, marbling and finally traceable- to- the- farm labelling. In a previous study carried out in three cities in Central Chile, Villalobos *et al.* (33) found that quality assurance was the most important attribute in the consumer's purchase decision process of beef, followed by the country of origin, production system, and finally, price.

Therefore, we propose the following hypotheses:

H1. Consumers will prefer low fat beef, of domestic origin or imported from countries nearby or with a similar culture, packaged, with brand-name, at a low price.

H2. Based on consumer preferences, it is possible to identify several (or more than one) consumer segments.

Thus, the aims of this investigation were: to evaluate consumer preferences for two cuts of beef from a different country of origin, presentation, presence of brand and price in the main cities of southern Chile; and to distinguish beef consumer segments according to their preferences and characteristics.

MATERIALS AND METHODS

A personal survey was carried out on a sample of 800 habitual supermarket shoppers, aged over eighteen, who were responsible for buying meat for their homes. The surveys were conducted in the capital cities of the Regions of Bío Bío and La Araucanía. Four hundred people were interviewed in Concepción (Bio Bío) and 400 in Temuco (La Araucanía), Chile. These cities were chosen because they are among the cities with the greatest population in Chile and are located in regions where beef production is important.

The number of people surveyed was obtained using the simple random sample formula for non-finite populations (N> 100,000; Concepción: 216,061 inhabitants and Temuco: 245,347 inhabitants, Census 2002), considering 95% confidence and 5% estimated error with p and q 0.5 (13).

The questionnaire was subdivided in three main sections. The first section included closed questions about the frequency of meat consumption and the importance assigned to meat consumption for personal well-being (five- level Likert scale, 1: not important at all, 5: totally important).

In the second section, supermarket shoppers were asked about their preferences for two cuts of beef from a different country of origin, presentation, presence of brand and price. A conjoint analysis was employed to determine the acceptance of beef with the attributes in study. This is a decompositional method that allows the relative importance of the attributes of a product to be estimated, as well as the partial utility values for each level of an attribute. The estimated partial utility values indicate how influential each level of an attribute is in the formation of consumer preferences for a particular combination, i. e. they represent the degree of preference for each level of an attribute (18).

The levels established for the attribute "cut" correspond to cuts with different fat contents. The attribute "country of origin" was defined as the levels Chile, the two main countries of beef imports in recent years, Paraguay and Argentina, and Australia for the increase in imports from that country since 2008. For the attribute "presentation", the main forms of sale for beef in Chile were used: unpackaged and on a tray. For the attribute "brand", the levels "with brand" and "without brand" were used. For the alternatives with brand, brands from each country of origin offered in the cities studied here at the time of the survey were used: Chile: A Punto; Argentina: Cabaña Las Lilas; Paraguay: Guarani; Australia: Diamantina.

The price levels were established on the basis of the average market price of the cuts chosen at the moment of the survey (US$ 15.4 kg^{-1}), which was increased or reduced by approximately 15% to reflect the highest and lowest prices at which striploin and ribeye were offered for sale. The national currency values (Chilean pesos) were converted to dollars using the average 2011 value (Ch$ 483.67/US$).

From these attributes and levels a total of 96 combinations (2 x 4 x 2 x 2 x 3) were obtained; however, a fractional factorial design was used, employing the orthoplan option of SPSS 16.0 (18). This allowed the number of stimuli to be reduced to twelve, with one specification for each attribute, taking the precaution of not including brand- name unpackaged beef. The stimuli or combination of attribute levels were presented to respondents in cards that combined verbal and graphic information.

The verbal description used words to present the attributes and levels derived from the factorial designs. The graphical representation used as stimuli drawings, sketches or photographs (18). The name of the cut, the country of origin and the price per kilogram was indicated verbally (in written form) to avoid confusion. Graphically, the beef was presented in cuts and packaged in trays, using photographs. The meat in trays contained either the label (normal way of selling packaged meat on trays in Chile) or the brand, as the fractional factorial design used (table 1, page XXX). Each respondent was asked to order the cards with the combination of attributes from most to least preferred, on a scale of 1 to 12 (1 = most preferred; 12 = least preferred).

