Sustainability **2015**, *7*, 7397-7416; doi:10.3390/su7067397

OPEN ACCESS

sustainability

ISSN 2071-1050

www.mdpi.com/journal/sustainability

Article

Alternative Labeling Programs and Purchasing Behavior toward Organic Foods: The Case of the Participatory Guarantee Systems in Brazil

Giovanna Sacchi [1], Vincenzina Caputo [2,*] and Rodolfo M. Nayga, Jr. [2,3,4]

[1] Department of Management, Ca' Foscari University of Venice, San Giobbe—Cannaregio 873, Venice 30121, Italy; E-Mail: giovanna.sacchi@unive.it

[2] Department of Food and Resource Economics, Korea University, Anamdong-5-1, Seongbukgu, Seoul 136-701, Korea

[3] Department of Agricultural Economics and Agribusiness, University of Arkansas, Fayetteville, AR 72701, USA; E-Mail: rnayga@uark.edu

[4] Norwegian Agricultural Economics Research Institute, Storgata 2/4/6, Oslo NO-0155, Norway

* Author to whom correspondence should be addressed; E-Mail: vincenzina.caputo@gmail.com; Tel.: +82-010-4011-1507; Fax: +82-2-3290-4621.

Academic Editor: Marc A. Rosen

Received: 21 April 2015 / Accepted: 4 June 2015 / Published: 9 June 2015

Abstract: Regulatory standards and certification models are essential tools guaranteeing the authenticity of organic products. In particular, third-party certification is useful to consumers since it provides guarantees regarding production processes and food quality. In an attempt to cope with the costs and bureaucratic procedures related to the adoption of such certification, groups of small producers have begun to rely upon alternative quality assurance systems such as Participatory Guarantee Systems (PGS). This study contextualizes and analyzes the PGS scheme and describes the Brazilian Rede Ecovida de Agroecologia network. We then investigate the effect of various factors on Brazilian consumers' purchasing behavior for organic products guaranteed by PGS. The results show that employed and older consumers who live in rural and suburban areas are more likely to buy organic PGS products.

Keywords: Alternative Food Networks; Participatory Guarantee Systems (PGS); consumer buying behavior for organic PGS products; Brazilian Rede Ecovida de Agroecologia

1. Introduction

In contemporary food system analysis, the prior overwhelming interest in issues linked to the globalization, industrialization, and standardization of production processes is now shifting toward new ethical issues that call into question the way in which the food system operates. Alternative Food Networks (AFNs) represent efforts to re-spatialize and re-socialize standardized food production and distribution systems [1,2] and spread new forms of political association and market governance [3]. In particular, AFNs' food production and consumption processes are closely related in spatial terms (*i.e.*, geographic proximity between producers and consumers), economic terms (*i.e.*, a fair price for farmers and an affordable price for consumers because of the intermediaries' elimination), and social terms (*i.e.*, the development of networks based on trust linked to mutual knowledge and to each other's reputation). As such, producers in AFNs grow food in proximity to the people who buy and eat it [1,4,5]. Hence, direct marketing brings farmers and consumers face to face and develops bonds of trust and cooperation [6–8].

The increasing global interest in the organic food market runs parallel to the development of AFNs and reflects consumer concerns about environmental issues [9–16] and the mainstream focus on food quality assurance and control [17]. In addition, because of the growing anonymity of the trade in organic products, organic consumers are increasingly criticizing food products that are produced under unknown social conditions. In this regard, several examples illustrate that organic food consumers are willing to pay a price premium to directly support small farmers' initiatives in disadvantaged areas [18] because they view the organic food system as a way to alleviate income inequality.

In this context, regulatory standards and certification models are essential tools guaranteeing the authenticity of organic food products. For instance, the mainstream approach linked to organic certification (the best known third-party certification, regulated in the European Union by EC Regulation 834/2007—28 June 2007) is useful for consumers by providing guarantees regarding production processes and food quality. However, while organic certification programs have contributed to the global expansion of the organic foods market, they have also made organic foods less accessible to small-scale producers and lower-income consumers worldwide, particularly in developing countries [19–26]. For example, the costs associated with third-party certification can constrain small-scale producers from obtaining organic certification and can increase the price of organic products to the detriment of lower-income consumers. In addition, an increasing number of consumers are discontented with the globalization of organic food provision [27]. Consequently, the adoption of alternative quality assurance systems has become an important issue for both producers and consumers.

In an attempt to cope with the costs related to third-party certification adoption, groups of small producers in several countries have begun to rely upon alternative quality assurance systems to differentiate their organic food products. These quality assurance systems are characterized by alternative distribution strategies based on direct marketing that links producers and consumers' demands without third-party intervention. To date, two main alternative guarantee systems, or labeling programs, have appeared: Internal Control Systems (ICS) and Participatory Guarantee Systems (PGS). These alternative guarantee systems simplify bureaucratic procedures and reduce costs for small producers who are often overwhelmed by the extensive documentation required by third-party certification. They also reduce costs since they do not involve a foreign certification body.

Recently, a number of studies have documented an increasing interest in the issue of alternative certification strategies for organic foods [22,28–34]. However, none of these studies has focused on consumption behavior patterns. Our study focuses on factors that affect the likelihood of purchasing organic products guaranteed by the PGS program. We first offer an overview of how the PGS labeling program works by referring to one of the oldest networks that has adopted it: the Brazilian Rede Ecovida de Agroecologia, which represents an exemplary case of an AFN in which an alternative organic labeling program has been implemented. We then examine the effects of sociodemographic factors, knowledge about the meaning of PGS labels, and purchasing habits on consumer buying behavior for organic foods that are guaranteed by the PGS labeling program.

This study contributes to the literature on consumer buying behavior toward organic foods in different ways. First, while several studies have investigated the effects of demographics on consumer buying behavior toward organic food certified by third-party bodies [27,35–47], to the best of our knowledge this is the first study that focuses this issue on organic food guaranteed by the PGS labeling program. In addition, no prior studies have investigated the effects of knowledge about PGS labels on the purchasing habits related to organic PGS products. Consumer buying behavior toward PGS food products may also vary among population subgroups and may depend on purchasing habits. For example, is there any difference in terms of consumer buying behavior across the different consumers who live in rural areas and those who live in urban areas? Does the level of consumers' knowledge about the PGS labeling program affect their buying behavior? Finally, does buying organic products at farmers' markets increase the probability of buying organic PGS products? Knowledge of the relationship between individual characteristics and buying behavior in relation to organic foods guaranteed by the PGS labeling program is useful for the design and implementation of these emerging labeling programs and can be used to tailor information to specific consumer subgroups [47].

The article is organized as follows. The first section discusses organic third-party certification in terms of consumption trends and emerging issues. The following section describes the Brazilian Rede Ecovida de Agroecologia. The third and fourth sections describe the data and the empirical model used to analyze the effects of sociodemographics on consumer buying behavior toward organic foods guaranteed by the PGS scheme. The last two sections discuss the results and conclusions from the study, respectively.

