

Motivations to consume agroecological food: An analysis of farmers' markets in Quito, Ecuador

Cristian Vasco^{a,*}, Carolina Sánchez^a, Karina Limaico^a, Víctor Hugo Abril^b

^aFacultad de Ciencias Agrícolas, Universidad Central del Ecuador, Quito, Ecuador

^bUniversidad de las Fuerzas Armadas-ESPE, Sangolquí, Ecuador

Abstract

This paper examines the motivations to consume agroecological foods in Quito, Ecuador. Using data from a survey ($n = 254$) conducted among the customers of farmers' markets, the results reveal that agroecological consumers are substantially different from the rest of the population in terms of education, income and life style. The perceived healthiness of agroecological food is by far the main motivation to buy at farmers' markets, with environmental concern as the least important motivation. In terms of who spends the most on agroecological produce, the results of a multilevel regression model indicate that these are single, educated, wealthy individuals who exercise regularly and are part of a social/environmental organisation. These results reflect that agroecological produce is mainly consumed by a segment of wealthy and educated individuals who are not really concerned of the positive effects for the environment that agroecological production involves, so that, additional efforts are needed to make agroecological food accessible to the general population.

Keywords: agroecological food, farmers' markets, motivations, expenditure, Quito

1 Introduction

In many parts of Latin America, social movements and farmers' organisations have established agroecological farmers' markets (*ferias agroecológicas*) as a space where producers can showcase and sell the produce and consumers can access healthy food at reasonable prices (McKay & Nehring 2014). These initiatives have been supported by governmental (principally at local and regional level) and non-governmental organisations, as a suitable strategy to reach social equity, food security, food sovereignty and environmental awareness among subsistence and small-scale family farms (McKay & Nehring, 2014; Gomes *et al.*, 2015; Heifer International, 2015). Agroecological farmers' markets also arose as a criticism to the organic movement which according to some (Nelson *et al.*, 2010; Buck *et al.*, 1997; Guthman, 2002) has done little to limit the participation of large companies in the organic market, protect small-scale farmers (principally in the developing world), protect

the rights of agricultural labourers and restrict monocropping. This has resulted in a "conventionalized organic sector" (Nelson *et al.*, 2010), the "elitization of healthy produce", and the distinction between "markets for the rich or for the poor" (Intriago *et al.*, 2017), with costs of organic certification being prohibitive for small-scale family farms and the prices of certified products being unaffordable for most consumers in the developing world.

Since the future of ecological production depends, to a large extent, on its ability to satisfy consumers' motivations, preferences, needs and desires (Lockie *et al.*, 2002), a significant body of research has examined peoples' motivations to consume organic foods. In this vein, a number of studies have been conducted in more developed countries including Germany (Bravo *et al.*, 2013), Switzerland (Tanner & Wölfling Kast, 2003), Norway (Kvakkestad *et al.*, 2018), Ireland (O'Donovan & McCarthy, 2002), the Netherlands (Schiffrstein & Ophuis, 1998), Italy (Pino *et al.*, 2012), Spain (López Galán *et al.*, 2013), the United States (Lee & Yun, 2015), and Australia (Lockie *et al.*, 2004). Nevertheless,

* Corresponding author – clvasco@uce.edu.ec

to the best of our knowledge, no previous empirical study has been conducted to establish the determinants of agroecological consumption in less developed countries.

Prior literature on organic food consumption classifies motivations to consume organic food into “*personal good*” and “*public good*” factors (Bravo *et al.*, 2013; OECD, 2014). The first term, *personal good*, refers to individuals who consume organic food mainly motivated by the personal benefits associated to the consumption of organic food. These include, for instance, the perceived healthiness, safety and better taste associated to organic products. In the case of *public good* or *altruistic* motivations, individuals consume organic foods because they are perceived as environmentally friendly, respectful of animal welfare, and, to a lesser extent, socially fair (Kvakkestad *et al.*, 2018). Overall, health is found to be the principal motivation for consumers to buy organic food, with environmental concern as the second most important motivation (Gracia & De Magistris, 2008; Shepherd *et al.*, 2005; Lockie *et al.*, 2002).

Environmental motivations are associated with higher levels of buying (Gracia & De Magistris, 2008; Durham & Andrade, 2005; OECD, 2014). Concerning the determinants of expenditures on organic food, several studies have analysed the role of individual and household characteristics. To illustrate, prior research has reported mixed effects of income on expenditures on organic food, with some studies reporting a positive effect (Bellows *et al.*, 2008; Allender & Richards, 2010) and others finding no effect (Zepeda & Li, 2007). Education is reported to have a positive effect on expenditures on organic foods (Zepeda & Li, 2007; Bellows *et al.*, 2008). Mixed effects are also reported for the presence of children in a household. Some studies (Loureiro *et al.*, 2001; Thompson & Kidwell, 1998) found that households with children are more likely to buy organic food while others (Riefer & Hamm, 2011) reported that organic food consumption decreases when children become adolescent. But do these findings apply for agroecological food and the concept of agroecological farmers’ markets in developing countries? Furthermore, have farmers’ markets achieved the goal of making healthy food available to those unable to afford certified organic food? These and related questions are addressed in this study.