According to Green and Srinivasan (1990), the inclusion of more than five or six attributes in the set design would diminish the reliability of the results. The same authors also indicate that the relative importance of an attribute is skewed as the number of levels in which the attribute is defined increases. Consequently, Kucher (1983) recommends the inclusion of four or five attributes with three levels each, which provides an adequate description of the product.

While the fractional factorial design used in this study (table 1, page 149) does not exceed the number of attributes that could reduce the reliability of the results (14), it fails to make a balanced number of attribute levels and maximum levels as suggested by Kucher (1983). Indeed, the country of origin attribute has four levels, the attribute price three levels and the cut, packaging and brand attributes had just two levels each. However, we chose to use this design as it more realistically represents the supply of beef in supermarkets in the cities studied, i.e. it accounts for the supply of beef from many countries of origin, even if some were not included, such as Brazil and USA. At the same time, it accounts for the increased supply of beef packaged in trays and even the low supply of brand beef, because it is still a new business practice in the Chilean market.

Nowadays, the supply of meat packaged in trays is common, but the supply of such with a brand name is still low and it is probably unfamiliar to the consumer. This fact reflects that only four stimuli that considered meat packaged in trays had brand name, which should further correspond to the country of origin indicated on the card. Additionally, as previously mentioned, it was avoided that the stimuli that considered meat cuts were combined with brand names, as this type of product does not exist in the Chilean market.

Table 1. Design of the conjoint experiment.
Tabla 1. Diseño del análisis conjunto.

Card	Cut	Country of Origin	Packaging	Brand	Price (US$ kg^{-1})
A	Striploin	Argentina	Trays	Without brand	15.4
B	Ribeye	Paraguay	Trays	With brand	13.2
C	Ribeye	Chile	Trays	Without brand	17.6
D	Striploin	Argentina	Non-packaged	Without brand	13.2
E	Striploin	Argentina	Trays	With brand	13.2
F	Ribeye	Chile	Trays	With brand	17.6
G	Striploin	Chile	Trays	Without brand	15.4
H	Striploin	Australia	Trays	With brand	15.4
I	Ribeye	Chile	Non-packaged	Without brand	13.2
J	Ribeye	Paraguay	Non-packaged	Without brand	15.4
K	Striploin	Australia	Non-packaged	Without brand	17.6
L	Ribeye	Australia	Trays	Without brand	15.4

Finally, the last section considered socioeconomic questions. Classification questions were included to establish gender, age, family size, area of residence, occupation and level of education of the head of the household, and the possession of ten household goods. The combination of these two latter variables in a matrix (1) allows the socioeconomic level to be determined, classified as ABC1 (high and upper middle), C2 (middle-middle), C3 (lower middle), D (low) and E (very low).

The survey was conducted personally by two trained interviewers at the exits of two supermarkets during June and August 2011. The surveyor intercepted people and explained to them the objectives of the survey and the strictly confidential treatment of the information obtained, and then asked if they were prepared to answer the questionnaire. Prior to data collection, the questionnaire was pretested with a smaller sample. The pretest was done in Temuco, using the same method of addressing the participants as in the final survey. As no problems were detected, no changes were required in either the questionnaire or the interview procedure. The participants signed informed consent statements before responding. The execution of the study was approved by the Bioethics Committee of the Faculty of Farming, Livestock and Forestry Sciences of the Universidad de La Frontera.

A conjoint analysis was carried out by means of the TRANSREG procedure of SAS 9.3 (SAS Institute Inc., Cary, NC, USA). The relative importance that consumers gave to the different attributes and the utility values obtained for each level of the selected factors were determined. The Root Mean Square Error (RMSE) was calculated in order to measure the difference between observed and predicted data. An RMSE value = 0 indicates perfect fit, thus, the lower the RMSE value, the better the fit of the model (22).