2. Organic Third-Party Certification: Trends and Emerging Issues

Originally, organic product conformity was achieved through interpersonal linkages among the stakeholders and a mutual trust relationship based on reputation and geographical proximity. Generally, the advent of market globalization has required steady guarantees to protect the parties involved in organic product trading through the "industrial proofs" defined by Thévenot [48]. This precipitated the rise of standards and certification as a new form of governance in the organic market [49]. This view is supported by Courville [23] of the ISEAL Alliance, the global membership association for sustainability standards, who stated:

> Paradoxically, the regulatory systems that were developed to protect the integrity of organic agriculture including standards setting and conformity assessment systems are now reshaping the organic landscape in ways that threaten many of the values held by the movement that created it [23] (p. 201).

The organic agriculture movement was born during the last century out of the desire to develop a sustainable, fair, and ecological alternative to the agro-industrial production paradigm. The main strategy was represented by the creation of alternative models of production, distribution, and consumption that focused on a local and cooperative dimension in which all the stakeholders actively participated. Now that organic food has evolved from a small niche to a market segment, some organic activists have raised the issue of whether the organic movement's original principles have been shifting toward procedural standardization [50,51].

In 1980, the International Federation of Organic Agriculture Movements (IFOAM) established basic standards that were adopted worldwide as reference points. The IFOAM basic standards serve "as a guideline on the basis of which national and private standard setting bodies can develop more specific organic standards" [52]. Nevertheless, many developing countries had no regulations for organic production and often, when local standards are issued, they become instruments for control bodies aimed at assuring exports to the European Union and to other Western countries. In general, third-party certification involves independent and officially accredited bodies that are charged with providing independent confirmation that organizations, companies, and farmers adhere to National Organic Standards and norms. Some commentators argue, however, that these rules are based on the standards of the export destination countries [19]. As contended by Sylvander [53], agricultural practices and conditions vary from country to country and may not lend themselves to *a priori* coding practices. In this context, it is interesting to draw attention to the movements that are currently developing alternatives to standardized organic certification practices and that mirror the real needs and peculiarities of stakeholders and countries. According to IFOAM, alternative ways of certifying organic products can be viewed as tools that allow producers to access the (domestic) market. The most popular alternative labeling programs to third-party certification are the aforementioned ICS and PGS, which IFOAM recognizes and supports.

The mission of the ICS consists of the creation of farmer associations and enterprise networks that voluntarily adhere to common organic production standards. An independent and external certification body then verifies how well the group is functioning or inspects a limited number of randomly selected members. The inspection results, either positive or negative, are then applied to the whole group. The advantage of adopting such a quality assurance model is that it simplifies the certification procedures for small producers, who are mostly unfamiliar with dealing with the documentation required for third-party certification. It is also less expensive compared to the mainstream certification model.

The PGS movement, on the other hand, coordinates its actions toward the establishment of a collective dimension based on a shared understanding of production and distribution principles and on a common agreement of responsibility. PGS incorporates elements of environmental and social education in relation to quality improvement for both producers and consumers. The basic common elements of PGS projects worldwide are: (i) a participatory approach; (ii) social control; (iii) a shared vision and shared responsibility among stakeholders regarding quality, transparency, trust building, and

reinforcing mechanisms; and (iv) a non-hierarchical relationship among stakeholders [29,54]. Currently, 113 cases of PGS adoption are recognized in farmer networks, 67 of which are active projects while the remaining 46 are under development. These cases involve 43,280 producers worldwide [55,56]. PGS are mostly used in developing countries such as Brazil, India, and Costa Rica, although several cases also exist in Western countries. Among the most famous networks that have adopted PGS is the Rede Ecovida de Agroecologia (Brazil), Certified Naturally Grown (USA), Nature et Progrès (France), Keystone Foundation (India), and Organic Farm NZ (New Zealand).

The PGS program makes organic food more affordable to local consumers because of reliance on direct selling and the effect on social control. For instance, Zanasi *et al*. [31] stated that:

> The role played by social control is of paramount importance in explaining these theoretical assumptions. The more relevant to the community the issue at stake, the higher the level of trust needed. Trust, in turn, is enhanced by social control as a guarantee against dishonest behavior [31] (p. 57).

These aspects of PGS adoption help reduce intermediaries and transaction costs and also grant a higher share of added value to farmers. In the absence of an alternative procedure for quality assurance, most small disadvantaged producers would not have access to the local market [32,57,58]. Local consumers are also affected in these circumstances because they are unable to purchase organic products. In other words, the main PGS goal is to facilitate the production of organic products by small farmers and to promote local food systems in accordance with organic agriculture principles and production models.

3. The Brazilian Rede Ecovida de Agroecologia

The Rede Ecovida de Agroecologia (henceforth referred to as "Rede") represents an exemplary case demonstrating the well-structured path that led to the official recognition of PGS within Brazilian national legislation, resulting in the enactment of Law 10.831 of 23 December 2003, regulated by Decree 6323 of 27 December 2007.

Brazilian legislation recognized two formal and one informal guarantee systems for organic quality assurance [59]:

(1) Third-party certification, subject to the Conformity Assessment Bodies (Organismos de Avaliação da Conformidade, or OAC);
(2) Participatory Guarantee Systems, subject to the Participatory Bodies for Conformity Assessment (Organismos Participativos de Avaliação da Conformidade, or OPAC); and
(3) Organizations for Social Control (Organização de Controle Social).

Producers who fall into the first two categories obtain the organic label of the Brazilian System for Evaluating Organic Conformity (SisOrg), identified by the different guarantee system (see Figure 1). In the figure below, the first caption identifies the Participatory Guarantee Systems (in Portuguese *sistema participativo*) while the second caption (*certificação por auditoria*) stands for third-party certification. However, those producers who fall into the third category can only sell their products according to direct marketing strategies.

Figure 1. The Brazilian organic labeling system for organic conformity assessment.

As of January 2015, the Brazilian Ministry of Agriculture has recognized and authorized 10,719 producers to sell their products as organic. More than half of these producers (6125) are associated with social control organizations and PGS in order to guarantee their products' quality and authenticity (according to the Brazilian national list of organic producers, as of December 2014, 4593 producers are certified by third-party certification bodies, 3096 producers by social control organizations, and 3029 by PGS [60].

Rede has been in operation since the 1980s and has spread throughout three southern states of Brazil (Paraná, Santa Catarina, and Rio Grande do Sul). The birth of the Rede can be associated with the agricultural and environmental movements that arose in the south of Brazil around the 1980s. In response to modernization and with the aim of recovering agriculture's natural foundations several social movements developed such as the Pastoral Land Commission (Comissão Pastoral da Terra), the Landless Workers' Movement (Movimento dos Trabalhadores Rurais Sem Terra), and the Rural Women Workers' Movement (Movimento da Mulher Trabalhadora Rural). Between 1980 and 1990, in parallel with the development of these movements, a series of NGOs concerned about the harmful effects of modern agricultural production appeared in the south of Brazil [30]. The creation of such movements and NGOs led to the Regional Meetings of Alternative Agriculture (Encontros Regionais de Agricultura Alternativa), the Brazilian Meetings of Alternative Agriculture (Encontros Brasileiros de Agricultura Alternativa), and, contextually, the formalization of production groups and agroecological markets [61].