With data from a survey conducted among consumers of farmers’ markets in Quito, the capital of Ecuador, this paper examines the motivations of agroecological consumption and the determinants of the expenditures on agroecological foods. The rest of this paper is structured as follows: the next section describes the context of agroecological production and farmers’ markets in Ecuador, the subsequent section defines the data collection process and the statistical

methods utilised. Next, the most salient results are presented and discussed, while the final section concludes.

1.1 *The context: agroecology and agroecological farmers’ markets in Ecuador*

As in most Latin American countries, agroecology in Ecuador arose in the 1980s as a response to the environmental degradation resulting from the green revolution. In this context, several NGOs and farmers’ associations have emerged to rescue local farmers’ knowledge focusing not only on the technical and economic dimensions but also incorporating the social, cultural, and environmental dimensions of agricultural production (Macas & Echarry, 2009; Heifer International, 2015). While the definition of agroecology may change from one organisation to another, most of them are focused on: mitigating environmental problems resulting from the use of pesticides and chemical fertilisers in conventional agriculture; integrating the social, economic and cultural dimensions of agriculture; and recognizing and recovering local/indigenous knowledge (Macas & Echarry, 2009; Intriago *et al.*, 2017; Heifer International, 2015).

Since most agroecological producers have little land and have no access to supermarkets, commercialisation of agroecological produce normally occurs in the framework of alternative commercialisation schemes, including farmers markets, food basket programs, barter markets and agroecological shops, with farmers’ markets accounting for most (78%) agroecological trade in Ecuador (Intriago *et al.*, 2017; Heifer International, 2015). The direct contact between producer and customer drives middlemen out of the business and allows farmers to keep a larger profit. Another advantage of farmers’ markets is that they are normally organised by farmers’ associations so that all members can participate regardless the amounts they are able to supply. Since this form of commercialisation is more flexible than conventional markets in terms of stability of supply and product characteristics, it allows the participation of those farmers unable to maintain a permanent supply of produce throughout the year (Macas & Echarry, 2009).

In 2002, the Municipality of Quito started the project AGRUPAR (standing for Participative Urban Agriculture). This initiative focuses on reducing poverty and improving food security among the poor residents of urban, peri-urban and rural neighbourhoods of the city of Quito, prioritising the participation of marginalized groups (i.e., women, single mothers, the elderly, recently arrived migrants, indigenous people, the jobless) (Rodríguez Dueñas & Proaño Rivera, 2016; Anguelovski, 2009), with most of the farmers being women (84%) with farms smaller than 600 m² (Rodríguez Dueñas & Proaño Rivera, 2016). As a part of the project,

AGRUPAR trained farmers in agroecological production, entrepreneurship, and management and commercialisation. While initially the project aimed at enhancing food security, promoting environmental consciousness and the production and consumption of healthy food among poor residents of Quito, the surpluses are marketed in fourteen farmers' markets, locally labelled as *Bioferias*, which are organised by AGRUPAR on a weekly basis (Quinga Guallichico, 2016; Mena Pérez, 2012). The transparency of the production process and the quality of the produce marketed on *Bioferias* are guaranteed by a Participative Guarantee System (PGS), based upon relationships of trust between producers and consumers (Rodríguez Dueñas & Proaño Rivera, 2016).

Income from the surpluses marketed on *Bioferias* helps to balance household income of agroecological producers, with an average monthly income from sales of US \$ 130, an amount that accounts for 36% of Ecuador's minimum wage¹ (Oviatt, 2016). Another objective of the project AGRUPAR is promoting the consumption of agroecological food at affordable prices among the urban population, principally among those who, otherwise, would not be able to buy healthy produce (Rodríguez Dueñas & Proaño Rivera, 2016; Mena Pérez, 2012).

2 Methods

2.1 The survey

Data came from a survey conducted among buyers of the farmers' markets as organised by AGRUPAR in the Metropolitan District of Quito, the capital of Ecuador, a city of 2.2 million inhabitants (INEC, 2010). The questionnaire included information on buyers' demographic characteristics (age, sex, schooling-level, personal income, type of occupation), household characteristics (household composition, household total income, home ownership, zone of residence), personal habits (physical activity, membership in an organisation). Another section asked respondents about the principal reason to consume agroecological products, with health, characteristics of the product (appearance and taste), environmental concern and support to small-scale farmers as the response choices. Finally, the survey included questions concerning the monthly expenditures and the frequency of buying of agroecological produce.

