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“Consumers Preferences for Bio-based Products and Market Analysis”

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1. Introduction

Many consumers seek food safety and are willing to pay higher prices for “healthy or nutritive products” since they increase their utility level, reducing, at the same time, health risks. However, they are unable to ascertain food safety before purchase, being this the most important constraint to economic efficiency in the production and marketing of food safety. Most food markets do not count on complete information about food quality for consumers. As a consequence, quality has become a crucial concept in the new approaches of the Demand Theory (Lancaster, 1966); and so, Antle (1999) started to incorporate it in food demand functions as an additional variable. Quality is a wide and subjective notion that refers to different kinds of attributes that could either be verified by consumers or not, before or after purchasing food, e.g. colour, temperature, taste, nutritious facts, applied processes -such as irradiation or genetic manipulation- and added substances during the productive processes.

Quality uncertainty has played a key role in the literature about safety and products liability and several articles have dealt with quality and uncertainty, the most relevant of which is that by Akerlof (1970), which demonstrates that when purchasing food, consumers make their choices by comparing prices and qualities. Such choices are definitely conditioned by the uncertainty they perceive in relation to the different qualities offered by the markets and by the information available to them.

The purpose of this socio-economic research is to ***contribute to the development of bio-based products markets at international and domestic level*** and to improve the information looking forward

- 1. Mobilizing policy and institutional changes aimed at promoting and facilitating public and private decision-making.*
- 2. Evaluation of specific resource alternatives/tecnologías/regulation to the specific bioeconomic product and market development.*

Why it is important to study Consumers' Preferences for these products? Because a) *Knowledge of Consumers on Food Safety, their attitudes and behavior varies among population subgroups and regions* b) *Consumers' concern for these food production practices determine Willingness to buy and to pay for bio-based products* and c) *Is useful to the design of food safety information programs related to the use of these production practices, to evaluate regulation processes and to apply standards and bio-labelling programs in LAC.*

2. Objectives

- *Study Consumers preferences for attributes of quality and nutritionally enhanced (vitamins content, low cholesterol) food.*
- *Estimate the relationship between sociodemographic factors and consumers' concern for use of food safety related production practices such as use of antibiotics, hormones, and pesticides.*
- *Estimate consumers' Willingness to pay for bio- based products.*
- *Know public trust about private and public institutions associated with biotechnology research and product development (researchers, public bodies, multinationals companies).*

3. Theoretical Background

Several references in papers covering consumers' WTP for attributes linked to food safety and food quality support the use of the Contingent Valuation Method; Most recent studies conducted on the potential market for organic agriculture have tried to establish connections between the WTP of these products and a particular lifestyle (Hartman & New Hope, 1997; Gracia *et al.*, 1998). Consumers' segmentation based on those variables has resulted in several profiles of potential bio-food consumers. Despite the notorious ambiguity of the socio-demographic profile, the consumers show a purposeful attitude towards a balanced life between their diets and their free time; eating healthy food and decreasing agriculture impact on the environment (Henson, 2001). Results from empirical works carried out in countries with a significant level of organic food consumption demonstrate that the main reason why these foods are acquired is associated to health care, either because of disease suffering or disease prevention. (Kuchler *et al.*, 2000). Besides, due to their low pesticide-residue content, these products are considered as beneficial, at least speaking of vegetal-origin products.

(Weaver *et al.*, 1992; Baker, 1999). Regarding meat products, e.g. chicken meat, the risks perception linked to hormone use along the productive process is remarkable (Farina & de Almeida; Rodríguez & Lacaze, 2005). The better educated people seem to understand scientific information related with food risks, and, therefore, are more skeptical about the alleged benefits that the less risky food would generate. Van Ravenswaay (1995) also affirmed that higher education respondents can easily access to trustful information sources about food risks and benefits and, generally speaking, they are less worried about these issues. Less educated people are less exposed to information linked to scientific topics, including genetically engineering and the related risks and benefits. (Canavari & Nayga, 2009).

Related to Information-Public o Private goods- Regulation :Consumers have different perceptions about benefits and risks involved in food intake, information regarding their quality has public good characteristics (Caswell & Mojduszka, 1996). The market failure might justify government intervention, provided that the implementing regulations would generate positive net benefits (Damania & Round, 2000; Antle, 1999a; Arrow *et al.*, 1996, Caswell & Mojduszka, 2002). The market effects of any regulatory action will depend on its impact on consumer perceptions regarding product attributes as well as the benefits and costs of regulation itself (Caswell , 2000).

4. Research approach and methods

Since some of these health risks benefits are hard to assess, a method commonly applied to determine food safety benefits is estimating consumers' willingness to pay for safer and better quality food. (Haneman, 1984; Goldberg & Rosen, 2005). Along these lines, the notion of willingness to pay could be defined as the sum of money representing the difference between consumers' surplus before and after adding or improving a food product attribute. Van Ravenswaay & Wohl (1995) and Halbrendt *et al.* (1995) introduced models that estimate consumers' willingness to pay when adding or enhancing a given quality attribute. Framework of analysis on perceived quality was developed by integrating aspects of applied psychology, consumer behavior and marketing literature. This involves identifying the signals that consumers use to judge the quality of a product before and after purchase, but conditioned to the product offered by the market. There are different methodological alternatives to assess consumers willingness to pay (WTP): Contingent Valuation, Experimental Auctions, Conjoint analysis and Hedonic Prices.

5. Data and Methodology

Data collection and its accuracy constitute strategic elements

1. Household consumption survey at national and regional level (household main meal planner's concern about the use of food-safety-related production practices).
2. Scanner data and consumption survey in the stores.

The number of variables explaining consumers' perceptions of quality attributes, associated to nutrients content of bio-based products is reduced by applying Factor Analysis and then new variables could be used in Cluster analysis and Logistic Regression Models. Binomial, Logit Multinomial, Probit Models could be tested to examine the effect of various factors on consumers' willingness to buy foods with nutrition content and safe production practices.

6. Envisioned research team

The research team should have a holistic view that cuts across -Production-Marketing-Consumption – Private and Public Policy

Production: Biotechnology and Food Technology Scientists

Consumption: Household and Consumers Behaviour Economists

Nutritionists and Sociologists; Statistical and Biometric professionals

Marketing: Private and Public actors – Farmers- Suppliers- Industry- Government

The efforts of agronomists, producers and marketers to incorporate "desired" characteristics will be in vain if consumers don't feel confident about the products they are buying.

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