In the following years, because of the increase in agro-ecological projects, an urgent need arose to improve the organization and refine the message of the network of movements and NGOs. This led to the birth of the Rede and, contextually, to the requirement for quality assurance of the network's products. Nowadays, the network consists of 26 regional groups (nuclei) involving about 180 municipalities, more than 200 farmers' associations and consumer groups, about 100 ecological markets, and 20 NGOs.

The local groups of the Rede represent the primary organizations. Each nucleus consists of a number of family farmers and social actors. These are organized as individuals or grouped into associations and/or cooperatives (e.g., farmers' associations, consumers' cooperatives, processors, small traders, NGOs, and technicians). They currently represent about 3700 operators. As such, the Rede has an extraterritorial nature and coordinates different subnetworks together with local communities. These nuclei mirror the guiding principles of the Rede, which are related to the conservation, maintenance, and diffusion of cultural diversity.

The network is based on a number of principles that include: (i) the implementation of agro-ecology as a basis for sustainable development; (ii) the preservation of typical local or regional products; (iii)

the strengthening of popular economic solidarity; (iv) a direct relationship with consumers; and (v) the supply of local and regional products within the framework of food security and food sovereignty [61]. Figure 2 shows the Rede and the distribution of its nuclei.

The certification model realized within the Rede can be characterized as participatory because it is developed within the network through an interactive process according to a model of distributed social control. Each group of the Rede must conform to established measures and instructions to obtain its participatory certification. First, an Ethics Council for each operating nucleus must be set up, composed of representatives of each category of actors involved in the Rede. Then, all the production units of the nucleus must fill out a certification request form containing information about the production process. The forms are then sent to the Ethics Council, which analyzes them and requests additional information if necessary. Subsequently, a number of visits (inspections) are made that equals the number of producers that have applied for certification. The Ethics Council then produces a report approving or rejecting the certification for each production unit. If the producers are eligible, the Ethics Council grants them the use of the participatory certification label. If the council rejects the certification request, the rejection report may contain process suggestions and modifications to ensure compliance [62,63].

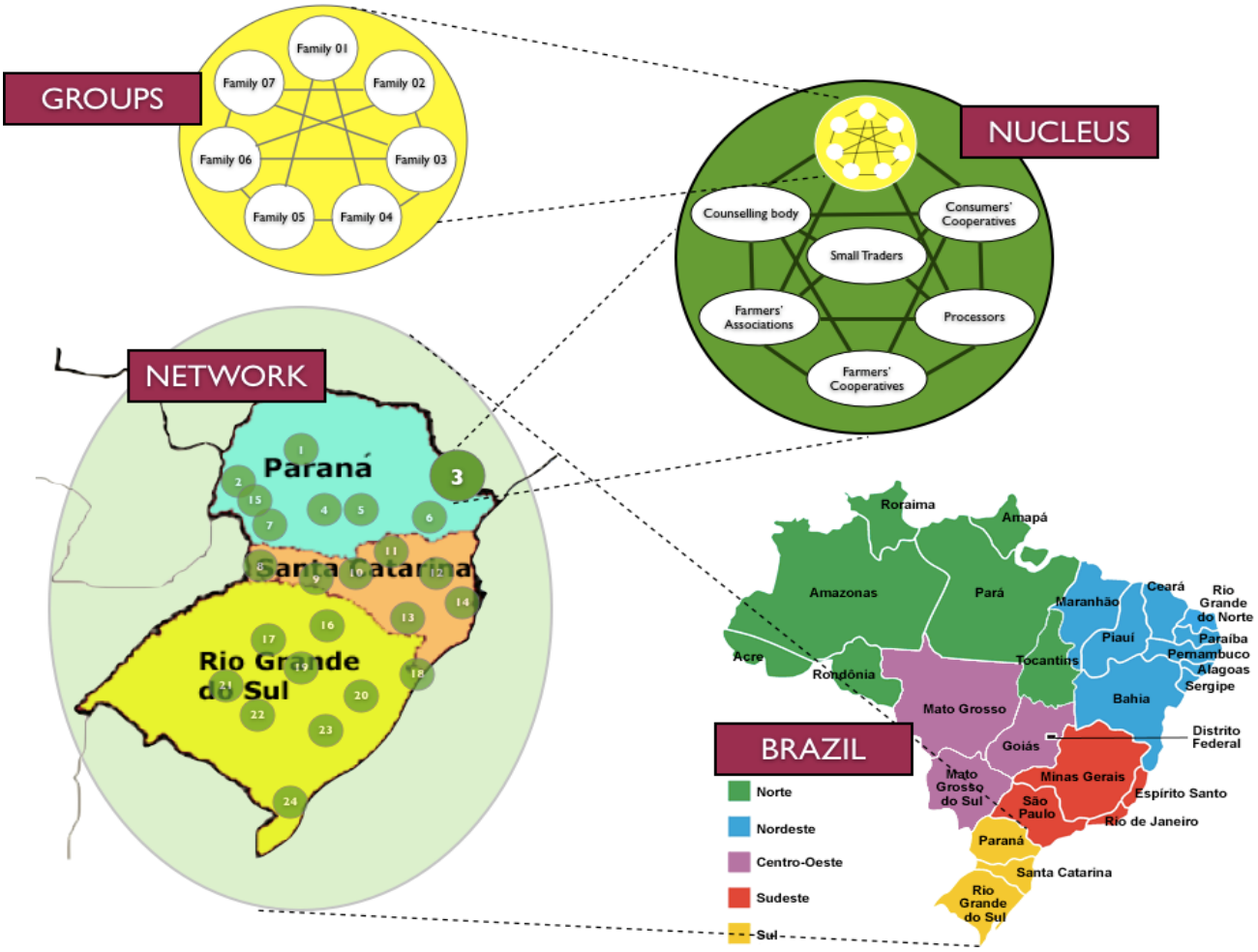

Figure 2. Nuclei distribution of the Rede Ecovida de Agrecologia.

4. Data

The data used in this study are drawn from responses to a survey instrument administered between January and March 2011 in three nuclei of the Rede: Litoral Solidário, Litoral Catarinense, and Sudoeste do Paraná. Four nuclei of the Rede operate in the areas of analysis (see Figure 3).

Figure 3. Cities and nuclei of the Rede Ecovida de Agrecologia considered in the survey.

