ESTIMATE OF THE WILLINGNESS TO PAY FOR ECOLOGICAL PANELA, APPROACH FROM THE SUSTAINABLE CONSUMPTION

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Summary

Estimating the value of the environmental services, represents a crucial element in the process of making decisions on the programs and the environmental politicics to develop, as well as an orientation instrument for the implementation of production patterns and more sustainable consumption. From this perspective, the present study has as purpose to estimate the willingness to pay (WTP) of the consumers from Bogotá for ecological "panela"[2]. For this the method of contingent valuation was used. A selected stratified sampling of the population was determined by socioeconomic stratum for the city of Bogotá; the consumers were asked if they would be willing to pay for ecological panela, as well as topics related with their consumption behavior, likes, preferences, environmental, social commitment, and their socioeconomic characteristics. By means of the combination of this method of economic valuation and qualitative information this paper concluded that the consumers are willing to pay a bigger price for these panela types, especially for the powder ecological panela. A crucial conclusion is the existence of a direct relationship between the socioeconomic stratum and the WTP by conventional and ecological powder panela. Finally, it was determined that the commitment for the conservation and protection of the environment, when it is perceived by the consumer like an element that it guarantees the consumption of healthy and innocuous products, it represents a decisive factor in the willing to pay a bigger price for conventional and ecological powder panela.

Key words: Ecological Panela, Contingent Valuation, Sustainable Consumption, Ecological Products.

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[2] Sugar canne, in other countries of Latin American it is name "Chancaca".

INTRODUCTION

In the last years the concern for the deterioration and depletion of the natural resources has taken a marked interest in the world economic politics, implying the search of sustainable development models.

From the appearance of the Brundtland Report in 1987, a marked interest arose in the world community to implement production patterns and more sustainable consumption whose purposes to point that the decisions of what, how much, how, where and for who, be assumed from a multiple perspective and not only as an economic problem of offer and demand. In this sense in 1992 with the Agenda 21 the topic of the "consumption sustainable" was raised as a necessary strategy to reach a sustainable development from the economic, social, political, cultural and environmental perspectives.

The agriculture is redefined, as a group of productive systems environmentally healthy, economically viable, socially responsible, non exploiters that serve as a base for the future generations. The ecological production represents a first step toward the consolidation of a sustainable agriculture since is carried out in productive systems characterized by the conservation, the avail of the resources, the use of clean technologies and the retribution to the producers through the payment of a "premium" price for the generated environmental benefits. The production and consumption of ecological products represents for the producers a profitable and sustainable productive alternative and for the consumers the possibility to have innocuous foods.

In Colombia efforts have been made to consolidate a national market of ecological products in the cases of the coffee, the vegetables, the panela, the sugar and some tropical fruits, but the irregularity in the offer, the lack of information has more than enough appropriate technologies and the ignorance on the part of the consumers about the difference among ecological and conventional products, they have limited the amplification of the internal demand, implying that most of the ecological production is dedicated to the external market. In some market studies the answer of the consumers was to recognize a bigger price for ecological products (González, 2000 and Ramos, 2002).

To this respect a classification of methods exists to determine the economic value of environmental goods, which are based mainly on two methodological characteristics. The first one is if the data of the observations come from people that act in a real market where the consequences of their elections live or of individuals that respond to hypothetical questions in the way: what would he/she make if…? or would it be willing to pay….?. is The second characteristic if the method generates an economic value directly or if this value should be inferred of some indirect technique based on an election model and individual behavior.

Starting from these two methodological characteristics the estimate methods are located in four possible categories: Method of Direct Observation, the observations are based on the current elections made by the individuals that look for now to maximize their utility; Hypothetical Direct method, implies to ask to the individuals directly about the value that they would give for the environmental services, creating in consequence a hypothetical market; indirect and Hypothetical methods of Observation, the difference among these types of methods is that the last one obtains its data from the answers to hypothetical questions more than of the observations of the elections made in a real market. [3].

[3] Myrick Freeman. The measurement of Environmental and Resource Values, theory and methods. Resource for the Future. Washington, 1993. Pp. 24

The present work has as purpose the estimate of the willingness to pay of the consumers from Bogotá for ecological panela, from the focus of the sustainable consumption. It is expected that the obtained results serve as an orientation instrument for the plans, programs and projects that institutions like the Colombian Corporation of Agricultural Investigation, CORPOICA, undertakes around the creation and consolidation of rural agrobusiness of ecological products.