A hierarchical cluster analysis was chosen to determine consumer segments according to the importance given to the attributes, and partial utility scores of the levels of the attributes. Ward's procedure, which calculates the squared Euclidean distance, was carried out with the CLUSTER procedure of SAS. The number of clusters

was taken on the basis of the R^2 obtained and from a strong increase produced in the Cubic Criterion of Clustering and Pseudo-F values.

To describe the segments, a Chi-square test was applied for the discrete variables and a one-factor analysis of variance for the continuous variables (99% and 95% confidence level). The continuous variables in which the Levene's statistic indicated homogeneous variances, and for which the analysis of variance resulted in significant differences, were subjected to Tukey's Multiple Comparisons test. The continuous variables in which the Levene's statistic indicated non-homogeneous variances, and for which the analysis of variance resulted in significant differences were subjected to Dunnett's T3 Multiple Comparisons test.

RESULTS AND DISCUSION

The largest proportion of the sample was made up by women (table 2, page 151), aged between 36 and 55 years, in families with three to four members, resident in urban zones, employees, with high school, technical or university studies, in socioeconomic groups ABC1 and C2. The majority of the consumers (68.8%) ate meat three times a week. The greatest proportion of respondents indicated that meat consumption was quite important for their personal well-being. No significant differences were observed between the samples of the two regions (P>0.1).

Importance of the attributes in beef purchase
The results of the conjoint analysis for the whole sample (table 3, page 152) indicate that the country of origin was the most important attribute, followed by price. The attributes cut, packaging and brand had low and similar importance. The RMSE of the conjoint analysis was 0.21, which indicated an acceptable goodness of fit (22). The signs of preference (utility) indicate preference for the leanest cut (striploin), packaged in trays, without brand, with a medium price.

In relation to the country of origin, consumers preferred first Chilean beef and then Argentinean beef (both with positive utility). Likewise, the negative signs of utility towards beef from Paraguay and Australia provide an account of a lower preference for these, with the lower preference for Australian beef being worthy of note. Therefore, these results lead to partial acceptance of hypothesis 1.

As expected, consumers preferred the low fat beef, of domestic origin and packaged. However, even when consumers also preferred meat imported from Argentina, they rejected the Paraguayan meat, which would indicate that consumers' preferences are not associated to the fact that the meat is imported from nearby countries or countries with a similar culture. Also, contrary to expectations, consumers preferred meat without a brand name at an intermediate price.

Table 2. Characteristics of the survey sample in Temuco and Concepción, Chile. August 2011.

Tabla 2. Características de la muestra encuestada en Temuco y Concepción, Chile. Agosto de 2011.

Classification variable	Sample	Distribution %
Age	Under 35 years	24.5
	36 - 55 years.	53.8
	55 years or older	21.7
Gender	Male	36.8
	Female	63.2
Family size	1-2 members	26.5
	3-4 members	47.3
	5 members or more	26.2
Area of residence	Urban	93.5
	Rural	6.5
Occupation	Independent worker	26.0
	Businessperson	4.8
	Private-sector worker	35.2
	Public-sector work	20.0
	Retired	11.2
	Looking for work	2.0
	In another situation	0.8
Education	No studies	0.8
	Incomplete elementary	2.1
	Complete elementary	5.5
	Incomplete high school	5.8
	Complete high school	33.8
	Incomplete technical college	7.0
	Complete technical college or incomplete university	24.0
	Complete university or more	21.0
Ethnic origin	Mapuche	17.5
	Non-Mapuche	82.5
Socioeconomic level	ABC1 (high and middle-high)	39.0
	C2 (Middle-middle)	32.2
	C3 (Middle-low)	22.0
	D and E (Low and very low)	6.8
Importance of meat consumption for a person's well-being	Total and extremely important	17.0
	Very important	37.2
	Quite important	42.5
	A little important	3.0
	Not very important	0.3

Table 3. Relative importance for the three clusters and overall sample based on beef preferences.

