

Research article

What makes a devoted local-food-buying club customer?

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ABSTRACT

Local food-buying clubs (LFBCs) are special types of consumer-driven grassroots groups that are particularly well suited to enhancing the transition to a post-growth economy, given the finite growth potential of individual communities, the tendency of groups to distribute rather than accumulate capital, and the prospects of the movement for expansion. This paper analyses consumers of LFBCs and analyses how the different constructs proposed by the theory of planned behaviour are applicable according to engagement with LFBCs. A representative survey was run in May 2020 in Hungary. Respondents who were classified as devoted (regular) LFBC customers, occasional LFBC customers, and consumers not interested in local food were compared pairwise through matching-based treatment effect analysis approaches. Consumers of LFBCs comprised a heterogeneous group based on their pre-existing beliefs and attitudes. Occasional LFBC customers emphasised the broad quality-related features of local food and the potential for supporting local farmers. For more devoted customers, environmental aspects were very important. As belonging to a group has been shown to shape attitudes, targeted messages applied by LFBC managers may increase the level of engagement, contributing to the more efficient scaling up of local food systems.

1. Introduction

Local food systems have increasingly been attributed a remarkable potential to foster the sustainability transition [1,2]. The traditional marketing channels of local food systems, such as local markets and direct purchasing from producers, have been re-emerging in response to the globalisation of food markets [3]. These traditional channels are being complemented by modern practices that often rely on information technology [4,5]. Local-food-buying clubs (LFBCs) are an extraordinary and novel local-food marketing channel due to their increasing popularity [6,7], their flexibility and COVID-tested ability to ensure food security during times of turmoil [8].

In general, buying clubs involve groups of individuals who pool their resources to purchase products in bulk quantity directly from producers, wholesalers, or distributors [4,9]. Members typically place orders for specific items, and the club then coordinates the purchasing and distribution among its members. Theoretically, buying clubs may increase the efficiency of market relations by coordinating the actions of multiple market actors [10].

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1.1. Local-food-buying clubs

Local-food-buying clubs represent a unique approach to local food distribution. Similarly to other values-based territorial food networks [11], strong ethical and environmental considerations prevail in LFBCs [12]. Important aims include demonstrating solidarity with local producers (thus, fair prices are supported instead of low prices), revitalising local economies, and obtaining healthy and trustworthy food associated with minimal environmental impact [13–15]. Unlike farmers' markets, LFBCs offer stability and predictability for farmers by minimising surplus through pre-ordering. Additionally, institutionalisation enhances cooperation with farmers [16].

The level of consumer control is relatively high in LFBCs compared to farmers' markets, thanks to stricter criteria for producer involvement and regular farm visits [17]. Compared to farmers' markets and other direct sales channels, there is therefore less information asymmetry between producer and consumer, resulting in greater consumer confidence [18]. LFBC customers often report a higher level of engagement with their buying community than farmers' market patrons [19].

LFBCs, similar to box schemes, consumer-driven food hubs, and consumer cooperatives, have the potential to scale up local food systems efficiently [20,21] due to their capacity to involve a large number of consumers and institutions while maintaining authenticity, which is a property inherent to the local food domain [22]. The scaling-up potential of LFBCs was clearly illustrated after the outbreak of COVID-19 [1,23,24]. As a result of the rapid and efficient flow of information between members, and a flexible structure that requires only a moderate level of commitment from both producers and consumers, LFBCs were able to adapt very quickly to the constantly changing circumstances [8]. Besides ensuring authenticity, LFBCs may also offer a wide choice, unlike direct sales channels that are organised around one or a few farmers (Community-Supported Agriculture, CSA, on-farm and roadside sales, etc.).

LFBCs are particularly well suited to contributing to the transition to a post-growth economy, given the finite growth potential of individual communities, the tendency of groups to distribute rather than accumulate capital, and the prospects of the movement for expansion [17]. The community-building and awareness-raising work of LFBCs is even more important in places where civil society is weak and the level of cooperation is low, such as in Hungary.

Overall, LFBCs represent a dynamic and impactful local food model that is associated with unique advantages in terms of promoting sustainable, community-driven food networks. Through their emphasis on ethical and environmental considerations, scalability, efficiency, and community engagement, LFBCs contribute significantly to reshaping consumer behaviour and fostering the transition to a more sustainable and equitable food system. Despite their remarkable transformative potential, the literature on LFBCs is somewhat incomplete compared to that on farmers' markets, community supported agricultural schemes, and other local food sales channels. This paper addresses this shortfall by focusing on LFBCs and, more specifically, on the attitudes and preferences of LFBC customers.

1.2. Consumer attitudes in local food systems

While different forms of local food systems share the goal of connecting consumers with local producers and promoting sustainable food systems, their distinct structures give rise to differences in consumer motivations and experiences. With the broadening of the local food movement, many different types of consumers with diverse motivational backgrounds have recently been identified [25,26]. For example, CSA members are particularly driven by health concerns and a desire for information about their food [27]. Farmers' market consumers are more likely to view their participation as a leisure activity and a way to support the local economy [28,29]. The latter motivation is often reported in the context of local food purchases in general [25], although with more personal relationships and fewer participants (such as with CSAs) it may take the form of a desire to support the financial stability of a well-known farmer by offering a guaranteed income and reducing market risks [30].

In spite of a growing body of research on consumer motivations in the context of local food systems, there remains a need for more in-depth exploration. The unique characteristics of LFBCs underscore their potential to redefine our comprehension of consumer behaviour within local food systems. It is expected that LFBC consumers will form a heterogeneous group.

The typical drivers of general local food consumption can be classified into three major groups [31]: (1) food quality and health-related issues; (2) social and economic justice; and, (3) concern for the environment. Local food consumers are often reported to believe that local food items are healthier and of higher quality than food sourced through conventional retail outlets. Reasons include increased freshness, better taste, food safety, and traceability issues as a consequence of seasonality, sustainable production methods, short transportation distances, and the existence of direct interaction [32,33]. Local food purchases are often regarded as a means of prosocial helping behaviour aimed at revitalising local economies [4,34], even though a positive impact on local economies is not always detectable [35]. Local food production and distribution are frequently associated with less use of pesticides, more respect for biodiversity, avoidance of genetically modified organisms, reduced use of unsustainable packaging materials, better environmental performance due to reduced food miles, and acknowledgement of animal welfare issues, etc. [36], although (similar to the claimed local economic benefits) the better environmental performance of the former is not always supported by data [37]. The existence of these general sources of motivation for local food consumption, as explained above, has also been verified with diverse consumer-initiated grassroots initiatives [19,38]. Therefore, no specific attitude was prioritised in the current analysis.