The survey was conducted in April–May 2017 in farmers' markets organised by AGRUPAR. Undergraduate students were trained to administer the questionnaire to 254 customers of *Bioferias*. Interviewees were selected using a two-stage sampling method. First, in order to ensure a broad

diversity of customers, nine out of fourteen farmers' markets were included in the sample. While initially we intended to include all the farmers' markets organised by AGRUPAR, we had to drop five of them from the final sample because of several reasons. In two cases we did not find any farmer showcasing agroecological produce in the places advertised in the webpage of AGRUPAR. In two other cases, we noticed that conventional produce was being sold next to agroecological produce without clear distinction. Finally, in one case we noted that almost all the buyers were employees of the municipality of Quito which could have become a source of bias. Nevertheless, we were able to obtain a balanced sample in terms of income, schooling-level and ethnicity of the customers.

Since markets are scattered throughout the city, including wealthy and poor neighbourhoods, at the centre and the outskirts of the city, variability in terms of income, schooling-level and the ethnicity of the customers was ensured. Next, the survey was randomly administered to customers within each selected market, that is, all adult customers had the same probability to be part of the sample, which ensured variability in terms of age, schooling-level and gender. We defined customers as those persons who declared having bought agroecological produce in the farmers' market where they were approached. Clearly this is not a strictly random sample, i.e., interviewees were approached directly in the farmers' markets. Although there is no way of knowing if the individuals in the sample are representative for the general population, the survey is expected to provide important insights on the motivations to consume agroecological produce in Quito.

2.2 Statistical methods

In order to find the determinants of the expenditures on agroecological produce, we used a multivariate regression approach in which the monthly amount spent on fruits and vegetables² agroecologically produced was a function of a number of individual and household characteristics. Before proceeding though, a methodological issue must be addressed. As mentioned earlier in the text, *Bioferias* are scattered throughout the city, so the sample includes individuals with different endowments of education and income. Such differences may be distinctive to individuals residing in a specific neighbourhood/part of the city. Failing to control for the hierarchical nature of the data, that is the effect that the place of residence may exert on expenditure patterns, may lead to misleading interpretations. An alternative to cope with these kinds of data is the use of multilevel

¹ Note that since 2000, Ecuador adopted the US Dollar as its official currency.

² While we inquired about expenditures on other products (e.g., meat and dairy products, candies, jams, among others), these values were negligible compared to the expenditures on vegetables and fruits.

models, which, in this case, control for the effect of the marketplace where the survey was conducted. Thus, we used a multilevel regression model of the following form:

$$Y_{ij} = \beta \mathbf{X}_{ij} + \varepsilon_{ij} + \nu_j, \quad (1)$$

where Y is the natural logarithm of the monthly expenditures on agroecological produce³ by individual i in market j , \mathbf{X} is a vector of individual and household characteristics to be described later on, β is a vector of coefficients the direction and magnitude of which are of interest in this study, ε_{ij} is the error term, and ν_j is the market-level error term.

In terms of the explanatory variables, we included sets of individual and household characteristics. The first group comprised demographic characteristics including the age, gender, schooling-level and marital status of the buyer. We also included the squared age of the buyer in order to capture any possible non-linearity between age and the expenditure on agroecological products. The natural logarithm of the individual's income is used as a proxy of wealth. Additionally, three dichotomous variables taking the value of 1 if the interviewee declares: exercising regularly, being member of an organisation and being vegetarian, respectively, control for the effect of the buyer's life style on the expenditure on agroecological products. At household-level, we included the household size and the number of children (individuals younger than 15). Finally, three dichotomous variables taking the value of 1 if the individual bought agroecological food principally motivated by either the characteristics of the product (appearance and taste), wish to support small-scale producers or environmental concern, respectively, are included in the model. The group of individuals who buy agroecological produce because it is associated with healthy produce -the most numerous in the sample- are left as the comparison group.

Most of these variables have been found to shape decisions concerning the consumption of organic produce (OECD, 2014; Thompson & Kidwell, 1998; Loureiro et al., 2001; Zhang et al., 2008) in more developed countries. Thus, we expected that these predictors also have a significant effect on the expenditures on agroecological produce in Ecuador.

3 Results

3.1 Characteristics of agroecological consumers

In Table 1 we compare some demographic and socioeconomic characteristics of the consumers of agroecological produce to those of the general population. We use data

from the National Census–2010 (INEC, 2010), the Employment and Unemployment Survey–2016 (INEC, 2016), the Time Use Survey–2012 (INEC, 2012), and the Living Standards Survey 2013–2014 (INEC, 2014) to produce figures for the general population of Quito.

Table 1: Comparison between agroecological consumers and the general population of Quito.