Tabla 3. Importancia relativa correspondiente a los tres clusters y muestra total basada en las preferencias hacia la carne bovina.

Attribute & Levels	Total sample (N = 800)	Group 1 (N = 218)	Group 2 (N = 418)	Group 3 (N = 164)	F	P value
Cut (fat content)						
Ribeye[2]	-0.098	0.989 a	-0.186 b	-1.320 c	133.141	0.000
Striploin[2]	0.098	-0.989 c	0.186 b	1.320 a	133.141	0.000
Relative importance (%)[2]	12.0	15.5 a	8.3 b	16.9 a	40.911	0.000
Origin						
Chile[1]	2.539	2.360 b	3.284 a	0.876 c	45.968	0.000
Argentina[1]	0.275	1.351 a	0.362 b	-1.377 c	45.619	0.000
Paraguay[1]	-1.066	-2.269 c	-1.268 b	1.047 a	58.320	0.000
Australia[1]	-1.747	-1.443 b	-2.378 c	-0.546 a	41.137	0.000
Relative importance (%)[2]	44.5	38.5 b	54.2 a	27.8 c	153.369	0.000
Package						
Non-packaged (cut) [2]	-0.440	0.506 a	-0.449 b	-1.675 c	108.984	0.000
Tray[2]	0.440	-0.506 c	0.449 b	1.675 a	108.984	0.000
Relative importance (%)[2]	12.2	12.0 b	10.1 b	17.7 a	23.949	0.000
Brand:						
Without brand[2]	0.183	-0.643 c	0.210 b	1.211 a	91.843	0.000
With brand[2]	-0.183	0.643 a	-0.210 b	-1.211 c	91.843	0.000
Relative importance (%)[2]	10.5	11.1 ab	9.0 b	13.6 a	14.265	0.000
Price						
US$ 13.2 kg^{-1} [2]	-0.134	-1.276 c	-0.333 b	1.891 a	124.609	0.000
US$ 15.4 kg^{-1} [1]	0.402	1.700 a	0.158 b	-0.699 c	102.433	0.000
US$ 17.6kg^{-1} [1]	-0.269	-0.424 a	0.174 a	-1.192 b	26.302	0.000
Relative importance (%)[2]	20.8	22.9 a	18.4 b	24.0 a	10.321	0.000

RMSE = 0.21

1 Different letters in the line indicate significant differences according to Tukey multiple comparison test (P ≤ 0.001).

1 Letras distintas en una misma fila indican diferencias estadísticamente significativas según Prueba de Comparaciones Múltiples de Tukey (P ≤ 0,001).

2 Different letters in the line indicate significant differences according to Dunnett's T3 multiple comparison test (p ≤ 0.001).

2 Letras distintas en una misma fila indican diferencias estadísticamente significativas según Prueba de Comparaciones Múltiples T3 de Dunnett (P ≤ 0,001).

In this study, the country-of-origin information substantially influenced product evaluation, even if the price and other relevant product attributes are given. This confirms the importance of the origin of beef in the purchase choice (2, 5, 10, 20, 23, 25, 27, 28), contradicting investigations that indicate that origin has no significant effect on consumer beef preferences (15) or that have detected a secondary importance of origin in the purchase decision (32, 34). At the same time, the preference for beef produced domestically is confirmed (2, 10, 27, 28, 30, 34).

Nevertheless, in the Chilean case the preference for beef imported from Argentina is also confirmed (27, 34), which might not be associated with the preference for beef imported from countries nearby or with a similar culture (2, 30), since a lower preference for meat imported from Paraguay was observed, although it is a country geographically close and culturally similar to Chile and Argentina. This may be associated with consumers' familiarity with Argentinean beef, which has been present in the domestic market since before 2000; therefore, consumers reduce the risk associated with purchasing an imported product, preferring one that is better known.