The objective of this study was to deepen understanding of consumer attitudes and preferences regarding the latter's level of interest in local food purchases and participation in local-food-buying clubs. When narrowing down the research questions, the continuum constructed by Brunori and colleagues [39] was employed to distinguish between consumers according to their involvement in alternative food networks. Our research questions were formulated as follows. RQ1: How are attitudes and other behavioural determinants associated with the local-food-buying behaviour? RQ2: What are the differences in attitudes and other behavioural

determinants associated with local-food-buying behaviour of consumers who are i) not interested in local food purchases, ii) occasional buyers, and iii) regular local-food-buying club customers?

2. Theoretical framework

In this paper, the theory of planned behaviour (TPB), proposed by Ajzen [40] was employed. The TPB framework is widely used to analyse consumer decision-making. It postulates that specific behaviour develops from individual intention, depending on attitudes, subjective norms, and perceived behavioural control (Fig. 1).

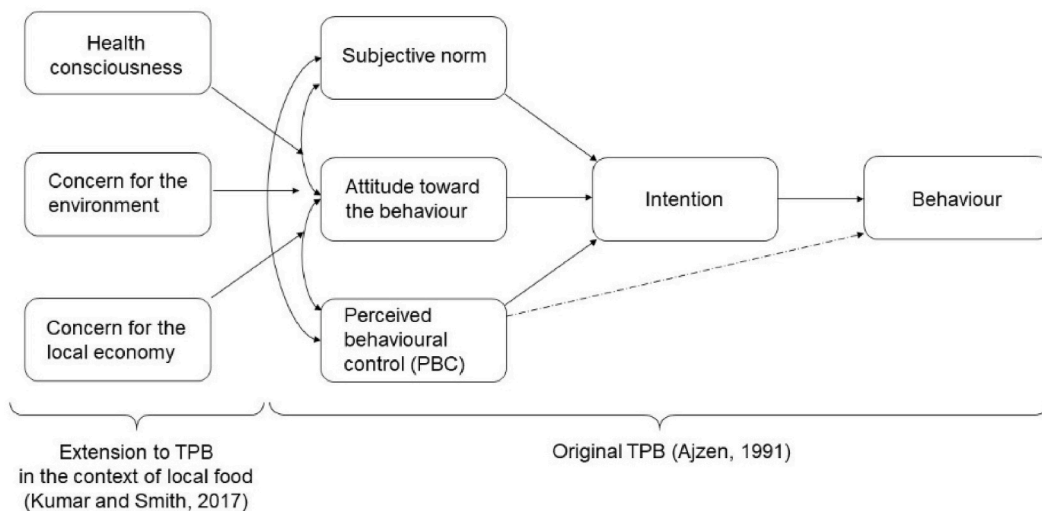
The popularity of TPB is partly due to its flexibility, which allows for its application in various contexts [41], from the analysis of bike-sharing activities during holidays [42] to predicting sexual risk behaviour [43]. TPB has been increasingly used in the local food domain and related fields. Attitudes towards local food, including consumer ethnocentrism and the ambition of supporting local agri-food businesses, have been found to be significant predictors of intention [26]. Wenzig and Gruchmann [31] confirmed the importance of norms in influencing local food-buying behaviour among German consumers. In contrast, social norms were not reported to affect intentions in Australia and Chile [26], or in the USA [44]. Subjective norms proved to be an important factor in shaping the organic food-buying habits of Pakistani students [45] as well as those of British and Italian but not Finnish consumers [46]. Giampietri and her colleagues [47] identified the role of trust, besides attitudes, subjective norms, and perceived behavioural control, as a direct predictor of the intention to purchase food through short food supply chains. An analysis of the halal food-purchase habits of non-Muslim consumers in Malaysia confirmed the impact of all three classic TBP constructs [48], and similar results were obtained from an analysis of the sustainable food consumption of Belgian consumers [49]. The robustness of the original TPB model was also validated by the meta-analysis of Scalco et al. [50] concerning organic food consumption. In Kumar and Smith's study [51], attitudes and subjective norms, but not perceived behavioural control, significantly impacted US consumers' local food purchasing intentions.

To conclude, all three behavioural determinants – subjective norms, attitudes and perceived behavioural control – have proved vital in one context or another. Thus all of them were involved in the current analysis. Furthermore, regarding the extensions of TPB [41], Kumar and Smith have suggested an elegant framework concerning (and confirming) the role of health consciousness, concern for the environment, and concern for local economies as significant predictors of attitudes [51]. The latter three aspects often arise in the context of local food and are also involved in this analysis.

3. Materials and methods

3.1. Survey and the data

The propositions and the plan of analysis were specified before collecting the data. To study attitudes and preferences associated with commitment to LFBC participation among Hungarian consumers, a questionnaire was administered. All procedures undertaken in the study were in accordance with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. The ethics review procedure complied with the Guidance Note "Ethics in Social Sciences and Humanities", issued by the European Commission in 2018. Informed consent was obtained from all respondents. Phone interviews were implemented by a professional survey company in



Note: TPB: Theory of Planned Behaviour

Fig. 1. Theoretical framework: the theory of planned behaviour (Ajzen, 1991, p. 182), with its extension in the context of local food, as proposed by Kumar and Smith (2017, p. 4).

May 2020, ensuring that the survey was representative of the adult Hungarian population (18 years of age or more) in terms of demographic characteristics and regional distribution, in alignment with data from the 2016 micro census. Initially, 104 settlements were identified, from which 87,400 individuals were selected based on their surnames for potential inclusion in the survey. Subsequently, a multi-stage sampling approach was employed, initially focusing on regional distribution and settlement type, followed by stratification across a four-dimensional matrix (gender, age, education level, and settlement type). Participation was limited to Hungarian individuals aged 18 years and above. The final sample size consisted of 1000 participants.