Variable	Individuals in the sample	General population of Quito
<i>Schooling level (%)</i>		
Illiterate	0.0	2.5 ^a
Primary education	5.0	22.9 ^a
Secondary education	32.8	23.7 ^a
University education	48.9	32.1 ^a
Postgraduate education	13.3	3.4 ^a
<i>Household size</i>		
Household size	3.2	3.5 ^a
Number of children	0.6	0.3 ^a
Income	1081	381 ^b
Organisation (%)	19	1.1 ^c
Exercise (%)	29	16.5 ^d

^a Computed with data from the National Census–2011

^b Computed with data from the Employment and Unemployment Survey–2016

^c Computed with data from the Living Standards Survey–2013

^d Computed with data from the Time Use Survey–2011

On average, the customers of *Bioferias* are better educated than the rest of the population of Quito, with the share of agroecological consumers holding a university degree (48.9%) substantially higher than that estimated for the general population of Quito (32.1%). Similarly, the fraction of consumers holding a postgraduate degree (13.3%) is four times as high as that of the average population of Quito. The average household of an agroecological buyer is slightly smaller than the average household in Quito. Nevertheless, households consuming agroecological products have twice as many children (individuals younger than 15) as the typical household in Quito. The average monthly income of agroecological consumers (US \$ 1081) is three times as high as that of an average citizen of Quito in age to work (US \$ 381), as estimated from the Employment and Unemployment Survey–2016. The share of agroecological buyers that are part of a social organisation is considerably higher (19%) than that of the general population (1%). Finally, in terms of life style, the fraction of the customers of farmers' markets that exercise regularly is twice as high as that of the average citizen of Quito.

3.2 Motivations to buy agroecological produce

Figure 1 shows the motivations to buy agroecological produce as estimated from a sample of 254 buyers of agroecological farmers' markets in Quito. The results show that

³ We took natural logarithms in order to avoid the effect of outliers.

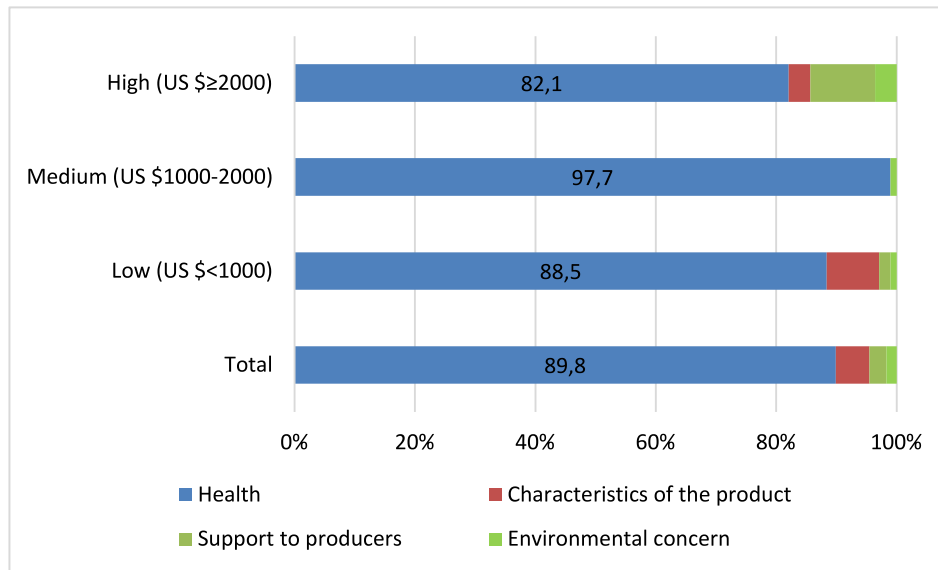


Fig. 1: Motivations to consume agroecological produce by category of income.

personal good motivations appear to be more important than *public good* ones in shaping consumption decisions. Health is the principal motivation to buy in *Bioferias*, with most respondents (90%) buying agroecological products because they are perceived as healthy if compared to conventional produce. A small share of the respondents (5.6%) buy agroecological produce because of its characteristics (taste and appearance). Moving on to altruistic motivations, a very small fraction (4.6%) of the interviewees consume agroecological food because of *public good* (support to producers and environmental concern) reasons.

Although health continues to be the main motivation to eat agroecological foods, when analysing motivations by income category, there are some changes that warrant to be mentioned. Altruistic reasons seem to be more important for the group of buyers with high incomes (more than US \$ 2000 a month), with 10.7% of respondents answering that “support to producers” is their principal motivation to buy in agroecological farmers’ markets. In contrast, almost all respondents with medium incomes (US \$ 1000–2000 a month) buy agroecological foods because they are perceived as healthy. In the case of buyers with low incomes (< US \$ 1000 a month), they are more concerned about the characteristics of the product than their peers with medium and high incomes, with 8.7% of the respondents in this category buying agroecological products due to their appearance and taste.

Figure 2 shows the motivations to buy in farmers’ markets by the monthly expenditure on agroecological produce. Respondents with low expenditures (< US \$ 100 a month) seem to be the most concerned about the harmlessness of

the food they consume, with 94% of the individuals in this group buying agroecological products because they are associated with healthy food. In contrast, 8.3% of the individuals with medium expenditures (US \$ 100–300 a month) eat agroecological food because of its appearance and taste.

