1

Quality Warranties and Food Products in Argentina. What do Consumers Believe in?

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Introduction

International trade in high quality food products has expanded over the last decades as a consequence of the markets´ shift from homogeneous commodities towards differentiated products (Reardon et al., 2001). Consumers increasingly demand multiple-quality attributes in food products, many of which cannot be observed either before or after purchase or consumption. Producers want to communicate their consumers about the quality of their products and to differenciate their goods from those of other producers. Consumers value reliable means to identify their desired products´ attributes. Therefore, another market of information emerges, associated with the new food markets. These food markets are characterized by information asymmmetry and uncertainty on product quality (Antle, 2001).

Credible mechanisms like private standards, labels, and certification systems are crucial for providing information to economic actors, allowing them to differenciate food products by the attributes that concern them.

There is a large literature about the role of public regulation and private safety and quality standards (Henson and Reardon, 2005; Ippolito, 2003), third-party certifications (Deaton, 2004; Hatanaka et al, 2005) and grades and standards along the supply food chains (Hobbs et al, 2002; Berdegué et al., 2005). However, there are not enough empirical studies exploring the link between consumers´ trust and quality attributes warranties in developing countries.

These countries are characterized by extremely heterogeneous situations. There is a large variation in the degree of modernization and external openness and thus exposure to "globalization" of their agrifood systems (Reardon et al., 2001). Large modern chains have emerged as dominant players in agrifood systems. These have actively promoted

private grades and standards in order to be more responsive to their customers`quality preferences and reduce costs by improving the quality of their inputs (Reardon and Berdegué, 2002).

In this article the emphasis will be put on how the different quality signals provided by the firms in their products affect the consumers´ behaviour. The objetive is to investigate domestic consumers' perceptions and beliefs about food quality information in Argentina to identify the mechanisms that fully guarantee this quality.

In the sections which follow, we present the conceptual framework for examining consumers´ attitudes towards certification and food quality information. Then, we describe our data and empirical methods and, finally, we present our results and their implications for policy and firm marketing strategies design.

Conceptual framework

Economic literature has characterized products´ attributes as search, experience, or credence, according to the way consumers obtain information about them. Search goods are those that can be assessed prior to purchase, via research and inspections (color, size). Experience goods are those whose attributes are evaluated by consumers after purchasing the products -e.g. convenience- (Nelson, 1970). Credence goods have attributes that consumers cannot evaluate even in use -e.g. organic goods- (Darby and Karni, 1973).

Search and experience goods provide endogenous incentives for producers to maintain quality standards since a reduction in them leads, in the first case, to an immediate fall in sales or to the growth of a bad reputation, in the second case. In the case of experience goods, there would be a clear rationale for investment in quality control technology and in "brand-name capital", because even though consumers may not be

able to discern quality before purchase, through experience consumers learn which firms produce higher quality products (Antle, 2001).

The existence of a market for credence or "trust" goods is either made possible by the reputation of the seller, or is subject to a quality guaranted by a third party, often in the form of a regulation which provides consumers with a substitute for the information and trust they lack (Tirole, 1988). Quality signalling through product labelling and information disclosure requirements encourages market incentives (Caswell and Mojduszka, 1996). By identifying its products with a quality control process, a firm may be able to convey product quality information to consumers. In this case, quality control may play a role similar to the role of brand-name.

If it is possible to devise regulatory interventions that would effectively transform credence goods into experience goods, then product information disseminations, performance standards, product quality reputation and liability have the potential to lead to more efficient outcomes in food markets (Antle, 2001).

Labelling decisions may enhance economic efficiency by helping consumers to target expenditures towards the products they want most. Thus, in their drive to persuade the maximun number of consumers to purchase their products, firms may provide the labelling information. The value of this service depends on the importance consumers attach to the product´s attributes and the difficulty they face in assessing the attributes on their own .

The mere existence of these labels and certifications is not enough condition to guarantee efficiency. In other words, under imperfect credibility, the consumers´ choice will depend not only on the product´s price –with or without quality attributes- and the marginal utility derived from the attributes, but also on their trust in the information sources (Cho and Hooker, 2002).

