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# Understanding the market potential of products from alternative food networks in a transition economy—a discrete choice experiment

Market potential of AFN products

183

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## Abstract

**Purpose** – Ethical consumption is on the rise amidst concerns about the environmental and health impacts of industrial agriculture. In light of increasingly complex food choices, alternative food networks have emerged. However, their success depends on a deeper understanding of the product attributes that guide (ethical) consumer decisions. This study focuses on the preferences of consumers when choosing and buying fresh vegetables in Romania.

**Design/methodology/approach** – This study employs a discrete choice experiment to determine how consumers make trade-offs across a set of product attributes, such as local origin and production method.

**Findings** – The study analysis sheds light on the importance of food attributes relevant to ethical consumers. The main barrier to making an ethically driven choice is convenience. While local production remains of lower importance than the production method, the authors show that the Romanian consumers surveyed strongly prefer non-certified “traditional” vegetables over certified organic products.

**Originality/value** – This study is pioneering with a state-of-the-art discrete choice setting looking at a set of product attributes that reflect the demand of ethical consumers in an understudied transitional context. The authors go beyond the current debate on the trade-off between organic vs local food labels by introducing traditional small-scale production as a separate attribute level. The food attribute preferences of different consumer segments and a market simulation offer relevant insights how to market fresh vegetables to health- and environmentally-conscious urban people.

**Keywords** Romania, Consumer preference, Discrete choice experiment, Local origin, Organic production, Traditional production

**Paper type** Research paper

## 1. Introduction

Food choices are becoming increasingly complex as consumers grow more aware of the link between food production and the environment, globalisation and food safety, and move away from convenience consumption (Maehle *et al.*, 2015). Alternative food networks (AFN) emerged in the 1990s as a response to perceptions that the industrial food system had become increasingly unethical (Edwards, 2016). AFNs involve both alternative food practices and

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means of distribution and include, for example, farm sales, farmers' markets, vegetable box schemes and community supported agriculture (Poças Ribeiro *et al.*, 2021). Their shared property is that they appeal to ethical consumerism by offering food with certain attributes such as locally sourced, environmentally friendly and organically produced (Bazzani *et al.*, 2017).

The rising importance of ethical consumerism can be observed, for example, in the growing consumption of organic food and willingness of consumers to pay a premium for organically labelled produce (Connolly and Klaiber, 2014). While organic agriculture was initially associated with local production and direct relationships between farmers and consumers, the global standardisation and industrialisation of organic food have significantly weakened this link. This has led to the rising interest in AFNs and triggered a shift in consumer preferences from organic to locally produced foods (e.g. Adams and Salois, 2010; Darby *et al.*, 2008; Winterstein and Habisch, 2021; Bazzani *et al.*, 2017). Consequently, food from local small-scale family farms may become a substitute for organic produce (Mugera *et al.*, 2017).

Ethical consumerism is most often found in wealthier consumer segments of developed markets (Maye and Kirwan, 2010), but the number of more critical consumers is also rising in less-developed markets, such as in Europe's transition economies. Poças Ribeiro *et al.* (2021), for instance, found that consumers in Poland held critical views of mass-produced food. The corresponding rise of AFNs, described, for example, by Möllers and Birhală (2014) for Romania or by Birtalan *et al.* (2021) for Hungary, is reinforced by two factors. First, in many transition economies, demand for organic food is only just emerging and immature compared to Western Europe (Willer *et al.*, 2021). Sometimes AFNs are therefore the sole supplier (e.g. Bryła, 2018, for Poland; Melović *et al.*, 2020a, for Montenegro; Möllers and Birhală, 2014, for Romania). Second, if alternative suppliers are available, organic food is often still cheaper to obtain via AFNs than, for example, from specialised stores (see, e.g. Slavuj Borčić, 2020, for Croatia; Möllers and Birhală, 2014, for Romania).

Our paper is positioned in the strand of research exploring consumers' willingness to pay a premium for organic and locally produced vegetables. While this topic has been covered by others (e.g. Joya *et al.*, 2022; Yeh *et al.*, 2021; Meyerding *et al.*, 2019), we aim to close a gap in these studies by providing a better understanding of consumers' preferences for food attributes relevant to AFNs and ethical consumerism in a transitional context. Taking into account the small-scale agricultural structure of many Eastern and South-Eastern European countries, one central argument of this study is that traditional small-scale production should be considered as a self-standing production mode that competes with certified local and organic production. We thus not only pick up the recent notion that consumers may prefer local production over organic production (Winterstein and Habisch, 2021), but respond to the call of Lang *et al.* (2014) to go beyond a simple organic vs local food production trade-off by including the question of whether the product comes from a small family farm or not. We hypothesise that traditionally produced products may outcompete certified local or organic production, as they implicitly (on a trust basis) combine their underlying qualities.