In the first part of the study there is a brief presentation of the antecedents, justification and the objectives of the same one. In the second, an analysis of the methodology and the conceptual and theoretical mark. In the third and last one, I present the analysis and discussion of the results, as well as the conclusions and derived recommendations.

1. METHODOLOGICAL CONSIDERATIONS

Before the existence of a very incipient market of powdered and ecological panela in the country, one went to the employment of methodologies of direct valuation, specifically contingent valuation (VC). This method consists in creating a hypothetical market well for goods for which a real market doesn't exist. The VC has become a good tool of empiric analysis to estimate the economic value that individuals give to changes in its well-being, changes that can correspond to an environmental improvement (compensated surplus) or to avoid a loss (equivalent surplus).

The valuation or the maximum readiness to pay that the individuals confer to a change in an environmental attribute are achieved through the formulation of direct questions, contained in five forms different from formats: open, auction, multiple, binary and iterative.

Although the panel commission NOAA recommends the format of Referendum or binary, for this work the open format was used, in which question in an open and direct way, to the interview is how much it would be willing to pay for conventional and ecological powdered panela?.

The main problems of the open format are that it faces people to a not very well-known situation for them, rebounding in the exact quantity that would be willing to pay to have access to this good, that is to say, in the envelope or sub-estimate of the true WTP and the high number of negative (no) answers that are obtained. Nevertheless, to obviate the first problem type it was appealed to the fixation of a reference price that it served as starting point so that the interview established his DAP, trying to avoid this way an on- or sub-estimate of the WTP. To obviate the second problem type it was opted to increase the sample size for this way to try to compensate the high number of negative answers.

The open format has been employee in several studies of CV, among those that are counted: The contingent valuation of the reduction of risks in the health for the consumption of marine products, of C. Jordan Lin and J Walter Milton (1994); Employ of the CV to value the security of the foods: a study of case of the grapefruits and the residuals of pesticides, of Jean C Buzby (1995); The potential of the organic industry in New Zealand: A contingent valuation of the WTP of the consumers for the organic production of Caroline Saunder(1999).

Therefore, for the estimate of the WTP for the conventional and ecological powdered panela, the method of CV was used, taking into consideration that the highest quantity in money that the individuals are willing to pay the WTP, represents for this good.

On another side, the selection and definition of the sample was carried out through stratified selected sampling, using the method of assignment of **Neyman** defined for:

$$n = [\Sigma^{L}_{i=1} N_i\sigma_i]^2/N^2D + \Sigma^{L}_{i=1} N_i\sigma_i \qquad \text{where } D = B^2/4 \qquad (1)$$
$$n_i = n*[\Sigma^{L}_{i=1} N_i\sigma_i/\Sigma^{L}_{i=1} N_i\sigma_i]$$

n was determined and neither for each socioeconomic stratum, being defined in the following way: n = 605,336 ≅ 605; n_1 = 11,9549 ≅12 ≅30; n_2 = 160,1132 ≅160; n_3 = 270,1296552 ≅270; n_4 = 71,774 ≅72; n_5 = 37,617 ≅38; n_6 = 53,691 ≅54

However, statistically it is not possible to estimate the population parameters with an inferior n to a size of 30, for what approached the n1 size at 30. Also for reasons of the study that obey the demands of the methodology, logged previously, you increased the sample size to 688 surveys, with a level of dependability of 85%.

To carry out the survey a format of divided questionnaire was structured in four sections. The first introductory part; the second section related with the consumption behavior, the likes and preferences with regard to the presentation form and other sweeteners substitutes, and the willing to pay for conventional and ecological powdered panela, in the answer sheet was given information on the ecological panela and the ecological products in general. The third part with respect to the purchase behavior, here questions were formulated around the interest by the information contained in the labels of the products. The fourth section related with the purchase attitude, this part was divided in two blocks of questions, one managed to discover the attitude toward the panela and ecological products and the other one to investigate on the grade of environmental and social commitment. In the last one, the technique of Differential Semantic, (Salas 1975) was used, which consists in the construction of a bipolar scale that seeks to evaluate the subject attitude in front of an psychosocial event.

Lastly in the fifth section the consumers' socioeconomic aspects were included, in this article questions were formed regarding the entrance of those interviewed, however for not being very reliable the given information was not taken into consideration in the work, for it one went to the variable stratum like a proxy of the entrance.