This assumes that consumers´choices of differenciated products through labels, depend on the level of trust the individuals have on the producers and the public or private control systems. The institutional environment affects the legitimacy of any external certification (Mainville et al, 2005). In many developing countries, food quality standards are often not strictly enforced by public authorities. However, retail and processing firms have incentives to create private standards and certification systems in order to increase their reputation. If the firm that promulgates the differentiating standard has a very strong brand name which manages to link to the standard, higher profits can be captured. Building trust and reputation around the visible symbol of a brand name and label make grade and standards systems credible to consumers (Northen and Henson, 1999).

Recently, Huffman et al. (2004) argue that "understanding the formation of trust in information sources is an important step in understanding consumers´preferences for information on new products". They provide new econometric evidence that consumers´ social and individual capital affect significantly their trust in different sources of information on genetic modification.

Questions relating to whom consumers trust to make certifications for food quality and other assurances are important marketing issues.

The Survey and Data

We used a random sample of 304 consumers in the city of Mar del Plata at 2004[1]. The data in this survey was collected from different points of purchase located in neighbourhoods selected by income level. The level of demographic variables in the sample match the population ones.

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[1] Although the conclusions cannot be extended to the whole domestic market, other studies show that Mar del Plata residents´ consumption behaviour don´t differ significantly from that of residents in the main urban regions of Argentina (Berges et al.,1998).

The questionnaire inquired about individual´s education, age, occupation, household situation, his/ her beliefs in relation with food products quality, control systems and Argentinean institutions. Table 1 presents the sample characteristics and the frequency of responses to each category of the selected variables .

< See Table 1 >

Survey results also show that about 57.9 percent of consumers read food labels.This percentage differs significantly from 80-88 percent mentioned in other studies for developed countries (Nayga, 1999). This suggests that domestic consumers´ benefits derived from the information displayed in labels are not enough to compensate the aditional time and cognitive cost.incurred.

Econometric Model

The consumer´s utlity of choice j is given by x_{ij}, which includes specific characteristics of the individual as well as the choices (Greene, 1993; Huffman et al, 2004).

$$U_{ij} = \beta' x_{ij} + \varepsilon_{ij} \qquad (1)$$

The utility of consumer i is based on the quality warranty choice $j \in J$. If he/she chooses j, it must be the choice yielding the highest utility. If disturbance terms are indepently and identically distributed as a Weibull distribution, the probability of consumer i choising warranty j is:

$$Prob(Y_i = j) = \frac{e^{\beta'_j x_i}}{\sum_{k=1}^{J} e^{\beta'_k x_i}} \qquad (2)$$

This is the multinomial logit model. To solve the model we must define $\beta^{*}_{j} = \beta_{j} + q$ for any non zero vector q, and then normalize $\beta_{0} = 0$ -because the alternatives are mutually exclusive and probabilities sum to 1-. The probabilities are:

$$Prob(Y_i = j) = \frac{e^{\beta'_j x_i}}{1 + \sum_{k=1}^{J} e^{\beta'_k x_i}} \text{ for } j = 1,2,...,J \quad Prob(Y_i = 0) = \frac{1}{1 + \sum_{k=1}^{J} e^{\beta'_k x_i}} \quad (3)$$

We can represent the probability of a consumer prefering warranty j as the log-odds ratios:

$$\ln(P_{ij} / P_{i0}) = \beta'_j x_i \quad (4)$$

This equation shows the probability that a consumer prefers (trust) warranty j over the reference choice 0. If β'_j is positive, then a marginal increase in x_i increases the odds that the consumer prefers warranty j over the reference one, which in this case is quality certifications. The regressors are variables proxing consumers´ beliefs, social status and individual characteristics.

Empirical Results

The fitted multinomial logit model provides empirical evidence for the odd ratios that a consumer trusts in brand names or seller´s reputation more or less than he/she trusts in certifications to guarantee quality in food products. The econometric results are presented in Table 2.

<See Table 2>

Although some of the explanatory variables in the estimation are not statiscally significant at 5-10% level, they are not excluded from the model. "Keeping them in the model may help reduce bias in estimated effects of other predictors and may make it

possible to compare results with other studies where the effect is significant (perhaps becuase of a large sample size) (Agresti, 2002, pp 214)".

Consumers´ education is associated with the ability to acquire and process information to make decisions. Hence, it would be expected that higher educated people are more likely to trust in certification which is a more complex mechanism of guaranting quality. But, this variable is not significant in our estimations and the odds show little evidence in the opposite direction; higher education is associated with higher values for brands and reputation.

