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The Socioeconomic Drivers of Ethical Food Consumption in Ecuador: A Quantitative Analysis

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Abstract: A significant body of research has analyzed the socioeconomic determinants of ethical consumption, nevertheless, most of those studies have been conducted in high-income countries. With data from a survey with national representation ($n = 11,526$), this study aimed at analyzing the socioeconomic factors shaping decisions of ethical consumption in Ecuador, a middle-income country, where agroecological production has been proposed as a strategy to reduce rural poverty while promoting sustainable agriculture. Price is the principal purchasing criterion for 78% of the households in the sample, while ecological/organic label and support to local farmers account for 11 and 3% of the sample, respectively. Brand is the principal buying criterion for 8% of the sample. Consistent with prior research, the results of a multinomial probit regression show that ecological consumers are statistically likely to be wealthier and more educated than their price-driven counterparts. Contrary to the findings of previous research in Ecuador, ecological consumers do exhibit environmental awareness. Those with support to local producers as their main purchasing driver are also featured by high levels of wealth and education, nevertheless, they are not as concerned about the environment as their ecological counterparts. The implications of these findings for policy are explored in the Discussion section.

Keywords: ethical consumption; ecological consumers; support to local farmers; multinomial probit; Ecuador



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1. Introduction

The industrialization of agriculture and the globalization of food systems are associated with several environmental problems, including deforestation, desertification, soil erosion, pollution of soil and water bodies and biodiversity loss [1–4]. Furthermore, agricultural intensification is also related to negative social outcomes, such as increased rural poverty, income inequality, higher unemployment rates, and weakening of social cohesion in rural areas, among others [5,6]. Therefore, there is a growing interest in ethical issues in agriculture, with consumers paying more attention to the environmental and social effects of food production [7–9].

For such *ethical consumers* buying food goes beyond a cost-benefit analysis, as they are concerned about aspects such as the environmental effects of agriculture, seasonality of production, origin, the rights of workers, support to local farmers, and animal welfare, among others [7,10–12]. In this sense, Long and Murray [13] define *ethical consumption* as “the act of purchasing products that have additional attributes (e.g., social, environmental, political, health, etc.) in addition to their immediate use value, to signify commitment to their values and/or to support changes to unjust market practices”.

Much has been written about the drivers of ethical consumption. Nevertheless, such research has been mainly conducted in high income countries. Thus, there is a need to conduct research in developing countries, where consumers’ motivations/resistance to engage in ethical food consumption may differ from those in more developed

countries [14–17]. To illustrate, while 87% of all organic producers are settled in developing countries [18], most of the production is export-oriented, with high prices being a constraint for the local population to consume certified food [19,20]. Alternatively, in many Latin-American countries, social movements and farmers' organizations have been relatively successful in creating agroecological farmers' markets as spaces where local (small-scale) farmers can directly sell their produce and consumers can access agroecological food at affordable prices [21,22] so these initiatives are expected to have positive environmental and social effects. Prior studies have shown, however, that consumers of these kinds of markets belong to a selective group of wealthy and well-educated individuals [23,24]. While individualistic reasons (health) are the main motivation to consume ecological food [23,25], other studies provide evidence that food purchasing decisions are—to a considerable extent—driven by altruistic motivations (environmental awareness and support to local farmers) [10,14].

With this background, this paper uses multivariate techniques to determine the socioeconomic factors shaping ethical consumption—here proxied as the likelihoods of having either ecological label or support to local farmers as the principal purchasing criteria—in Ecuador, a middle-income country, where agroecological production and farmers' markets have been promoted by governmental and non-governmental organizations as a way to increase the income of small-scale farmers while promoting sustainable food production [14]. This work distinguishes itself from previous research in two ways: (i) it examines the socioeconomic factors shaping ethical consumption in a developing country, and (ii) it uses a multinomial probit regression to statistically determine the differences between ethical consumers and an extensive control group of people for whom price is the principal factor to consider when buying food. As for the rest of this paper, it is structured as follows: Section 2 presents the theoretical framework, while Section 3 introduces the context of ethical consumption in Ecuador. The methodology is described in Section 4 and the Results are presented in Section 5. Finally, Section 6 discusses the main findings.