A sample of 230 adult food shoppers was randomly selected in different cities such as Curitiba, Forianópolis, Francisco Beltrão, Porto Alegre, Torres, and Tubarão (note that the sample distribution over cities is: Curitiba = 12.6%; Forianópolis = 17.4%; Francisco Beltrão = 13.5%; Porto Alegre = 21.7%; Torres = 17.4%; and Tubarão = 17.4%). In order to capture different consumer segments, in each city the interviews were conducted during a two-week period and at different shopping hours. In addition, in line with previous studies [64,65], the interviews were conducted in four different locations, representing different types of food markets such as:

(i) Organic farmers' markets, where both PGS products and non-certified organic foods are sold (Feira Ecológica Lagoa do Violão–Torres; Menino Deus–Porto Alegre; Feira de Produtos Orgânicos do Jardim Botânico and Passeio Público–Curitiba; Feira Agroecológica da Lagoa da Conceição–Florianópolis; Mercado do Produtor–Tubarão; and Feira Agroecológica–Francisco Beltrão;

(ii) Specialized stores and municipal markets, where both PGS products and third-party certified organic foods are sold (Mercado Municipal de Curitiba–Setor de Orgânicos; Mercado Público Central de Porto Alegre; and Mercado Público de Florianópolis.); and

(iii) Generic supermarkets, where PGS products are rarely sold.

These market locations were selected so that we could assess the differences in the knowledge and awareness levels of the meaning and function of the PGS labeling program among organic food consumers and examine the degree to which these differences could affect consumer buying behavior. The sample distribution over shopping venue is: supermarket = 11%; municipal market = 11%; specialized stores = 32%; and organic farmers markets = 46%. An overview of the sample technical characteristics is displayed in Table 1.

Table 1. Sample technical characteristics.

SAMPLE CHARACTERISTICS	**Consumers who are responsible for household food purchase (at least 18 years old)**
VENUES	Organic farmers' markets; Specialized organic stores; Generic supermarkets.
STATES AND CITIES INVOLVED	RIO GRANDE DO SUL: Torres, Porto Alegre; SANTA CATARINA: Tubarão, Florianópolis; PARANÁ: Francisco Beltrão, Curitiba.
NUCLEI ANALYSED	*Litoral Solidário*: 20 farmers' groups associated with producers' cooperatives; One NGO, the Centro Ecológico Ipê, which offers technical assistance; 319 families organized in several associations; Two consumers' cooperatives that allow daily access to organic food; 40 suppliers; Five organic farmers' markets. *Litoral Catarinense*: 58 family farmers organized into 11 farmer groups; One processor; One specialized shop in the city of Florianópolis; Three technical consultancy groups; One research group; Four organic farmers' markets *Sudoeste do Paraná*: 150 family farmers divided into 15 farmers' associations; Two NGOs (Assesoar and Capa); One group of researchers and scholars that supports the nucleus action; One specialized store; Eight organic farmers' markets.
SAMPLE SIZE	230 interviews
SAMPLING	Non-probabilistic sampling
TIMING	January–March 2011

The questionnaire was designed so that we could analyze the effect of sociodemographic factors and purchasing habits on consumer buying behavior toward organic food products guaranteed by PGS. Accordingly, it included two sections. In the first section, we assessed respondents' subjective knowledge about the PGS labeling program by asking if they were aware of its meaning and function. Next, we provided respondents with neutral information about the meaning of the PGS labeling program. Finally, respondents were asked about their shopping habits toward organic foods guaranteed by PGS (e.g., buying behavior, frequency of purchasing, place of purchase, and consumer knowledge about the PGS labeling program). The second section of the survey contained questions on respondents' sociodemographic characteristics (*i.e.*, gender, age, education, residential area, the presence of children within the family, and professional status).

5. Empirical Model and Variable Definition

To investigate the effects of sociodemographic and purchasing habits information on consumer purchase behavior toward organic foods guaranteed by PGS, respondents were asked whether they buy such foods. Given the fact that the dependent variable is represented by a binary response, the model is estimated using a probit model. The probit model is a statistical model based on the cumulative normal probability distribution. As shown by Greene [66], in the binary probit model the probability of choosing an alternative over another one, given a set of factors, can be expressed as:

$$p_i = Prob[Y = 1|X] = \int_{-\infty}^{x_i'\beta} (2\pi)^{-1/2} exp\left(-\frac{t^2}{2}\right) dt = \phi(x_i'\beta), \quad (1)$$

where p_i is the probability of consumer i choosing Y; ϕ represents the cumulative distribution of a standard normal random variable; x_i' are the set of independent variables for consumer i; and β is the parameter estimates for the independent variables.

The relationship between a specific variable and the outcome of the probability is interpreted through the marginal effect, which accounts for the partial change in the probability. The marginal effect associated with dummy independent variables on the probability P ($Y_i = 1|X$), holding the other variables constant, can be derived as:

$$\Delta = \phi(\bar{x}\beta, d = 1) - \phi(\bar{x}\beta, d = 0), \quad (2)$$

where d is the indicator variable for binary variables in the model. For continuous independent variables, the marginal effect can be derived as:

$$\frac{\partial p_i}{\partial x_{ik}} = \phi(x_i'\beta)\beta_k. \quad (3)$$

In this study, the marginal effects were calculated for each variable while holding the other variables constant at their mean samples. The Maximum Likelihood Estimation (MLE) technique was used to estimate the probit model parameters.

Table 2 reports the definition of the variables used in the probit analysis and their mean values.

Table 2. Description and means of the dependent and independent variables used in the probit analyses.

Variable type	Name	Description	Mean (st. Error)
DEPENDENT-PURCHASING BEHAVIOUR			
Organic-PGS product preference	ORG-PGS	1 if respondent states that he or she has bought organic PGS food products; 0 otherwise	0.643 (0.033)
INDEPENDENT-DEMOGRAPHICS			
Gender	FEM	1 if respondent is female; 0 if male	0.683 (0.030)
Age	AGE	Age (in years)	42.462 (0.858)
Education	EDU	1 if respondent has a degree from high school or lower	0.573 (0.033)
Rural	RUR	1 if respondent lives in a rural area; 0 otherwise	0.141 (0.023)
Suburban	SUB-URB	1= if respondent lives in a sub-urban area; 0 otherwise	0.339 (0.031)
Child	CH	1 if child(ren) is/are present in household; 0 otherwise	0.330 (0.031)
Employed	EMP	1 if the household food buyer is employed ; 0 otherwise	0.744 (0.029)

Table 2. *Cont.*

Variable type	Name	Description	Mean (st. Error)
INDEPENDENT-KNOWLEDGE AND PLACE OF PURCHASING			
Knowledgeable	KNOW	1 if respondent states that he or she knows about the meaning of PGS labels; 0 otherwise	0.317 (0.031)
Supermarkets	SUPE	1 if respondent states that he or she usually buys organic food products at a supermarket; 0 otherwise	0.135 (0.023)
Farmers' markets	FARM	1 if respondent states that he or he usually buys organic food products at farmers' markets; 0 otherwise	0.772 (0.028)
Producers	PROD	1 if respondent states that he or she usually buys organic food products directly from producers; 0 otherwise	0.068 (0.017)
Municipal markets	MUNI	1 if respondent states that he or she usually buys organic food products at municipal markets; 0 otherwise	0.099 (0.020)
Specialized stores	SPEC	1 if respondent states that he or she usually buys organic food products directly from producers; 0 otherwise	0.300 (0.031)

The dependent variable is represented by "ORG-PGS," which is equal to 1 if respondents self-reported to have bought organic food products displaying the PGS labeling scheme in the last three months, and 0 otherwise (note that respondents were asked about consumption behavior related to PGS product in general. Ecovida food products are labeled by PGS. Since the data were collected in the south of Brazil where Ecovida operates, survey respondents may have associate PGS products with PGS products offered by Ecovida). The independent variables are represented by a set of the respondents' demographic information such as gender, age, education, the presence of children in the family, residential area (e.g., rural, suburban, and cities), and professional status. Other independent variables are represented by the level of consumer knowledge about the PGS labeling program (subjective knowledge) and the places where the respondents said that they usually buy organic products. As already stated, respondents were given information about the PGS meaning and function to ensure that they could accurately answer the question that is the basis for Equation (1), that is, whether or not they buy organic products certified by the PGS labeling program. With regard to the place of purchase, respondents were asked to indicate where they usually buy organic food products. Different response options were provided to respondents (e.g., supermarkets, municipal markets, farmers' markets, directly from producers, or specialized stores, among others) and they could choose more than one of them.