Age is a proxy for years of experience as a decision maker, which is expected to affect the formation of trust, and also an indicator of expected lenght of remaining life. As an individual becomes older he/she has fewer expected years over which to obtain benefits from acquired information (Huffman et al, 2004). Younger people could be less worried about being informed about food quality because the consciousness about food safety increases with the age and the individuals´experience.

Although only one of the odds is statistically significant at 10% (A3 in reputation/certification), the age effect is in the expected direction. Younger people trust more in brands relative to certifications and oldest people trust relatively more in reputation.

Women, who are typical food shoppers and normally those who are most concerned with food issues and diets, are more likely to trust in certifications than men. This effect, however, is statistically weak.

The proxy variable for income is the geoghaphical zone where the survey was administered. Results show that higher income is best associated with brands and seller´s reputation. Only two odds are significant at 10% level, both from the lower income zones (Z1 y Z2) and they indicate relatively less preference for brands.

Occupational status and household situation are related to the opportunity cost of the individual´s time. The assumption here is that employed individuals have greater time pressures or higher opportunity cost of time (Nayga, 1999). For both estimations, brands/certifications and reputation/certifications, the "single adults" (HS1) or "adults without kids" (HS2) households are more likely to trust in certification quality relative to the reference category of the variable "adults with kids" (HS3). Therefore, the presence of kids in the household is positively related to quality food decisions based on brands or reputation. The odds for the variable occupational status show that all categories trust less in certification than proffesionals (OS5) –the reference category-. The employees (OS3) and shopkeepers (OS4) have higher odds, 43 and 23 respectively than professionals, of trusting in reputation relative to certifications. This finding reveals some evidence in the direction of "social capital" hypotheses that focuses on the importance of the individuals´surroundings and social networks to determine their preferences. People who are linked to commercial activities know more about their environment and they are likely to have higher levels of trust in reputation as a mechanism to guarantee confidence.

Certain pro-active attitudes like being worried about healthy attributes in food or being informed about food quality may be closely connected with the individuals´ willingness to look for certifications in products´ labels. Likewise, people who declare to have confidence in their country institutions are more likely to trust the certification system.

The variables "healthy", "price", "quality informed", "trust institutions" and "quality control system" are related to consumers´ beliefs and habits. The odd ratios show the expected effects. People who are concerned with quality information and select the healthy attribute as first motivation to buy food have lower odds to trust brands and reputation relative to certifications. People who select price, in turn, are more likely to

trust in brands and, specially, in reputation. The confidence in the institutions indicates higher preferences for certification as quality warranty, even though there is no clear association with any specific type of system control. People who are indifferent to public or private systems have particularly higher odds to trust brands and reputation relative to certifications than people who clearly prefer a private control system.

Finally, we can use the model to characterize the kind of consumers typically choosing brands, seller´s reputation or certifications:

- If the consumer is a woman, who lives in Z2, trusts in institutions and prefers a public control system, works as an employee, lives with her husband and kids, is 45 years old (A2), has completed her secondary school level and is not worried about price, health or being quality informed, she will have a 0,93 probability of.trusting brands to guarantee food quality.

- If the consumer is a woman, who lives in Z3, trusts in institutions and is indifferent to public or private systems, is professional, lives with her husband, is 50 years old (A3) an is worried about health and quality information but not about prices, she will have a 0,76 probability of.trusting certifications to guarantee food quality.

- If the consumer is a man who lives in Z2, trusts in institutions and is indifferent to public or private systems, is a student, has 23 years old, lives alone and is worried about prices and quality information but not about health, he will have a 0,53 probability of trusting seller´s reputation.

Conclusions

Consumers´ perceptions about high quality products in Argentina are more related to brand names than seals and certifications in labels. This has consequences upon the competitiveness of domestic food market. Argentinian food industry has an

heterogeneous degree of modernization. While large processors and retailers, specially multinational firms, have improved their products quality along the supply chain converging to international standards, small firms are very far from this quality level.

Not all consumers are interested in improving their quality food information and they minimize costs by trusting brand names. Quality certification and seller´s reputation are quality warranties restringed only to certain domestic market niches. These mechanisms´acceptance is related to the degree of information consumers have adquired and their level of trust in private firms, public authorities and the institutions. Building trust in brands, certifications and reputation as the best warranty for food quality is strongly associated to the environment in which consumers make decisions. The households´situation and occupational status seem to be more complex variables that resume the interaction between attitudes, information-processing and actions. Social capital, proxied by consumers´ occupation appears to be more related to the way consumers choose food quality products than individual capital proxied by age or experience and education.