2. Theoretical Framework

As already stated in the text, ethical consumption is driven by environmental and social concerns [11,26], nevertheless, economic and social factors, together with information, play an important role in shaping decisions concerning ethical consumption. In this sense, Linders [27] proposed that ethical consumption in Latin-American countries is influenced by several dimensions, including the individual's *social environment*, *education*, *economic status*, *cultural background* and *information*. Such dimensions have been reported to have significant effects on ethical consumption in previous research conducted in Ecuador [14,23], therefore we find them suitable to be used as predictors to explain ethical consumption decisions in Ecuador.

In the first case, the individual's *social environment*, prior research [28,29] showed that people are more likely to adopt ethical consumption if others around them do too.

People with more *education* are in a better position to acquire and process information about environmental and social issues related to agricultural production, and so are expected to be more likely to engage in ethical consumption [30,31]. Precisely, it is held that providing people with *information* about both the negative effects of conventional agriculture and the social and environmental benefits of choosing ethical products will increase ethical consumption among the population since, for instance, an individual who is aware of these issues will try to avoid taking part in the destruction of nature and the impoverishment of local farmers [28]. Many individuals, however, may be well aware of the pernicious effects of conventional agriculture and, therefore, have environmental and social concerns but lack the resources to pay an extra price for ecological food to preserve the environment or to buy fair trade products to support (small-scale) farmers [15,32], therefore *economic status* also plays a role in shaping food shopping decisions. In this sense, it is worth noting that prior research in developing countries [17,25,33] has shown that

high prices of ethical products is the principal factor preventing people from engaging in ethical consumption.

Cultural context and identity are also expected to influence ethical consumption [15]. For instance, Francois-Lecompte and Roberts [34] argued that French ethical consumers differ from their North American counterparts in that the latter exhibit a more individualistic approach, with French consumers more likely to take into account society's well-being in their shopping decisions. Similarly, prior research [31,35,36] reported that ethnicity plays a role on ethical consumption decisions. With this theoretical framework, in Section 5 we use multivariate techniques to assess the socioeconomic drivers of ethical consumption in Ecuador.

3. The Context of Ethical Consumption in Ecuador

Ecuador is a middle-income country located in South America. The agricultural sector accounts for 8% of the country's GDP (Banco Central del Ecuador, 2019). Agriculture is the main economic activity for around 48% of Ecuador's rural population, with earnings from agriculture accounting, on average, for around 40% of rural households' income [37–39]. Conventional agriculture, however, has been reported to have negative environmental effects, including the advance of the agricultural frontier and non-point source pollution [40]. Around 12,000 farmers and 50,000 ha are certified as organic, with banana, cacao, and coffee the principal certified crops [41], nevertheless, organic production is principally export-oriented.

Since the 1980s, several professional, enthusiast, NGO, as well as indigenous and peasant movements have challenged the Green Revolution model and promoted agroecology and traditional agroecosystems [19]. Agroecological production was not only a response to conventional agriculture but also a critique to the organic movement, which had done little to limit the participation of large companies in the organic market and to protect small-scale farmers, with costs of organic certification being prohibitive for small-scale family farms [19,23].

Although organic products can be found in some supermarkets and specialized stores, their supply is still low and their prices unaffordable for most Ecuadorians [42]. Most agroecological consumption takes place in farmers' markets, promoted by governmental (principally at local and regional levels) and nongovernmental organizations as a strategy to foster healthy eating among the population while supporting small-scale and poor farmers [23]. In this sense, research supported by Heifer International found that there are 210 agroecological fairs regularly functioning throughout Ecuador, with most of the farmers selling their produce in such fairs having less than 1 ha of land [43]. In general, the transparency of the production process and the quality of the produce sold in agroecological fairs are guaranteed by a Participative Guarantee System (PGS), based on relationships of trust between producers and consumers [14].

In terms of the profile of ethical consumers in Ecuador, previous research [14,44] has shown that, as is often reported in the literature, they are wealthier and better educated than the average population. Nevertheless, others reported that agroecological produce is also consumed by poor households. For instance, Castillo Piedra [45] reported the existence of ethical consumer associations in poor neighborhoods of Quito, the capital of Ecuador. Beyond education and wealth, Vasco et al. [23] reported that expenditure on agroecological farmers' markets is higher for individuals who are single, practice sport regularly, belong to a social/environmental organization, and are committed in supporting local farmers.

Concerning the motivations to engage in ethical consumption, in a study conducted in three Andean towns of Ecuador, Paredes et al. [10] developed an index to measure ethical consumption based on three dimensions: direct purchase from farmers, procurement of food produced with agroecological methods, and consumption of Andean grains. The authors found that direct purchase from producer and preference for agroecological food ranked higher for consumers of agroecological farmers' markets than for the overall popu-

lation. Similarly, April-Lalonde et al. [14] found that community solidarity with farmers is a key determinant to purchase agroecological food in farmers' markets.