In our analysis of urban consumers, we apply a discrete choice experiment (DCE) of preferences for attributes of fresh vegetables. We ask how AFN relevant product attributes influence consumer choice and willingness-to-pay, and how the weight given to these attributes differs between (ethical) consumer segments. Our analysis thus reveals how consumers make trade-offs across a set of product attributes, which in our case are the production mode, local origin, convenience, visual appearance and price. Our empirical case refers to Romania, a country that has been considered a growing market for organic agro-food production and marketing. During the last decade, the cultivated organic area has more than doubled. However, in 2019, certified organic production still covered only 2.9% of agricultural area (Willer *et al.*, 2021). Retail sales for organic products also remain at a low

level because consumption is constrained by low incomes (Drăghici *et al.*, 2016). In contrast, local produce from smallholder farms offered at farmers' and town markets for a reasonable price is a common source of fresh food products for Romanians. Often labelled as traditional production, Romanians, like many other consumers in Eastern and South-Eastern Europe, value this source of fresh food for its tasty, healthy and environmentally friendly products (Möllers and Bîrhală, 2014).

The high originality value and contribution of this study is thus threefold: First, the study is pioneering with a state-of-the-art DCE setting looking at a set of fresh vegetable product attributes that reflect the demand of ethical consumers in an understudied transitional context. Second, the study goes beyond the current debate on the trade-off between organic vs local food labels by introducing traditional small-scale production as a separate attribute level. Third, in their complex food choices, consumers vary in their preferences concerning product attributes. Hence, by grouping consumers according to their ethical-value profiles, we identify the food attribute preferences of different consumer segments. This part of the analysis is highly relevant for a better understanding of the market potential of the emerging AFNs in Romania. A market simulation that provides concrete insights into the market potential of higher-priced local products of certified organic quality vs products from traditional production completes the analysis.

## 2. Brief review of the literature: food product attributes and their relevance for fresh vegetable food choices

We used the 11 food values that influence food choices identified by Lusk and Briggeman (2009) as a starting point for this review and to select attributes for our DCE. We structured them into three categories: visual and sensual appeal (appearance and taste); access-related factors (price and convenience); and health and ethical consumerism-related factors (health, naturalness, safety, nutrition, tradition, origin and fairness).

### 2.1 Visual and sensual appeal

Visual *appearance* and *taste* are important categories that guide "hedonic" food choices (Maehle *et al.*, 2015). Taste is often revealed only after purchase, but consumers tend to believe that organic products have a more natural taste (Hjelmar, 2011). Visual appearance, according to Moser *et al.* (2011), is a relevant attribute that shapes purchasing decisions for vegetables, although less so for consumers with an ethical consumerism profile. In Romania, too, consumers consider visual appearance an important factor in their daily food choices and an unattractive appearance was identified as a possible barrier to the consumption of organic food in the country (Popa and Dabija, 2019).

### 2.2 Access-related factors

Ethical consumers tend to be less concerned about food *prices*. Despite this, price usually remains an essential purchasing criterion, especially for food products such as vegetables, where the emotional response involved is small, but the price sensitivity is higher (Maehle *et al.*, 2015). In Romania, most people prefer to buy conventional food products at low prices and price is a crucial barrier to organic food purchases (Bozga, 2015; Popa and Dabija, 2019).

Unlike Lusk and Briggeman (2009), we link *convenience* to the ease with which the product is accessed instead of how it can be cooked and/or consumed. This is in line with other studies, which found that consumers prioritised fitting their shopping into their daily schedules and preferred nearby, convenient shops (Hjelmar, 2011). For AFNs, the literature stresses that the typical features of these networks cause inconvenience: both the limited choice of products (Cone and Myhre, 2000) and the inconvenience of having to pick them up at certain times and

places (Flora and Bregendahl, 2012) have been identified as disadvantages. However, as shown for Romania by Möllers and Bîrhală (2014), there are certain segments of ethical consumers who are willing to sacrifice the convenience of supermarkets to access healthy food through AFNs. This is all the more relevant given that fresh organic produce is still difficult to find on Romanian shelves (Petrescu *et al.*, 2017).

### 2.3 Health and ethical consumerism-related factors

*Health* concerns have become one of the most decisive factors in making food choices (Ghvanidze *et al.*, 2017). The key attributes here are *food safety* and *nutrition*. For fresh vegetables, it is difficult for the consumer to judge these attributes, but decisions are guided by assumptions or labels that promise, for example, a pesticide-free product. Health concerns also drive organic food purchases in transition economies (Melović *et al.*, 2020b; Birtalan *et al.*, 2021). In Romania, health reasons are an important factor in organic and AFN food purchases (Möllers and Bîrhală, 2014).

*Naturalness* directly refers to the production method and is described by Lusk and Briggeman (2009) as the extent to which food is produced without modern technologies. Often, this attribute is closely linked to health and the environment; organic production, for example, comes with the promise of fewer toxic substances. The production method is sometimes indicated by labels, but it may also be simply linked to the source of the product. In both cases, consumers usually do not know the details, and conclusions about naturalness are mostly trust-based (Hjelmar, 2011). In Romania, products from smallholder farms are often labelled as traditional or natural, implying that they stem from low-input production with a high naturalness value (Möllers and Bîrhală, 2014). Indeed, much of the production in Romania is close to organic standards, because small farms still use natural fertiliser as their main input (Simon and Borowski, 2007).