We have some expectations about what our results would be based on previous literature. With regard to demographic information, we expected that buying behavior toward PGS products is positively related to the area of residency. Specifically, we expected that consumers who live in rural and suburban areas are more likely to buy PGS products than those who live in urban areas. This is because PGS products are developed mostly in rural areas; thus, it is reasonable to assume that respondents not residing in urban areas have more direct contact with producers involved in the PGS network.

With regard to the other demographic information, the findings from past studies on consumer buying behavior toward organic foods show a significant heterogeneity across consumers. For example, while a number of studies found that being younger increases the probability of purchasing organic foods [67,68], others pointed out that older consumers are more likely to purchase organic products because of their greater ability to pay the premium price [37,40,69]. Similarly, a number of studies showed that the presence of children in the family [38,42] and women positively affects the consumption of organic PGS products [36,70]. However, other studies found that these demographic factors have either a negative or no effect on consumer buying behavior toward organic foods [17,71]. As such, no prior expectations were formulated for the effects of demographics on consumer buying behavior toward organic PGS products.

With regard to the effects of purchasing habits on consumer buying behavior toward PGS products, we expected that such effects are positively related to the level of consumer knowledge about the PGS labeling program. Finally, we expected that purchasing organic products in specific places such as farmers' markets would increase the probability of buying organic products guaranteed by the PGS labeling program. This is because organic farmers' markets make local and seasonal organic food available to consumers [72,73]. In this sense, we believe that the easier the access to PGS organic products, the higher the possibility of purchasing them.

6. Results and Discussion

Looking at the demographic information, it can be seen that the majority of interviewees are female (68.3%), with an average age of 42.4. About 74.4% of the main household food buyers are employed. The majority of respondents have a degree at high school level or lower (12.2% have a primary school education, 44.8% have a secondary school education, 27% have a university degree, and 13% have a postgraduate degree). Further, most of the interviewees live in urban areas (52%), while 33.9% of them live in suburban areas in which PGS projects take place and 14.1% live in rural areas. About 34.5% have at least one child in their family.

The results related to participatory certification methods show poor knowledge and awareness of the processes. Most interviewees (68%) claim that they have never heard about the methods, with this figure increasing to 87% for respondents living in urban areas. However, the results change remarkably if we consider the real consumption of PGS products. In spite of a low awareness level of PGS processes, 64% of consumers state that they buy organic products guaranteed by PGS.

With regard to different residential areas, 90% of those living in rural areas usually buy organic PGS products, a trend that is followed by 84% of residents in suburban areas and 43% of respondents living in urban areas. The significant difference between the data on the knowledge of PGS processes and the purchase of PGS products can be attributed to the brief explanation of the meaning and function of the PGS labeling program that follows the question on PGS knowledge. It is therefore reasonable to assume that respondents realize at this point that they know the system or even realize that they have been purchasing PGS-guaranteed products for years without fully knowing/comprehending the quality control process involved. As mentioned earlier, the purchasing habits were captured by asking respondents where they usually buy organic food products. Alternative response options were provided to them and they could choose more than one response option. As shown in Table 2, the

majority of the respondents reported that they purchase organic food products mostly at farmers' markets (77.2%), while only a minority purchase them directly from the producers.

The maximum likelihood estimates for the probit analysis are presented in Table 3.

Table 3. Estimates of the probit model and marginal effects.

Variables	Coefficient	Std. Error	|z-statistic|	Marginal effects
Constant	−0.679 ***	0.552	−3.66	-
DEMOGRAPHICS				
FEM	−0.220	0.257	−0.86	−0.056
AGE	0.020 *	0.010	1.92	0.005 *
EDU	0.417	0.269	1.55	0.107
EMP	0.772 **	0.314	2.46	0.198 **
CHILD	0.034	0.245	0.14	0.008
RUR	1.090 ***	0.411	2.65	0.280 ***
SUB-URB	0.769 ***	0.280	2.74	0.198 ***
KNOWLEDGE AND PLACE OF PURCHASING				
KNOW	2.356 ***	0.573	4.11	0.606 ***
SUPE	0.318	0.381	0.83	0.081
FARM	1.154 ***	0.360	3.20	0.297 ***
PROD	−0.557	0.564	−0.99	−0.143
MUNI	0.127	0.396	0.32	0.033
SPEC	−0.143	0.285	−0.50	−0.037
SUMMARY STATISTICS				
LL	−86.984			
Sample Size	230			
McFadden's R^2	0.412			
X^2 (df = 18)	121.84 (p = 0.0000)			
Correct prediction	79.30			

Note: *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

The null hypotheses that the effects of the independent variables are simultaneously equal to zero are rejected at the 1% significance level. McFadden's pseudo coefficient of determination (R-squared) was calculated at about 0.412 with a correct prediction percentage of 79.30%.

The estimated coefficients and standard errors indicate which factors influence respondents' consumption intentions with regard to organic PGS products. The results indicate that four out of seven demographic variables are statistically significant in their effects on consumer buying behavior toward organic PGS products. These variables are: AGE, EMP, RUR, and SUB-URB. Specifically, and consistent with our expectation, consumers who live in rural and suburban areas are more likely to buy PGS products than those who live in urban areas. According to the marginal effects, those who live in rural areas are 28% more likely and those who live in suburban areas are 19.8% more likely to buy organic PGS products than those who live in urban areas. The reason for this finding could be that consumers who reside in rural and suburban areas are more exposed to PGS publicity from local campaigns and to direct knowledge of producers involved in PGS than those who reside in

metropolitan areas. It is also likely that those who reside in non-metropolitan areas grew up around the use of some of these production practices and are therefore more sensitive to ethical issues such as support to local economies and rural areas, issues that are guaranteed by the principles governing PGS.

The findings also show that age is an important demographic indicator for the probability of buying PGS products. As age increases, the tendency to buy organic PGS products rises. Indeed, the findings suggest that the probability of purchasing organic PGS products increases by 0.5% for each year increase in age. This could be due to increasing importance being attached to the characteristics of organic PGS products, as one gets older. In addition, the variable related to the professional status of respondents appears to positively affect PGS product purchasing. According to the marginal effect result, respondents who are employed are 19.8% more likely to buy organic PGS products than others.