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Tables

<h2 align="center">Table 1. Sample characteristics (N=304)</h2>

	Number	Percentage
"Quality warranty consumers most trust"		
- Brand-name	215	70.7
- Seller´s reputation	45	14.8
- Quality certification	44	14.5

Variables	Description	Number	Percentage
Household Situation (HS)	Single adults (HS1)	50	16.4
	Adults without kids (HS2)	114	37.5
	Adults with kids (HS3)	140	46.1
Education Level (E)	Primary school complete (E1)	86	28.3
	Secondary school complete (E2)	159	52.3
	University level complete (E3)	59	19.4
Occupational Status (OS)	Retired people (OS1)	41	13.5
	Housewives, students, unemployed people (OS2)	78	25.7
	Employees (OS3)	114	37.5
	Shopkeepers (OS4)	47	15.5
	Professionals (OS5)	24	7.9
Gender	Female (F)	199	65.5
	Male	105	35.5
Age	Below the age of 25 (A1)	74	24.3
	Aged 26-45 (A2)	90	29.6
	Aged 46-65 (A3)	88	28.9
	Older than 65 (A4)	52	17.1
Quality Control System Preferences (QCS)	Indifferent people (QCS0)	92	30.3
	Public System (QCS1)	135	44.4
	Private System (QCS2)	77	25.3
Zones (Z)	Low-income (Z1)	70	23.0
	Middle-low income (Z2)	82	27.0
	Middle-high income (Z3)	71	23.4
	High- income (Z4)	81	26.6
Health priority	If consumers are first concerned about health when buying food	136	44.7
Price priority	If consumers are first concerned about food price when buying	42	13.8
Trust Institutions	If consumers trust Argentinian Institutions and organizations	255	83.9
Quality informed	If consumers are concerned at being informed about quality	208	68.4

Table 2 . Multinomial Logit Estimates

Variables		Brand-name/ Certification			Seller´s reputation / Certification		
		β	Sig	Odd ratios	β	Sig.	Odd ratios
Household Situation	HS1	-1.716***	0.008	0.180	-1.194*	0.107	0.303
	HS2	-1.496***	0.009	0.224	-1.694**	0.016	0.184
Education	E1	-0.770	0.310	0.463	-0.463	0.612	0.629
	E2	-0.278	0.672	0.672	-0.365	0.644	0.694
Occupational Status	OS1	2.172**	0.049	8.774	1.512	0.367	4.534
	OS2	1.633*	0.070	5.121	2.464*	0.083	11.750
	OS3	2.720***	0.001	15.186	3.771***	0.004	43.426
	OS4	1.967**	0.022	7.147	3.167**	0.020	23.727
Gender	F	-0.774	0.150	0.461	-0.942	0.137	0.390
Quality Control System Preferences	QCS0	0.929	0.123	2.532	1.197*	0.097	3.309
	QCS1	-0.023	0.963	0.978	0.005	0.994	1.005
Zones	Z1	-1.123*	0.089	0.325	-0.543	0.497	0.581
	Z2	-1.072*	0.094	0.342	-0.861	0.273	0.423
	Z3	-0.557	0.422	0.573	-0.085	0.917	0.919
Health		-1.194***	0.009	0.303	-0.655	0.249	0.519
Price		0.986	0.402	2.681	2.232*	0.071	9.320
Trust I		-1.259*	0.073	0.284	-1.260	0.122	0.284
Q informed		-2.460***	0.000	0.085	-1.686**	0.026	0.185
Age	A1	0.16	0.868	1.173	-0.973	0.387	0.378
	A2	-0.615	0.483	0.540	-1.533	0.139	0.216
	A3	-0.325	0.668	0.723	-1.568*	0.096	0.208

* Indicates that an estimated coefficient is significantly different from zero at the 10% level.

** At the 5% significance level.

*** At the 1% level.

Model Fitting Information				
Model	-2 Log Likelihood	Chi-Square	df	Sig
Intercept Only	485.425			
Final	389.522	95.903	42	0.000

Pseudo R-Square: Cox and Snell: 0.271 Nagelkerke: 0.338   McFadden: 0.195