The consumer willingness to pay for food services: an analysis of the Popular Restaurant Program in northern Brazil

Marcus Vinicius Alves Finco[*]
Fernanda Dias Bartolomeu Abadio Finco[**]

Abstract

The Brazilian Popular Restaurant Program is a food security and nutrition policy that seeks to generate a food protection net in areas where vulnerable people eat most of their meals outside of their home. For this purpose, the Program targets those who are conside-red the most deprived people, especially regarding socio-economic and health conditions. Based on this, the contingent valuation method and a censored *tobit* model were applied aiming at estimating the maximum willingness to pay (WTP) for food services of two Popular Restaurants in the city of Palmas, northern Brazil. For this purpose, specific questionnaires were applied to 600 consumers, and economic, social, health and nutritio-nal aspects were collected. Therefore, total WTP estimated was R$ 72.320,00 per month, or R$ 1,80 per consumer per month, or R$ 0.09 per meal per day. The WTP is positively related to consumer's income and educational level, and negatively related to consumer's age. One should expect that the results of the research may support local and national government towards the implementation of future policies regarding the better manage-ment of the program.

Key words: Popular restaurant. Willingness to pay. Contingent valuation. *Tobit* model. Brazil.

[*] *PhD* em Economia Agrícola, Universitaet Hohenheim, Alemanha. *Laboratório de Segurança Ali-mentar e Nutricional*, Universidade Federal do Tocantins. Av. NS 15 ALC, nº 14, 109 Norte, CEP 77001-090 Palmas - TO, Brasil. E-mail: marcus.finco@gmail.com

[**] *PhD* em Bioquímica Nutricional, Universitaet Hohenheim, Alemanha. *Laboratório de Segurança Alimentar e Nutricional*, Universidade Federal do Tocantins. Av. NS 15 ALC, nº 14, 109 Norte, CEP 77001-090 Palmas - TO, Brasil.

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Introduction

Apart from the fact that Brazil is one of the biggest food producers in the world, a significant part of the Brazilian population does not have stable access to food daily. Situations of food and nutritional insecurity are illustrated from a variety of problems such as: hunger, obesity, malnutrition diseases, consumption of unhealthy food from doubtful sources, social and economic relations, environ-mental degradation from food production, unethical prices for necessities and the imposition of food patterns that do not take into account cultural diversity.

The poorest people are deprived of access to high quality food, to the required equipment to conserve and prepare meals in a good manner and also have less access to information about healthy and adequate food. In this context, the government should promote and execute policies towards aiming to guarantee good quality food for those who cannot obtain it with their own resources, including policies that promote discussion of food and nutrition security (FNS) throughout the country. In Brazil, food nutrition and security is defined as a person's right to access good quality food in sufficient quantity, regularly and permanently without compromising other essential needs based on nutritional practices for health pro-motion and in respect to cultural diversity and sustainable economic, social and environmental standards.

With the aim of targeting the precepts of food and nutrition security, the Brazilian federal government has begun fostering public policies that seek to satisfy food deficits of the most vulnerable population within the country. According to this strategy, these policies must include efforts, not just from government side, but also, and especially, from the side of civil society. And for this reason, these po-licies should integrate multiple governmental sectors, such as: health, education, work, agriculture, social development, environment, and economy, as well as diffe-rent spheres such as: production, commercialization, quality control, access, and consumption. Based on this, the Brazilian Popular Restaurant Program – which aims to target predominately low-income people who live in urban areas – is an ac-tion included among those within the national Brazilian FNS policy. Above all, the Program is a policy that seeks to generate a food protection net in areas in which a large amount of the people eat their meals outside of their home and in this way reaching the most vulnerable people.

Due to budget restrictions, a significant part of the Brazilian population does not have access to the traditional market of ready meals. Many workers whom receive food stamps from the government or private companies prefer to use them

to purchase *in natura* food in supermarkets, for instance. However, in most cases, these workers live in areas far away from the work place and, therefore, face high transportation costs to have a meal. In addition, these workers are often not able to afford traditional meals, resulting in the consumption of a packed lunch from home (so-called *marmita* or a) as a solution for lunch due to a lack of money and time. This is the situation that violates healthy food habits daily, compromising meal quality and increasing health risks, since these pan meals do not have the features that fulfill the prerequisites of an adequate meal e.g. food safety.