Respondents were asked about whether they had bought local food regularly or occasionally before the outbreak of the pandemic. Those who indicated “yes” (912 participants) were asked to evaluate the frequency of purchases through some selected marketing channels, including LFBCs, on a five-point scale (1: I did not use this channel at all; 5: I used this channel regularly). Respondents were classified *a posteriori* as regular (devoted) LFBC customers if they specified an importance of 4 or 5 ($N = 149$) for LFBCs as sources of local food and occasional (less devoted) LFBC customers if they scored this channel 2 or 3 ($N = 166$). Eighty-eight people were not interested in local food items at all, while 597 participants were classified as local food customers who were not involved with LFBCs (data for the latter subsample were not used in the current analysis).

Data were collected on the socio-demographic and economic characteristics of the interviewees and their households (Table 1).

Another section was used to collect data about the attitudes and preferences of respondents towards local food. Table 2 presents behavioural determinants as constructs of the extended TPB framework applied in this study. The questionnaire items we utilised are commonly employed in relevant literature that explores this topic, with corresponding references provided in Table 2. Additionally, two questions were developed internally. Their inclusion was warranted, particularly in the case of subjective norms, due to the comprehensive nature of the extended TPB framework, which incorporates health-related considerations as significant determinants of behaviour (Fig. 1). To ensure a balanced perspective, attitudes towards local food and the environment and attitudes towards healthy eating were assessed. Another custom question addressed attitudes to managing on a tight budget, reflecting the economic challenges faced by Hungarian households (the latter’s purchasing power parity was 26 % below the European Union average in 2020, according

Table 1
Summary statistics of survey participants.

Variables	Non-local food consumers		Occasional LFBC customers		Regular LFBC customers	
	N	%	N	%	N	%
<i>Gender</i>						
Female	41	46.6	79	47.6	93	62.4
Male	47	53.4	87	52.4	56	37.6
<i>Age</i>						
18–29	20	22.7	19	11.4	25	16.8
30–39	8	9.1	27	16.3	19	12.8
40–49	13	14.8	29	17.5	23	15.4
50–59	7	8.0	32	19.3	37	24.8
60–69	16	18.2	35	21.1	28	18.8
>69	24	27.3	24	14.5	17	11.4
<i>Education</i>						
Completed primary education or lower	10	11.4	18	10.8	21	14.1
Completed vocational education	28	31.8	49	29.5	45	30.2
Completed secondary education	36	40.9	50	30.1	59	39.6
Completed higher education or higher	14	15.9	49	29.5	24	16.1
<i>Type of settlement</i>						
Village	24	27.3	37	22.3	22	14.8
Town	10	11.4	36	21.7	23	15.4
County capital	27	30.7	53	31.9	54	36.2
Capital (Budapest)	27	30.7	40	24.1	50	33.6
<i>Household size</i>						
1 member	11	12.6	31	18.7	15	10.1
2 members	40	46.0	59	35.5	53	35.6
3 members	22	25.3	35	21.1	43	28.9
4 members	11	12.6	23	13.9	16	10.7
more than 4 members	3	3.4	18	10.8	22	14.8
<i>Number of children (below 14 yrs)</i>						
0	72	82.8	122	73.5	112	75.2
1	9	10.3	29	17.5	23	15.4
2	6	6.9	14	8.4	8	5.4
3 or more	0	0.0	1	0.6	6	4
<i>Net monthly per capita income (euro)¹</i>						
Below 500	7	14.6	18	21.4	10	11.8
500–749	20	41.7	22	26.2	20	23.5
750–999	10	20.8	6	7.1	12	14.1
1000–1249	5	10.4	14	16.7	19	22.4
1250–1499	2	4.2	13	15.5	13	15.3
More than 1500	4	8.3	11	13.1	11	12.9

Note: ¹ Average net monthly income in Hungary was 757 EUR in the first quarter of 2020 (Hungarian Central Statistical Office data).

Table 2
Constructs of the TPB, questionnaire items and sources.

Construct	Measure	Source
<i>Past behaviour</i>	How often has your household bought local food in previous months?	[31]
<i>Intention</i>	How often do you intend to buy local food in the next three months?	[31,47]
<i>Attitudes</i>		
<i>Attitude - local food</i>	Buying local food is important to me.	[31]
<i>Attitude - organic food</i>	Eating organic food is important to me.	[36]
<i>Attitude - cooking</i>	I like cooking.	[36]
<i>Subjective norms</i>		
<i>Subjective norm - local food</i>	According to my friends, everyone should buy local food.	[31,47]
<i>Subjective norm - healthy eating</i>	According to my friends, it is important to eat healthily.	Authors' elaboration
<i>Subjective norm - environmental consciousness</i>	According to my friends, acting in a pro-environmental manner is important.	[52]
<i>Perceived behavioural control</i>	I know places and sources from where I can buy local food.	[31,47]
<i>Health consciousness and quality aspects</i>		
<i>Taste</i>	Local food products are tasty.	[53]
<i>Freshness</i>	Local food products are fresh.	[36]
<i>Safety</i>	Food obtained directly from the farmer is safe.	[54]
<i>Health</i>	Food obtained directly from the farmer is healthy.	[53]
<i>Economic consciousness</i>		
<i>Reasonable price</i>	The price of local food is reasonable.	[53]
<i>Low-budget food</i>	I try to buy low-budget food as much as possible.	Authors' elaboration
<i>Supporting local farmers</i>	Supporting local farmers is important to me.	[53]
<i>Environmental consciousness</i>		
<i>Environmentally friendly</i>	When possible, I always try to choose environmentally friendly solutions.	[53]
<i>Environmental impact of transport</i>	I consider the environmental impact of transport to be important.	[36,54]
<i>Pesticide-free</i>	Pesticide-free production of the food I eat is important to me.	[36,53]
<i>Biodiversity</i>	The impact of the food I eat on biodiversity (of pollinators, of seeds, etc.) is important to me.	[55]
<i>Zero waste</i>	I consider the amount of packaging materials.	[56]

to Eurostat, 2021).