4. Methodology

4.1. The Data

Data came from National Multipurpose Household Survey-2019 (NMHS-2019), carried out by the National Institute of Statistics—Instituto Nacional de Estadísticas y Censos—[46]. The survey is conducted on a yearly basis to evaluate the fulfillment of the objectives of the National Development Plan and gathers information about housing, demographic characteristics of health, education, household assets, use of time, and use of technology [47]. Particularly, the questionnaire of the NMHS-2019 contained a module on environmental information and ethical consumption of households for a total of 11,526 households (The survey data as well as methodological details can be found at <https://www.ecuadorencifras.gob.ec/encuesta-nacional-multiproposito-de-hogares-2019/>, accessed on 13 September 2022). Concerning ethical food consumption, the questionnaire asked the respondent about the principal criterion to purchase food, with price, organic/ecological label, support to local farmers, and brand as possible choices. With this information, in the following section we developed an econometric model to establish the socioeconomic factors shaping ethical consumption, here proxied as having either organic/ecological production or support to local farmers as the principal criteria to purchase food.

4.2. Econometric Approach

We relied on a multinomial probit model to estimate the likelihood for a household to have either the price of the product, organic/ecological label, support to local farmers, or brand as the principal motivation to purchase food. We preferred using this approach as it—as distinct from other methodologies, i.e., multinomial logit models—is robust to independent irrelevant alternatives (IIA) [48]. Thus, we used a model of the following form:

$$P_i^c = \Pr(\text{MOTIVATION} = c | X_i) = (X_i \beta_i^c) \quad (1)$$

where P^c is the probability that household i to purchase food principally motivated by one of the four categories c that were described above, X is a vector of predictors to be described below, and β is a vector of coefficients the size and direction of which are to be determined. Given that the coefficients of a multilevel probit model cannot be interpreted directly, we estimated and reported marginal effects for each dependent variable.

The list of predictors used in the analysis is presented and described in Table 1. Demographic predictors included the age and sex of the household head as well as the household size and the number of children (individuals younger than 12) in a household. Consistent with the theoretical framework presented in Section 2, we divided predictors into *social environment*, *education*, *economic status*, *cultural background*, and *information* predictors. Hence, to control for the *social environment* an individual is embedded in we included a binary variable taking the value of 1 if the household head is part of an environmental social organization. Here, it is expected that membership in such organizations increases the likelihood of consuming food that is either ecologically or locally produced [23]. In terms of *education*, the specification included a set of binary variables taking the value of 1 if the household head had either no education, secondary education, higher education, or postgraduate education, respectively. The group of individuals with primary education was used as the comparison group (=0). It is expected that individuals with higher levels of education are more likely to engage in ethical consumption [23,31]. We controlled for household's *economic status* by including a wealth index, of which the first principal component is possession of TV, computer, smartphone, refrigerator, gas stove, air conditioning system, motorcycle and auto (The first principal component accounted for 29% of the variance in the sample). Here, it is expected that wealthier individuals are more likely to adopt ethical consumption as they have the means to afford it [14,25].

Table 1. Variables and definitions.

Variable	Definition
<i>Dependent variables</i>	
Price	Principal purchasing criterion is price (0/1)
Ecological/organic	Principal purchasing criterion is ecological/organic label (0/1)
Support local farmers	Principal purchasing criterion is support to local farmers (0/1)
Brand	Principal purchasing criterion is brand (0/1)
<i>Demographic predictors</i>	
Age	Age of household head
Woman	Household head is a woman (0/1)
Household size	Number of household members
Children	Number of household members younger than 12 years
<i>Social environment</i>	
Organization	Household head belongs to a social/environmental organization (0/1)
<i>Education</i>	
No education	Household head has no formal education (0/1)
Primary education (0/1)	Household head has completed primary education (0/1)
Secondary education (0/1)	Household head has completed secondary education (0/1)
University degree (0/1)	Household head holds a university degree (0/1)
Postgraduate education (0/1)	Household head has postgraduate education (0/1)
<i>Economic status</i>	
Wealth index	Wealth index constructed upon possession of assets
<i>Cultural background</i>	
Mestizo (0/1)	Household head identifies himself/herself as Mestizo (0/1)
Indigenous (0/1)	Household head identifies himself/herself as Indigenous (0/1)
Afro Ecuadorian (0/1)	Household head identifies himself/herself as Afro Ecuadorian (0/1)
Montubio (0/1)	Household head identifies himself/herself as Montubio (0/1)
White (0/1)	Household head identifies himself/herself as White (0/1)
<i>Information</i>	
Internet (0/1)	Household has access to internet (0/1)
Social networks (0/1)	Household head has social networks (0/1)
<i>Environmental concern and lifestyle</i>	
Bike as transport (0/1)	Household head uses a bike as a means of transport (0/1)
Sport (0/1)	Household head exercises regularly (0/1)
Environmental volunteering (0/1)	Household head has participated in environmental volunteering (0/1)
Waste sorting (0/1)	Household sorts waste (0/1)
Reusable bag (0/1)	Household uses reusable bag
<i>Geographical predictors</i>	
Rural (0/1)	Household is located in a rural area (0/1)
Sierra (0/1)	Household is located in the Sierra (0/1)
Costa (0/1)	Household is located in the Costa (0/1)
Amazon (0/1)	Household is located in the Amazon (0/1)