From a health and FNS standpoint, the Popular Restaurants should offer ready meals, respecting requisites, such as quality, promotion of good eating ha-bits and nutritional education, keeping the equilibrium between the nutrients of a single meal and, therefore, decreasing the figures of people facing food insecurity conditions and health problems. This requires also, in a FNS context, that the meal should have a high hygienic-sanitary quality, which would then prevent food borne diseases and, therefore, guarantee population health. Based on this, meals offe-red by Popular Restaurants should originate from quality controlled environments and in conformity with sanitary surveillance guidelines for food services.

Aiming to reach maximum efficiency, the program presents some pre-requisi-tes for the implementation of a Popular Restaurant, for example: the target group should be a part of the population that faces food insecurity and has a low income, i.e. those who are considered the most vulnerable. In this context, the major part of Popular Restaurant users should be composed of people who cannot afford a ready meal in a private restaurant and, therefore, need governmental subsidy to have a quality meal.

The Popular Restaurants in the city of Palmas, northern Brazil

Palmas is a city located in the state of Tocantins in northern Brazil, in a region so-called Brazilian Amazon Region. There are two Popular Restaurants, imple-mented in 2004. One is located in the center of the city and the other in the suburb, named Taquaralto. On average, both restaurants offer 2000 ready meals per day and both are outsourced. The restaurant menu includes four preparations (salad, and a protein dish based on meat, rice and beans) daily. The ready meals are ser-ved during lunch-time (11:00 to 13:00) and seek to complement or supplement a considerable part of the populations daily nutrition needs.

Recently, both Popular Restaurants have been a topic of discussion throughout Tocantins. The Tocantins' Council for Food Security and Nutrition (CONSEA/TO)

have discussed the Popular Restaurants in many of their regular meetings and some questions were raised towards the non-fulfillment of many requisites of the program. The socio-economic profile of consumers was also questioned and many of the council participants portrayed doubt in its implementation. However, as there were no scientific analyses to support the allegations regarding this issue, the dis-cussion could not be concluded.

Based on the facts mentioned above, it is imperative that a scientific study on the Program of Popular Restaurants be carried out in the city of Palmas, focusing on food security and socio-economic aspects. Thus, the objective of this research is to collect primary data that aims to support the discussions concerning this pro-gram in the city of Palmas, especially towards the consumer willingness to pay for food services.

Methodological aspects

The socio-economic data was collected among the Popular Restaurants users and was carried out in 2007. A specific questionnaire was used to collect all the in-formation needed to draw the users' socio-economic profile, as well as their willing-ness to pay.

Data collection

The data collection was made through a cross-sectional survey, which compri-sed specific questionnaires with closed, as well as open-ended questions. After the questionnaire design, a pilot study was carried out with 40 non-users of Popular restaurants, with the goal of checking the ability of participants to understand the questions. During the research period 600 questionnaires were applied in both Popular Restaurants, Central and Taquaralto (300 questionnaires in each restau-rant). The users were selected randomly and questionnaires were applied within 3-minute intervals, excluding those younger than 18 years old and those who did not want to participate in the study.

All data was collected by researchers previously trained to operate the equi-pment. The people interviewed were invited to join the research, voluntarily, and their identity was kept anonymous.

Willingness to pay estimation procedure

Due to remarkable improvement in studies, as well as in the specific literatu-re about economic evaluation, one can notice that several methods can be applied aiming at assessing and evaluating similar objectives. However, the choice of the right method or the most appropriate one depends, mainly, on a deep analysis of the real research objective, as well as the empiric experience of the researcher (TISDELL, 1991).

Based on this and aiming at estimating the willingness to pay (WTP) for food services in both Popular Restaurants, the contingent valuation method (CVM) was applied since this method is appropriate to estimate economic values of goods and services that do not have their price revealed on the market (OYARZUN; PEREZ, 1996). The CVM involves direct questions to consumers about their willingness to pay for the improvement of benefits provided by any resource. Thus, a hypothetic scenario is created and doing so the person is inquired about his/her maximum willingness to pay for the improvement of the goods and services quality provided by the resource in question.

The method requires that the person inquired understands the scenario des-cribed, as well as the possible qualitative and quantitative variations which might occur in this scenario. The person also should be aware of the hypothetic scenario created aiming at responding their maximum (and real) willingness to pay. In this context, the consumers were asked about their maximum WTP for the improve-ment of service quality regarding the accommodations, meals diversification, food quality, and hygiene of both Popular Restaurants.

