Contingent Valuation of Consumers' Willingness-to-Pay for Organic Food in Argentina

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Abstract - **Throughout these last years, organic agriculture has undergone a remarkable expansion due, among other things, to the greater interest shown by consumers aware of food safety concerns involving real or perceived quality risks [1].**
This paper aims to estimate consumers' willingness to pay (WTP) for organic food products available in the Argentinean domestic market, with a view to providing some useful insights to gain support and outline strategies for promotion of organic production, marketing, regulation, and labelling programs of organic food products.
A Binomial Multiple Logistic Regression model is estimated with data from a food consumption survey conducted in Buenos Aires city, Argentina, in April 2005.
The Contingent Valuation Method was chosen in order to calculate their WTP for five organic selected products: Regular Milk, Leafy Vegetables, Whole Wheat Flour, Fresh Chicken and Aromatic Herbs.
The empirical results reveal that consumers are willing to pay a premium for these products and that although prices play an important role, lack of store availability and of a reliable regulatory system to mitigate quality risks constraint consumption of organic products in this country.

Keywords - **Willingness-to-pay, Food attributes, Organics.**

I. Introduction

Throughout these last years, organic agriculture has undergone a remarkable expansion due, among other things, to the greater interest shown by consumers aware of food safety issues involving real or perceived quality risks [1]. In Argentina, key factors such as very good agro-ecological conditions, intensive labour requirements, and increasing export perspectives for these differentiated foods, could transform organic production into a profitable activity for farmers, distributors and retailers, thereby improving the development of our regional economies[4].

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When purchasing food, consumers make their choices based on price and quality. Such choices are certainly conditioned by the information available to them. In the Argentinean domestic market, many consumers are willing to pay higher prices for healthy products, i.e. organics, because they increase their utility level by reducing perceived health risks. Information about the quality attributes of food products, i.e., safety attributes; convenience; place and manner of product production, environmental concern, is imperfect for consumers, producers, government regulators, and researchers [2]. This is particularly true when production process attributes cannot be readily observed or tested, and the product's health effects are difficult to determine once it has been consumed.

Although "safe products" still constitute a small part of the Argentinean food expenditure, they are considered a market niche of great potential growth. The main restrictions to domestic demand growth are the lack of information available to consumers; organic prices over those of conventional foods; and the erratic supply oriented to domestic market, as organic products' main target is the foreign market. In 2006, 96 percent of the Argentinean total organic production was destined to the foreign market. The domestic market accounted for as little as the remaining 4%[5] [3].

II. Conceptual Framework

A. Willingness-to-Pay (WTP)

Increase in consumers' concern about food safety and food quality is driven by recent scientific discoveries, new

[4]Argentina has developed national organic regulations which have turned it into the First Third Country to adapt its national regulations to the European Union requirements (1993). It has also implemented a private certification system accredited by SENASA (National Service of Food Quality and Safety).

[5] The largest marketing export volumes are grains: bread wheat, rice and maize, and oilseeds. Other processed organic products such as olive oil, sugar, concentrated juices, honey and wines, notwithstanding their low production volumes, are also attractive export alternatives. The European Union imports more than 80% of Argentinean organic products; the remaining 20% is exported to the United States. Cereals and oils are also central products in the domestic market due to their high volume, and vegetables are noteworthy because of their diversity.

information about the relationship between diet and health, novel food technology and mass communications [4]. However, many of the scientific and economic variables related to food safety and food quality are difficult to measure. A well-used method to determine the benefit of a given improvement in food safety and food quality is the estimation of consumers' willingness-to-pay (WTP) for risk-reduced food [5].

The notion of *willingness-to-pay* could be defined as the amount of money represented by the difference between consumers' surplus before and after adding or improving a given food product attribute.

Some previous efforts to develop a WTP model for an attribute change are found in several works ([6], [7]). These models are based on Lancaster Demand Theory [8] according to which consumers are hypothesized to derive utility not directly from goods, but from a collection of characteristics or attributes those goods possess.