The attribute *origin* indicates where agricultural commodities are grown. A local origin, similar to an organic or low-input production method, is linked to a perception of freshness and better taste compared to imported products. At the same time, consumers appreciate the environmental benefits of less transportation (Hjelmar, 2011). However, how consumers define local varies by their level of use and experience with local foods. When discussing local foods it is therefore important to understand that the concept is evolving and expanding (Lang *et al.*, 2014). Some Romanian consumers perceive local products as superior to certified organic products (Petrescu *et al.*, 2017). One explanation may be that they are often sceptical of certification processes (Bozga, 2015). This is consistent with consumers in other transition countries such as Slovakia (Musova *et al.*, 2018) or Poland (Bryła, 2018). Goszczyński and Wróblewski (2020) explain this as a lack of trust in experts and institutions.

*Tradition* is linked to the desire to preserve traditional values in the countryside (Hjelmar, 2011). In Romania, such traditional values are supported by the close family links that many urban consumers maintain to the countryside, and through which they are also supplied with home-grown foods (Bozga, 2015). Another aspect that is interlinked with affection for the countryside is *fairness* (the extent to which all parties involved in the production of the food equally benefit). Fairness in a wider sense reflects the wish to make buying decisions that contribute to leaving a better world for the next generations or supporting animal welfare. In a narrower sense, people may wish to support small farmers as shown by Slavuj Borčić (2020) in Croatia and Möllers and Bîrhală (2014) in Romania.

### 3. Methodology, study design and data

We apply a DCE to a consumer dataset from Romania. With this, we go beyond most research in the region, which has applied qualitative descriptive or factor or cluster approaches.

### 3.1 Discrete choice experiment

In his landmark article from 1966 on consumer theory, Lancaster postulated that consumer choices are directed towards a combination of product attributes, rather than the products themselves, to maximise their utility. In line with this, DCEs model consumers' preferences regarding product attributes in a random utility framework, whereby the experiment measures stated preferences and allows for willingness-to-pay to be obtained indirectly (McFadden and Train, 2000).

DCEs are widely used in marketing research to investigate consumer preferences. They are designed to measure the strength and relative importance of attributes in goods and services (Hauber *et al.*, 2016). In the experiment, respondents choose their most preferred option—the one with the highest utility—from a given set of alternatives. In doing so, they assess the total value of a given product by combining the individual values provided by the particular level of each product attribute relevant to consumers. This approach realistically resembles an actual purchasing situation (Rao, 2014). Because it is neither possible nor useful to use all existing attributes of a product in a DCE, attributes need to be reduced to a manageable size. Otherwise, the DCE would become overly complex and easily lead to respondent fatigue, which in turn results in inconsistent and random choices (Bennett and Blamey, 2001).

In our experiment, we distinguished five key attributes that are relevant for the purchase of carrots, potatoes and bell peppers, and that reflect the assumed desires of ethical consumers according to the food values discussed in Section 2. The production method and origin are the most important attributes in this regard. Furthermore, in addition to the price, we considered appearance and convenience. As shown in Section 2, AFN consumers are not always happy with inconvenient shopping arrangements (such as when boxes have to be picked up from faraway locations) or with non-standard product appearances (resulting, for example, from not using pesticides or wasting non-perfect products (Cone and Myhre, 2000; Möllers and Bîrhală, 2014)). For the five attributes, 13 attribute levels were identified (see Table 1).

The method of production has three attribute levels: conventional, traditional and certified organic production. Although products sold through AFNs are mostly linked with organic production, in Romania they are often sold as traditionally produced products, a label that consumers are fully familiar with. Traditional production implies that, although there is no formal certification or strict production rules, the products are produced in a traditional way by small-scale family farms using only natural fertiliser and no chemical pesticides. The inclusion of traditional production into the experiment is an innovative extension that covers important food values related to health and ethical consumerism such as, in particular, naturalness, origin and tradition.

Although there is no clear definition of the term “local food”, it often refers to food produced and sold within a geographical area, regional border or delimited to a radius of up to a few hundred kilometres (Meyerding *et al.*, 2019; Bazzani *et al.*, 2017). As discussed in Section 2, some consumers perceive local food as organic and vice versa, while others relate it to small-scale production (Winterstein and Habisch, 2021; Bimbo *et al.*, 2020). Defining the origin attribute was therefore a challenge. Based on discussions and feedback we received during the pre-test phase, we decided to use a simple indicator of distance in kilometres to define a local origin. We included two attribute levels: (1) Locally produced food produced within a range of 100 km and (2) Non-locally produced food coming from beyond this threshold.