After the stage describe above, the WPT was estimated. According to Finco (2002), the total WTP of goods and services can be obtained by multiplying the mean of willingness to pay by the total population who use the resource. Based on this, the functional form described by Eutrirak and Grundstaff (apud FINCO) was used aiming at estimating the WTP for food services provided by the two Popular restaurants in the city of Palms.

$$WTPt = \sum_{i=1}^{y} WTPa\left(\frac{n_i}{N}\right)(X) \qquad (1)$$

Where:
WTPt = total willingness to pay;
ni = total number of consumers that willing to pay;

N = total number of consumers inquired; *y*
= number of WTP series intervals;
i = one of the WTP intervals;

X = total number of persons who use the resource.

The WTP figures were stratified in intervals that range from R$ 0,00 (no willingness to pay) up to R$ 30,00, monthly. An econometric model was formulated aiming at better understanding the links between the WTP and consumer's socio-economic indicators. The scientific methodology is described below.

Variables definition and regression analysis[1]

Regarding the econometric model, the dependent variable was specified and defined as the consumer's WTP. Regarding explanatory variables, on the other hand, socioeconomic indicators such as income, gender, educational level, age, and frequency of use were chosen.

Based on this, the function of WTP for food services can be expressed as:

$$WTP = f(I, A, E, F, GFF) \quad (2)$$

Where
WTP = willingness to pay for food services;
I = consumer's income *per capita*;
A= consumer's age;
E = consumer's educational level;
F = consumer's frequency of Popular Restaurant use;
G = gender (*dummy*).

One should expect that the signs of parameters are positive to income, educational level and to consumer's frequency, and negative to consumer age. A person with higher income, for instance, is expected to declare a higher willingness to pay for the food services, as well as persons with higher educational level demonstrate more concern about the quality of food services provided by the restaurants.

Regarding the frequency of use, one should expect that the willingness to pay increase vis-à-vis the usage of the resource since, normally, the demand for quality is positively related to the frequency of a resource use (FINCO, 2002; EKINS, 1994). Regarding the age, one may expect that in the case of Popular restaurants, the higher the person's age the lower the WTP, once the youngest are those who tend to demand more food diversification. It is important to notice that the assumptions

hitherto are based on the Popular Testaurants in the city of Palmas and should not be applied to other kinds of restaurants.

Regarding the gender variable, there is no previous assumption since the literature is not clear about the relationship between this variable and the willingness to pay. Therefore, aiming at obtaining the parameters associated to the described variables, as well as the hypotheses formulated previously, an econometric model was specified:

$$Y_j = \alpha_i + \sum_{i=1}^{4} \beta_i X_{ij} + \delta_i Z_{ij} + \mu_j \qquad (j = 1, \ldots, n) \tag{3}$$

Where

Y_j = willingness to pay of consumer *j*, in R$ per month;
X_{1j} = income *per capita* of consumer *j*, in R$ per month;
X_{2j} = age of consumer *j*, in years;
X_{3j} = educational level of consumer *j*, in years of study;
X_{4j} = frequency of use of consumer *j*, in times per week;
Z_{1j} = 1 if consumer *j* is male; 0 if otherwise;
μ_j = error terms;
α_i, β_i, δ_i = parameters of regression (*i* = 1,…,4).

In the present study some persons did not show any willingness to pay for food services, even so these persons were kept in the model. The reason behind it is that even though they did not want to pay for food services, they still are consum-ers of goods and services provided by the Popular Restaurants and therefore they are part of the total universe of consumers. In this context, a specific type of model should be considered since the WTP is censored at 0 level.

Based on this, the *tobit* model was chosen since it can be considered a censored regression model which refers to models where one could observe the dependent variable only if it above or below some cut off level, i.e. the *tobit* is a common model used in case of censored data and refers to regression models in which the range of the dependent variable is limited or constrained in some way, and thus the use of Ordinary Least Squares (OLS) makes the regression parameter estimates biased and inconsistent.