Our evidence for gender (FEM), education (EDU), and the presence of children within families (CHILD) indicates that these do not significantly affect the probability of buying organic food that is guaranteed by the PGS labeling program. With regard to gender, our finding is consistent with Van Loo *et al*. [17] and FMI and AMI [68], who reported no differences in the frequency of buying organic food (chicken) between men and women. Our findings for education and the presence of children within families are consistent with Byrne *et al*. [72] and Thompson [74], respectively. In the first case, we indeed find that education is inversely correlated with organic purchases, while according to Thompson, the presence of children has no significant effects on purchasing behavior related to organic products.

Turning to the self-reported consumers' knowledge of organic PGS foods (KNOW), the positive and statistically significant coefficient indicates that the higher the organic PGS knowledge that consumers state they have, the higher the probability of buying organic food products guaranteed by the PGS labeling program. Specifically, we find that consumers' degree of awareness of PGS labels is associated with the probability of choosing organic PGS. This evidence is consistent with other studies on consumer choice behavior for organic foods [41,44], which found that product knowledge and awareness about organic food products are associated with consumers' organic buying decisions. Finally, with regard to the place of purchase, only the "farmers' market" (FARM) variable is statistically significant, as we expected. Based on the marginal effects, the results indicate that consumers who usually buy organic products at farmers' markets are about 30% more likely to purchase organic PGS products than those who usually buy organic products elsewhere.

7. Final Remarks

Although the organic food market was initially a niche market with products sold through natural food stores and direct-to-consumer markets, organic foods are now traded worldwide and sold in a wide variety of stores such as conventional grocery stores, supermarkets, and hypermarkets. The globalization of the organic food market could also be associated with the role played by the third-party assurance system. This system has represented an increase of trust in organic products worldwide; however, it has also created several problems and barriers for some categories of producers in terms of bureaucratic costs, especially in developing countries. Further, from the consumers' point of view, third-party certification implies "a shift of the credence attribute from the producer to the certifier" [75]. In this regard, several studies have demonstrated consumers' lack of confidence and skepticism about organic food labeling programs guaranteed by a third party [41,76,77].

This trend has also led organic consumers to wonder not only how their food is produced but also where it originates. The growth of organic local movements and alternative organic labeling programs appears to be the organic consumers' reaction to uncertain information about where organic food originates and how it is delivered to the market. The PGS represents an alternative labeling program for organic foods that can contribute to reducing consumer distrust by involving information and knowledge sharing as well as the participation and active involvement of stakeholders.

The present study examines PGS labeling programs by referring to one of the oldest networks that uses it: the Brazilian Rede Ecovida de Agroecologia. In addition, it is the first study in the literature to investigate the effects of a set of factors (gender, age, education, profession, area of residency, presence of children) on Brazilian consumers' buying behavior toward PGS-guaranteed organic food.

Our results indicate that 60.5% of the respondents buy organic PGS products. The findings from our probit analysis suggest that older consumers who live in rural and suburban areas and who are employed are more likely to buy organic PGS products than their counterparts. Further, our results suggest that knowledge of the PGS labeling program significantly increases the probability of purchasing organic PGS products. This is an important finding since it provides evidence that higher self-reported knowledge of the PGS labeling program increases the probability of purchasing organic PGS products. Finally, we also found that consumers who usually shop at farmers' markets for organic products are more likely to purchase organic PGS products than those who usually shop for organic products elsewhere.

In Brazil, PGS runs in parallel with organic legislation and so they are not an alternative in antithesis to to third-party guarantee systems. The success of PGS projects in Brazil shows the need to encourage such production processes that optimize results throughout the supply chain, from production to consumption. This study is the first in the literature to analyze consumer buying behavior towards organic products guaranteed by PGS. Thus, it fills a void in the organic foods academic literature by showing the potential consumer interest for PGS-guaranteed organic products. Also, given that producers and policy makers' interest is growing in relation to the promotion of participatory processes in alternative labeling programs [78], our hope is that our findings will encourage more research into PGS certification programs.

The scope of this study was limited in terms of defining the effects of sociodemographic factors, the knowledge of PGS labels, and the purchasing habits of consumer buying behavior for organic foods guaranteed by the PGS labeling program. Future research could perhaps also investigate, using different modeling approaches (e.g., ordered probit, multinomial probit), what food attributes (credence *vs*. search) affect consumer purchase behavior for organic PGS products by looking at differences across buyer types (e.g., regular *vs*. occasional buyer). Findings from these studies would help to better characterize consumer preferences for organic PGS products. Moreover, future studies should also test the robustness of our findings across different countries since this would further help us to understand the willingness of organic food consumers to accept and trust alternative quality assurance models across different contexts or cultures.

Acknowledgments

This research was partly supported by the Tyson Chair Endowment at the University of Arkansas and by a Korea University grant.

Author Contributions

This paper is the result of teamwork. Giovanna Sacchi developed the original idea, contributed to the research design and was responsible for data collection. She wrote paragraphs 2, 3, and 4. Vincenzina Caputo contributed to the data set up and data analysis. She wrote paragraphs 5 and 6. Rodolfo M. Nayga Jr. provided guidance and advice. All the authors jointly wrote paragraphs 1 and 7. All authors have read and approved the final manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

References

1. Renting, H.; Marsden, T.K.; Banks, J. Understanding alternative food networks: Exploring the role of short food supply chains in rural development. *Environ. Plan. A* **2003**, *35*, 393–411.
2. Jarosz, L. The city in the country: Growing alternative food networks in Metropolitan areas. *J. Rural Stud.* **2008**, *24*, 231–244.
3. Whatmore, S.; Stassart, P.; Renting, H. What's alternative about alternative food networks? *Environ. Plan. A* **2003**, *35*, 389–391.
4. Trobe, H.L.L.; Acott, T.G. Localising the global food system. *Int. J. Sustain. Dev. World Ecol.* **2000**, *7*, 309–320.
5. O'Hara, S.U.; Stagl, S. Global food markets and their local alternatives: A socio-ecological economic perspective. *Popul. Environ.* **2001**, *22*, 533–554.
6. Jarosz, L. Understanding agri-food networks as social relations. *Agric. Hum. Values* **2000**, *17*, 279–283.
7. Sage, C. Social embeddedness and relations of regard: Alternative "good food" networks in south-west Ireland. *J. Rural Stud.* **2003**, *19*, 47–60.
8. Carolan, M.S. Social change and the adoption and adaptation of knowledge claims: Whose truth do you trust in regard to sustainable agriculture? *Agric. Hum. Values* **2006**, *23*, 325–339.
9. Murdoch, J.; Miele, M. "Back to nature": Changing "worlds of production" in the food sector. *Sociol. Rural.* **1999**, *39*, 465–483.
10. Murdoch, J.; Marsden, T.; Banks, J. Quality, nature, and embeddedness: Some theoretical considerations in the context of the food sector. *Econ. Geogr.* **2000**, *76*, 107–125.
11. Parrott, N.; Wilson, N.; Murdoch, J. Spatializing quality: Regional protection and the alternative geography of food. *Eur. Urban Reg. Stud.* **2002**, *9*, 241–261.
12. Aprile, M.C.; Caputo, V.; Nayga, R.M., Jr. Consumers' valuation of food quality labels: The case of the European geographic indication and organic farming labels. *Int. J. Consum. Stud.* **2012**, *36*, 158–165.