B. Determinants of WTP for Organic Food

Most recent studies conducted in developed markets for organic agriculture have tried to establish connections between the WTP for these products and a particular consumers' lifestyle ([9], [10]). Consumers segmentation based on those variables has resulted in several profiles of potential organic consumers. Despite the notorious ambiguity of the socio-demographic profile, these consumers show a purposeful attitude towards a balanced life, eating healthy food, and decreasing agriculture impact on the environment [11].

Results from empirical works carried out in countries with a significant level of organic food consumption demonstrate that the main reason why these products are acquired is health care, either because of disease suffering or disease prevention [12]. Besides, due to their low pesticide-residue content, these products are considered beneficial, mainly for produce ([13], [14]). As regard meat products, e.g. chicken meat, the risks perception linked to hormone use along the production process is remarkable when conducting consumers' studies in Brazil [15] and Argentina [16].

The relationship between income level and WTP offers controversial empirical evidence. A greater degree of confidence in food supply was verified in higher income levels [17]. Some studies have found direct associations between income and WTP either regarding risk reduction, derived from consuming healthier and safer food products ([18], [19]) or certified quality ([20], [21]).

With regard to educational level as a socio-economic predictor, Misra and co-workers [20] obtained a negative correlation between education and fresh organic products consumption. Govindasamy and Italia [22] also arrived at an inverse relationship between WTP and education. They concluded, on the one hand, that the lower the educational level, the higher the risk perception; and, on the other, that the higher the educational level, the greater the confidence in production standards.

Several researches have focused on the obstacles hindering organic food demand expansion. Higher prices and products shortage supply in supermarkets should be mentioned in the first place, together with the degree of relative satisfaction regarding conventional products, and the level of information about food quality consumers have access to ([20], [23], [24]).

III. OBJECTIVE

The purpose of this paper is to calculate consumers' willingness-to-pay for different organic food products available in the Argentinean domestic market.

The following *hypotheses* are to be tested:

- Health risks perceptions linked to hormone, pesticide and preservers content in several food products affect significantly consumers' willingness-to-pay for organics.
- The effect of regulation programs on the willingness-to-pay for organic unprocessed products is lower than for organic processed products.

IV. DATA AND METHODOLOGY

A. Data

The data in this study derives from a food consumption survey conducted in Buenos Aires city, Argentina, in April 2005, by applying a semi-structured questionnaire.

A convenience sample, in which the probability of being selected is unknown, was chosen due to the difficulty to spot the target population, i.e., individuals who usually shop for organic foods ([25], [26], [27]). 301 surveys were completed by trained interviewers who surveyed respondents in the largest supermarket chains and also in an important specialized organic store.[6] The sample was based on age and gender local distribution pursuant to the last National Population Census in Argentina [28], for respondents aged 18 or above with a medium-high socio-economic level.[7] Table 1 provides the representativeness of the sample in terms of the demographic structure of Buenos Aires city population according to gender and age:

[6] Supermarket chains: Coto, Disco, Jumbo, Norte and Wall Mart.
Specialised organic store: La Esquina de las Flores.

[7] As defined by the Argentine Marketing Association (AAM), available at http://www.aam-ar.com

Table 1: Sample Representativeness in Terms of Buenos Aires city Demographic Structure according to Gender and Age (18-87 years old)

Comparison between Survey Sample[(1)] and Population Census in Buenos Aires City			
Demographic characteristics	Categories	Relative frequency	
		Representation in the survey sample	Representation in Buenos Aires City
Respondent's GENDER	Male	32%	44%
	Female	68%	56%
Respondent's AGE (in years)	18-24	15%	14%
	25-34	19%	20%
	35-49	26%	24%
	50-59	15%	15%
	60-87	25%	27%
Proportion of Buenos Aires city population in relation to Argentinean overall population			
	Buenos Aires City	Argentina	
Population	2,174,017	23,927,108	9%

Notes: (1) N = 301
Source: Consumption survey, Buenos Aires City/2005 and Population Census in Argentina (INDEC/2001).