3.3 Determinants of expenditure on agroecological products

The definitions and descriptive statistics used for the analysis are presented in Table 2. As referred to earlier in the text, we used the natural logarithm of the overall monthly expenditure on agroecological products as the outcome variable.

Table 3 presents the results of the multilevel linear regression model, with the natural logarithm of the monthly expenditures on agroecological products as the outcome variable. The intra-class correlation, which is the proportion of the error variance due to differences across marketplaces is of 42% and highly significant, which proves that using random-effects was a sensible decision. The results show that, on average, women spend 27% less on agroecological produce than men⁴. Education has a positive effect on the consumption of agroecological food. Every additional year of formal education increases the expenditures on agroecological produce by 4.9%. Everything else held equal, married individuals spend 43% less than their single counterparts. On average, respondents who are part of a social organisation spend 37% more than those that are not.

⁴ The percent change of a coefficient c multiplying a dummy variable in a semi logarithmic model is given by $100[\exp(c) - 1]$ (see Halvorsen & Palmquist, 1980).

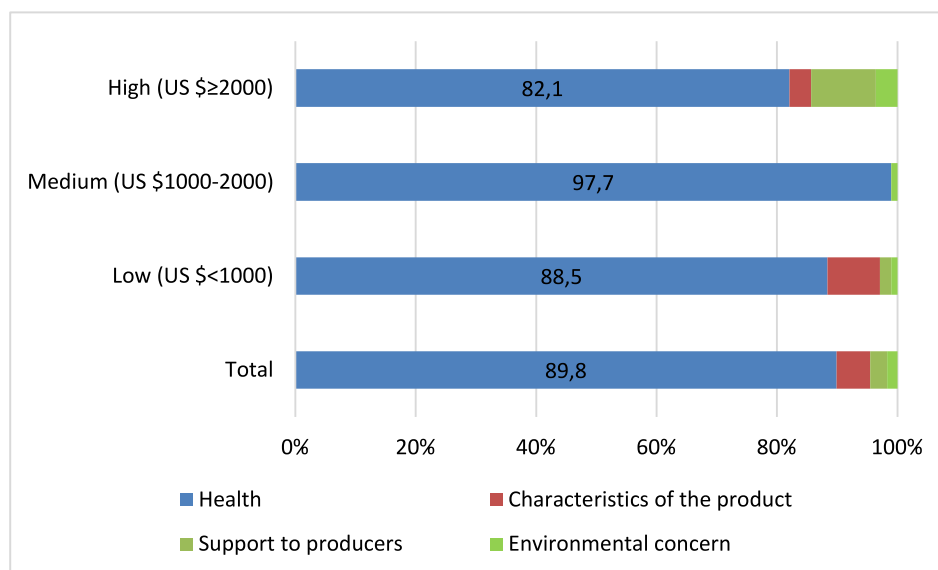


Fig. 2: Motivations to buy in agroecological farmers' markets by monthly expenditure on agroecological produce.

Table 2: Descriptive statistics and definitions of variables.

Variable	Description	Mean	St. Dev.
<i>Dependent variable</i>			
Expenditure	Overall monthly expenditures on agroecological products (US \$)	196.2	182.6
<i>Independent variables</i>			
Age	Age of the individual (years)	45.3	14.8
Woman (0/1)	Individual is woman	0.6	–
Education	Completed years of formal education of individual (years)	16.5	3.9
Married (0/1)	Individual is married	0.46	–
Income	Monthly income (US \$)	1081.8	1027.5
Exercise (0/1)	Individual exercises regularly	0.33	–
Vegetarian (0/1)	Individual is vegetarian	0.11	–
Association (0/1)	Individual is member of an organisation	0.22	–
Household size	Household size (n)	3.15	1.35
Children	Number of children in the household (n)	0.54	0.80
Health (0/1)	Health is the main motivation to consume agroecological food	0.90	–
Characteristics (0/1)	Product characteristics are the main motivation to consume agroecological food	0.06	–
Support (0/1)	Supporting farmers is the main motivation to consume agroecological food	0.03	–
Environment (0/1)	Environmental concern is the main motivation to consume agroecological food	0.01	–

Note: (0/1) identifies dummy variables.

Moving on to household variables, individuals from households with more children spend more on agroecological food. Each new child increases expenditures by 26%. In terms of the motivations to buy in agroecological farmers' markets, only the dummy accounting for support to farmers has a significant effect. On average, those whose

principal motivation to buy agroecological food is supporting farmers spend 60% more on agroecological food than those who have health as their principal motivation.

Table 3: Determinants of the expenditures on agroecological products.

	Coefficients	p-values
Age	0.003	0.890
Age squared	0.000	0.595
Gender (0/1)	−0.244	0.046
Education	0.049	0.001
Married (0/1)	−0.356	0.004
Income	0.068	0.044
Exercise (0/1)	−0.060	0.624
Vegetarian (0/1)	0.324	0.115
Organisation (0/1)	0.316	0.045
Household size	−0.001	0.978
Children	0.262	0.000
Characteristics (0/1)	0.060	0.784
Support (0/1)	0.468	0.050
Environment (0/1)	0.081	0.851
Intra-class correlation	0.423	0.000
Prob > F	69	0.000
Number of observations	254	
R ²	0.38	

Notes: (0/1) identifies dummy variables. The model is estimated with robust standard errors.