Note: (0/1) identifies binary variables.

To control for the effect of cultural background on the dependent variables under study, we used five binary variables taking the value of 1 if the household head considers himself/herself as either indigenous, Afro-Ecuadorian, Montubio (The Montubio are an ethnic group formed of campesinos living exclusively in the Ecuadorian littoral) or white, with the group of people who define themselves as mestizo the reference group. As stated earlier in Section 2, previous studies have reported that ethnicity exerts a significant effect on the likelihood of an individual to adopt ethical consumption [35,36]. Two dummy variables taking the value of 1 if the respondent has internet and social networks, respectively, are used as proxies of *information* in the model. In this case, it is expected that individuals with internet and social networks have more access to information about ethical consumption and to, for instance, schedules and locations where agroecological fairs take place [45].

We also included a set of binary variables inquiring if the respondent exercises regularly, uses a bike as a means of transport, sorts their waste and uses reusable bags to control for the effect of environmental concern and lifestyle on the dependent variables

under study. Regarding locational predictors, a dummy taking indicating whether the household is in rural areas or not is added to the specification. Finally, two dummies taking the value of 1 if the household is located either in the Costa or the Amazon regions of Ecuador are included in the model. The group of households located in the Sierra are used as the comparison group.

5. Results

5.1. Descriptive Analysis

Table 2 shows the descriptive statistics of the dependent and independent variables. For the large majority of respondents (78%) the principal criterion to purchase food is price. Second in importance is ecological/organic label which is the most important criterion for 11% of the sample. The brand of the product important for 8% of the sample, while only 3% of the respondents declared that support to local farmers was their principal criterion to buy food.

Table 2. Descriptive statistics and comparison of means.