The semi-structured questionnaire contained both close- and open-ended questions displayed in three sections. In the first one, questions referred to organic, natural and fresh food consumption; also to purchasing frequency, and to reasons for buying these products.

The second section was designed in order to collect consumers' opinions concerning several issues linking diet and health. Questions dealt with: eating habits; reasons behind taking care in meals; risks perceptions derived from hormone, pesticide and preservers present in each of the selected products; factors of trust, such as brand, food labels, product origin, confidence in stores where respondents do their food shopping; search information, food products advertising and promotion; respondents' opinions about food control and regulatory bodies functioning; their preferences regarding private or public regulation systems; and personal beliefs about differences between organic and conventional foods.

The socio-economic sample characterization shows that sixty eight percent of the respondents were female, as expected, since grocery shopping is mostly a female activity [14].

The last section of the questionnaire collected socio-economic data, and included income ranges. Respondents had to indicate the range in which the household monthly income fell.

Store availability was a crucial factor in the selection of these five products: Regular Milk, Leafy Vegetables, Whole Wheat Flour, Fresh Chicken and Aromatic Herbs, to which the methodology for consumers' WTP calculation was applied. Table 2 below displays the description, net content and packaging of the selected products. The organic price premium is expressed as the percentage by which the price of the organic product is above the price of a similar conventional product [29]. These premiums were calculated with the current prices of both organic and conventional products collected at the stores where the survey took place.

The average sample age was 44, and the highest absolute frequency ranged between 35 and 49 years, and 60 years or more (26% and 25% of the total sample, respectively).

Table 2: Description of Organic Selected Products

Selected products	Description	Net Content - Packaging
Regular Milk	Regular Milk	1 l - Carton
Fresh Leafy Vegetables	Chard, Green Onion, Parsley, Leeks, Cabbage, Radicchio and Rucola	½ kg - Plastic tray
Whole Wheat Flour	Whole Wheat Flour	1 kg – Paper bag
Fresh Chicken	Fresh Chicken	1 unit - Plastic tray
Aromatic Herbs	Tarragon, Oregano, and Black Pepper	0.20 kg - Plastic envelopes

Thirty four percent of the respondents mentioned that they usually consumed organic food. These consumers were called "organic consumers". The remaining 66%, who stated to have never consumed organics, were called "non-organic consumers".

Thirty eight percent of the total sample stated that their household monthly income was U$S 500 or less per month, while the remaining 62% declared it was above U$S 500. Despite the fact that 67% of organic consumers earned above U$S 500, non-organic consumers were almost equally distributed when considering these household's income levels. Regarding educational level, 20% of the respondents had not completed high school, and more than a half had gone into further education, even though they had not graduated. Twenty nine percent held a university or postgraduate degree. The highest proportion of respondents who had reached a university or postgraduate degree was included in the organic consumers group (36%).

B. Methodology

Among the different methodological alternatives to assess consumers WTP, the Contingent Valuation (CV) approach was chosen [30]. Even though CV is primarily used for the monetary evaluation of consumers' preferences for non-market goods, it is also applicable to the Argentinean organic market as it is still a small-scale niche, and organic products are not usually available in all retail stores.

CV tends to quantify the value consumers assign to products by facing a hypothetical purchasing situation in which they have to answer how much money they would be willing to pay for a given product, or if they would be willing to pay a certain price premium [31].

In CV surveys, one of the most widely used approaches to elicit information about respondents' WTP is the so-called dichotomous choice format [30]. The single bound dichotomous choice format, selected herein, entails asking respondents whether they would be willing to pay a price premium for each of the selected organic products or not. It could be assumed that the respondents' answer is conditioned by the organic and conventional prices they find when choosing organics instead of conventional products.