4 Discussion

Although agroecological farmers' markets in Latin America have emerged to widespread healthy consumption among the local population, that is, among those who otherwise would not be able to afford healthy produce (Intrigo *et al.*, 2017; Heifer, International 2015), our results indicate that agroecological consumers belong to a group of individuals that are substantially different from the average population in terms of socioeconomic characteristics. They are wealthier, better educated, and come from smaller households with more children than the average person in Quito. Additionally, as distinct from the average resident of Quito, many individuals in this group belong to a social organisation and exercise regularly.

That agroecological consumers are better educated than the average population of Quito may reflect that they are more aware of the dangers of eating conventional produce and the benefits associated with the consumption of agroecological food (Zepeda & Li, 2007). Similarly, that agroecological consumers have higher incomes than the average inhabitant of Quito may indicate that they can afford the price premium of agroecological produce (Bellows *et al.*, 2008; Allender & Richards 2010). While these results are fairly consistent with those found for organic consump-

tion (OECD, 2014), they reflect that far from being available for the general population, agroecological produce is mostly consumed by a segment of the population with special characteristics in terms of income, education and life style.

Our results indicate that the main motivation for consumers to buy agroecological produce is that it is associated with healthy produce. This finding is not at all surprising since health has been found to be the principal motivation to consume organic food in developed countries as well (Lockie *et al.*, 2002; Schifferstein & Ophuis, 1998; Gracia & De Magistris, 2008; O'Donovan & McCarthy, 2002; Tregear *et al.*, 1994; Kvakkestad *et al.*, 2018; Squires *et al.*, 2001; Durham & Andrade, 2005). Nevertheless, the share of respondents buying agroecological produce because it is considered healthier than conventional produce (90 % of our sample) is substantially higher than that reported for organic consumers in OECD countries (50 %) (OECD, 2014; Boccaletti, 2009). In distinction from OECD countries, where preserving the environment is the second most important motivation to buy organic produce, environmental concern appears not to be influential in the decisions of buying agroecological produce in Quito, with only a small fraction (1.7 %) of the respondents having environmental concern as their main motivation to consume agroecological food.

In terms of who spends the most on agroecological farmers' markets, this is a single, well-educated man with high income, who has more children. This individual is more likely to exercise regularly, to be part of a social or environmental organisation and to buy agroecological produce due to the desire of supporting small-scale farmers. That wealthier and educated individuals spend more on agroecological produce may reflect that these persons know more about the risks of the use of pesticides in conventional food production and have the resources to buy more agroecological food compared to poorer persons (Andrade & Flores 2008). The positive and significant effect of the dichotomous variable accounting for "exercise regularly" may indicate that people who strive a healthy life style are willing to spend more on food that they perceive as healthy. Similarly, membership in a social/environmental organisation may be associated with higher concern about social and environmental issues and so with higher willingness to pay a price premium for what is considered environmentally friendly and socially fair (OECD, 2014). Our results show that individuals from households with more children spend more on agroecological produce. This is consistent with prior research on the determinants of organic food consumption (Loureiro *et al.*, 2001; Kiesel & Villas-Boas, 2007) and may reflect that buyers with children pay more attention to the healthiness and harmlessness of the food they give to their children. Another interesting finding is that those whose

principal motivation to consume agroecological produce is the support to small-scale farmers spend more than those whose main motivation is the perceived healthiness of agroecological produce.

Do our results support the statement that promoting farmers' markets may be an effective strategy to widespread healthy food consumption among the local population unable to afford certified organic food? Well, they do not. With only a selective group of educated and wealthy individuals buying agroecological produce, farmers' markets are far from reaching the goal of wide spreading healthy food consumption. In this sense, policy makers intending to increase the production and consumption of healthy food should focus on making agroecological produce accessible to a larger segment of the population.

Policies should be oriented at advertising more the benefits of consuming agroecological food among the population, principally among those with low levels of education and income. The findings presented here should be a source of concern to policy makers aimed at raising environmental awareness among citizens, since environmental concern ranks as the least important motivation to buy agroecological food. In this sense, campaigns promoting agroecological consumption should go beyond the health attribute of agroecological produce. Instead, potential consumers should also be informed that by buying agroecological produce (in farmers' markets) they are also contributing to promote the sustainable use of natural resources and to enhance the living condition of small-scale farmers.