Another explanation for this phenomenon may lie in consumers recognizing Argentinean beef as a product of a certain quality. Indeed, differences in the intrinsic attributes (flavor, aroma, and fatty acid content) depending on the origin of the beef have been determined, since the production system of the animal affects the organoleptic characteristics of the meat (25, 17). In this vein, Champredonde (9) suggested that the source and market development of a premium product - beef from Argentina - are its quality and geographical origin.

The relatively greater importance of country of origin over price is consistent with the results of various authors, who indicate that price is of secondary importance in the decision to purchase beef (27, 28, 33), in contrast to the results obtained by other authors (34).

In relation to preference for the medium price, this constitutes a change with respect to prior investigations into beef (27, 28, 33), where it was observed that graduals increases in the price variable decrease the associated utility level provided by the choice. This would indicate that, given a greater variety of products of different origin and brand, consumers perceive greater risk in the purchase of beef and are prepared to reduce it in part by preferring to pay a higher price.

The low importance of the fat content runs counter studies that indicate it is an intrinsic attribute of high relevance in the purchase of beef (15, 19, 29), although the results of this study agree with the preference for beef with a lower fat content (striploin) detected by the same authors, confirming the fat paradox. In other words, consumers have misunderstood the relationship between meat quality and those features of the meat that influence quality, such as tenderness, taste, and juiciness (15), which in the Chilean market is also linked to aggressive marketing campaigns by the big white- meat production companies, rendering this a healthy food due to its low fat content.

With respect to the packaging, the low importance detected in this research confirms the results of previous studies that place this attribute second in the choice of beef (8, 27). Nevertheless, it must be pointed out that the change to preferring packaged over non-packaged beef is a trend detected in previous studies in Chile (27). This may be pointing to a change in the customer, who used to value the advice of the personnel that staffed the meat sections of supermarkets, but who now prefers to save time by choosing from among the products available in the coolers, which now have labels with information on the nutritional content of the product and the ways to prepare it.

Contrary to what was expected and to the reports of studies conducted in developed countries (3), in this investigation brand was of low relative importance among the attributes evaluated, which is consistent with the results obtained by Banterle and Stranieri (5) in the north of Italy.

Despite the conclusion by Banović *et al*. (3), that branding could play an important role in the marketing of differentiated meat products, the low importance of brand next to the preference of the unbranded product in the sample analyzed indicates that efforts on the part of the domestic industry when selling branded beef and of the supermarkets when importing beef with a brand are as yet unsuccessful.

Indeed, the influence of brand on perceived quality in the Banović *et al.* (3) research may be partially explained by the fact that most consumers had prior knowledge of the brand, which is not the case in the sample here because the supply of brand-name beef is a recent phenomenon.

Although the literature indicates that brand, price and origin are quality indicators that help reduce uncertainty and risk when purchasing beef (3, 4), the results of this investigation suggest that consumers first use origin information and then price to reduce the risk associated with the purchase, while a brand name is still not required for this purpose. However, new and unfamiliar brands reduce risk less than experienced and trusted brand names (31). Therefore, a possible explanation for this result is that the supply of brand beef is new in the Chilean market, so it is expected that the consumer is still unfamiliar with it. Indeed, there is evidence that consumers seem to appreciate familiar (well-known, strong) brands when making their food purchases.

Amongst various food product categories, familiar brands have been associated with stronger purchase intentions, choice preferences, and purchase loyalty (26). Therefore, it may indicate that the supply of branded beef, by itself, will not generate consumer preference, because the brand must be previously known by the consumer through the development of different communication strategies. Several studies have confirmed that advertising encourages consumers to try new or unfamiliar brands, and positively contributes to brand positioning success (11).

Another possible explanation for the low importance of brand in the purchase decision and preference for unbranded meat in this study, may be related to the brand logos, as none of them provides information about the quality of the product.

Banović *et al*. (4) suggest that only when a brand translates intrinsic product characteristics, usually difficult to evaluate, to extrinsic ones, and thus makes them visible, the brand will actually signal the quality of the product. In Portugal, these authors found that supermarket consumers perceived a branded beef of better quality if they could find information about the way the beef was produced (*e.g.* autochthonous breed, traditional methods; specific product characteristics), aspects that would be relevant and predictive of a higher quality beef.