The regression is obtained by making the mean in the preceding correspond to a classical regression model. The structural equation in the tobit model is:

$$y_i^* = X_i\beta + \varepsilon_i \tag{4}$$

Where, $\varepsilon_i \sim \mathbf{N}(\mathbf{0}, \boldsymbol{\sigma}^2)$. y^* is a latent variable that is observed for values greater than ã and censored otherwise. The observed *y* is defined by the following measurement equation:

$$y_i = \begin{cases} y^* if\ y^* > \gamma \\ \gamma_y\ if y^* \leq \gamma \end{cases} \tag{5}$$

In traditional *tobit* model it is assumed that γ = 0, or in other words, the data are limited at 0. Thus,

$$y_i = \begin{cases} y^* if\ y^* > \mathbf{0} \\ 0\ \ if y^* \leq \mathbf{0} \end{cases} \tag{6}$$

The *tobit* model is a non-linear model and thus, similar to the *probit* and *logit* models, it is estimated using maximum likelihood estimation techniques.

$$L = \prod_i^N \left[\frac{\mathbf{1}}{\sigma}\phi\ \left(\frac{y-\mu}{\sigma}\right)\right]^{d_i} \left[\mathbf{1} - \Phi\left(\frac{\mu-\gamma}{\sigma}\right)\right]^{\mathbf{1}-d_i} \tag{7}$$

Where ã is the censoring point.

In the traditional *tobit* model, ã is equal to 0 and ì is parameterized as $X_i\hat{a}$ which turns in the likelihood function for the tobit model:

$$L = \prod_i^N \left[\frac{\mathbf{1}}{\sigma}\phi\ \left(\frac{y_i - X_i\beta}{\sigma}\right)\right]^{d_i} \left[\mathbf{1} - \Phi\left(\frac{X_i\beta}{\sigma}\right)\right]^{\mathbf{1}-d_i} \tag{8}$$

So, the log-likelihood for the *tobit* model is:

$$lnL = \sum_{i=\mathbf{1}}^{N} \left\{ d_i \left(-ln\sigma + ln\phi\ \left(\frac{y_i - X_i\beta}{\sigma}\right)\right) + (\mathbf{1} - d_i)\ln\left(\mathbf{1} - \Phi\left(\frac{X_i\beta}{\sigma}\right)\right)\right\} \tag{9}$$

The overall log-likelihood is made up of two parts and corresponds to the classical regression for the non-limit observations and the relevant probabilities for the limit observations, respectively. This likelihood is a non-standard type, because it is a mixture of discrete and continuous distributions.

Interpreting estimated coefficients from the *tobit* model is a bit more complex than interpreting estimated coefficients from the Ordinary Least Squares model, for instance. In particular, the estimated coefficients represent the marginal effect of *x* on y^*. That is the estimated coefficients from the *tobit* model represent:

$$\frac{\partial E[y_i^*|x]}{\partial x_i} = \beta \tag{10}$$

And thus corresponds to the marginal effect of *x* on the latent variable y^* not to the observed variable *y*. Sometimes y^* is what is of interest but usually is not. In this case the marginal effect of *x* on *y* is what matters, i.e. the marginal effect on the observed variable rather that the latent variable. Thus, what matters is the expected value of y conditional on y being greater than 0. In the *tobit* model this is:

$$E[y_i|y_i > 0] = \beta_0 + \beta_1 x_i + \sigma\left[\frac{\phi\left(\beta_0 + \frac{\beta_1 x_i}{\sigma}\right)}{\Phi\left(\left(\beta_0 + \frac{\beta_1 x_i}{\sigma}\right)\right)}\right] \tag{11}$$

The desired marginal effects are then the derivative of this function with res-pect to *x*.

Results and discussion

Byrne et al. (1996; 1998) identified the family income and its composition as important determinants of domestic expenditures in food services such as restaurants or other kinds of food services such as ‘fast-food’. In addition, Ekelund and Watson (1991) also found out that the consumption of ‘fast-food’ was empirically related to domestic opportunity costs.

Willingness to pay and parameters

Due to the lack of an explicit functional form by the literature, as well as the exogenous variables that should be used in studies about the willingness to pay, the present study applied censored *tobit* model, since the minimum level of 0 limi-ted the lower values. In addition the RESET test (Regression Specification Error Test) was applied to check about omitted variables and the results point towards

the acceptance of no omitted variables in the model. The hypotheses tests, identifying the coefficients that differ from zero were made considering a significance level up to 10% (0,10). The software STATA, version 9, was used to run the regres-sion analysis and the main results can be seen in the table below.