5 Conclusion

This paper has examined the motivations to consume agroecological produce in Quito, the capital of Ecuador. Consumers of agroecological produce differ substantially from the rest of the population of Quito in terms of education, income and life style. Among those buying agroecological produce, the perceived healthiness of agroecological foods is by far the main motivation to buy in farmer's markets. In contrast, environmental concerns appear not to be influential in agroecological consumption decisions. Concerning who spends more on agroecological produce, these are single, educated and wealthy individuals who exercise regularly, are members of a social/environmental organisation and whose principal motivation to buy is supporting small-scale farmers.

Some argue that farmers' markets have the potential to promote healthy food consumption while improving the living conditions of farmers with little land, and promoting sustainable agriculture. Our findings indicate, however, that far from being accessible to all, agroecological products are

principally bought by a group of educated and wealthy individuals who are not really concerned about the potential benefits for the environment that agroecological production entails. So, additional efforts are necessary to make agroecological production accessible to all.

Acknowledgements

This research was based upon work funded by Universidad Central del Ecuador.

References

- Allender, W. J. & Richards, T. J. (2010). Consumer Impact of Animal Welfare Regulation in the California Poultry Industry. *Journal of Agricultural and Resource Economics*, 35 (3), 424–442.
- Andrade, D. & Flores, M. (2008). *Consumo de productos orgánicos/agroecológicos en los hogares ecuatorianos*. VECO, Quito, Ecuador.
- Anguelovski, I. (2009). Building the Resilience of Vulnerable Communities in Quito: Adapting local foodsystems to climate change. *Urban Agriculture*, 22, 25–26.
- Bellows, A. C., Onyango, B., Diamond, A. & Hallman, W. K. (2008). Understanding consumer interest in organics: production values vs. purchasing behavior. *Journal of Agricultural & Food Industrial Organization*, 6 (1), 1–31.
- Boccaletti, S. (2009). Organic Food Consumption: Results and Policy Implications. Paper presented at OECD Conference on "Household Behaviour and Environmental Policy", 3-4th June 2009, Paris.
- Bravo, C. P., Cordts, A., Schulze, B. & Spiller, A. (2013). Assessing determinants of organic food consumption using data from the German National Nutrition Survey II. *Food Quality and Preference*, 28 (1), 60–70.
- Buck, D., Getz, C. & Guthman, J. (1997). From farm to table: The organic vegetable commodity chain of Northern California. *Sociologia ruralis*, 37 (1), 3–20.
- Durham, C. A. & Andrade, D. (2005). Health vs. environmental motivation in organic preferences and purchases. Paper presented at the American Agricultural Economics Association Annual Meeting, Providence, Rhode Island, July 24–27, 2005.
- Gomes, R. A., Matias, T. L. & Paulino, J. S. (2015). Articulações interinstitucionais na realização de feiras agroecológicas na Microrregião de Campina Grande-PB. *Revista Brasileira de Desenvolvimento Regional*, 3 (1), 103–126.