To obtain the parameters estimates for each selected product, the theoretical Model to be estimated by using a Binomial Multiple Logistic Regression is formulated as follows:

$$WTP_{ij} = \alpha + \beta_1 P_{jk} + \beta_2 Y_i + \beta_3 \pi_i + F(Z_i) \quad [1]$$

Where:

WTPij Whether i respondent is willing to pay a price premium for the j selected food product or not; j = 1 Regular Milk; j = 2 Leafy Vegetables; j = 3 Whole Wheat Flour; j = 4 Fresh Chicken; j = 5 Aromatic Herbs;

Pj Organic price premiums charged for any of the j selected product at the k sampled stores; k = 1 Coto; k = 2 Disco; k = 3 Jumbo; k = 4 Norte; k = 5 Wal Mart; k = 6 La Esquina de las Flores;

Yi Household income level of i respondent;

πi Risks and quality attributes perceptions of i respondent;

Zi Socioeconomic respondent's characteristics.

Equation [1] was estimated by Maximum likelihood. The estimated parameters for each selected product equation were obtained by using the Statistical Package for Social Sciences (SPSS version 11, 2001).

Table 3 below lists the selected explanatory variables finally included in the Logit Models according to their statistical significance.

Table 3: Description of Models' Variables

Dependent Variable		Categories
WTP	If the respondent is willing to pay a price premium for the organic product	1 = Yes, 0 = Otherwise
Categorical Explanatory Variables		**Categories**
CONSUMP	If organics are usually consumed in the households	1 = Yes, 0 = Otherwise
HORMONE	If the respondent perceives the high risks of hormones in conventional fresh chicken content	1 = Yes, 0 = Otherwise
PESTICIDEV	If the respondent perceives the high risks of pesticides in conventional leafy vegetables content	1 = Yes, 0 = Otherwise
PESTICIDEF	If the respondent perceives the high risks of pesticides in conventional whole wheat flour content	1 = Yes, 0 = Otherwise
RISKSCON	If the respondent believes that there are no significant risks when consuming conventional food	1 = Yes, 0 = Otherwise
AVAILABLE	If the respondent would be willing to buy organics if they were available in the market	1 = Yes, 0 = Otherwise
REGULATION	If the respondent believes that there should exist a food quality regulation system	1 = Yes, 0 = Otherwise
LABELS	If the respondent is used to reading food labels when buying	1 = Yes, 0 = Otherwise
DIFORCON	If the respondent believes that there is no difference between organic and conventional food products	1 = Yes, 0 = Otherwise
Quantitative Explanatory Variables		
RMPP	Organic regular milk price premium over conventional regular milk price	
LVPP	Organic leafy vegetables price premium over conventional leafy vegetables price	
WWFPP	Organic whole wheat flours price premium over conventional whole wheat flours price	
FCPP	Organic fresh chicken price premium over conventional fresh chicken price	
AHPP	Organic aromatic herbs price premium over conventional aromatic herbs price	

After estimating the Logit Models and in order to calculate the average consumers' WTP for each selected product, the estimated parameters were included in the expression [2]. It equals the average WTP, calculated as the area below the logit functions estimated by [1] truncated[5] at the maximum organic price premium, which was calculated in accordance with prices collected in the sampled stores:

$$\overline{WTP_j} = H + \frac{1}{\beta_1} \ln \left[\frac{1 + \exp\left[-\left(d + \beta_1 H\right)\right]}{1 + \exp\left(-d\right)} \right] \quad [2]$$

Where:

$\overline{WTP_j}$ The average organic WTP calculated for the j product;[6]

β_1 Coefficient estimated for the price premium variable;

H Maximum organic price premium (P_j) for the j selected product;

-d $= \alpha + \beta_2 Y_i + \beta_3 \pi_i + F(Z_i)$, according to [1];

j Selected products.