Table 1 - Regression results for *tobit* model

	Coefficients	Robust SE	*z-statistic*	*p-value*
Constant	15.3217	3.5245	4.35	< 0.00
Income (X_{1j})	0.0016	0.5265	2.21	0.05
Age(X_{2j})	-0.3447	0.0801	-4.30	< 0.00
Educational level (X_{3j})	2.0755	0.5265	3.94	< 0.00
Frequency (X_{4j})	-0.0802	0.4867	-0.16	0.86
Gender (Z_{1j})	4.3455	1.7231	2.52	0.01
Number obs	600			
Wald χ^2	26.57			< 0.00
Pseudo R^2	0.15			

Notes: SE = coefficient standard errors.

Based on the results, one observes an expressive number of significant variables ($p < 0.05$). The pseudo-R square (R^2) is low, but this was expected since the data is cross sectional (GREENE, 2008) and this fact is, at least in part, explained by the high variation of bids (open-ended questions), i.e. the high variation of willingness to pay declared by consumers (TISDELL, 1991).

When one observes the behavior of explanatory variables, one can notice that all of them exert significant influence on the dependent variable, except for the variable frequency of use (X_{4j}). In addition, the sign of the coefficient is negative, what was not as expected. One of possible reasons for the negative sign is due to the fact that when a person attend the restaurant so often, he/she also might show interest in attend some other restaurants aiming at changing the environment as well as tasting other types of food and services. Thus, the consequence is a nega-tive relation between the frequency and the willingness to pay (NOUSSAIR et al., 2004).

The coefficient of the variable income was significant and the sign (positive) goes hand in hand with economic theory, i.e. the higher the income the higher the consumer willingness to pay. The elasticity in the mean point was also calculated and is 0.2, i.e. an increase of 10% on the consumer income will lead to an increase of 2% in the willingness to pay, *ceteris paribus*. The variable age was significant at 1%

and the sign of the coefficient is negative as expected, i.e. the lower the consumer age the higher the willingness to pay. The marginal effect was also calculated and shows that a increase of one year in age, on average, diminishes the willingness to pay in R$ 0.13 per month, all the other things remaining constant. The variable educational level was significant and the sign follows the economic theory, i.e. the higher the educational level the higher the care and therefore the higher the de-mand for food services and willingness to pay for it.[2] The marginal effect was also calculated and shows that an increase in one year in educational level, on average, leads to an increase of R$ 0,80 in the willingness to pay per month, *ceteris paribus*.

The *dummy* variable gender was significant and points out that man, on av-erage, is more willing to pay than woman. The elasticity in the mean point shows that man is 8% more willing to pay than woman.

Willingness to pay estimation

Aiming at calculating the aggregate value of WTP, the total willingness to pay (*WTPt*) had to be estimated. Regarding the 600 questionnaires, one can notice that 58,1% of consumers did not show any willing to pay for food services, what is a non-negligible figure, indeed. Roughly 12% of consumers wanted to pay a monthly value that ranges from R$ 0,01 up to R$ 2,00, and almost 15% were willing to pay a value that ranges from R$ 2,01 up to R$ 5,00 per month, and no consumer was willing to pay a value above R$ 30.00 per month as can be seen in the Table below.

Table 2 - Willingness to pay (WTP)

WTP (R$/month)	WTP (mean)	Number of consumers	% of consumers	Total of population*
(1) 0,00	0,00	349	58,1	
(2) 0,01 – 2,00	1,00	71	11,9	
(3) 2,01 – 5,00	2,20	95	15,8	
(4) 5,01 – 10,00	7,40	62	10,4	
(5) 10,01 – 20,00	12,00	16	2,6	
(6) 20,01 – 30,00	22,00	7	1,2	
Total		600	100	40.000

Notes: * Total number of meals provided by the Restaurants, per month

In the present study, the consumers that were not willing to contribute have been taken into account on total willingness to pay (58% of consumers or 23.240 persons). As mentioned previously, the reason behind it is due to the fact that these

persons although cannot be considered “WTP contributors” are consumers of goods and services provided by the Popular Restaurants. The main answers from those who did not contribute (“WTP non-contributors”) for the improvement of the food services quality were: (1) it is not their obligation but the municipality; (2) he/she is not a frequent user of the restaurant; (3) he/she believes that the payment will not be converted for food service improvement; (4) he/she pays so many taxes and does not want any further financial burden; (5) he/she does not have enough inco-me that enables he/she to pay for food services.

Thus, considering the equation (1), one should expect that:

$$WTPt = \sum_{i=1}^{6} WTPa\left(\frac{n_i}{N}\right)(40.000) \qquad (12)$$

Based on the equation (12) the value of the total willingness to pay is R$ 72.320,00 per month, or R$ 1,80 per consumer per month, or R$ 0,09 per meal (per day).