The survey was carried out between the months of October and November of the year 2001, in the city of Bogotá, being the most representative domestic market, so much in terms of population size as regional representative. It was applied in chain supermarkets, of smaller scale and small neighborhood stores. It is necessary to point out that this was alone for the stratum one.

It is worthwhile to point out that thought about a question to avoid problems in the determination of the stratum it specifies that investigated on this aspect and which should be answered with base in the stratum number that appears in the invoice that those interviewed receive for the residential services of electric power or of aqueduct, this to be public services in which it is correctly defined the socioeconomic stratum of the home.

2. ANALYSIS OF RESULTS

A total of 688 people was interviewed, of which 70,4% were women, the age average was of 43,7 years, the number of people per home four members; regarding the educational level, 1,16% is illiterate, 25,2% has studies of primary school, complete or incomplete, 38,4% has secondary school, complete or incomplete, 4,7% has technological studies and 30,7 remaining% with university studies; the average of approved academic years was of 10,6.

With regard to the observed data on the likes of those interviewed, it was found that 62,8% prefers the square panela; 30,2% likes it more than the sugar or another sweetener type, and 17,4% have

preference especially for panela of some region. The form of more frequent consumption is in drinks as panela water and lemonade, not showing alone its character as a sweetener but also as a of drink; a consumption average is calculated a month per layer of 1,78 kg of panela.

As for the expense observed in conventional panela, it is the biggest expense and have relation with the strata of shortfalls in receipts and the minor those of more revenues, that which is totally accountable, because for this first population group the panela constitutes one of the basic foods of its nutritious diet, while for the second it represents a product basically with characteristic sweetehers that became of its presentation form and hygiene becomes not very tempting and easily interchangeable. (See table 1).

Nevertheless, for the case of the ecological panela, one can notice clearly that the expense increases in the strata of higher revenues, being most significant participation in the stratum four, registering an increment in the expense of 25,9% for ecological square panela and of 159,7% in powdered ecological panela; the strata five six show a light increase in the expense, for both presentation forms. In contrast, in the strata one, two, three the expense diminishes, both for square panela as and powdered ecological, like one observes in Table I.

In a general way, we can affirm that the expense in ecological panela (square and powdered) increases in the strata of more revenues and it diminishes in those of shortfalls in receipts. Being notorious that the ecological character and character of presentation represent characteristics that would allow the panela to intrude in new niches of market of high revenues, at the same time that they constitute for the rural producers an economically profitable and sustainable productive alternative.

Table 1. Consumption, Willingness to Pay (WTP) and monthly average expenditures for home in conventional and ecological panela, according to socioeconomic stratum. Bogotá, 2001.

Stratum	Conventional square Panela			Ecological square Panela			Ecological powdered Panela		
	Half consumption for home (kg/month)	Average price (US$/ kg)	Half expense for home * (US$/ month)	Half consumption for home (kg/month)	WTP (US$/kg)	Half expense for home (US$/ month)	Half consumption for home * * (kg/ month)	WTP (US$/kg)	Half expense for home ** (US$/ month)
1	13,1	0,25	3,32	8,2	0,26	2,15	8,4	0,28	2,33
2	10,6	0,25	2,68	7,8	0,28	2,15	7,3	0,28	2,10
3	7,4	0,25	1,87	5,9	0,29	1,70	4,9	0,29	1,45
4	3,2	0,25	0,81	3,0	0,34	1,02	6,2	0,34	2,10
5	2,6	0,25	0,66	2,3	0,31	0,72	2,4	0,33	0,79
6	2,2	0,25	0,56	2,2	0,33	0,73	2,0	0,34	0,68

* It corresponds to the expense monthly average in panela for home, for the second semester of the 2001.
* * It corresponds to the expense in ecological panela that would make the homes if this was available in the market.

Another important aspect is that is to say the attitude that consumers have with respect to the panela, what they think on its innocuousness characteristics, nutrition, hygiene, presentation and of the impact of its production on the environment, among others. Most of those interviewed when it evaluates the characteristics of the panela in a disaggregate way, that considers it as a natural, healthy, nutritious, very not very dietary, very traditional and hygienic food, also thinks that in their elaboration the environment is not contaminated.