13. Caputo, V.; Nayga, R.M.; Scarpa, R. Food miles or carbon emissions? Exploring labelling preference for food transport footprint with a stated choice study. *Aust. J. Agric. Resour. Econ.* **2013**, *57*, 465–482.
14. Caputo, V.; Vassilopoulos, A.; Nayga, R.M.; Canavari, M. Welfare effects of food miles labels. *J. Consum. Aff.* **2013**, *47*, 311–327.
15. Schnell, S.M. Food miles, local eating, and community supported agriculture: Putting local food in its place. *Agric. Hum. Values* **2013**, *30*, 615–628.
16. Asioli, D.; Canavari, M.; Pignatti, E.; Obermowe, T.; Sidali, K.L.; Vogt, C.; Spiller, A. Sensory experiences and expectations of italian and german organic consumers. *J. Int. Food Agribus. Mark.* **2014**, *26*, 13–27.
17. Van Loo, E.; Caputo, V.; Nayga, J.; Rodolfo, M.; Meullenet, J.-F.; Crandall, P.G.; Ricke, S.C. Effect of organic poultry purchase frequency on consumer attitudes toward organic poultry meat. *J. Food Sci.* **2010**, *75*, 384–397.
18. Schmid, O.; Hamm, U.; Richter, T.; Dahlke, A. *A Guide to Successful Marketing Initiatives*; Research Institute of Organic Agriculture: Frick, Germany, 2004.
19. Harris, P.J.C.; Browne, A.W.; Barrett, H.R.; Cadoret, K. *Facilitating the Inclusion of the Resource-Poor in Organic Production and Trade: Opportunities and Constraints Posed By Certification*; Rural Livelihoods Department, Department for International Development: London, UK, 2001.
20. Meirelles, L. *La Certificación de Productos Orgánicos—Encuentros y desencuentros*; Centro Ecológico Ipe: Lapa, Brazil, 2003. (In Spanish)
21. Milestad, R.; Darnhofer, I. Building farm resilience: The prospects and challenges of organic farming. *J. Sustain. Agric.* **2003**, *22*, 81–97.
22. Vogl, C.R.; Kilcher, L.; Schmidt, H. Are standards and regulations of organic farming moving away from small farmers' knowledge? *J. Sustain. Agric.* **2005**, *26*, 5–26.
23. Courville, S. Organic standards and certification. In *Organic Agriculture: A Global Perspective*; Kristiansen, P., Taji, A., Renagold, J., Eds.; CSIRO Publishing: New York, NY, USA, 2006; pp. 201–219.
24. Eernstman, N.; Wals, A.E.J. Jhum meets IFOAM: Introducing organic agriculture in a tribal society. *Int. J. Agric. Sustain.* **2009**, *7*, 95–106.
25. Sano, D.; Prabhakar, S.V.R.K. Some Policy suggestions for promoting organic agriculture in Asia. *J. Sustain. Agric.* **2009**, *34*, 80–98.
26. Constance, D.H.; Choi, J.Y. Overcoming the barriers to organic adoption in the United States: A look at pragmatic conventional producers in Texas. *Sustainability* **2010**, *2*, 163–188.
27. Zander, K.; Hamm, U. Consumer preferences for additional ethical attributes of organic food. *Food Qual. Prefer.* **2010**, *21*, 495–503.
28. Fonseca, M. *Alternative Certification and a Network Conformity Assessment Approach. The Organic Standard*; IFOAM: Bonn, Germany, 2004.
29. Fonseca, M.F.; Wilkinson, J.; Egelyng, H.; Mascarenhas, G. The Institutionalization of Participatory Guarantee Systems (PGS) in Brazil: Organic and Fair Trade Initiatives. In Proceedings of the 16th IFOAM Organic World Congress, Modena, Italy, 16–20 June 2008.

30. Radomsky, G.F.W. Práticas de certificação participativa na agricultura ecológica: Rede, selos e processos de inovação. *IDeAS* **2009**, *3*, 133–164. (In Portuguese)
31. Zanasi, C.; Venturi, P.; Setti, M.; Rota, C. Participative organic certification, trust and local rural communities development: The case of Rede Ecovida. *New Medit*. **2009**, *8*, 56–64.
32. Nelson, E.; Tovar, L.G.; Rindermann, R.S.; Cruz, M.Á.G. Participatory organic certification in Mexico: An alternative approach to maintaining the integrity of the organic label. *Agric*. *Hum*. *Values* **2009**, *27*, 227–237.
33. Preißel, S.; Reckling, M. Smallholder group certification in Uganda—Analysis of internal control systems in two organic export companies. *J*. *Agric*. *Rural Dev*. *Trop*. *Subtrop*. *(JARTS)* **2010**, *111*, 13–22.
34. Sacchi, G.; Zanasi, C.; Canavari, M. Modelli alternativi di garanzia della qualità dei prodotti biologici alla luce della Teoria delle Convenzioni. *Econ*. *Agro-Aliment*. **2011**, *13*, 57–80. (In Italian)
35. Wilkins, J.L.; Hillers, V.N. Influences of pesticide residue and environmental concerns on organic food preference among food cooperative members and non-members in Washington State. *J*. *Nutr*. *Educ*. **1994**, *26*, 26–33.
36. Davies, A.; Titterington, A.J.; Cochrane, C. Who buys organic food? *Br*. *Food J*. **1995**, *97*, 17–23.
37. Schifferstein, H.N.J.; Oude Ophuis, P.A.M. Health-related determinants of organic food consumption in The Netherlands. *Food Qual*. *Prefer*. **1998**, *9*, 119–133.
38. Thompson, G.D.; Kidwell, J. Explaining the choice of organic produce: Cosmetic defects, prices, and consumer preferences. *Am*. *J*. *Agric*. *Econ*. **1998**, *80*, 277–287.
39. Chinnici, G.; D'Amico, M.; Pecorino, B. A multivariate statistical analysis on the consumers of organic products. *Br*. *Food J*. **2002**, *104*, 187–199.
40. Cicia, G.; del Giudice, T.; Scarpa, R. Consumers' perception of quality in organic food. *Br*. *Food J*. **2002**, *104*, 200–213.
41. Yiridoe, E.K.; Bonti-Ankomah, S.; Martin, R.C. Comparison of consumer perceptions and preference toward organic *versus* conventionally produced foods: A review and update of the literature. *Renew*. *Agric*. *Food Syst*. **2005**, *20*, 193–205.
42. Hughner, R.S.; McDonagh, P.; Prothero, A.; Shultz, C.J.; Stanton, J. Who are organic food consumers? A compilation and review of why people purchase organic food. *J*. *Consum*. *Behav*. **2007**, *6*, 94–110.
43. Bellows, A.C.; Onyango, B.; Diamond, A.; Hallman, W.K. Understanding consumer interest in organics: Production values *vs*. purchasing behaviour. *J*. *Agric*. *Food Ind*. *Organ*. **2008**, *6*, 1–28.
44. Gracia, A.; de Magistris, T. The demand for organic foods in the South of Italy: A discrete choice model. *Food Policy* **2008**, *33*, 386–396.
45. Mintel. *Organic Food—US*; Mintel: London, UK, 2008.
46. Van Loo, E.J.; Caputo, V.; Nayga, R.M., Jr.; Meullenet, J.-F.; Ricke, S.C. Consumers' willingness to pay for organic chicken breast: Evidence from choice experiment. *Food Qual*. *Prefer*.**2011**, *22*, 603–613.
47. Nayga, R.M., Jr. Sociodemographic Influences on Consumer Concern for Food Safety: The Case of Irradiation, Antibiotics, Hormones, and Pesticides. *Rev*. *Agric*. *Econ*. **1996**, *18*, 467–475.