One should expect that the willingness to pay herein by the use value and estimated through the contingent valuation method may support the responsible stakeholders towards a better management and therefore a improvement in the food services. However, one should bear in mind that the values estimated for the willingness to pay may not be used as a parameter for the increase of the meal price. Those values reflect, *a priori*, that consumers are expressing a demand for quality regarding the goods and services provided by the Popular Restaurants, such as comfort, hygiene, as well as diversification of meals.

Final remarks

The current debate about FNS provides, *per se*, innovative results, which con-tribute to the advancement of knowledge in this area. Until recently, there has been no scientific study about the Brazilian Program of Popular Restaurants, es-pecially in relation to addressing the role of these restaurants as a FNS promotion facility within a health integrated approach.

The present study found that the Popular Restaurants in Palmas/TO in nor-thern Brazil do not fulfill the main premises of the program, since most users of the restaurants were not considered low-income individuals. In addition, both restau-rants did not develop any action for nutritional education and health promotion,

which becomes crucial regarding users who have high risk factors for NCDs (e.g. overweight, low fruit and vegetables consumption).

The current issue of Food and Nutrition Security (FNS) provides, *per se*, innovative results that contribute to the advancement of knowledge in FNS. However, there is a lack of reports in the literature about the Program of Popular restau-rants especially in relation to the approach of consumer's willingness to pay for food services. In this context, the present study benefits the local community, as well as other sectors involved, and has a pioneer character for this theme and can even be applied in other regions of the country.

We stress the importance of this study because it covers the northern region of Brazil, specifically the state of Tocantins, which lacks scientific studies and re-search that support the development, promotion and conduction of public policies. In the case of FNS, regional studies are extremely important because Brazil has a large demographic, socioeconomic and cultural heterogeneity, which may be reflec-ted in different patterns of mortality and morbidity. Redirecting and strengthening health surveillance through socio-economic studies should be the focus of our at-tention in order to guarantee a better management of Popular Restaurants. These analyses constitute a basic tool in upholding the criteria for willingness to pay for food services offered by Popular Restaurants and their aim is to protect consumer health within the perspective of the human right to adequate food and appropriate nutrition.

It is suggested that further similar studies are conducted to detect possible changes in the willingness to pay, in the number of consumers willing to pay and the type of justification given for unwillingness to pay in respect to services, infrastructure and meals, in both Popular restaurants. These studies, when conducted in a systematic and continuous way, are important for understanding the selection process conducted by the consumer, and to guide policies aimed to improve the welfare of users.

During the conduct of research we tried to establish a partnership with the Department of Social Services, an agency responsible for the program in the city of Palmas. However, unfortunately there was no interest by this stakeholder. Nevertheless, it is expected that the results obtained and present hitherto serve as an instrument for future actions in the Program of Popular Restaurants of Palmas/TO to ensure that they perform as a FNS and health promotion unit. Such an initiati-ve would benefit the local community and other sectors involved, as well as foster similar studies to be replicated in other regions of the country.

A disposição a pagar dos consumidores por serviços de alimentação: uma análise do Programa de Restaurante Popular no norte do Brasil

Resumo

O Programa Brasileiro de Restaurantes Populares é uma política de segurança alimentar e nutricional que visa gerar uma rede de proteção alimentar em áreas vulneráveis, onde as pessoas consomem a maioria de suas refeições fora de suas casas. Dessa forma, o programa pretende atingir a população com maior privação, especialmente no que tange àqs condições socioeconômicas e de saúde. Com base nisso, o método de avaliação contingente e o modelo *tobit* censurado foram aplicados com o objetivo de estimar a máxima disposição a pagar (DAP) para os serviços de alimentos de dois restaurantes populares na cidade de Palmas, região Norte do Brasil. Questionários específicos foram aplicados a 600 consumi-dores e aspectos econômicos, sociais, de saúde e nutricionais foram coletados. Consequen-temente, a DAP total estimada foi de R$ 72.320,00 por mês, ou R$ 1,80 por consumidor por mês, ou R$ 0,09 por refeição por dia. A DAP está positivamente relacionada com a renda e o nível educacional do consumidor e negativamente relacionada com a idade do mesmo. É de se esperar que os resultados da pesquisa sirvam de subsídio para que os governos locais e nacional implementem futuras políticas a fim de melhorar a gestão do programa.