Therefore, both domestic and foreign beef producers that have tried to differentiate their product in the Chilean market with a brand name should incorporate explicit information or symbols that consumers identify with a higher quality meat. Added to this is the need to develop communication campaigns that allow the brand to be recognized and thus purchased by the consumer. Then it becomes very important to maintain a high quality product, as to encourage repeat purchase, which will be in turn encouraged by the intrinsic attributes associated with the brand.

Consumer Segments

Three consumer segments were distinguished by cluster analysis with significant differences in the importance assigned to the attributes and preference for the levels of the attributes ($P \leq 0.001$) (table 3, page 152). The groups only presented significant differences according to the importance assigned to consumption of meat for personal well-being (table 4) ($P \leq 0.05$). No significant differences were observed between consumer segments according to age, gender, family size, area of residence, occupation, education, ethnic origin, socioeconomic level, nor in the frequency meat consumption ($P > 0.1$). The composition of each group is shown below.

Table 4. Characteristics with significant differences (Chi^2) in groups (%) identified by cluster analysis.

Tabla 4. Características de los segmentos identificados (%) con diferencias estadísticas (Chi^2) entre ellos obtenidas con análisis cluster.

	Group 1 (n = 218)	Group 2 (n = 418)	Group 3 (n = 164)
Importance of meat consumption for a person's well-being	P = 0.032		
Total and extremely important	15.6	19.6	12.2
Very important	46.8	36.4	26.8
Quite important	34.9	41.6	54.9
A little important	2.6	2.3	4.9
Not very important	0.2	0.1	1.2

Group 1 (27.2% of the sample, n = 218)

This group gave intermediate importance to the country of origin, differing statistically from Groups 2 and 3, but showed a high preference for domestic beef and the greatest preference for Argentinean beef. Group 1 was also distinguished for being the only one that preferred ribeye and unpackaged meat. However, in the case of preferring packaged meat, it was the only group that favored the brand product

(table 3, page 152). Group 1 presented the greatest proportion of people who considered meat consumption as "very important" for their well-being (table 4, page 155).

Group 2 (52.3%, n = 418)

The participants of this group gave significantly greater importance to the country of origin than Groups 1 and 3, presenting the greatest preference for Chilean beef and the least for Australian beef. This group was also distinguished for being the only one that preferred the highest price (table 3, page 152).

Group 3 (20.5%, n = 164)

This group gave the least importance to the country of origin, standing out for the significantly greater importance assigned to the package than Groups 1 and 2. Although the group showed a preference for Chilean beef, it was the only one that preferred Paraguayan beef, with an even higher preference for this beef than the domestic product. This group is also notable for being the only one that preferred to pay the lowest price (table 3, page 152). Group 3 had the greatest proportion of participants who considered that meat consumption is "quite important" for their well- being (table 4, page 155).

Although the differentiated segments assigned distinct importance to the attributes being studied, the most important differences between them lie in the preferences towards the levels of the attributes. Therefore, from these results it is possible to accept hypothesis 2.

As far as the origin is concerned, although Groups 1 and 2 showed a tendency similar to the total sample, Group 1 is worth mentioning for the greatest preference for Argentinean beef and the greatest rejection of Paraguayan beef, and Group 2 for its high rejection of Australian beef. Group 3 clearly favored Paraguayan meat and its rejection of the Australian meat was less than the other groups. These results confirm the existence of different consumer segments according to the acceptance of beef of different origins (25, 27, 28) as well as a preference for imported beef (7, 25, 33).

Therefore, even though the three segments preferred Chilean beef, these results indicate that there is no noticeable ethnocentrism in beef preferences, contrary to what has been observed in Japan (20) and in Korea (10). This indicates good expectations for imported beef as far as increasing market participation is concerned, presenting at the same time significant challenges for the Chilean beef industry.