Variable	Overall	Price	Organic/ Ecological	Support Local Farmers	Brand
<i>Dependent variables</i>					
Price (0/1)	0.78	-	-	-	-
Ecological/organic (0/1)	0.11	-	-	-	-
Support local farmers (0/1)	0.03	-	-	-	-
Brand (0/1)	0.08	-	-	-	-
<i>Demographic predictors</i>					
Age	52.91	52.63 ^a	53.91 ^a	52.55 ^a	53.30 ^a
Woman (0/1)	0.28	0.28 ^a	0.29 ^a	0.25 ^a	0.28 ^a
Household size	3.54	3.57 ^a	3.44 ^a	3.62 ^a	3.35 ^a
Children	0.72	0.75 ^b	0.67 ^{ab}	0.72 ^b	0.55 ^a
<i>Social environment</i>					
Organization (0/1)	0.06	0.06 ^a	0.10 ^b	0.10 ^b	0.09 ^b
<i>Education</i>					
No education (0/1)	0.07	0.08 ^b	0.03 ^a	0.03 ^a	0.03 ^a
Primary education (0/1)	0.45	0.47 ^c	0.38 ^b	0.36 ^{ab}	0.30 ^a
Secondary education (0/1)	0.32	0.32 ^a	0.32 ^a	0.32 ^a	0.36 ^a
University degree (0/1)	0.15	0.12 ^a	0.23 ^b	0.26 ^b	0.28 ^b
Postgraduate education (0/1)	0.01	0.01 ^a	0.04 ^b	0.03 ^b	0.03 ^b
<i>Economic status</i>					
Wealth index	−0.00	−0.180 ^a	0.44 ^b	0.64 ^c	1.09 ^d
<i>Cultural background</i>					
Mestizo (0/1)	0.79	0.78 ^a	0.82 ^{ab}	0.84 ^b	0.84 ^{ab}
Indigenous (0/1)	0.08	0.08 ^b	0.08 ^b	0.05 ^{ab}	0.02 ^a
Afro Ecuadorian (0/1)	0.05	0.05 ^a	0.04 ^a	0.04 ^a	0.05 ^a
Montubio (0/1)	0.06	0.07 ^b	0.03 ^a	0.04 ^{ab}	0.04 ^{ab}
White (0/1)	0.02	0.02 ^a	0.03 ^a	0.03 ^a	0.05 ^a
<i>Information</i>					
Internet (0/1)	0.74	0.72 ^a	0.80 ^b	0.83 ^b	0.85 ^b
Social networks (0/1)	0.75	0.73 ^a	0.87 ^a	0.76 ^a	0.80 ^a
<i>Environmental concern and lifestyle</i>					
Bike as transport (0/1)	0.04	0.04 ^{ab}	0.04 ^{ab}	0.05 ^b	0.03 ^a
Sport (0/1)	0.45	0.42 ^a	0.56 ^b	0.53 ^b	0.54 ^b
Environmental volunteering (0/1)	0.08	0.07 ^a	0.12 ^b	0.11 ^b	0.10 ^{ab}
Waste sorting (0/1)	0.44	0.42 ^b	0.59 ^c	0.46 ^b	0.34 ^a
Reusable bag (0/1)	0.25	0.23 ^a	0.34 ^b	0.35 ^b	0.26 ^a
<i>Geographical predictors</i>					
Rural (0/1)	0.38	0.40 ^c	0.38 ^c	0.27 ^b	0.18 ^a
Sierra (0/1)	0.44	0.41 ^a	0.64 ^c	0.53 ^b	0.43 ^a
Costa (0/1)	0.47	0.50 ^c	0.28 ^a	0.39 ^b	0.50 ^c
Amazon (0/1)	0.09	0.09 ^a	0.08 ^a	0.08 ^a	0.07 ^a

Note: (0/1) identifies binary variables. Values followed by the same letter are not significantly different from each other ($p \leq 0.05$).

Concerning independent variables, the mean values for each purchasing criterion are compared using one-way ANOVA and pairwise comparison of means. Values followed by the same letter are not significantly different from each other ($p \leq 0.05$). No significant differences were found across purchasing criteria with regards to age and sex of the head of the house, as well as for household size. Nevertheless, respondents whose principal criterion to buy food is the brand of the product have fewer children than the rest of the sample. Regarding *social environment*, comparatively, fewer individuals for whom price is the principal purchasing criteria are part of a social environmental organization.

In terms of *education*, it is worth noting that those who favor price as a buying criterion have lower education levels than the rest of the respondents, with 8% of them having no education and 47% having completed only primary education. In contrast, an important share of those who buy food because of either ecological/organic label, support to farmers, and brand (23, 26, and 28%, respectively) held a university degree. Similarly, comparatively larger shares of respondents in the latter groups have postgraduate education. Concerning households' *economic status*, while it is difficult to interpret the wealth index, the negative sign for the price category may indicate that individuals in this group are the poorest in the sample in terms of the assets upon which the index was constructed. In contrast, those who prioritize the brand of a product over the other criteria are the wealthiest in the sample.

Moving on to *cultural background* variables, fewer mestizo households (79%) have price as the principal buying criterion. Instead, comparatively more mestizo households have support to local farmers as the principal buying criteria. Only 2% of the indigenous households in the sample buy food driven by the brand of the product, while comparatively more Montubio people (6%) favor price as the main purchasing criteria. No statistical differences across criteria were found for Afro-Ecuadorian and white respondents. Regarding *information*, comparatively fewer buyers who value price more than any other criteria have access to internet (72%). No significant differences across criteria were found for use of social networks.

Regarding environmental concern and lifestyle predictors, comparatively, a smaller fraction of respondents favoring brand over other criteria (3%) use a bike as a transport mode, while a larger share of those who prioritize supporting local farmers (5%) use a bike as a means of transport. A smaller proportion of the respondents who have price as the principal buying criteria (42%) exercise regularly compared to the rest of respondents in the sample. Comparatively, more respondents who favor ecological label and support to local farmers (12 and 11%, respectively) have participated in some kind environmental volunteering than those who give more value to price (7%). The share of households that sort waste is statistically larger for households preferring ecological/organic food (59%) than for the rest of the sample, with the smallest share for those giving more value to brand (34%). The share of respondents who use reusable bags is statistically larger for those giving more value to ecological/organic label and support to local producers (34 and 35%, respectively).