3.2. Empirical strategy

The sample was split into three groups (see Section 3.1): non-local food consumers, occasional LFBC customers, and regular LFBC customers. Drawing inspiration from the empirical strategies employed by Pascucci and colleagues [57] and Pék et al. [58], pairwise comparisons were made as follows: 1. non-local food consumers were compared with occasional LFBC customers; 2. non-local food consumers were compared with regular LFBC customers; and 3. occasional LFBC customers were compared with regular LFBC customers. The empirical strategy is shown in Fig. 2.

For each of the three pairwise comparisons, three methods were used to estimate the effect of participation on the factors that influence behaviour. Items were considered to be impacted by a higher level of commitment that were significant at a minimum 10 per cent level in at least two out of the three modelling approaches (regression adjustment, propensity score matching, and entropy balancing).

More intensive participation (a higher level of engagement) in LFBCs was understood as the ‘treatment’, while the benchmark (counterfactual) group was always the less devoted subsample. Assuming that the observable characteristics that potentially impact

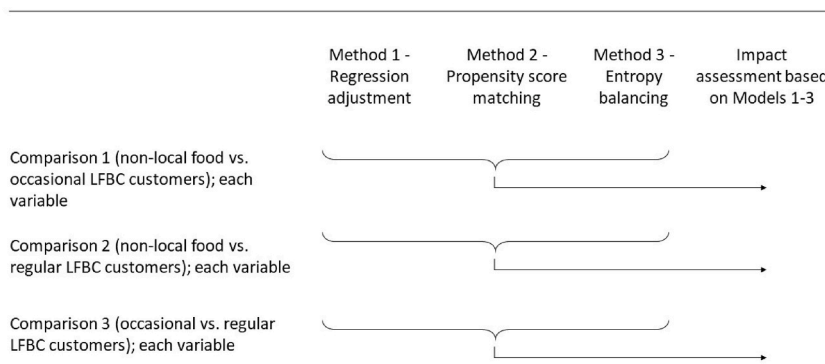


Fig. 2. Empirical strategy.

group membership (gender, age, level of education, type of settlement, household size, number of children below 14, and per-capita income) are controlled for, any systematic difference that emerges between the groups can then be attributed to the treatment (engagement). The following research question was employed: What was the average treatment effect on the treated (ATET); in other words, what was the gain from more intensive LFBC participation in terms of intentions, attitudes, subjective norms, etc.? This research direction was based on the massive evidence about the role of social identity, belonging to a group, and previous behavioural experience in shaping attitudes and attitude-behaviour consistency, as well as the potential of local food systems to influence consumer behaviour [59–61].

Three methods were applied to estimate ATET (in order of rigour): regression adjustment, propensity score matching, and entropy balancing (Fig. 2). Regression adjustment (RA) is often used to reveal differences (and thus to reduce bias) among observed baseline characteristics (covariates) between treated and untreated subsamples [62], and has increased statistical power for binary and continuous outcomes [63]. The RA estimator was calculated following Rubin [64]. In spite of its simplicity and consistency, RA may provide biased estimates when the distribution of the covariates is divergent [65], or the sample size is small [66]. Therefore, additional approaches were introduced.

Due to the observational or quasi-experimental nature of the analysis (no strict experimental design was constructed to create control groups), sample selection bias may be present. In order to minimise this (and to account for the potentially wide distribution of characteristics of the covariates), treatment independents (covariates) were used to form pairs of consumers, one from each group, who resembled one another as much as possible [67], and the outcomes (i.e., the constructs of TPB) were compared between them. Following the specifications of Rosenbaum and Rubin [68], propensity scores were calculated that accounted for the probability of being treated. Thus, the original research question was reformulated as ‘What would have happened to the attitudes, subjective norms, etc. of less devoted consumers if they had been more engaged with LFBCs?’ The application of propensity scores increased the reliability of the estimation strategy by evaluating the similarity of the control and the treated subsamples. Matching the treated observations to the nearest control observations with respect to propensity scores allowed for the highest level of comparability.

The final method that was employed to estimate ATET was entropy balancing, as proposed by Hainmueller [69], which ensures covariate balance between treatment and control samples in the case of binary treatment (its extension to continuous treatments has been recently proposed by Ref. [70]). In this approach, non-negative weights are estimated for each observation in the control sample. Thus, the descriptive statistics of the covariates in the weighted control and treated samples become very similar. Thus, covariate balance is secured without identifying a propensity score model or specifying a match in which one treated observation is assigned to a pair from the control sample [71]. While entropy balancing is easy to implement and outperforms conventional weighting estimators in many cases [72], there are limitations to the approach – for example, when extreme weights are assigned to control sample observations [69] (and potentially, when panel data are used, see Ref. [71]).

Subsequently, the results of the three modelling approaches (regression adjustment, propensity score matching, and entropy balancing) were compared to evaluate the influence of a higher level of commitment on each variable (Fig. 2). Items deemed impacted

Table 3
Descriptive statistics of the constructs suggested by an extended theory of planned behaviour according to subsample.