With regard to the profile of the market segments identified, it should be noted that they are not differentiated by socio-demographic characteristics, which is in line with Bawa (6) regarding socio-demographic variables being insufficient to explain consumers' attitude to imported and domestic products.

That the largest proportion of people from Group 1 considered meat consumption "very important" for their personal well-being is remarkable, and it can be suggested that this is related to the hedonic pleasure of consuming tasty meat, as this is the only

segment that preferred the ribeye. Similarly, it is possible to suggest that this is also related to a greater degree of involvement in the purchase, because these consumers prefer to buy the meat unpackaged, which entails more time than the purchase of packaged meat. It is further noted that this segment was the only one that showed a preference for brand-name meat, which might be a sign of the search for products that ensure quality and provide well-being.

This notwithstanding, new research must be conducted that delves more deeply into these relations and that includes other variables (behavioral, psychographic, attitudinal) in addition to the sociodemographic variables that make it possible to explain beef preferences.

One of the limitations of the study is that the sample is not representative of the country's population distribution. However, the consumer distribution in this survey was similar to the sample obtained in previous supermarket consumer studies carried out in Chile (27, 29). Therefore, although the results and conclusions in this study may not be applicable to the whole population, they might be valid for those consumers that normally purchase beef in supermarkets, the commercial format in which imported beef is principally sold.

Another limitation lies in the study design, by including more levels in the country of origin and price attributes (four and three, respectively) than in cut, package and brand attributes (only two levels in each), which can cause an overestimation of the attributes with more levels, and the opposite effect on the attributes with fewer levels. This could partly explain the higher importance of the attributes country of origin and price in this investigation, together with the relatively low importance of cut, package and brand attributes, mainly in the total sample, since the importance of the attributes varied when segmenting the sample.

However, it is noteworthy that the model fit is considered good (measured by RMSE), which is consistent with a previous study by Villalobos *et al.* (33) in three Chilean cities. In this study, a conjoint design was used with two levels in the attributes production system and quality assurance, and three levels on the attributes country of origin and price, and a good level of adjustment was also reported for the conjoint model. It should also be added that in that study, the most important attribute, quality assurance, had only two levels.

Future research should investigate the relative importance and acceptance of other attributes of beef, such as assessing the relative importance of a quality assurance stamp versus a brand name, which would generate valuable information for producers. The acceptance towards beef with store brand should also be assessed, because supermarkets are also adopting this business practice.

CONCLUSIONS

Despite the changes in the Chilean beef market, the results of the total sample indicate that the origin of beef continues to be an attribute that dominates consumer preferences, acting as a sign of quality and reducing the risk associated with the purchase. Although price continues to be a secondary attribute in the choice of purchase, consumers do not choose the cheapest product, as was seen in the past.

A change has also been noticed in the purchase of packaged meat, but the preferences for lean meat remain the same.

The introduction of brand-name meat is not yet having the effect expected by the industry and retailers; consumers give low importance to this attribute and prefer the product without brand, an attribute not previously evaluated in developing countries. For proper insertion of brand name beef in the Chilean market, communication strategies must be implemented that identify the product with superior quality and that position the brand in the consumer's mind.

It was possible to distinguish three market segments, mainly according to their preferences for the levels of the attributes. With respect to the attribute of greatest importance, in the three segments preference for Chilean beef was demonstrated, two segments showed a preference for Argentinean beef and one preferred Paraguayan beef. This implies good prospects for imported beef, even for Australian beef and other countries of origin, insofar as they have been tried and identified by the consumer.

In relation to the rest of the attributes, only one segment (27.2%) preferred beef with a greater fat content, unpackaged and with a brand. This represents greater knowledge of the relation between the fat content and the quality of the meat during consumption and a greater involvement in the purchase of meat, which is consistent with the greater importance that meat consumption has for the well-being of this consumer group.

The preferences of this group for brand-name beef bodes well for the future success of beef differentiated into market segments that value quality, provided that the industry - domestic or foreign - can maintain the standards of quality associated with the brand.

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