With regards to *geographical predictors*, only 18% of those who attribute more importance to brand than other criteria reside in rural areas, while 40% of the households for whom price is the principal buying criteria are located in rural areas. Larger shares of respondents who give more value to ecological/organic label and support to local farmers live in the Sierra (64 and 53%, respectively), compared to the other geographical regions. In contrast, comparatively larger proportions of those who have price and brand as the principal purchasing criteria reside in the Costa (50% in both cases). No statistical differences were found across criteria for households located in the Amazon. In the following section, we incorporate multivariate analysis to disentangle the effect of each predictor on the outcome variables under study.

5.2. Multivariate Results

In Table 3, we present the results of a multinomial probit, where the category price (the largest in the sample) is used as the reference group. The significant predictors for each dependent variable are reported below.

Table 3. Multinomial probit model of food purchasing criteria among Ecuadorian buyers (marginal effects).

Variable	Price	Ecological/ Organic	Support Local Farmers	Brand
<i>Demographic predictors</i>				
Age	0.000	0.001	0.000	0.002
Age square	−0.000	−0.000	−0.000	−0.000
Woman (0/1)	0.004	0.005	−0.003	−0.005
Household size	0.014 ***	−0.008 ***	−0.000	−0.005 ***
Children	−0.004	0.010 **	0.001	−0.006 *
<i>Social environment</i>				
Organization (0/1)	−0.036 **	0.008	0.007	0.019
<i>Education</i>				
No education (0/1)	0.064 ***	−0.033 ***	−0.014 ***	−0.015
Secondary education (0/1)	−0.029 ***	0.022 ***	−0.000	0.007
University degree (0/1)	−0.088 ***	0.057 ***	0.012 **	0.019 **
Postgraduate education (0/1)	−0.166 ***	0.123 ***	0.015	0.027
<i>Economic status</i>				
Wealth index	−0.028 ***	0.007 ***	0.003 ***	0.017 ***
<i>Cultural background</i>				
Indigenous (0/1)	0.025	0.005	−0.003	−0.027 ***
Afro Ecuadorian (0/1)	−0.020	0.015	−0.005	0.010
Montubio (0/1)	0.005	−0.013	0.001	0.006
White (0/1)	−0.037	0.011	0.005	0.020
<i>Information</i>				
Internet (0/1)	−0.042 ***	0.017 **	0.007	0.017 **
Social networks (0/1)	0.005	0.001	0.005	−0.001
<i>Environmental concern and lifestyle</i>				
Bike as transport (0/1)	−0.015	0.013	0.017 *	−0.015
Exercise (0/1)	−0.037 ***	0.026 ***	−0.000	0.011 **
Environmental volunteering (0/1)	−0.041 **	0.024 **	0.003	0.012
Waste sorting (0/1)	−0.045 ***	0.050 ***	0.004	−0.008
Reusable bag (0/1)	−0.041 ***	0.018 ***	0.010 ***	0.012 *
<i>Geographical predictors</i>				
Rural (0/1)	0.019 ***	0.014 **	−0.007 ***	−0.026 ***
Costa (0/1)	0.042 ***	−0.049 ***	−0.004	0.011 **
Amazon (0/1)	0.019	−0.036 ***	0.001	0.016
Number of observations	11,526			
Wald χ^2	1009 ***			

Note: *, ** and *** stand for significance at the 0.1, 0.05, and 0.01 levels, respectively. (0/1) identifies dummy variables.

The results show that each new household member increases the likelihood of prioritizing price as a purchasing criterion by 1.4%. Concerning *social environment*, belonging to a social environmental organization reduces by 3.6% the likelihood of favoring price as the principal buying criteria. Overall, the results show that there is a negative correlation between having price as the main purchasing criterion and the education level of the household head. Having a head with no education increases the likelihood of favoring price over other criteria by 6.4%, compared to their peers with primary education. In contrast, having a head with secondary, university and postgraduate education reduces such a likelihood by 2.9, 8.8 and 16.6%, respectively. As expected, there is a negative correlation between ranking price as the main criterion and wealth.