TPB Construct	Min	Max	Non-local food consumers (N = 88)			Occasional LFBC customers (N = 166)			Regular LFBC customers (N = 149)		
			N	Mean	SD	N	Mean	SD	N	Mean	SD
<i>Past behaviour</i>	1	7	83	4.49	1.89	166	2.89	1.17	149	2.85	1.22
<i>Intention</i>	1	7	77	4.44	1.90	166	2.91	1.13	144	2.94	1.35
<i>Attitudes</i>											
Attitude - local food	1	5	85	3.25	1.32	166	3.90	1.01	149	4.16	1.03
Attitude - organic food	1	5	86	2.70	1.38	163	2.64	1.22	148	2.96	1.41
Attitude - cooking	1	5	87	3.66	1.53	166	3.85	1.31	148	4.29	1.19
<i>Subjective norms</i>											
Subjective norm - local food	1	5	79	3.30	1.23	158	3.81	1.07	145	3.82	1.25
Subjective norm - healthy eating	1	5	82	3.82	1.13	158	4.06	0.93	143	4.18	1.06
Subjective norm - environmental consciousness	1	5	80	4.14	0.94	160	4.19	0.91	145	4.39	0.94
<i>Perceived behavioural control</i>	1	5	85	3.06	1.43	165	4.10	0.92	148	4.39	0.91
<i>Health consciousness</i>											
Taste	1	5	80	3.98	0.97	165	4.30	0.79	147	4.53	0.71
Freshness	2	5	85	4.00	0.96	165	4.27	0.76	149	4.52	0.65
Safety	1	5	84	3.95	1.05	163	4.27	0.79	147	4.48	0.74
Health	1	5	84	3.95	1.03	161	4.12	0.88	147	4.44	0.65
<i>Economic consciousness</i>											
Reasonable price	1	5	81	3.06	1.29	162	3.45	1.13	147	3.25	1.18
Low-budget food	1	5	87	3.80	1.33	166	4.04	1.04	149	4.23	1.01
Supporting local farmers	1	5	85	3.67	1.29	164	4.05	0.89	149	4.19	0.94
<i>Environmental consciousness</i>											
Environmentally friendly	1	5	86	4.16	0.99	166	4.28	0.79	149	4.54	0.74
Environmental impact of transport	1	5	80	3.79	1.17	163	4.04	0.89	148	4.26	1.00
Pesticide-free	1	5	85	4.19	1.03	165	4.33	0.74	149	4.56	0.71
Biodiversity	1	5	83	4.12	1.02	166	4.27	0.75	146	4.53	0.83
Zero waste	1	5	86	3.87	1.11	166	4.13	0.83	149	4.39	0.94

had a significance at a minimum level of 10 per cent in at least two of the three modelling approaches. Additionally, the consistency of results in terms of signs was assessed.

4. Results

This section presents the study’s findings, focusing on attitudes and other behavioural determinants across three consumer groups: non-interested consumers, occasional buyers, and regular local-food-buying club customers. The analysis highlights differences in perceptions of food quality, social and environmental concerns, and the influence of subjective norms on local food purchasing behaviour, providing insights into the diverse motivations driving LFBC participation.

Table 3 contains the detailed descriptive statistics of the subsamples.

Regular LFBC customers are characterised by their distinctive environmental consciousness, coupled with a preference for fresh, high-quality produce. Demographically, they tend to be middle-aged and have a higher-than-average household income, which allows them to prioritise the perceived benefits of local food over price considerations. When comparing the attitudes and other behavioural determinants of the three consumer profiles – non-interested consumers, occasional buyers, and regular LFBC customers – distinct differences emerge. Non-interested consumers are primarily driven by convenience and cost, often perceiving local food as expensive or inconvenient to purchase. In contrast, occasional buyers show moderate interest in local food: they value its quality but are not as motivated by the broader environmental benefits. Regular LFBC customers, on the other hand, are highly motivated by these non-tangible benefits, which, coupled with their consistent purchasing habits, clearly differentiate them from the other groups.

As the different matching approaches involve trade-offs related to the quality and number of matches, and none can be considered fundamentally better than the other [73], all three matching results are reported. In most cases, the three methods gave robust and consistent results in terms of the significance, direction, and magnitude of estimated ATETs.

4.1. Comparing non-local food consumers to occasional local-food-buying club customers

Table 4 reports the estimates of ATET when occasional LFBC customers were compared to non-local food consumers.

Being more engaged with LFBCs resulted in more frequent local food purchases in the past, and the intention to buy local food in the coming months appeared to be stronger, irrespective of the model that was used. Furthermore, occasional LFBC customers were more aware of where to find local food. Thus they felt they had control over their behaviour (buying local food). Of the variables for attitudes, only attitudes towards local food were significantly different between the two subsamples, suggesting that occasional LFBC customers considered buying local food a more important activity than non-local food customers. It appears that occasional LFBC customers believed that their attitudes towards local food were shared (and perhaps influenced) by their friends. This pattern remained observable later on in the sense that occasional LFBC customers, when compared to non-local food consumers, did not consider local

Table 4
Estimates of ATET comparing non-local food consumers and occasional LFBC customers.

Attitudes, preferences, consumer values	ATET			Assessed impact
	Regression adjustment	Propensity score matching	Entropy balancing	
<i>Past behaviour</i>	1.779***	2.102***	1.785***	Positive
<i>Intention</i>	1.693***	1.843***	1.704***	Positive
<i>Attitudes</i>				
<i>Attitude - Local food</i>	0.667***	0.615	0.682***	Positive
<i>Attitude - Organic food</i>	-0.041	-0.172	-0.049	N.s.
<i>Attitude - Cooking</i>	0.139	0.205	0.195	N.s.
<i>Subjective norms</i>				
<i>Subjective norm - Local food</i>	0.487***	0.582**	0.464**	Positive
<i>Subjective norm - Healthy eating</i>	0.143	0.076	0.144	N.s.
<i>Subjective norm - Environmental consciousness</i>	0.004	-0.038	-0.006	N.s.
<i>Perceived behavioural control</i>	1.078***	1.224***	1.083***	Positive
<i>Health consciousness and quality aspects</i>				
<i>Taste</i>	0.293**	0.539**	0.338**	Positive
<i>Freshness</i>	0.241	0.370**	0.284**	Positive
<i>Safety</i>	0.240**	0.405**	0.237*	Positive
<i>Health</i>	0.139	0.155	0.138	N.s.
<i>Economic consciousness</i>				
<i>Reasonable price</i>	0.343*	0.395	0.362*	Positive
<i>Low-budget food</i>	0.292*	0.036	0.252	N.s.
<i>Supporting local farmers</i>	0.476***	0.220	0.477***	Positive
<i>Environmental consciousness</i>				
<i>Environmentally friendly</i>	0.183	0.235	0.208	N.s.
<i>Environmental impact of transport</i>	0.297*	0.319	0.316*	Positive
<i>Pesticide-free</i>	0.101	0.109	0.093	N.s.
<i>Biodiversity</i>	0.123	0.096	0.110	N.s.
<i>Zero waste</i>	0.241	-0.024	0.257*	Positive

Note: *p < 0.1; **p < 0.5; ***p < 0.01. N.s.: not significant.

food to be notably healthier than non-local food or were not motivated more by environmental considerations – and they did not believe that these aspects were expected by, or important to their friends. In other words, different beliefs and motives were consistent with presumptive social norms. Even though occasional LFBC customers did not attribute health-related outcomes to local food, they considered it tastier, safer, and, to some extent, fresher than non-local food consumers did. Occasional LFBC customers considered the price of local food to be reasonable (as opposed to non-local food consumers); furthermore, a desire to support local farmers appeared to be a strong motive for them. Of the environmental motives, only the importance placed on the environmental impact of transport was revealed to be different between occasional LFBC customers and non-local food consumers (perhaps in conjunction with the attitudes towards local food of the former).