48. Thévenot, L. Des marchés aux normes. In *La Grande Transformation de L'agriculture: Lectures Conventionnalistes et Régulationnistes*; Allaire, G., Boyer, R., Eds.; Economica & INRA: Paris, France, 1995; pp. 33–51. (In French)
49. Jaffee, D. Fair Trade Standards, Corporate Participation, and Social Movement Responses in the United States. *J. Bus. Ethics* **2010**, *92*, 267–285.
50. Raynolds, L.T. The globalization of organic agro-food networks. *World Dev.* **2004**, *32*, 725–743.
51. Hatanaka, M. McSustainability and McJustice: Certification, alternative food and agriculture, and social change. *Sustainability* **2014**, *6*, 8092–8112.
52. Poisot, A.-S. *Summary Analysis of Codes, Guidelines, and Standards Related to Good Agricultural Practices*; FAO GAP Working Paper Series 2; FAO Agriculture Department: Rome, Italy, 2003.
53. Sylvander, B. Le rôle de la certification dans les changements de régime de coordination: l'agriculture biologique, du réseau à l'industrie. *Rev. Écon. Ind.* **1997**, *80*, 47–66. (In French)
54. May, C. *PGS Guidelines: How Participatory Guarantee Systems Can Develop and Function*; IFOAM: Bonn, Germany, 2008
55. International Federation of Agriculture Movements (IFOAM). PGS Map 2015. Available online: http://www.ifoam.org/en/pgs-map (accessed on 18 April 2015).
56. International Federation of Agriculture Movements (IFOAM). Global online PGS database 2015. Available online: http://www.ifoam.org/es/global-online-pgs-database (accessed on 18 April 2015).
57. Raynolds, L.T. Re-embedding global agriculture: The international organic and fair trade movements. *Agric. Hum. Values* **2000**, *17*, 297–309.
58. International Fund for Agricultural Development (IFAD). *The Adoption of Organic Agriculture among Small Farmers in Latin America and the Caribbean*; Technical Report; IFAD: Rome, Italy, 2003.
59. Meirelles, L. *Regulation of the Participatory Guarantee Systems in Brazil: A Case Study*; IFOAM: Bonn, Germany, 2010.
60. Ministério da Agricultura, Cadastro nacional 2015. Available online: http://www.agricultura.gov.br/desenvolvimento-sustentavel/organicos/cadastro-nacional (accessed on 1 March 2015).
61. Rede Ecovida. *Uma Identidade que se Constrói em Rede*; Caderno de Formação 01, Rede Ecovida de Agroecologia: Lapa, PR, Brazil, 2007.
62. International Federation of Agriculture Movements (IFOAM). *Participatory Guarantee Systems: Case Studies from Brazil, India, New Zealand, USA*; Technical Report; IFOAM: Bonn, Germany, 2003.
63. Santacoloma, P. *Organic Certification Schemes—Managerial Skills and Associated Costs: Synthesis Report from Case Studies in the Rice and Vegetable Sectors*; FAO: Rome, Italy, 2007.
64. Grebitus, C.; Colson, G.; Menapace, L.; Bruhn, M. Who cares about food origin? A comparison of hypothetical survey responses and actual shopping behavior. In Proceedings of the Annual Meeting of Agricultural & Applied Economics Association (AAEA), Denver, CO, USA, 25–27 July 2010.
65. Menapace, L.; Colson, G.; Grebitus, C.; Facendola, M. Consumers' preferences for geographical origin labels: Evidence from the Canadian olive oil market. *Eur. Rev. Agric. Econ.* **2011**, *38*, 193–212.
66. Greene, W.H. *Econometric Analysis*, 4th ed.; John Wiley and Sons: Hoboken, NJ, USA, 2000.

67. Govindasamy, R.; Italia, J. Predicting willingness-to-pay a premium for organically grown fresh produce. *J. Food Distrib. Res.* **1999**, *30*, 44–53.
68. Zhang, F.; Epperson, J.E.; Huang, C.L.; Houston, J.E. Organic price premiums paid for fresh tomatoes and apples by U.S. households: Evidence from Nielsen Homescan Data. *J. Food Distrib. Res.* **2009**, *40*, 105–114.
69. Roddy, G.; Cowan, C.; Hutchinson, G. Organic food—A description of the Irish market. *Br. Food J.* **1994**, *96*, 3–10.
70. Food Marketing Institute (FMI). *The Organic Shoppers May Not Be Who You Think They Are*; Food Marketing Institute Report; FMI: Washington, DC, USA, 2001.
71. Food Marketing Institute (FMI); American Meat Institute (AMI). *The Power of Meat—An In-Depth Look at Meat through the Shoppers' Eyes*; Joint Report; AMI/FMI: Arlington, WA, USA, 2010.
72. Byrne, P.J.; Toensmeyer, U.C.; German, C.L.; Muller, H.R. Evaluation of consumer attitudes towards organic produce in Delaware and the Delmarva region. *J. Food Distrib. Res.* **1992**, *23*, 29–44.
73. Dimitri, C.; Dettmann, R.L. Organic food consumers: What do we really know about them? *Br. Food J.* **2012**, *114*, 1157–1183.
74. Thompson, G.D. Consumer demand for organic foods: What we know and what we need to know. *Am. J. Agric. Econ.* **1998**, *80*, 1113–1118.
75. Janssen, M.; Hamm, U. The mandatory EU logo for organic food: Consumer perceptions. *Br. Food J.* **2012**, *114*, 335–352.
76. Aarset, B.; Beckmann, S.; Bigne, E.; Beveridge, M.; Bjorndal, T.; Bunting, J.; McDonagh, P.; Mariojouls, C.; Muir, J.; Prothero, A.; *et al*. The European consumers' understanding and perceptions of the "organic" food regime. *Br. Food J.* **2004**, *106*, 93–105.
77. Eden, S., Bear, C.; Walker, G. The sceptical consumer? Exploring views about food assurance. *Food Policy* **2008**, *33*, 624–630.
78. European Comission. *A Review of the European Policy on Organic Agriculture—Public Consultation, 15/01/2013-10/04/2013*; European Commission: Brussels, Belgium, 2013.