[5] It is important to mention that truncation does not significantly affect the WTP estimates if H is large, as in this research. Also it should be mentioned that WTP were assumed to be strictly positive.

[6] The expression [2] was obtained by integrating:

$$E(WTP) = \int_0^H \left(1 + \exp\left[\alpha + \beta_1 Pj + \beta_2 Yi + \beta_3 \pi + \beta_4 Zi\right]\right)^{-1} dp$$

V. Empirical Results

A. Binomial Logit Models Estimations

Table 4 below displays the results from the estimated Logit Models. All the estimations were set for the higher income level (more than U$S 500) except for Regular Milk because the explanatory variables were also statistically significant for the lower income level (U$S 500 or less). Consequently, Model 1.a was estimated for the higher income level (more than U$S 500) and Model 1.b for the lower income level (U$S 500 or less).

Willingness-to-pay (WTP) for organic ***Regular Milk*** is largely explained by the scarce availability of this product in the market (AVAILABLE) for both income level Models. Besides, the belief that there should be a food quality regulation system (REGULATION) ranks as the second significative explanatory factor. The consumption of organics also explains the WTP for organic regular milk. (CONSUMP)

Table 4: Results from the Estimated Logit Models and Statistical Models' Performance

Variable	Model 1a: Regular Milk (Income ≤ U$S500)	Model 1b: Regular Milk[(1)] (I >U$S500)	Model 2: Leafy Vegetables (I >U$S500)	Model 3: Whole Wheat Flour (I > U$S500)	Model 4: Fresh Chicken (I > U$S500)	Model 5: Aromatic Herbs (I >U$S500)
Intercept	-2.21 (9.22) ***	-3.42 (10.08) ***	4.1 (2.93) *	-3.35 (8.65) ***	-4.32 (11.25) ***	-6.99 (10.46) ***
CONSUMP	1.08 (6.42) **	1.32 (4.04) **	1.23 (7.96) ***	ns	1.58 (10.33) ***	1.64 (8.77) ***
HORMONE					-1.30 (5.65) **	
PESTICIDEV			-0.98 (4.20) **			
PESTICIDEF				-1.61 (10.77) ***		
RISKSCON	ns	ns	ns	ns	Ns	1.13 (4.98) **
AVAILABLE	1.39 (10.12) ***	2.45 (18.14) ***	1.64 (13.39) ***	1.59 (10.49) ***	1.63 (11.43) ***	1.32 (7.91) ***
REGULATION	1.08 (4.25) **	1.54 (6.26) **	Ns	1.48 (6.14) **	1.59 (7.62) ***	1.58 (7.25) ***
LABELS	ns	ns	ns	1.50 (4.18) **	1.28 (3.14) *	1.50 (4.39) **
DIFORCON	ns	ns	ns	ns	Ns	-0.94 (3.66) *
RMPP	0.05 (3.23) *	0.08 (2.94) *				
LVPP			-0.05 (3.85) *			
WWFPP				0.23 (7.70) ***		
FCPP					0.076 (5.79) **	
AHPP						0.02 (4.02) **
N	146	99	143	139	143	138
Chi-Square Statistic [(2)]	24.668	38.914	26.959	37.399	38.824	35.912
Cox & Snell's R^2	0.155	0.325	0.172	0.236	0.238	0.229
Nagelkerke's R^2	0.217	0.454	0.241	0.332	0.334	0.332
Overall Predicted Power (%)	74.7	81.8	73.4	77	75.5	76.1
Concordance Index	0.72	0.84	0.74	0.80	0.80	0.78

Notes: Wald Test-value is between brackets, *** 1%, ** 5%, * 10% significance levels, Cut-off = 0.50; ns: non- significant variable. All the estimations were done for respondents included in the higher income level except for (1), which was for respondents included in the lower income level; (2) Chi-Square p-value = 0.000

Source: Author's Calculation. Consumption survey, Buenos Aires City/2005.