4.2. Comparing non-local food consumers to regular local-food-buying club customers

Table 5 shows the different constructs of the TPB regarding the comparison of non-local food consumers and regular LFBC customers. Regarding the higher level of dedication of regular LFBC customers than that of occasional ones, it was expected that further items would be identified as dissimilar besides the aspects that appeared to be different in the previous case.

Except for considerations related to the reasonable price of local food and, to some extent, subjective norms concerning local food, the results matched our expectations. Cooking appeared to be more important to regular LFBC customers than non-local food consumers, while the former also attributed positive health-related consequences to local food consumption. Besides being motivated by beliefs about the higher quality of local food, regular LFBC customers emphasised the potential environmental benefits of their choices: all the items related to environmental consciousness appeared to be positively influenced by LFBC participation.

4.3. Comparing occasional local-food-buying club customers to regular local-food-buying club customers

Table 6 shows the outcome of a comparison of occasional and regular LFBC customers.

Neither past local-food-buying behaviour nor the intention to purchase local food in the coming months were influenced by a higher level of engagement with LFBCs, even though regular LFBC customers appeared to be more confident regarding finding local food outlets. Attitudes towards local food and cooking (and partially towards organic food) seemed to be positively influenced by a higher level of engagement. The positive impact on subjective norms was only marginal in the case of all three items. Regular LFBC customers considered local food tastier, fresher, and healthier, but not safer than occasional LFBC customers (however, both types of consumers considered local food safer than non-local food consumers; see also Tables 3 and 4). While occasional and regular LFBC customers did not differ in terms of economic consciousness, the latter appeared to more strongly value environmental issues (the environmental impact of transport was equally important to both groups compared to non-local food consumers; see Tables 3 and 4).

Table 5
Estimates of ATET comparing non-local food consumers and regular LFBC customers.

Attitudes, preferences, consumer values	ATET			Assessed impact
	Regression adjustment	Propensity score matching	Entropy balancing	
<i>Past behaviour</i>	1.698***	1.544***	0.633***	Positive
<i>Intention</i>	1.591***	1.382***	1.553***	Positive
<i>Attitudes</i>				
<i>Attitude - Local food</i>	0.762***	0.738***	0.911***	Positive
<i>Attitude - Organic food</i>	0.258	0.115	0.331	N.s.
<i>Attitude - Cooking</i>	0.657***	1.122***	0.732***	Positive
<i>Subjective norms</i>				
<i>Subjective norm - Local food</i>	0.293	0.572**	0.300	N.s.
<i>Subjective norm - Healthy eating</i>	0.165	0.189	0.222	N.s.
<i>Subjective norm - Environmental consciousness</i>	0.176	0.172	0.171	N.s.
<i>Perceived behavioural control</i>	1.396***	1.182***	1.419***	Positive
<i>Health consciousness and quality aspects</i>				
<i>Taste</i>	0.456***	0.286	0.499**	Positive
<i>Freshness</i>	0.415***	0.436**	0.438***	Positive
<i>Safety</i>	0.366***	0.279	0.369**	Positive
<i>Health</i>	0.406***	0.578***	0.411***	Positive
<i>Economic consciousness</i>				
<i>Reasonable price</i>	-0.002	0.170	0.100	N.s.
<i>Low-budget food</i>	0.399**	0.342	0.308	N.s.
<i>Supporting local farmers</i>	0.742***	0.329*	0.755***	Positive
<i>Environmental consciousness</i>				
<i>Environmentally friendly</i>	0.454***	0.691*	0.530**	Positive
<i>Environmental impact of transport</i>	0.493**	0.676**	0.573**	Positive
<i>Pesticide-free</i>	0.248**	0.188	0.256*	Positive
<i>Biodiversity</i>	0.278*	0.370*	0.301**	Positive
<i>Zero waste</i>	0.412**	0.456**	0.503***	Positive

Note: *p < 0.1; **p < 0.5; ***p < 0.01. N.s.: not significant.

Table 6
Estimates of ATET comparing occasional and regular LFBC customers.

Attitudes, preferences, consumer values	ATET			Assessed impact
	Regression adjustment	Propensity score matching	Entropy balancing	
<i>Past behaviour</i>	0.025	0.060	0.009	N.s.
<i>Intention</i>	0.072	-0.125	0.091	N.s.
<i>Attitudes</i>				
<i>Attitude - Local food</i>	0.264**	0.309*	0.261**	Positive
<i>Attitude - Organic food</i>	0.290*	0.331	0.272*	Positive
<i>Attitude - Cooking</i>	0.346***	0.237	0.330**	Positive
<i>Subjective norms</i>				
<i>Subjective norm - Local food</i>	0.012	-0.021	0.040	N.s.
<i>Subjective norm - Healthy eating</i>	0.060	0.035	0.088	N.s.
<i>Subjective norm - Environmental consciousness</i>	0.208*	0.317*	0.209*	Positive
<i>Perceived behavioural control</i>	0.285***	0.284**	0.296***	Positive
<i>Health consciousness and quality aspects</i>				
<i>Taste</i>	0.232**	0.224**	0.245***	Positive
<i>Freshness</i>	0.229***	0.235**	0.251***	Positive
<i>Safety</i>	0.118	0.153	0.137	N.s.
<i>Health</i>	0.236**	0.235*	0.249***	Positive
<i>Economic consciousness</i>				
<i>Reasonable price</i>	-0.176	-0.054	-0.185	N.s.
<i>Low-budget food</i>	0.160	0.121	0.174	N.s.
<i>Supporting local farmers</i>	0.134	0.208	0.127	N.s.
<i>Environmental consciousness</i>				
<i>Environmentally friendly</i>	0.211**	0.275**	0.208**	Positive
<i>Environmental impact of transport</i>	0.174	0.182	0.182	N.s.
<i>Pesticide-free</i>	0.240***	0.383***	0.239***	Positive
<i>Biodiversity</i>	0.251**	0.438***	0.259***	Positive
<i>Zero waste</i>	0.262**	0.349***	0.250**	Positive

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$. N.s: not significant.