Convenience was measured using a time indicator that reflects the time consumers need to reach their respective points of sale. We distinguished three levels: 45 min, because some products sold through AFNs must be picked up from distant places (Möllers and Bîrhală, 2014); 30 min, which is the typical distance to a hypermarket at the edge of town or a specialised organic shop, which are rare in Romania; and 15 min, which is the typical length of

Table 1.  
Conjoint study design

Attributes	Levels	Choice task examples: Which of these carrots/potatoes/bell peppers would you buy?
Production	<ol style="list-style-type: none"> <li>Organic: certified organic production</li> <li>Traditional: traditional methods, such as natural fertilizer and small-scale production</li> <li>Conventional: use of external inputs such as chemical fertilizer and pesticides</li> </ol>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p><b>Option 1</b></p> </div> <div style="text-align: center;"> <p><b>Option 2</b></p> </div> <div style="text-align: center;"> <p><b>Option 3</b></p> </div> </div>
Origin	<ol style="list-style-type: none"> <li>Local: produced within a radius of 100 km from your city</li> <li>Non-local: produced beyond that radius</li> </ol>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p><b>Option 1</b></p> </div> <div style="text-align: center;"> <p><b>Option 2</b></p> </div> <div style="text-align: center;"> <p><b>Option 3</b></p> </div> </div>
Convenience	<ol style="list-style-type: none"> <li>15 min. to get to the point of sale</li> <li>30 min. to get to the point of sale</li> <li>45 min. to get to the point of sale</li> </ol>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p><b>Option 1</b></p> </div> <div style="text-align: center;"> <p><b>Option 2</b></p> </div> <div style="text-align: center;"> <p><b>Option 3</b></p> </div> </div>
Price (RON/kg)*	<ol style="list-style-type: none"> <li>Low</li> <li>Middle</li> <li>High</li> </ol>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p><b>Option 1</b></p> </div> <div style="text-align: center;"> <p><b>Option 2</b></p> </div> </div>
Appearance	<ol style="list-style-type: none"> <li>Perfect:</li> <li>Imperfect:</li> </ol>	

Note(s): Each respondent was shown only one of the vegetables. \*Different prices for potatoes, carrots, and bell peppers have been shown in the different choice sets

Source(s): Own depiction

time needed to get to a local farmers' or town market or supermarket, the most convenient choice in close proximity to most urban consumers.

The attribute appearance was represented by two pictures of each vegetable. One picture showed a perfect appearance and one a less perfect appearance (see [Table 1](#)). The three chosen price levels reflect the range of prices found in different outlets for vegetables in urban Romania. Prices were collected at farmers markets, supermarkets, hypermarkets, specialised organic shops, and AFN selling points. For the pooled analysis of the three vegetables, the levels were later aggregated into categorical values (low, middle and high).

The relevance of the chosen attributes, the empirical realism of the levels and the visualisation of the choices were crosschecked and validated with a small sample of urban consumers. An example of the presented choice tasks is shown in [Table 1](#).

We used XLstat to generate a d-optimal fractional factorial design with nine profiles for each vegetable studied. Each respondent was randomly assigned to one of the three vegetables: potato, carrot or bell peppers. The nine profiles were divided into 10 choice tasks with three profiles each. Thus, each of the 318 participants responded to 10 choice sets [1] with three product profiles (out of nine product profiles), resulting in 9,540 observations. A DCE simulates the purchasing process and assumes that consumers choose the alternative that provides the highest utility to them. The overall utility can then be decomposed into separate utilities for the attributes of the presented product. Our estimation was performed with effects-coded attributes based on a conditional logit model, also known as random utility model, calculated using the *clogit* command in STATA 17 [2]. To confirm the robustness of the results, we compared the results with a mixed logit and generalised multinomial approach (available on request). For more information on the theory and technicalities of the choice based random utility modelling we refer to the works of [Lancaster \(1966\)](#), [McFadden and Train \(2000\)](#), [Hauber et al. \(2016\)](#) and [Lancsar et al. \(2017\)](#).

### 3.2 Data

We collected data from a sample of 318 urban consumers in spring 2016 in two major cities in Romania: the capital Bucharest and Timisoara, the third largest city in the country. Urban adult consumers (at least 18 years of age, who regularly do the grocery shopping for their household) were randomly approached at various public places in and around city centres, such as public green spaces or shopping areas. With this approach we aimed to target the typical urban consumer. When several potential respondents were available at the same time, the interviewer favoured the respondent that differed from the previous respondent with regard to age and gender.

The survey started with the DCE, followed by a basic questionnaire on economic and demographic information and attitudinal statements on health, the environment and convenience. [Table A1](#) in [Appendix](#) presents an overview of the structure of the sample along with key socio-economic characteristics as well as the questionnaire itself.

## 4. Consumer preferences for fresh vegetable products: DCE results

### 4.1 Estimation results

[Table 2](#) presents the conditional fixed effects logit base model together with the relative importance of each of the five attributes. We also calculated the same models separately for the three vegetables used in the experiment as well as for income groups ([Table 2](#)).

In the base model, the convenience attribute is most important in determining consumers' purchasing decisions for vegetables. The relative importance of time convenience was 30%. As shown in [Table 2](#), a short time to the selling point has a high utility, while the inconvenient option of 45 min turned the utility heavily negative. Upper income groups are more sensitive to inconvenient shopping times.