On the other hand, the PRESERV variable was not statistically significant (at the 0.10 level of significance) for these Models. This would be explained by the high degree of trust Argentinean consumers have in milk products, both organic and conventional.

65% of the respondents (n_{1a}=146) ascribed great relevance to the brands they bought, as they constitute a confidence factor when it comes to shopping choices.

Among respondents whose monthly income is above U$S 500, *WTP for organic **Leafy Vegetables*** is mainly explained by this product shortage in the market (AVAILABLE), since respondents would buy more organic leafy vegetables, if they were readily available. These results agree with those found in previous works ([23], [24]). Moreover, organic food consumption (CONSUMP) also contributes to consumers' willingness to acquire organic Leafy Vegetables.

Indeed, those consumers who choose these vegetables representing a highly differentiated product in terms of packaging, presentation in container, serving size, and origin have a relatively high income level. In this regard, a high proportion of the respondents (78% of n_2= 143) included in this analysis, whose educational level was high, consider that knowing Leafy Vegetables origin gives them confidence when it comes to shopping decisions.

The perception of high health risks associated with pesticides in the conventional varieties of these products turns the PESTICIDEV variable significant. The empirical evidence of these results is consistent with those found by Weaver and collegues [13] and Baker [14].

WTP for organic ***Whole Wheat Flour*** is explained mainly by regular label reading when making shopping decisions (LABELS). Besides, 78% of the respondents (n_3= 139) regularly look for information about food quality, and believe that there should be a food quality regulation system (REGULATION). The scarcity of this product in the market is also worth noting (AVAILABLE). These results are in accordance with those documented by Michelsen *et al.* [23], Richman *et al.* [24] and Pearson [32]. Consumers perceive Whole Wheat Flour as a natural and healthy product. Respondents affirm that knowing product origin and the store where it is acquired constitute confidence factors in their shopping choices.

WTP is further explained by the high health risks perceptions associated with pesticides in the conventional products (PESTICIDEF). In addition, 68% of the respondents believe that the greater this product processing, the higher the quality distrust.

High income level respondents are willing to pay *price premiums for organic* ***Fresh Chicken*** mainly because they believe that there should be a food quality regulation system (REGULATION) as concluded Farina & de Almeida [15].

On the other hand, this product shortage in the market (AVAILABLE) together with the regular label reading by consumers when making shopping decisions (LABELS) play a minor, though significant, role in WTP. Finally, consumption of some of these products (CONSUMP) as well as the perception of high health risks associated with hormones present in the conventional varieties (HORMONE) also contributes, to a lesser extent, to WTP understanding. In this sense, 60% of the respondents (n_4=143) sustain that knowing the product's origin constitutes a confidence factor when it comes to shopping choices.

WTP for organic ***Aromatic Herbs*** is explained mainly by regular label reading when making shopping decisions (LABELS) as well as by the REGULATION variable.

It is also worth noticing the perception of this product shortage in the market (AVAILABLE). This is explained by the fact that most organic aromatic herbs production is exported, as export prices are more profitable. Knowledge and identification of organic food are also relevant to explain WTP, as it is evidenced in CONSUMP, RISKSCON and DIFORCON variables. In this sense, 68% of the respondents (n_5=138) sustain that knowing the product's origin constitutes a confidence factors when it comes to shopping choices.

Finally, it should be highlighted that more than 60% of the respondents included in both Model 4 (Fresh Chicken) and Model 5 (Aromatic Herbs) believe that the greater this product processing, the higher the quality distrust. This was also mentioned when explaining the explanatory variables for organic Whole Wheat Flour.

After running the Models, both the respondent's educational level and the household monthly income were not statistically significant as explanatory variables. Therefore, they were disregarded when estimating the final Models.