5. Discussion

The results of the analysis confirmed that consumers who may be characterised by their different levels of engagement can be differentiated in terms of underlying attitudes, motivations, and beliefs. While Tables 4–6 depict the dissimilarities that emerged in pairwise comparisons, Table 7 offers a broader perspective by systematising and thus allowing for the emergence of some interesting additional findings.

Table 7 indicates the factors for which the effect of higher levels of involvement was found to be significant for at least two of the three methods that were used (see Fig. 2). The constructs of TBP were rearranged (compared to in Tables 4–6) to display similar and different patterns. The first set shows the items that proved to be different in all three comparisons, implying that the importance of these characteristics constantly intensified with increasing engagement with LFBCs. Those constructs listed in the second set proved to be different in both the non-local-occasional LFBC and non-local-regular comparisons – which can be interpreted as being generally influenced by LFBC participation. The third set only displays the items specific to the most engaged LFBC customers only. The following sets highlight those characteristics of occasional LFBC customers that are different from one or the other ‘extreme’. The final rows exhibit the constructs about which no difference could be detected.

Attitudes towards local food, in line with the findings of Neulinger et al. [19], intensified with more engagement. Also, they translated into an increasing level of consciousness regarding where to find local food. On the other hand, past behaviour and intentions did not differ between occasional and regular LFBC customers, indicating that a higher level of engagement did not influence the frequency of local food purchases. However, two related issues arise. First, modern local food marketing channels (including farmers’ markets, CSA handovers, etc.) typically operate on specific days of the week [74,75]. Thus the frequency of purchases cannot be increased indefinitely. Second, the present study did not address the volume of goods that customers buy; therefore, the extent to which the different types of shoppers contribute to the overall turnover of LFBCs is still to be discovered.

It appears that the motives concerning local food in the case of regular LFBC customers (compared to occasional ones) were internalised, and their behaviour was not influenced by the intention to please friends (or others), nor by the fact that local food items usually cost more [76]. In general, findings about the role of subjective norms in shaping actual food choices have been controversial. While a direct role for this factor has been verified in some cases [46,49], only an indirect or non-existent relationship was found in others [77,78]. Furthermore, the role of (internalised) personal norms in determining behaviour has been confirmed in diverse pro-environmental contexts [79–81]. Based on the current results, it is proposed that the level of engagement and the role of personal norms should also be considered in future studies that address behaviours related to sustainable food consumption.

The role of hedonistic motivations (the importance of taste, freshness and safety), as proposed by Birch et al. [33], Neulinger et al. [19] and others were confirmed; this study also revealed the importance that different types of consumers place on these issues varies. Furthermore, while many studies have found that environmental issues are important for local food consumers [32,36,82], this also appears to be a trait that should be further distinguished based on the level of engagement consumers have. From the many aspects of

Table 7
Impact of commitment on the constructs of TPB.

Attitudes, preferences, consumer values	non-local food vs. occasional LFBC customers	non-local food vs. regular LFBC customers	occasional vs. regular LFBC customers
Attitude - Local food			
Perceived behavioural control			
Health consciousness - Taste			
Health consciousness - Freshness			
Past behaviour			
Intention			
Health consciousness - Safety			
Economic consciousness - Supporting local farmers			
Environmental consciousness - Environmental impact of transport			
Attitude - Cooking			
Health consciousness - Health			
Environmental consciousness - Zero waste			
Environmental consciousness - Environmentally friendly			
Environmental consciousness - Pesticide-free			
Environmental consciousness - Biodiversity			
Subjective norm - Local food			
Economic consciousness - Reasonable price			
Attitude - Organic food			
Subjective norm - Environmental consciousness			
Subjective norm - Healthy eating			
Economic consciousness - Low-budget food			

Note: Highlights indicate positive impact in at least two (out of the three) specifications.

environmental consciousness, only the environmental impact of transport appeared to be important for occasional LFBC customers. This might be because public discourse in Hungary still often attributes important environmental benefits to local food due to its reduced food mileage [83]. Although more is becoming known about other aspects, such as seasonality and the role of diversity in the management of pests and other types of risks [84], it is taking time for this knowledge to become widespread among laymen, although more dedicated stakeholders are more open to additional related information.

Attitudes towards cooking are another factor that distinguishes regular LFBC customers from the rest of the sample. While Zepeda and Li [82] presumed that the enjoyment of cooking is related to knowledge about food and food quality and thus might be important with respect to local food consumption, most studies neglect this issue (notable exceptions are papers that address the relationship of local food and tourism, such as [85,86]). The present study confirms the importance of attitudes towards cooking in a local food context among regular LFBC customers. Many studies stress the role of local food systems in sharing knowledge and educating consumers [87,88] and that buying local food might be inconvenient as items are not always available, unlike in supermarkets [25]. We propose that the association between liking cooking and the most devoted consumers exists because accepting that some basic ingredients are available at a specific time requires a certain level of cooking-related creativity. Further research is needed to reveal whether attitudes towards local food and the related behaviour ignite cooking-related creativity or whether those who like cooking are more susceptible to engagement with the diverse dimensions of local food.

This paper is based on the proposition that consumers can be identified along a continuum of commitment towards LFBC participation and that positions along this continuum can be shifted (ideally, towards the more devoted end) by providing sufficient information, as educated consumers' attitudes are expected to change. Organisers of LFBCs (and other local food distribution channels) should acknowledge these differences and establish their communication strategy accordingly so as to not only increase immediate turnover but also boost commitment.