Palavras-chave: Restaurantes populares. Disposição a pagar. Avaliação contingente. Modelo *tobit*. Brasil.

La disposición de los consumidores a pagar por el servicio de alimentos: un análisis del Restaurante Popular Programa en el norte de Brasil

Resumen

Los restaurantes populares de Brasil y una política de seguridad alimentaria y tiene como objetivo generar una toma de red de seguridad nutricional en las zonas vulnerables, don-de las personas consumen la mayor parte de sus comidas fuera del hogar. Así, el programa tiene como objetivo llegar a la población con mayor privación, especialmente en relación con el socio-económicos y de salud. Sobre esta base, el método de valoración contingente y el modelo tobit censurado se aplicaron con el fin de estimar la máxima disposición a pagar (DAP) para el servicio de comida para dos populares restaurantes en la ciudad de Palmas, al norte de Brasil. Cuestionarios específicos fueron administrados a 600 consumidores, desarrollo económico, social, salud y nutrición fueron recogidos. En consecuencia, el PAD total estimado fue de R $ 72,320.00 al mes, o $ 1.80 por cliente por mes, o $ 0,09 por comida al día. El plan de acción se relaciona positivamente con los ingresos y el nivel educativo de los consumidores, y negativamente relacionado con la edad. Se espera que los resultados del estudio sirven como entrada a los gobiernos nacional y local para implementar políticas con el fin de mejorar la gestión del programa.

Palabras claves: Restaurantes populares. La disposición a pagar. La valoración contingente. Tobit modelo. Brasil.

Notas

[1] This section is based on Greene (2008) and Hill et al. (2008).

[2] Sneed et al. (2005), did not find any specific relationship, positive or negative, between educational level and the consumer willingness to pay. More details about this relationhsip can also be seen in Hammitt and Haninger (2007). In addition, see also Hiemstra and Kim (1995), as well as Emerson (1995).

References

BYRNE, J. P.; CAPPS, J. O.; SAHA, A. Analysis of food away from home expenditure patterns for US households, 1982-89. *American Journal of Agricultural Economics*, v. 78, n. 3, p. 274-284, 1996.

_____. Analysis of quick-serve, mid-scale and up-scale food away from home expenditures. *The International Food and Agribusiness Management Review*, v. 1, p. 51-72, 1998.

EKELUND, R. B, Jr; WATSON, J. K. Restaurant cuisine, fast food and ethnic edibles: an empirical note on household meal production. *Kyklos*, v. 44, n. 4, p. 613-627, 1991.

EKINS, P. The environmental sustainability of economic processes: a framework for analy-sis. In: BERGH, van den J.; STRAATEN, van der J. (Ed.). *Towards sustainable develop-ment*: concepts, methods and policy. Washington DC: Covelo, 1994. p. 25-55.

EMERSON, R. L. *The new economics of fast food.* New York: Van Nostrand Reinhold Publishing, 1990.

FINCO, M. V. A. *Instrumentos econômicos como ferramenta de valoração*. Estudos do CEPE, 2002. v. 2.

GREENE, W. H. *Econometric analysis.* Sixth edition, 2008.

HAMMITT, J.; HANINGER, K. Willingness to pay for food safety: sensitivity to duration and severity of illness. *American Journal of Agricultural Economics*, v. 89 n. 5, p. 1170-1175, 2007.

HIEMSTRA, S.; KIM, W. G. Factors affecting expenditures for eating place away from home in commercial establishment by type of eating place and meal occasion. *Hospitality Re-search Journal*, v. 19, p. 15-31, 1995.

HILL, R. C.; GRIFFITHS, W. E.; LIM, G. C. *Principles of econometrics*. Third edition, 2008.

NOUSSAIR, C.; ROBIN, S.; RUFFIEUX, B. Revealing consumer's willingness to pay: a comparison of the BDM mechanism and the Vickrey auction. *Journal of Economic Psychology*, v. 25, p. 725-741, 2004.

OYARZUN, E. A.; PEREZ, L. P. *Gestión de espacios naturales* – la demanda de servicios recreativos. Mc Graw Hill, 1996.

SNEED, C.; SHARMA, A.; BEATTIE, S. *Restaurant consumers' concern for food safety and their willingness to pay extra for food safety.* Institute for Food Safety and Security. Iowa State University, 2005. Manuscript.

TISDELL; C. A. *Economics of environmental conservation*. Departament of Economics/University of Queensland. Australia: Elsevier, 1991.