**Table 2.**  
Pooled base model  
(conditional fixed  
effects logit) and split  
models along products  
and income groups

Attribute/levels	Pooled base model				Subsample split on products			Subsample split on income		
	Coeff	StdErr	P> z	95% Conf interval	Potatoes	Carrots	Bell peppers	Above avg	Average	Below avg
	Coeff	StdErr	P> z	95% interval	Coeff	Sig	Coeff	Sig	Coeff	Sig
<i>Production</i>										
Organic <sup>a</sup>	0.158	0.047	0.001	0.065	0.251	20%	0.161	29%	0.163	27%
Traditional	0.438	0.047	0.000	0.359	0.517	***	0.508	***	0.467	***
Conventional	-0.596	0.040	0.000	-0.688	-0.504	***	-0.668	***	-0.630	***
<i>Origin</i>										
Local	0.279	0.030	0.000	0.219	0.339	17%	0.221	11%	0.272	14%
Non-local <sup>a</sup>	-0.279	0.030	0.000	-0.339	-0.219	***	-0.221	***	-0.272	***
<i>Convenience</i>										
15 min	0.562	0.041	0.000	0.481	0.643	32%	0.514	29%	0.551	27%
30 min	0.025	0.030	0.404	-0.034	0.084	***	0.138	***	-0.007	**
45 min <sup>a</sup>	-0.587	0.045	0.000	-0.674	-0.499	***	-0.652	***	-0.544	***
<i>Appearance</i>										
Perfect	0.150	0.037	0.000	0.078	0.223	13%	-0.088	4%	0.238	12%
Imperfect <sup>a</sup>	-0.150	0.037	0.000	-0.223	-0.078	***	0.088	***	-0.238	***
<i>Price</i>										
Low	0.338	0.038	0.000	0.263	0.413	18%	0.517	26%	0.362	20%
Medium <sup>a</sup>	0.077	0.026	0.003	0.027	0.128	***	0.032	***	0.077	**
High	-0.415	0.043	0.000	-0.499	-0.331	***	-0.549	***	-0.438	***
Observations =		9,540			2,550		3,360		5,460	810
Log pseudo-likelihood =		-3066.03			-806.73		-1028.72		-1748.08	-250.75
Wald $\chi^2$ (8) =		500.19			164.26		185.19		380.00	93.05
Prob > $\chi^2$ =		0.0000			0.000		0.000		0.000	0.000
Pseudo $R^2$ =		0.1224			0.1361		0.1639		0.114	0.155

**Note(s):** <sup>a</sup>Indicates the omitted category; it should be noted that an effect-coded model compares differences to the mean attribute effect instead of the omitted category  
**Source(s):** Own data

The production method was almost as important as convenience (27%). When looking at the three vegetables separately, the production method was more important for carrots and bell peppers than for potatoes; for carrots, this attribute was the most important (Table 2). Conventional production has a strong negative utility. It is interesting to note, however, that consumers clearly preferred traditional over certified organic production. The preference for traditional production was particularly high for the poorest income group (Table 2). This reflects the fact that traditionally produced products are not only valued for their quality but their affordable price.

The visual appearance of the vegetables was the least relevant attribute, with a relative importance of 8%. Price and origin were of medium importance, with a relative importance of 20 and 15% respectively (Table 2). Interestingly, when it comes to the individual vegetables, the importance of price drops significantly for carrots, to the level of appearance, the least important attribute (Table 2). However, it is not clear why price is of less importance for carrots.

This study is specifically interested in ethical consumerism as a driver of demand for organic, traditional and local produce. Table 3 depicts three (partly overlapping) ethical consumer segments according to their stated interest in health, the environment and fairness towards producers. It can be seen that, across the three models, the production method was the most important attribute for ethical consumers. For the comparison group of less conscious consumers, convenience remained the most important attribute, followed by the production method and price. Organic production was of no interest to the less conscious consumer segment. For the ethical consumer segment, however, the utility of organic production was closer to, but still lower than traditional production. The highest utility for organic products was found for consumers who stated an interest in environmentally friendly production. Conventional production had a heavy negative utility for all consumer groups, especially ethical consumers.

For ethical consumers, convenience was the second most important attribute. Price was the third most important attribute for health and environmentally conscious consumers. Here, however, the relative importance was almost the same as for the origin attribute, which plays a much bigger role in the ethical consumer segment. This is particularly true for the group that holds fairness high in their ethical considerations, with 21% relative importance for the attribute origin, but only 12% for the attribute price. The choices made by this group in the experiment clearly reflect their desire to act in a fair way towards producers. If these consumers can buy local products, the price is less important. Fairness-oriented consumers were also least interested in the appearance of the vegetables. For all consumers, the attribute appearance was ranked lowest, but as expected, it had a very low weight for ethical consumers.

The utility gain derived from obtaining a certified organic vegetable instead of a product from conventional agriculture, calculated from the difference in the coefficients for the two attributes, was 0.754. This utility gain is congruent with the utility loss from a price increase from a low to a high cost (0.753). Hence, according to this simple trade-off calculation, organic carrots or potatoes could cost RON 1/kg (the difference between the low price level and the high price level) more than those from conventional agriculture without causing a utility loss [3]. For bell peppers, the price could increase by RON 5.5/kg from the lowest price level. This price premium is also shown in willingness-to-pay for ethical consumerism attributes, which were calculated for the three vegetable products separately: a premium for organic production was evident mostly for carrots (0.93) and bell peppers (0.81) and much less so for potatoes (0.13) (Table 4). In contrast, the willingness-to-pay a premium for local origin was comparatively high for potatoes (0.52). The willingness-to-pay for local origin was RON 0.31 for carrots and RON 1.11 for bell peppers.