However, when one makes an added evaluation of the attitude and the consumers' global concept toward the estates and characteristic that contains the panela like a well of the market, one can observe in preponderant form a neuter attitude to lightly positive in front of the product, showing in certain way the positioning lack and recognition inside the likes and the preferences of the consumers. This situation, largely, it is explained by the context in which the panela is framed by the consumers, that is to say, coming from a rural, handmade tradition that evokes an ancestral and late past that doesn't respond to the expectations and the current urban consumers preferences, which are represented in the consumption of products that not only fulfill the purpose of satisfying its alimentary necessities, but rather they also generate him senses of individual identity, exclusivity, generation identity, to be able to economic or social prestige, among others. This attitude of negative generation identity toward the panela is observed clearly in the opinion of an interviewed young consumer":.... I don't know, the panela is natural and taking when someone has influenza, but since I remember it has always been same in square, hard to leave and of the same flavor, my grandfather likes it because it is more than its time, but I like the most practical things, easy to prepare that doesn't play to leave and to wait until loosens in the water...".

73,7% of the consumers interviewed sometimes notices the information of the labels of the products that buys, 21,6% generally reads it and 4,6% remaining doesn't usually lend importance to this. The main reason for which the consumer shows interest in this information is to know the possible negative goods that the product can have in its health or that of its family, the ingredients, preservatives and other components of the product, being this the most outstanding aspect in the considerations that have the consumers to the moment to evaluate and to buy a nutritious product. Another reason is to know the price of the product and power to compare it with that of other products of the same or better quality; behavior that is natural from the economic point of view, in the sense that obeys its character of rational agent subjected to budget constraint

It is worthwhile to mention that the interest to know the possible impacts on the environment, so much of the components and ingredients like of the production processes, of the goods that are bought, it doesn't constitute an important reason that motivates the consumers to read the information of the labels. In certain measure, because most of these doesn't possess the enough information on the environmental impacts that contain the different production stages and consumption of the goods that buy, neither about the influence that has their purchase decision in the mitigation or deterioration of the natural resources; aspects that, in an or another way, they constitute an obstacle to reach a more responsible and more sustainable consumption.

2.1. ANALYSIS OF THE WILLINGNESS TO PAY FOR CONVENTIONAL AND ECOLOGICAL PANELA

With base in the observed data of the dispositions to pay for conventional and ecological powdered panela, 46,2% of those interviewed was shown willingness to pay a bigger price for the conventional powdered panela, while 53,8% manifested not to be willingness to pay a higher price, mainly to consider that it was the same product type, with the same characteristics and estates to the conventional square panela; another reason was not having her utilized previously, therefore, not to know if it was similar to the square panela, as for weight, flavor, scent, etc.

On the other hand, 63,9% manifested to be willingness to pay a higher price for the ecological square panela and 36,1% remaining responded not to be willingness to pay a bigger price, for reasons of budget constraint; other reasons were considering that it was the same type of conventional square panela and not to have her utilized previously. In the case of the ecological powdered panela 61,9% is willingness to pay a bigger price and 38,1% it would not be willingness to pay it, for reasons of budget constraint and for not having used the product previously.

When making a comparison among the dispositions to pay, for socioeconomic stratum, differences were identified in the DAP stockings of these groups. For this comparison the tests of multiple comparison of Student-Neuman-Keuls were applied (S-N-K) and Duncan, which consist on the comparison of the stockings maxim and minimum of each one of the groups, starting from which is determined a significant width or smaller significant range, if this maximum difference is ratified as significant you concludes that $\mu_{(1)} \neq \mu_{(2)} \neq \mu_{(3)} \neq \mu_{(4)} \neq \mu_{(5)} \neq \mu_{(6)}$, therefore, the group is heterogeneous, (Steel 1985).

According to the results hurtled by these tests it was determined for the case of conventional powdered panela three different groups; in the case of square ecological panela four groups and finally, in the case of the powdered ecological single panela two groups.

It can be pointed out that the half disposition to pay for conventional powdered panela is of $600, what corresponds to an increase of 9,1% regarding the price of the conventional square panela, ($550), in the cases of the ecological and powdered square panela the increment is respectively of 16,6% and 19,8% (table 2). The results evidence two important aspects: in the first place a bigger disposition to pay for the conventional and ecological powdered panela and, in second place, the importance that charges the environmental attribute for the consumer, when this relates it with innocuous products, without any preservative type or input that it affects or represent a risk for their health.