Having internet reduces the probability of focusing on price as the main purchasing driver by 4.2%. Similarly, doing exercise regularly reduces the likelihood of having price as the principal buying criterion by 3.7%. Predictors accounting for environmental concern are negatively correlated with the dependent variable under study. Participating in environmental volunteering, sorting waste, and using reusable bags reduces the likelihood of preferring buying cheap food by 3.7, 4.1 and 4.5%, respectively. Concerning geographical variables, residing in both rural areas and the Costa increases the probability of having price as the principal purchasing criterion by 1.9 and 4.2%, respectively.

As for ecological consumption, it is negatively correlated with household size but positively correlated with the number of children in the household. The likelihood of consuming food because it is ecological is reduced 0.8% for each new household member but increases by 1% for each child in the household. Contrary to what is reported for the price criterion, the likelihood of having ecological/organic label as the principal purchasing criterion is positively correlated with education. Such a likelihood increases by 2.2, 5.7 and 12.3% for households with heads having secondary, university, and postgraduate education, in each case. In contrast, the odds of favoring ecological label over other criteria is reduced by 3.3% for households having heads with no education.

With regard to information, households with internet are 1.7% more likely to have ecological/organic label as their principal purchasing driver. Exercising regularly increases the likelihood of purchasing ecological food by 2.6%. As expected, all the environmental concern predictors are positively correlated with the likelihood of prioritizing ecological food. Engaging in environmental volunteering, sorting waste, and using reusable bags increase the likelihood of having ecological/organic label as the main purchasing driver by 2.4, 5 and 1.8%, respectively. In terms of *geographical predictors*, the odds of favoring ecological/organic label over the rest of criteria is 1.4% higher in rural areas. Similarly, the consumption of ecological food is higher in the Sierra. Residing in the Costa and the Amazon reduces the likelihood for a household to prefer ecological food by 4.9 and 3.6% respectively.

Moving on to the support to local farmers, the results show that the likelihood of purchasing food with the aim of supporting local producers drops by 1.4% for households with heads with no education, compared to those who have completed primary education. In contrast, households with heads holding a university degree are 1.2% more likely to have support to local farmers as their main purchasing driver. As is the case for ecological/organic criterion, the wealthier the household, the higher the probability for it to focus on supporting local farmers when buying food. In terms of environmental concern, only the dummy accounting for use reusable bags is positively correlated with the likelihood of having support to local farmers as the main buying criterion. With respect to *geographical predictors*, households residing in rural areas are 0.7% less likely to favor support to local producers as the main buying criterion.

Regarding brand, each new household member reduces the likelihood of having brand as the main purchasing criterion by 0.5%. Similarly, households with heads holding a university degree are 1.9% more likely to buy food because of its brand. Such a likelihood is also positively correlated with wealth. Concerning *cultural background*, indigenous households are 2.7% less likely to have brand as the main buying driver. In terms of *information*, access to internet increases the likelihood of prioritizing brand as a buying criterion by 1.7%. Persons who exercise regularly are 1.1% more likely to give more value to brand than to other criteria. Concerning geographical variables, the likelihood of having brand as the main criterion to buy food is 2.6% lower in rural areas than it is in urban areas and 1.1% higher in the Costa than it is in the Sierra.

6. Discussion

Our results show that price is the principal purchasing criterion for almost four in every five Ecuadorian households. It is not surprising that these kinds of households rank the cost of food over any other buying criteria, as they have more members to feed, are poor,

and have low education levels. Such households also exhibit low levels of environmental concern and are more likely to be found in rural areas and in the Costa region.

Ecological/organic label is the principal buying driver for 11% of the households in the sample. This figure is almost twice as high as that reported by Andrade Ortiz and Flores [49] (5.2%) in the late 2000s, which reflects an increase in the amount of people consuming ecological food in Ecuador and a strong awareness-raising process among Ecuadorian citizens concerning ethical consumption [10]. Our results are consistent with prior research in Ecuador [14,23,44] and other developing countries [25,50,51] in that consumption of ecological food is higher among wealthy and well-educated households. As distinct from all the other purchasing criteria, these kinds of households demonstrate high levels of environmental concern as they more often participate in environmental volunteering, sort waste, and use reusable bags. These findings contradict those of prior research in Ecuador [23], reporting that ecological consumption is principally driven by egoistic motivations (i.e., health), with altruistic motivations (i.e., environmental concern) unimportant in making shopping decisions. Most ecological consumers reside in the Sierra region, which is not surprising since prior research [43] reported that around 73% of the agroecological markets in Ecuador are located in the Sierra. An interesting finding is that the likelihood of preferring ecological food is higher in rural areas. This contradicts previous evidence suggesting that urbanites are more likely to consume ecological food as it is more available in urban than rural areas [52]. A possible explanation is that, in the case of Ecuador, NGOs, as well as peasant and indigenous movements, have also promoted agroecological fairs in rural areas [19,42]. It is also possible that people in rural areas know more about the way in which conventional food is produced and hence prefer consuming ecological products [53,54].