**Table 3.**  
Results for base conditional fixed effects logit model split along ethical consumer segments

Attribute/levels	Health-oriented consumers <sup>a</sup>		Environment-oriented consumers <sup>b</sup>		Fairness-oriented consumers <sup>c</sup>	
	0	1	0	1	0	1
<i>Production (attribute importance)</i>						
Organic	0.023	0.292	0.057	0.450	0.046	0.384
Traditional	0.447	0.436	0.406	0.533	0.449	0.419
Conventional	-0.470	-0.728	-0.463	-0.983	-0.495	-0.804
<i>Origin (attribute importance)</i>						
Local	0.262	0.303	0.252	0.348	0.234	0.367
Non-local	-0.262	-0.303	-0.252	-0.348	-0.234	-0.367
<i>Convenience (attribute importance)</i>						
15 min.	0.615	0.510	0.560	0.543	0.578	0.545
30 min.	0.020	0.040	0.053	0.013	0.046	-0.002
45 min.	-0.635	-0.551	-0.613	-0.556	-0.624	-0.543
<i>Appearance (attribute importance)</i>						
Perfect	0.219	0.080	0.227	-0.053	0.209	0.033
Imperfect	-0.219	-0.080	-0.227	0.053	-0.209	-0.033
<i>Price (attribute importance)</i>						
Low	0.358	0.325	0.341	0.326	0.425	0.176
Medium	0.125	0.022	0.081	0.026	0.074	0.068
High	-0.483	-0.347	-0.421	-0.352	-0.499	-0.244
Number of respondents =	153	165	223	95	206	112
Observations =	4,590	4,950	6,690	2,850	6,180	3,360
Log pseudolikelihood	-1479.39	-1568.13	-2176.81	-840.26	-1987.77	-1044.03
Wald chi2 (8) =	237.58	273.49	363.79	186.99	338.08	194.41
Prob > chi2 =	0.000	0.000	0.000	0.000	0.000	0.000
Pseudo R2 =	0.120	0.135	0.112	0.195	0.122	0.152

**Note(s):** The groups refer to answers from the statements listed below, which were measured with a 5 point-Likert-like scale (from strongly agree to strongly disagree). Because answers were skewed towards agreement, the table refers to only two groups: consumers who strongly agree with the respective statement (1) vs all others (0)

<sup>a</sup> "A healthy diet is important to me."  
<sup>b</sup> "To me, it is important that the vegetables I buy are produced in an environmentally friendly manner."  
<sup>c</sup> "I would be willing to pay a higher price for vegetables, if the farmers profited directly and got a fair pay."

**Source(s):** Own data

These price premiums cannot be realised if the shopping time becomes highly inconvenient (45 min) due to a significant loss in utility. The possible market shares of hypothetical products with different attributes are listed in Table 5.

While a conventional product from a regular supermarket seems rather unattractive, local and traditional products offered on a nearby market could compete best. As expected, organically certified but high-priced and inconvenient to access food has only a limited market potential, estimated at 12%.

4.2 Discussion

Similar to findings from other countries (e.g. Bimbo et al., 2020), our analysis shows that ethical consumerism food attributes—in our case, local origin and organic or traditional production methods—are highly relevant to the vegetable purchasing decisions of urban Romanians and, in particular, ethical consumer segments. However, contrary to other studies (e.g. Yeh et al. (2021), we found that the main barrier to making an ethically driven choice was not price, but convenience. Indeed, the key constraint in all of our market scenarios was inconvenience of access to the point of sale. The disutility of this could easily neutralise the possible price premium for both organically certified and local origin products. In contrast, the product’s appearance played only a minor role in purchasing decisions. This is consistent with results from other transition countries, such as Poland, where the perfect appearance of agricultural products can have a negative connotation due to its association with the use of preservatives (Barska and Wojciechowska-Solis, 2018).

The production mode was found to be a very important purchasing criterion. The heavily negative utility of industrial production, compared to organic or traditional production, corresponds to the strong negative perception of mass-produced foods in other transition

	Potatoes			Carrots			Bell peppers		
	wtp	Conf. interval		wtp	Conf. interval		wtp	Conf. interval	
Traditional production	0.482	0.241	0.723	0.698	0.225	1.171	2.582	1.601	3.563
Organic production	0.134	-0.131	0.400	0.928	0.249	1.607	0.810	-0.154	1.775
Local origin	0.520	0.306	0.733	0.313	0.020	0.606	1.113	0.653	1.572

Source(s): Own data

Table 4. Willingness-to-pay for ethical consumerism attributes

Hypothetical fresh vegetable products		“Conventional supermarket”		Farmers’ market lower quality		Farmers’ market higher quality		
	“AFN organic”							
Origin	Local	0.279	Non-local	-0.279	Local	0.279	Local	0.279
Production	Organic	0.158	Conventional	-0.596	Traditional	0.438	Traditional	0.438
Convenience	45 min	-0.587	15 min	0.562	15 min	0.025	15 min	0.025
Appearance	Good	0.150	Good	0.150	Bad	-0.150	Good	0.150
Price	High	-0.415	Medium	0.077	Low	0.338	High	-0.415
Utility		-0.415		-0.085		0.929		0.477
exp (Utility)		0.661		0.918		2.533		1.612
Sum exp (U)				5.723				
			Estimated market share					
Probability	0.12		0.16		0.44		0.28	

Note(s): This calculation is based on the pooled model  
Source(s): Own data

Table 5. Estimated market shares for ethical consumerism products

economies (Poças Ribeiro *et al.*, 2021). However, a price premium for certified organic products would only be possible in a relatively small, ethical and in particular environmentally conscious consumer segment, and in higher income classes. This is also mirrored in other transition countries. For instance, farmers' markets in Prague usually do not offer organic food, as market organisers and consumers see organic food as unreasonably expensive (Fendrychová and Jehlička, 2018).