Table 2. Willingness to pay for conventional and ecological panela, according to socioeconomic stratum.

Stratum	Conventional Powdered Panela (CPP)		WTP for Square Ecological		WTP for Powdered Ecological	
	WTP_{Cpp} (US$/ kg)	**Variation * %**	**WTP_{SEP} (US$/ kg)**	**Variation * %**	**WTP_{PEp} (US$/ kg)**	**Variation * %**
1	0,260a	5,14a	0,260a	3,72a	0,278a	9,70a
2	0,270a	7,14a	0,276a,b	8,99 a,b	0,283a	11,87a
3	0,268a	6,01a	0,288b	13,94b	0,290a	16,62a
4	0,288b	14,07b	0,340d	32,93d	0,340b	34,05b
5	0,286b	13,23b	0,310c,d	23,57 c,d	0,330b	30,11b
6	0,310c	20,80c	0,330d	29,53d	0,340b	34,47b
Average	**0,276**	**9,11**	**0,295**	**16,57**	**0,300**	**19,81**

a, b, c, d represents each one of the groups that were formed and the same letter corresponds to the averages that were statistically same.
* Price variance to pay regarding the price of reference of the conventional square panela.

2.1.1. Estimates Models of the willingness to pay for conventional and ecological powdered panela

Regarding the estimate of the parameters of the models, WTP_{Cpp}, WTP_{SEP} and WTP_{PEp}, are observed that the variable stratum (STRATUM) it presented positive sign, behaving of agreement with that waited, that is to say, at more level of stratum socioeconomic bigger disposition to pay (table 3). Making an analysis more disaggregate for strata, it is found that while the stratum 2, with a level of dependability of 85%, it is not statistically significant for any pattern, the strata 4,5 and 6 show a significance high-level in the three models. Interpreting these results one can affirm, for example that for the case of WTP_{Cpp}, maintaining the other constant variables, the WTP for this type of a stratum person's panela two will increase near US $ 0,003 with regard to that of a consumer of the stratum one.

Whereas clause the variable age (AGE), it is observed that in the three models it presents a significance high-level and negative sign, that is to say that as it increases the person's age, their WTP diminishes, so much for conventional powdered panela as ecological. In this result two elements exist of standing out: in the first place, to more age bigger reluctance exists to face and/or to accept changes that involve a re-evaluation and accommodation of the information and abilities that are possessed; and on the other hand, the little information that this population can have on the environmental problem, joined to the perception of the panela like a native substance and innocuous whose production has a first floor environmental impact, they constitute reasons of great weight for not paying a bigger price.

Table 3. Estimates Models of the willingness to pay for conventional and ecological powdered panela.

WTP_{CPP}		WTP_{SEP}		WTP_{PEP}	
Variable	**Coefficient**	**Variable**	**Coefficient**	**Variable**	**Coefficient**
Constant	533,5659 * (34,54131)	Constant	535,5058 * (41,49017)	Constant	569,4723 * (52,08855)
STRATUM 2	2,585792 (8,203441)	STRATUM 2	10,29213 (9,868565)	STRATUM 2	1,464045 (12,51766)
STRATUM 3	2,471036 (9,950527)	STRATUM 3	31,42956 * (11,69965)	STRATUM 3	24,49411 (14,81597)
STRATUM 4	31,76020 * * (12,54813)	STRATUM 4	108,0673 * (14,56418)	STRATUM 4	94,11625 * (18,42827)
STRATUM 5	43,46807 * (15,51410)	STRATUM 5	90,40687 * (18,37464)	STRATUM 5	110,6609 * (23,06251)
STRATUM 6	76,86474 * (15,76261)	STRATUM 6	127,1658 * (18,35794)	STRATUM 6	131,4405 * (23,10087)
AGE	- 1,670158 * (0,281695)	AGE	- 1,096384 * (0,341849)	AGE	- 2,902520 * (0,432556)
ICOMPROA	6,107350 * (2,067103)	ICOMPROA	4,852670 * * (2,503228)	ICOMPROA	9,286790 * * (3,169652)
PREPU	15,71038 * (4,607549)	ACTSALU	11,41995 * * (5,476574)	ACTSALU	19,17620 * * (6,941261)
PREFPANE	- 10,08289 (5,609847)	COMPERC	- 3,942163 (2,577330)		
ACTSALU	14,51596 * (4,510754)				
R-square	0,700071	R-square	0,689275	R-square	0,602534
R-adjusted	0,695641	R-adjusted	0,685150	R-adjusted	0,597851
F-statistical	158,020100	F-statistical	167,0995	F-statistical	129,034