- Gracia, A. & De Magistris, T. (2008). The demand for organic foods in the South of Italy: A discrete choice model. *Food Policy*, 33 (5), 386–396.
- Guthman, J. (2002). Commodified meanings, meaningful commodities: Re-thinking production–consumption links through the organic system of provision. *Sociologia ruralis*, 42 (4), 295–311.
- Halvorsen, R. & Palmquist, R. (1980). The Interpretation of Dummy Variables in Semilogarithmic Equations. *American Economic Review*, 70 (3), 474–475.
- Heifer International (2015). *La agroecología está presente: Mapeo de productores agroecológicos y del estado de la agroecología en la sierra y costabecuatoriana*. Heifer-Ecuador, Quito, Ecuador.
- INEC (2010). Censo de Población y Vivienda–2010. Instituto Nacional de Estadística y Censos (INEC), Quito, Ecuador.
- INEC (2012). Encuesta de Uso del Tiempo–2012. Instituto Nacional de Estadística y Censos (INEC), Quito, Ecuador.
- INEC (2014). Encuesta de Condiciones de Vida 2014–2015. edited by I. N. d. E. y. Censos, Quito, Ecuador.
- INEC (2016). Encuesta de Empleo, Subempleo y Desempleo 2016. Instituto Nacional de Estadística y Censos (INEC), Quito, Ecuador. Available at: <http://www.ecuadorencifras.gob.ec/enemdu-2016/> (accessed on: 12 August 2018).
- Intriago, R., Amézcuca, R. G., Bravo, E. & O’Connell, C. (2017). Agroecology in Ecuador: historical processes, achievements, and challenges. *Agroecology and Sustainable Food Systems*, 41 (3–4), 311–328.
- Kiesel, K. & Villas-Boas, S. B. (2007). Got organic milk? Consumer valuations of milk labels after the implementation of the USDA organic seal. *Journal of Agricultural & Food Industrial Organization*, 5, #4.
- Kvakkestad, V., Berglann, H., Refsgaard, K. & Flaten, O. (2018). Citizen and consumer evaluation of organic food and farming in Norway. *Organic Agriculture*, 8 (2), 87–103.
- Lee, H.-J. & Yun, Z.-S. (2015). Consumers’ perceptions of organic food attributes and cognitive and affective attitudes as determinants of their purchase intentions toward organic food. *Food Quality and Preference*, 39, 259–267.
- Lockie, S., Lyons, K., Lawrence, G. & Grice, J. (2004). Choosing organics: a path analysis of factors underlying the selection of organic food among Australian consumers. *Appetite*, 43 (2), 135–146.
- Lockie, S., Lyons, K., Lawrence, G. & Mummery, K. (2002). Eating ‘green’: motivations behind organic food consumption in Australia. *Sociologia Ruralis*, 42 (1), 23–40. doi:10.1111/1467-9523.00200.
- López Galán, B. S., Royo, A. G. & Hurlé, J. B. (2013). ¿Conocimiento, medio ambiente o salud? Una investigación sobre los determinantes del consumo de alimentos ecológicos en España. *ITEA*, 109, 86–106.
- Loureiro, M. L., McCluskey, J. J. & Mittelhammer, R. C. (2001). Assessing consumer preferences for organic, eco-labeled, and regular apples. *Journal of Agricultural and Resource Economics*, 26 (2), 404–416.
- Macas, B. & Echarry, K. (2009). Caracterización de mercados locales agroecológicos y sistemas participativos de garantía que se construyen en el Ecuador. Coordinadora Ecuatoriana de Agroecología, Quito, Ecuador.
- McKay, B. & Nehring, R. (2014). Sustainable agriculture: An assessment of Brazil’s family farm programmes in scaling up agroecological food production. Working Paper number 123, International Policy Centre for Inclusive Growth (IPC - IG) United Nations Development Programme, Brazil.
- Mena Pérez, V. E. (2012). Evaluación integral del programa AGRUPAR de Conquito correspondiente al Distrito Metropolitano de Quito. Trabajo de Graduación previo la Obtención del Título de Economista. Universidad Central del Ecuador, Quito, Ecuador.
- Nelson, E., Tovar, L. G., Rindermann, R. S. & Cruz, M. Á. G. (2010). Participatory organic certification in Mexico: an alternative approach to maintaining the integrity of the organic label. *Agriculture and Human Values*, 27 (2), 227–237.
- O’Donovan, P. & McCarthy, M. (2002). Irish consumer preference for organic meat. *British Food Journal*, 104, 353–370.
- OECD (2014). Greening Household Behaviour. OECD.
- Oviatt, K. (2016). *El impacto de la Agricultura Urbana como método de empoderamiento de las poblaciones pobres*. CONAUITO, Quito, Ecuador.
- Pino, G., Peluso, A. M. & Guido, G. (2012). Determinants of regular and occasional consumers’ intentions to buy organic food. *Journal of Consumer Affairs*, 46 (1), 157–169.
- Quinga Guallichico, T. M. (2016). Evaluación y determinación del estado del proyecto de agricultura urbana participativa Agrupar de Conquito en el distrito metropolitano de Quito. Tesis para optar al título de Ingeniero Agrónomo, Universidad Central del Ecuador.

- Riefer, A. & Hamm, U. (2011). Organic food consumption in families with juvenile children. *British Food Journal*, 113 (6), 797–808.
- Rodríguez Dueñas, A. & Proaño Rivera, I. (2016). Quito siembra agricultura urbana. CONQUITO-AGRUPAR, Quito, Ecuador.
- Schifferstein, H. N. & Ophuis, P. A. O. (1998). Health-related determinants of organic food consumption in the Netherlands. *Food Quality and Preference*, 9 (3), 119–133.
- Shepherd, R., Magnusson, M. & Sjöden, P.-O. (2005). Determinants of consumer behavior related to organic foods. *AMBIO: A Journal of the Human Environment*, 34 (4), 352–359.
- Squires, L., Juric, B. & Cornwell, T. B. (2001). Level of market development and intensity of organic food consumption: cross-cultural study of Danish and New Zealand consumers. *Journal of Consumer Marketing*, 18 (5), 392–409.
- Tanner, C. & Wölfing Kast, S. (2003). Promoting sustainable consumption: Determinants of green purchases by Swiss consumers. *Psychology & Marketing*, 20 (10), 883–902.
- Thompson, G. D. & Kidwell, J. (1998). Explaining the choice of organic produce: cosmetic defects, prices, and consumer preferences. *American Journal of Agricultural Economics*, 80 (2), 277–287.
- Tregear, A., Dent, J. & McGregor, M. (1994). The demand for organically grown produce. *British Food Journal*, 96 (4), 21–25.
- Zepeda, L. & Li, J. (2007). Characteristics of organic food shoppers. *Journal of Agricultural and Applied Economics*, 39 (1), 17–28.
- Zhang, F., Huang, C. L., Lin, B. H. & Epperson, J. E. (2008). Modeling fresh organic produce consumption with scanner data: a generalized double hurdle model approach. *Agribusiness*, 24 (4), 510–522.