A key result of the study is that the surveyed consumers strongly preferred non-certified "traditional" vegetables over certified organic products. This supports our initial hypothesis that traditionally produced products outcompete certified organic products. While it may seem surprising that non-certified traditional production is preferable to certified organic food, Romanian consumers are known to highly appreciate the naturalness and superior taste of products from low-input small-scale farms sold on local markets or provided by relatives from rural areas. Another reason for this was proposed by Moser *et al.* (2011), who found that the organic attribute may be less preferred due to trust issues and the complexity of organic certification processes. These trust issues are also found in Western Europe but to a lower degree (Yeh *et al.*, 2021). However, Güney and Giraldo (2019) show that consumers often simply do not differentiate, for example, between organic and free-range eggs in their purchasing decisions. Hence, traditional production may also be viewed as "organic enough" for a better price.

While we could not confirm that consumers prefer local production over organic production (Winterstein and Habisch, 2021), the attribute "origin" has significant weight among ethical consumers and, in particular, those that hold fairness towards producers high in their ethical considerations. In Romania, we interpret the preference for traditional production as an indication of the broader meaning of "local". While the origin is not the most important as a self-standing attribute, it is certainly intrinsically linked to other attributes and, in particular, the traditional production mode. Its relevance must therefore not be underestimated. This was also found in other transition economies, such as Poland (Barska and Wojciechowska-Solis, 2018) and Montenegro (Melović *et al.*, 2020a).

#### 4.3 Limitations and future research

This study, of course, has its limitations. For example, survey respondents were younger, better educated and had higher incomes than the average Romanian consumer. However, while our survey is not representative and generalisations cannot be made beyond the sample, we believe it is typical of urban organic food consumers. Further limitations may lie in biases related to unobserved systematic differences in preferences, self-presentation and social desirability (Auger and Devinney, 2007; Hauber *et al.*, 2016) or a gap between what consumers claim to care about and their actual purchasing behaviour (Auger and Devinney, 2007). Therefore, the DCE results must be interpreted with some caution.

An extended, representative survey could prove the robustness of our results. In particular we recommend conducting a broader investigation into the meaning of traditional agriculture and how it is interwoven with the concept of origin and other important food values. This investigation should go beyond looking at only one country: a cross-cultural study might not only provide a conclusion on the regional transferability of the results, but would gain insights into the impact of cultural, geographical and demographic factors on consumer segmentation (e.g. Ferraris *et al.*, 2019).

## 5. Conclusions

Our paper offers three important contributions to the study of food purchases and ethical consumerism with implications for stakeholders in the AFN sector. First, this research widens the view on AFN relevant attributes by introducing the traditional production mode into a choice experiment. We demonstrate that food flagged as traditionally produced is

highly preferred. The preference and willingness to pay a premium for organic and locally produced foods vary by consumer segments. Second, the study contributes to closing the gap on an under-researched region by looking at a transition economy where interest in ethical consumerism is only just emerging. The high valuation of traditional agriculture among consumers has received little discussion in the literature, but its relevance certainly extends to other (but not only) Eastern and South-Eastern European countries.

Third, the study provides relevant insights into the market potential of emerging AFNs. The market simulations show that higher-priced local products of certified organic quality have a market potential only among a small group of ethical consumers, but products from small-scale farms marketed as traditionally produced are highly competitive. Convenience may be more important than organic certification for gaining market share. This should provide important guidance for producers and retailers of sustainably produced local food on how to market and promote these products via AFNs and other marketing channels.

For Romania's small-scale producers and AFNs, bringing traditionally produced vegetables closer to urban consumers could open an excellent market opportunity with a substantial price premium. It appears that, in Romania, the "new organic" is not simply local but it is found in the wholesome nature of traditional production.

## Notes

1. We follow here the rule of thumb of using 8 to 15 choice tasks to avoid survey fatigue but allow for the estimation of part-worths.
2. The conditional logit relies on the same statistical assumptions as a multinomial logit approach but uses a binary dependent variable. McFadden (1974) introduced the term when he first showed that conditional logit was consistent with random utility theory.
3. At the time of the survey RON 1 equalled EUR 0.22 or USD 0.25.