The number among parenthesis corresponds to the standard error
* it corresponds at a level of significancia of 1%
* * it corresponds to 5 significancia%

The index of Environmental Commitment of the Consumer (ICOMPROA) makes allusion to the stocks in for of the conservation of the environment, which are the product of the individual's positive feeling toward the environment. For the construction of this index they took into account three variables: the consumer's interest to buy products with packings that could be reuse (INTCOEMR); classification of garbages at level of the home (CLABASHO); holding in environment activities (PARACTMA). Likewise, was defined a score scale from 1 to 3 that it was arbitrary, establishing the biggest value for the answers that implied an If and the minor to the

negatives Not, the sum of the same ones was made later on, defining this way a numeric value for this index.

In the models, WTP_{CPP}, WTP_{SEP} and WTP_{PEP}, ICOMPROA was significant and it had positive sign, that which indicates that for the consumers the conservation of the environment constitutes an important element and therefore it has an economic value, which recognizes and reflects in its biggest WTP for those products that minimize the environmental impact.

Another outstanding variable in the three models is the positive attitude or negative in terms of health that has the consumer on the panela (ACTSALU); this was significant and of positive sign for the three models responding to that waited, in the sense that represents a fundamental factor in the decision of the consumers' purchase, since to be a direct consumer product it is very related with the health of people, therefore, a more positive attitude toward the panela like a healthy food implies a bigger WTP for this.

The variable monthly consumption per panela capita (COMPERC) it was significant for the pattern of WTP_{SEP}, and of negative sign, chord with the economic suppositions, that is to say that to more consumption per-capita of smaller panela the willing to pay for the ecological square panela, because for an individual with high panela consumption, an increment in the price of this will represent an increment bigger than the personal expense of consumption regarding the increment of the expense of an individual with consumption under, and, therefore, to protect its disposable income the individual with high consumption, it will be willing to pay a smaller price regarding one of under consumption.

On the other hand, the variable preference for the form of powdered presentation (PREPU), it presented a significance high-level and positive sign for the case of WTP_{CPP}, that which means that those consumers that alone they prefer the powder form, independent of the ecological character of the product, they are willing to pay an increment of about $16 pesos/kg regarding the price of the conventional square panela.

Finally, the variable origin of the one interviewed, sex, educational level, size of the family, social commitment, attitude toward the panela and grade of regional identification of the panela, mainly, they were not included in the disposition models to pay for conventional and ecological powdered panela, because statistically they were not significant at a level of dependability of 85%,

2.1.2. Estimated values of the willing to pay for conventional and ecological powdered panela

The estimate of the disposition to be paid made in an individual way, that is to say, for each consumer a WTP settled down, so much for conventional powdered panela as ecological (square and powdered). This way and by way of example, to discover on the WTP for the consumer's i ecological square panela, simply in the pattern, defined for the disposition to pay for ecological square panela (WTP_{SEP}), the data corresponding to the characteristics associated to this consumer were replaced.

With base in the above-mentioned, it was considered the true disposition to pay, total and for socioeconomic strata. For the population's total the maximum WTP for conventional powdered panela is of US $ 0,27 for kg, that is to say, 7,5% higher regarding the price of the conventional square panela. In accordance with the socioeconomic stratum, the one, an equivalent WTP shows to an increment of approximately 5% regarding the price of the conventional square panela; for the stratum two, the WTP represents an increment of 6,3%; the stratum three the WTP represents 5,2%.

In the strata four five the WTP for powdered conventional it represents an increment of 10% and in the stratum six an increment of 16,9%, being this stratum the one that registers the highest willing to pay for this panela type.

For the cases of square and powdered ecological panela the WTP was significantly bigger that stops conventional powdered panela, as it shows it the table 4. In ecological square panela the maximum WTP is US $ 0,284 for kg, that is to say an increment of 12,2% regarding the price of the conventional square panela and it stops ecological powdered panela of US $0,294 for kg, equivalent to 16,1% increment. In accordance with the socioeconomic stratum, the same as in the conventional powdered panela, the half-high and high-high strata are those that have the biggest disposition to pay for ecological panela.