The Models' Performance was tested with Pearson's Chi-Square Statistic, which indicates that all Models fit adequately. The alternative forms of R^2 for Binomial Logit Models are Cox & Snell's R^2 and Nagelkerke's R^2. The highest values of alternative R^2 are yielded in Model 1.b for Regular Milk (0.325 and 0.454 respectively) [33] and [34].

The Overall Predicted Power is above 73% for all Models. The Concordance Index, which estimates the predictions and outcomes probability of concordance, yields values above 0.50 for all the estimated models, indicating that predictions are better than random guessing [35].

B. WTP Calculation

By applying the expression [2] described in Section 4.2, Table 5 below displays the average WTP for each selected product, i.e., the additional premium respondents are willing to pay for each organic product over the price of the conventional product. These values are expressed in %/kg or %/l. As mentioned in Section 5.1, all the estimations were made for the higher income level (more than U$S 500) except for Regular Milk, which was estimated for both income levels.

This Table also includes the averages additional premiums charged for organic products at the stores considered in the survey. Finally, the differences between respondents' calculated WTP [A] and the effective premiums [B] are presented.

While higher income level respondents (Model 1.a) are willing to pay 12.2% more for organic Regular Milk than for conventional Regular Milk, lower income level respondents (Model 1.b) would only pay 11.6% more for the organic variety. However, there would be no remarkable differences between both calculated WTP values, which are below organic Regular Milk real price premium (1.64% in Model 1.and 2.24% in Model 1.b).

Table 5: Average WTP Estimation

Model	Average WTP (%/kg) [A]	Average Price Premium (%/kg) [2] [B]	% Difference [A] – [B]
1a. Regular Milk	12.2 [3]	13.8 [3]	-1.64
1b. Regular Milk[1]	11.6 [3]		-2.24
2. Leafy Vegetables	87	84.5	2.46
3. Whole Wheat Flour	7.5	5.9	1.59
4. Fresh Chicken	20	24.6	-4.61
5. Aromatic Herbs	110	298.3	-188.33

Notes: (1) Estimation for the lower income level; (2) Calculated as the percentage by which the price of the organic product is above the price of a similar conventional product. Premiums derived from price collection carried out in the stores where the survey took place; (3) Expressed in %/lt.
Exchange Rate: 1 U$S = 3 Argentinean Pesos ($)
Source: Author's Calculation. Consumption survey, Buenos Aires City/2005.

According to Model 2 results, respondents are willing to pay for ***organic Leafy Vegetables*** 87% more than for conventional Leafy Vegetables. This value is 2.46% higher than the organic price premium charged by retail stores.

WTP for ***organic Whole Wheat Flour*** is 7.5% higher if compared to the price paid for conventional Whole Wheat Flour; this WTP being slightly above the organic Whole Wheat Flour real price premium in as much as 1.59%.

The results yielded by Model 4 show that WTP for ***organic Fresh Chicken*** is 20% higher if compared to the price paid for conventional Fresh Chicken. This WTP value is below the organic Fresh Chicken real price premium in as much as 4.61%.

Finally, WTP for ***organic Aromatic Herbs*** is 110% higher if compared to the price paid for conventional Aromatic Herbs; this WTP being below the organic Aromatic Herbs market price premium in as much as 188%.

To sum up, it is worth mentioning that the key factors that help to explain organic WTP for the selected products are consumption of organic products, health risks perceptions linked to hormone and pesticide content, regulation concerns, perceptions of irregular organic availability in the domestic market, labels reading, and the effective price premiums charged over the conventional prices. Still, the relative importance of these factors is different when WTP is explained for each case.

Health risks perceptions contributed to explaining WTP for Leafy Vegetables, Whole Wheat Flour, Fresh Chicken and Aromatic Herbs, but have no relevance when trying to explain WTP for Regular Milk. Hence, hypothesis #1 -*Health risks perceptions linked to hormone, pesticide and preservers content in several food products affect significantly consumers' willingness-to-pay for organics*- has been rejected only for the Regular Milk estimations.