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	Total sample (n = 318)		Bucharest (n = 160)		Timisoara (n = 158)	
	Mean	n	Mean	n	Mean	n
Age of respondent in years	35.27	316	35.71	158	34.82	158
Number of household members	2.75	315	2.96	157	2.54	157
• Adults	2.31	315	2.41	157	2.20	157
• Children (<18)	0.44	315	0.54	157	0.33	157
Female respondents dummy	0.59	318	0.58	158	0.61	158
<i>Education dummies</i>						
High school	0.32	318	0.36	160	0.29	158
University	0.65	318	0.63	160	0.68	158
Other	0.02	318	0.02	160	0.03	158
<i>Employment status dummies</i>						
Employed	0.50	317	0.46	160	0.53	157
Self-employed	0.16	317	0.16	160	0.17	157
Unemployed	0.01	317	0.01	160	0.01	157
Student	0.18	317	0.19	160	0.18	157
Pensioner	0.10	317	0.12	160	0.08	157
House wife/husband	0.05	317	0.06	160	0.04	157
<i>Income status dummies</i>						
Below average	0.07	318	0.07	160	0.08	158
Above average	0.08	318	0.06	160	0.11	158
Average	0.57	318	0.59	160	0.55	158
Not specified	0.27	318	0.28	160	0.27	158
<i>Ethical consumer statements*</i>						
"A healthy diet is important to me"						
1	0.52	318	0.46	160	0.58	158
2	0.40	318	0.44	160	0.37	158
3	0.07	318	0.10	160	0.04	158
4	0.00	318	0.00	160	0.01	158
5	0.00	318	0.01	160	0.00	158
"To me it is important that the vegetables I buy are produced in an environmentally friendly manner"						
1	0.30	318	0.28	160	0.32	158
2	0.41	318	0.40	160	0.42	158
3	0.23	318	0.25	160	0.22	158
4	0.03	318	0.03	160	0.03	158
5	0.03	318	0.04	160	0.01	158
"I would be willing to pay a higher price for vegetables, if the farmers profited directly and got a fair pay"						
1	0.35	318	0.34	160	0.36	158
2	0.45	318	0.46	160	0.44	158
3	0.12	318	0.12	160	0.11	158
4	0.06	318	0.06	160	0.07	158
5	0.02	318	0.03	160	0.02	158

**Note(s):** \*Ethical consumer statements were measured on a 5 point-Likert-like scale (from strongly agree to strongly disagree)

**Table A1.**  
Sample characteristics

**Source(s):** Own data

Dear Madam/Sir,  
This survey is part of a joint research project of the University of Halle and the Leibniz Institute of Agricultural Development in Transition economies, Germany. Please allow about 15 minutes to complete it. We guarantee the confidentiality and anonymity of your data and that it will only be used for scientific purposes. Thank you very much for your cooperation! For further details, feel free to inquire us.

Do you regularly do shopping of food for your household?  
 Yes  No

1. Choice Tasks:

Task	Option	Task	Option
1.	/-----/	6.	/-----/
2.	/-----/	7.	/-----/
3.	/-----/	8.	/-----/
4.	/-----/	9.	/-----/
5.	/-----/	10.	/-----/

2. How old are you? /-----/
3. What is your gender?  Male  Female
4. Including yourself, how many other people live in your household?  
Adults /-----/  
Children under 18 /-----/
5. Did you grow up in the countryside?  
 Yes  No
6. What is the highest level of formal education you have completed?  
 None  High school  
 Primary school  University  
 Secondary school
7. What is your main employment status?  
 Employee  Student  
 Self-employed  Pensioner  
 Unemployed  House wife/husband
8. Where do you most often shop for vegetables?  
 Supermarket  Corner shop (butic)  
 Town market  Other: \_\_\_\_\_
9. Are you a vegetarian?  
 Yes  No

10. How do you estimate the income of your household?

- Lower than average  Average  
 Above average  Not specified

11. Please rate on a scale from 1 to 5:

1	2	3	4	5
Strongly agree	Agree	Neutral	Disagree	Strongly disagree

a. A <b>healthy diet</b> is important to me	
b. I don't mind <b>spending time</b> on preparing and <b>cooking</b> food	
c. The <b>brand</b> of a product plays an important role for my product choice when I shop food items	
d. I would be willing to pay a <b>higher price</b> for vegetables if the <b>farmers profited</b> directly and got a fair pay	
e. I usually buy vegetables that are in <b>season</b>	
f. <b>Convenience</b> is important for me and I do not want to spend much <b>time</b> for grocery shopping	
g. I don't mind going to a more <b>distant shop</b> to get the <b> freshest vegetables</b>	
h. The perfect <b>appearance</b> of vegetables is a clear sign of their quality	
i. To me it is important that the vegetables I buy are produced in an <b>environmentally friendly</b> manner	
j. When I buy vegetables the <b>price</b> matters very much	
k. I usually check the <b>origin</b> of vegetables on the packaging or I ask the seller about it	
l. I prefer to <b>know and trust the seller</b> where I buy vegetables	
m. I would pay a <b>higher price</b> for vegetables and fruit that are <b>certified organic</b>	
n. When I buy vegetables <b>less packaging</b> is an important decision criterion for me	
o. My <b>family and friends</b> influence me in my eating and shopping behaviour	
p. I consume <b>fast food</b> regularly	

12. Have you ever heard about Community Supported Agriculture?  Yes  No  
 I am a CSA member