In a general way, it is observed that the environmental attribute and the presentation form play an important paper in the positioning of the panela in the strata of higher revenues, especially in the cases of square and powdered ecological panela, corroborating the results found in other studies has more than enough friendly products with the environment like those of the commission for the environmental cooperation (1999), Ozane and Vlosky (1997) and Ozone and Smith in which it was identified that the biggest disposition to pay for friendly products with the environment is in the strata of higher revenues.

It is important to point out that the environmental attribute represents an important aspect in the biggest disposition to pay for ecological products, in the measure that for the consumer this attribute is intimately related with its health, because, in accordance with the information that possesses, these don't contain any preservative type or chemical input that it can constitute a risk for its health, that which represents a guarantee of acquiring an innocuous product and at the same time an opportunity to minimize through its consumption the impact on the environment.

Table 4. Estimated values of the willingness to pay for conventional and ecological powdered panela, for socioeconomic stratum

Stratum	**WTP_{CPP}** (US$/ kg)	**WTP_{CPP}** (%)	**WTP_{SEP}** (US$/ kg)	**WTP_{SEP}** (%)	**WTP_{PEP}** (US$/ kg)	**WTP_{PEP}** (%)
Stratum 1	0,265	4,8	0,262	3,6	0,276	9,3
Stratum 2	0,269	6,3	0,269	6,5	0,282	11,6
Stratum 3	0,266	5,2	0,276	9,4	0,286	13,1
Stratum 4	0,278	10,1	0,311	22,9	0,314	24,2
Stratum 5	0,279	10,4	0,300	18,7	0,314	24,1
Stratum 6	0,300	16,9	0,318	25,8	0,325	28,7
Total DAP	**0,272**	**7,5**	**0,284**	**12,2**	**0,293**	**16,1**

Several important aspects exist of to analyze and to discuss. The first one, the drop WTP for inferior powdered and ecological panela to 20% agrees with that observed by Fields in its study about Readiness from the consumers to the purchase of ecological products and sensibility of prices, in which points out that the consumers are willing to pay a smaller price for ecological products because in the elaboration of these goods they are not used chemical and preservatives therefore their costs of production should be lower the same as its price.

Fact that outlines the possibility of a consumer for which each product unit that consumes him can be giving in a constant way the same quantity of well-being and services, that is to say, as much the traditional goods as the ecological ones generate him the same level of satisfaction, in the measure that respond of equal forms to its likes and expectations. Also consider that the resources and

materials used in the elaboration of these are infinite implying that the quantities and reservations of these inputs remain constant through the time.

Situation that can be evidencing that when the buyers prefer to consume ecological products makes it more for selfish reasons as it is their health and that of their family and not for altruistic reasons of conservation and protection of the environment.

On the other hand, this perception to the moment to determine the aggregate value of a resource could imply an overestimation of the existing use value and the underestimate of the option value and existence, that is to say, the economic valuation of the resources would be given basically by the value of use of the environment, leaving aside the value of use potential and future of the same one, element that can represent an obstacle for the implementation of more responsible consumption patterns and a more sustainable development.

Likewise, the option of a production differed through which an increment is looked for from the value to the consumer altering the quantity of benefits perceived by this, would seem not to be a strategy that allows to the ecological production the generation of value and contribution to the integration process of producing with consumers.

For the above-mentioned, it would be important to establish the weight and importance that, inside the perception of value to the consumer (Otero. 1998), it has the group of benefits and services that a very environmental one provides the consumers and that they are perceived by these with relationship to the price to pay or they would be willingness to pay for this group, as a necessary argument for the determination of the aggregate value of a resource, as well as, for the estimate of the value to the consumer and the readiness to pay for products that minimize their impact on the environment. This aspect is fundamental for the design and implementation of programs, plans and political environmental with sostenibilidad approaches.

A second aspect of standing out, is the positive relationship between the socioeconomic stratum and the disposition to pay for conventional and ecological powdered panela. By virtue of the obtained results the half-high strata and the biggest WTP showed, being the most significant that of the high-high one with 16,9% in powdered conventional, regarding the conventional price of the square one and for ecological square and powdered with 25,8% and 28,7%, respectively. This fact evidences the possibility of positioning of the ecological panela in the preferences of the groups of more revenues.