Our work has further implications. More engaged consumers tend to internalise motives related to local food, reducing their susceptibility to external influences like social pressure or cost concerns. Thus, interventions that promote sustainable consumption should account for consumer engagement and personal norms. Furthermore, our findings highlight the influence of environmental consciousness and attitudes towards cooking on consumer behaviour. Policymakers can utilise this insight to develop educational

initiatives that raise awareness about the environmental benefits of local food and encourage cooking-related creativity. Emphasising these aspects can enhance consumer appreciation for local food and foster more sustainable consumption patterns. Lastly, continuous research and data collection are essential for better understanding the complexities of consumer behaviour in local food systems. While this study provides valuable insights from a representative survey, future research should attempt to validate the findings internationally and explore additional influencing factors.

From a methodological perspective, while a definite strength of this study is that it is based on a representative survey, limitations arise concerning classifying consumers into discrete categories. Whereas the general message may be valid (consumers are heterogeneous even in relation to individual specific marketing channels, thus, they should be targeted by different messages), understanding the extent to which the specific findings are generalizable in a broader international context may be clarified in later work.

6. Conclusions

Local food has long been at the centre of attention as a potential vehicle for rural development. Efficient scaling up is expected to enhance the transition towards sustainable food systems, but to meet the related Sustainable Development Goal (SDG 2), a lot needs to be done from the perspective of producers and consumers; this paper addresses the latter group. Although more is becoming known about the motivations and attitudes of local food consumers, their level of engagement and its consequences have been analysed in relation to different marketing channels, or only generally. To the best of our knowledge, analysis of the drivers of various different types of consumer preferences with respect to one specific marketing channel has not been carried out. However, the organizers of such channels may increase their efficiency by targeting their messages (and thus scaling up local food systems) if they know their customers better. The marketing channel of local-food-buying clubs, LFBCs was selected partly due to its growing popularity and unique characteristics, including their grassroots nature, flexibility and adaptability, ethical orientation, and scalability. LFBCs proved to be very efficient sources of supply during the COVID-related lockdowns. Thus, this study aimed to deepen our understanding of factors influencing local-food-buying behaviour, with a special focus on LFBCs.

Attitudes and other behavioural determinants are significantly associated with local-food-buying behaviour. Positive attitudes towards local food, such as a belief in its superior quality and support for local economies, are strongly correlated with increased purchasing behaviour and engagement with local-food-buying clubs. Additionally, behavioural determinants like social influence and environmental consciousness play critical roles. Consumers who perceive strong social support for buying local and those who prioritise environmental sustainability are more likely to engage in regular local food buying.

Devoted regular buying-club customers strongly internalise values related to local food, meaning their choices are less influenced by social approval or price sensitivity. Their engagement is driven by a profound commitment to the principles of sustainability, the quality of food, and personal norms rather than merely responding to social norms or convenience. Unlike occasional buyers, who may be motivated by more immediate or superficial factors, regular LFBC customers exhibit a consistent and deliberate approach to local food purchasing, reflecting a deep-seated belief in the benefits of supporting local economies and minimising environmental impact. Additionally, their enthusiasm for cooking and the creative use of seasonal ingredients underscores a willingness to adapt their culinary habits to align with the availability of local products. This combination of internalised values, behavioural consistency, and a passion for cooking sets regular LFBC customers apart as some of the most devoted and engaged participants in local food networks.

The most important implication of our work is that consumers whose levels of engagement differ do need to be targeted by specific messages based on their beliefs and attitudes. For instance, using the specific example of the Hungarian LFBCs, occasional customers can be motivated by messages centred on the broad quality aspects of local food, and the potential for supporting local farmers. For more devoted customers, environmental aspects are very important. As belonging to a group has been shown to shape attitudes, such targeted messages are expected to increase engagement over time. More research is needed to reveal whether specific characteristics that proved to be general among LFBC participants are shared more widely among local food consumers or if there are differences according to marketing channels.

Several strategic initiatives should be considered to enhance the promotion and growth of LFBCs. First, increasing public awareness through targeted campaigns that highlight the environmental, economic, and social benefits of LFBCs may attract more consumers. These campaigns should emphasise the role of LFBCs in supporting local farmers, ensuring food security, and fostering community resilience. Additionally, collaborations with local governments and educational institutions could help integrate LFBCs into broader sustainability and food security programs. Implementing digital platforms and apps to streamline the ordering and distribution processes could further enhance accessibility and convenience. By adopting these strategies, LFBCs can play a pivotal role in driving the transition towards more sustainable and resilient food systems.

Our contribution to the literature is two-fold. First, the paper expands knowledge about local-food-buying club customers. We found that regular LFBC customers are distinguished by their strong internalisation of values related to local food, a deep commitment to sustainability, and an enthusiasm for cooking that supports their engagement with the seasonal and diverse offerings associated with local food systems. These attitudes and behaviours set them apart from occasional buyers and those not interested in local food. Second, although comparisons of consumers involved at different points of sale and in other marketing channels have been undertaken, to the best of our knowledge, there is a lack of systematic, quantitative analysis of consumer behaviour as a function of customers' commitment to single, specific marketing channels. Besides the academic outcomes, the paper's conclusions might also be valuable to marketers and food policymakers. If the attitudes and sources of motivation of consumers related to purchasing local food through a specific channel are better understood, certification schemes, labelling strategies, and other measures can be implemented more efficiently.

CRediT authorship contribution statement

Zsófia Benedek: Writing – review & editing, Writing – original draft, Validation, Methodology, Funding acquisition, Conceptualization. **Imre Fertő:** Writing – review & editing, Validation, Supervision, Methodology, Formal analysis, Data curation, Conceptualization.

Data availability statement

Data associated with this study are not deposited in a publicly available repository but are available on request.

Ethics statement

Review and/or approval by an ethics committee was not needed for this study because it did not involve any sensitive topics or vulnerable participants. Additionally, no institutional or national framework made provision for a research ethics committee which the authors could approach at the time of data collection. All procedures performed in this study were in accordance with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. The ethics review procedure complied with the Guidance Note “Ethics in Social Sciences and Humanities”, issued by the European Commission in 2018 (https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/ethics-in-social-science-and-humanities_he_en.pdf). All participants provided informed consent to their participation in the study.

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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