According to the results of the estimated models, the effect of the regulation program was statistically significant for both unprocessed products (like Fresh Chicken) and processed products (like Aromatic Herbs, Regular Milk and Whole Wheat Flour); but had no significance for Leafy Vegetables. Therefore, hypothesis #2 -*The effect of regulation programs on the willingness-to-pay for organic unprocessed products is lower than for organic processed products*- has also been rejected. This could be explained by the fact that the degree of product processing may not seem to condition the effect regulation programs have on consumers' WTP.

It should be mentioning that 74% of the respondents affirm that the regulatory bodies are inefficient, and 70% prefer a public food regulation system to a private one.

Undoubtedly, price premiums play a critical part in the applied methodology when calculating WTP. If organic market prices were slightly reduced, the differences between WTP and real price premiums would get reduced as well. Consequently, consumers would have greater access to organic Regular Milk and organic Fresh Chicken. On the other hand, organic Aromatic Herbs real price premiums restrict their consumption in the domestic market, which is exceedingly influenced by the high revenues obtained when exported.

Even tough WTP for organic Leafy Vegetables is somewhat above the real market price premiums, the problem seems to be the lack of regular supply of these vegetables in the domestic market. Also WTP for organic Whole Wheat Flour is barely above the organic price premium charged in the market.

VI. Final Remarks

The results of WTP estimates obtained for the selected products indicate that organic products are positively valued in Argentina, since consumers are willing to pay price premiums to acquire these products of better quality. Such results are undoubtedly conditioned by the effective price premiums charged in the domestic market, which, in turn, are conditioned by the incidence of export prices, as the foreign market is the main destination of organic products production in Argentina.

It is also worth mentioning that the WTP values for each of the selected organic products are explained by the consumption of organic products, health risks perceptions linked to hormone and pesticide content, regulation concerns, perceptions of organics irregular availability in the domestic market, and labels reading. Still, the relative importance of these factors is different when WTP is explained for each product.

This study verifies that those consumers whose income is above U$S 500 are worried about products quality as well as about health risks connected to pesticide-residue and hormone-treated product. The high effective price premiums condition the purchase of these healthy-perceived products, even when respondents express their desire to acquire them. These consumers know what organics stands for, they perceive products scarcity and irregular availability in the market, and they would be willing to increase consumptions if these products were cheaper. The price premiums in the market depend on the product type but, regarding the analyzed products, they range between 6% and 298%.

The effect of regulation programs on consumers' WTP may not seem to be conditioned by the degree of product processing. On the other hand, the concern consumers express regarding current regulatory and controlling bodies is worth noticing as well as their preference for a public system.

To conclude, the scarcity of organic products in the domestic market as well as of high price premiums are identified as the most difficult obstacles to overcome when it comes to organic domestic consumption expansion in Argentina. Since the devaluation of the Argentinean peso in 2002, the prices of both conventional and organic food products have increased. This has led to changes in the organic vs. conventional price relations.

Taking into account that Argentinean organic production has foreign markets as its main destination, the domestic prices of tradable goods rise in the country as export prices do. In this sense, the case of organic Aromatic Herbs and conventional Whole Wheat Flour are good illustrative examples.

An increase in production levels is a must together with reductions in production, processing and/or trading costs, which, in turn, translate into sale price reductions, and into an increase of organic products consumption. Lower distribution costs constitute a contributing factor which reduces price premiums by involving general food retailers.

Most countries with lower consumer price premiums have a common national label, and such label recognition is usually high. Clear recognition is a pre-requisite if organic products are to break free from niche product status. This is another key issue Argentina still has to address if it wishes to expand in the organic domestic market.

Given that scenario, the government goal should be to support already operating markets, assuring an equal development of both supply and demand. As consumers claim, consumer food education and counselling programs should be further supported. In Argentina, efficient government actions need be directed towards a stricter control system; a better coordination between public and private organizations; and a long-term planning for the organic sector.

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