There are several queries arise nevertheless, around: which could the decisive factors be in the recognition and acceptance of the panela in the flavors and preferences of the sectors bigger revenue?; will a homogeneous positioning be giving among the different groups of ages of the population's group?.

In an intent to give answer to the first question could be pointed out that maybe the environmental attributes, of products like the ecological panela, besides being perceived by the consumer like a guarantee of healthy allowances, generate a sense of ownership and more collective identity that individual, that is to say, the consumption of products with this type of attributes could be seen by the consumer like an element of commitment, exclusivity and ownership to a wider social group that every time has bigger approval and political, social and economic recognition as they are the environmentalist groups, pacifists, among others.

Finally, this study is limited in outstanding aspects as: the determination of the relationship readiness of time of enjoyment and substitution of the consumption of goods, factor that constitutes

a crucial point for the establishment of patterns of more sustainable consumption. To this respect it would be important to settle down, as the growing processes of the population's pauperization, the unemployment, the deterioration of the quality of the employment and the articulation of the woman to the labor market have constituted decisive factors in the increase of the time of production and the reduction of the available time for consumption work and the time of enjoyment.

CONCLUSION

According to the results obtained in the study we can conclude as the following:

The existence of a direct relationship between the socioeconomic stratum and the willing to pay for conventional and ecological powdered panela. The WTP varied in agreement it increased the socioeconomic stratum, passing for the case of powdered conventional of US $ 0,261 for kg (WTP stratum one) to US $ 0,295 for kg (WTP stratum six); in square ecological of US $0,261 for kg (WTP stratum one) to US $0,318 for kg (WTP stratum six) and finally in powdered ecological of US $0,276 for kg to US $0,325 for kg, stratum WTP one and six respectively.

It is evidenced a bigger acceptance and positioning of the conventional and ecological powdered panela in the strata of higher revenues. For the three panela types the adult increased in the price, regarding the square one conventional (US $0,253 for kg), it is in the strata middle high and high high; in conventional powdered panela the increase varied in the strata of shortfalls in receipts between 5% and 5,2%, and in the high ones between 10,1% and 16,9%; for square ecological in the first group it oscillated from 3,62% to 9,4%, in the second group it is between 23% and 25,8%; and in powdered ecological for the group of low revenues between 9,3% and 13,1%, while for the group of more revenues among the 24,% and 28,7% being Evidenced a bigger acceptance and preference in those in the highest strata.

Likewise, a high preference is observed by ecological panela, so much square as powdered. For square and powdered ecological panela 63,9% and 61,9% respectively were willing to pay a bigger price in front of 46,2% from those that were willing to pay more for powdered conventional.

The perception that people have regarding the panela like a healthy product represents a fundamental aspect in the determination of the disposition to pay for conventional and ecological powdered panela. For the three disposition models to pay the variable ACTSALU was significant, evidencing the importance of this attribute in the decision of the consumers' purchase.

In a general way you can point out that the environmental attributes in the measure that are perceived by the consumers like an element that it guarantees the consumption of healthy and innocuous products, constitute an important aspect in the disposition to pay a bigger price for ecological products. Evidencing that the factors related with the health have a great weight in the decision of people's purchase and thus, in their willing to pay.

In practical terms, the results indicate that an environmental politics on ecological production, in the country, focused more toward standing out the benefits perceived in terms of health could have more success than a managed politics toward improving the biological and environmental quality of the production, because through this factor the demand of all the socioeconomic strata could be captured. And in a same way to contribute to the implementation of patterns of more sustainable consumption.

RECOMMENDATIONS

In the face of the disinformation of the consumers on the use of the materials and resources, production processes, transformation, commercialization, distribution and disposition of the residuals of their consumption, become necessary to consolidate and to strengthen the systems of information, as well as the existent organisms in the country whose function is managed to guide and to inform the consumers on the quality and innocuousness of the allowances and other products, I eat the Colombian Confederation of Consumers for example.

In this sense, it becomes necessary to elaborate training programs, directed to the consumers and consumers' organizations, related with information about the cycle of life of the products, the alimentary politicians, of trade quality and innocuousness of the products, so much in the national environment as international.

Finally, it is necessary the design and implementation of informative and advertising campaigns that make an exaltation of the characteristics and nutritional, medicinal estates, cosmetic and energy of the panela, with the purpose of contributing to a bigger positioning of the product in the market, as well as to promote the consumption of this type of autochthonous allowances, especially in the population's younger segments.

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