Support to local producers is the least important criterion in food purchasing decisions. Only 3% of the sample have support to local farmers as their main purchasing driver. Such a figure is consistent with that presented by Vasco et al. [55] (2.8%) for consumers of agroecological fairs in Quito, the capital of Ecuador. Like those in the ecological/organic criterion, people in this group are better-off and well educated, although the effect of education is less powerful in terms of magnitude and significance. Those focused on supporting local farmers do not exercise regularly, which likely reflects that they may not be as concerned about health as ecological consumers. An important finding is that consumers with support to local farmers as their main purchasing driver are not as concerned for the environment as ecological consumers since they do not statistically differ from those prioritizing price in terms of participation in environmental volunteering and waste sorting. While prior research [10] suggests that both direct and ecological purchasing often take place in the same purchasing sites (i.e., agroecological fairs), our results reflect that consumers with support to local producers as their principal shopping criterion do not necessarily exhibit high levels of environmental awareness. To reinforce this statement, April-Lalonde et al. [14] reported that the share of consumers with support to local farmers as their main purchasing driver is higher among users of non-agroecological direct markets (7.6%) than among users of agroecological fairs (4.4%).

As distinct from price-driven consumers, households with brand as their principal purchasing criteria are wealthier and have fewer members. In fact, the pairwise comparison of means presented in Table 1 shows that these kinds of households are—comparatively—the wealthiest in the sample. Moreover, those favoring brand over other criteria are more likely to exercise regularly and to have internet access, which likely reflects that they are better informed and more concerned about health than their peers who favor price as their main purchasing criterion. A possible explanation for these findings is that these kinds of households are more concerned about food safety and the quality of the food they consume [56], therefore, they tend to avoid purchasing bulk food (e.g., in direct markets) and prefer consuming packaged products of recognized brands [57,58]. Like ecological consumers, households in this group are wealthy, have few members, do exercise regularly, and have internet, nevertheless, they exhibit low levels of environmental concern. Another

difference between ecological and brand-driven consumers is that the first are more likely to be found in the Sierra, while the latter are more concentrated in the Costa, which reflect different geographical patterns concerning food consumption.

Beyond these empirical findings, this paper also offers some policy recommendations for practitioners seeking to promote ethical consumption in Ecuador. Our results suggest that lack of resources and low education levels are the main constraints for around 80% of Ecuadorian households to consume ecological food. Nevertheless, prior case studies [14,45] have reported that agroecological farmers are able to supply food at similar prices than those of conventional agriculture. Therefore, the general wisdom that agroecological products are more expensive than the conventional ones seems to be more a matter of perception in the Ecuadorian case. In this sense, practitioners should focus on both fostering the creation of agroecological farmers' markets as a way of making agroecological food more accessible for the general population. A key step in this direction is strengthening the Participative Guarantee System to reinforce the relationships of trust between consumers and producers. While there is already a well-functioning network of agroecological fairs [42,43], their number is still low and mostly concentrated in some provinces of the Sierra, so that it is not surprising that ecological consumption is lower in the Costa and the Amazon. Furthermore, governmental and non-governmental organizations should also focus on advertising not only the environmental benefits of consuming ecological food, but also the fact that it can be obtained at reasonable prices if bought in agroecological markets. Such policies should be designed bearing in mind that the market segment to be targeted is characterized by low education and low income levels.

Our results challenge those of prior research concluding that ecological consumption is mostly motivated by egoistic reasons by showing that Ecuadorian ecological consumers are committed to the environment. Nevertheless, Sacchi [7] distinguishes between *sustainable* and *ethical* consumers, with the first purchasing in farmers' markets mostly due to egoistic reasons and the latter highly committed to the creation of fair market practices. Our findings reflect that consumers concerned about local farmers do not necessarily exhibit environmental awareness. With this background, agroecological farmers' markets should be promoted and advertised as a way of both preserving the environment and supporting local farmers at the same time.

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