



Beyond roles: shared value orientations and attitudes in local food systems

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Abstract

This study examines how shared human values and sociodemographic characteristics shape attitudes and perceptions within local food systems, with a particular focus on producer-consumer alignment. Using data collected in 2021 from a representative sample of 1031 consumers and 224 small-scale producers in Hungary, we analyse evaluations of key local food attributes alongside basic human values derived from Schwartz's Theory of Basic Human Values. First, we identify systematic gaps between consumer-reported preferences and producers' perceptions of what consumers value, revealing that producers tend to overestimate attributes closely linked to their own practices, while underestimating emerging concerns such as waste reduction. Second, drawing on a pooled sample of producers and consumers, we apply k-means clustering to identify two distinct groups characterised by contrasting evaluations of local food attributes: Community-Oriented and Self-Oriented Actors. The clusters differ primarily in the relative emphasis placed on sustainability- and community-related attributes (e.g. environmental impact), which receive markedly higher importance ratings in the Community-Oriented group, whereas the Self-Oriented group displays a more pragmatic attribute profile. Logistic regression analysis indicates that membership in the Community-Oriented cluster is significantly associated with value orientations, most notably universalism, tradition, and achievement, as well as age and gender, while the producer-consumer distinction itself is not a significant predictor. Initiatives aiming to strengthen local food systems may benefit from value-sensitive approaches that go beyond role-based targeting, particularly by prioritising attributes with strong normative meaning (such as waste reduction) where producer recognition is uneven, and aligning communication and support instruments accordingly.

Keywords Local food · Schwartz theory of basic human values · Attitudes · Perceptions · Small-scale farming · Producer-consumer alignment

Abbreviations

LFS Local food system
TBHV Schwartz Theory of Basic Human Values

Introduction

Local food systems (LFSs) are increasingly recognized for their potential to address economic, social, and environmental challenges in contemporary food systems. By fostering closer connections between producers and consumers, supporting local economies, and reducing food miles, they contribute to sustainability, resilience, and food security (Stein and Santini 2022). Local food aligns with key policy priorities, including Sustainable Development Goals (SDGs) on responsible consumption, climate action, and reducing

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inequalities (Guillaumie et al. 2025). Initiatives such as farm-to-school programs, public procurement strategies, and the expansion of farmers' markets reflect a growing emphasis on promoting small-scale farming and improving food system transparency (Mowlds 2020). The term "local food" is widely used in policy and academic discourse, yet its meaning remains fluid and context-dependent. While some definitions emphasize geographic proximity, others focus on direct marketing relationships, small-scale production, or shared values between producers and consumers. Empirical studies commonly rely on stakeholder perceptions or practical proxies such as purchase channels or distance-based criteria.

Consumers often perceive local food as fresher, safer, and more trustworthy than products from conventional retail outlets (Feldmann and Hamm 2015). These perceptions are shaped by associations with better taste, traceability, and reduced chemical use, attributes often linked to seasonality, direct relationships, and sustainable production methods (Birch et al. 2018; Bond et al. 2009; Eriksen 2013; Grebitus et al. 2013). Moreover, local food purchases are frequently framed as pro-social acts that contribute to rural vitality and community well-being (Deller et al. 2020; Skallerud and Wien 2019), while also being connected to environmental and ethical advantages such as lower packaging intensity, biodiversity protection, and reduced carbon emissions (Paul and Rana 2012; Rahnama 2017; Zepeda and Li 2006).

Additionally, LFSs are often viewed as sites of social and ethical engagement. Scholars have emphasized the role of embeddedness in these systems, where trust-based transactions and personal interactions are key differentiators from conventional retail models (Nemes et al. 2023; Schreiber et al. 2023). However, as Hinrichs (2000) points out, embeddedness coexists with "marketness" and instrumental motivations. Consumers may engage in LFSs out of ethical commitment to sustainability or community support (Lombardi et al. 2015), but also due to perceived benefits such as better taste or freshness (Feldmann and Hamm 2015). Likewise, producers may pursue direct marketing not only to increase income (Schoolman 2020) but also to reduce dependency on intermediaries (Benedek et al. 2018) or to foster local relationships (Izumi et al. 2010). Recognizing the interplay between ethical and pragmatic motivations is critical for understanding behaviour in these systems.

Both producers and consumers involved in LFSs constitute highly heterogeneous groups. On the consumer side, engagement is shaped by socio-economic status, cultural values (Feldmann and Hamm 2015), and lifestyle preferences (Benedek and Fertő 2024), with many individuals remaining entirely detached from LFSs. Among producers, some are entrepreneurial and well-networked, capable of adapting to changing demands and participating in

value-driven marketing channels (Clark et al. 2016). Others, often traditional smallholders, face structural and informational barriers that limit their involvement (Benedek et al. 2018). As a result, many producers remain excluded from the higher profit margins and social value recognition associated with LFSs (Ruszkai 2021). Given current policy efforts to broaden participation in sustainable food systems, it is essential to better understand what connects certain producers and consumers – and what keeps others apart.

While numerous studies have explored consumer motivations or farmer participation in local food systems, few have adopted an integrated approach that simultaneously examines both actors within a unified analytical framework. This fragmentation limits our understanding of how producer and consumer perspectives align (or diverge) within the same value-driven systems. Moreover, comparisons are often hampered by the lack of shared measurement tools and conceptual grounding, making it difficult to identify common motivational structures or communication gaps. By jointly analysing producers and consumers using the Schwartz Theory of Basic Human Values, this study directly addresses this gap and offers new insights into the mechanisms that foster or hinder alignment in LFSs. Specifically, we focus on the following research questions: (1) To what extent are producers aware of their consumers' preferences – specifically, the importance consumers place on key local food attributes? (2) How do basic human values and sociodemographic characteristics explain differences in attitudes among LFS actors toward these attributes? By answering these questions, the study aims to identify the mechanisms that bring certain producers and consumers closer together, regardless of their role in the supply chain. In doing so, it contributes to a more differentiated understanding of LFS dynamics and offers practical insights into fostering more inclusive and resilient local food systems.

The interpretation of "local food" is highly context-dependent. Our empirical analysis focuses in the Hungarian context that offers a particularly relevant case for examining value orientations in local food systems for two reasons. First, although no single legal definition exists, regulatory frameworks have shaped widespread perceptions: farmers may only sell their own products directly, and until recently, farmers' markets, the dominant outlet for local food, were restricted to sellers from a 40 km radius, the same county, or the capital (Benedek et al. 2018). While this rule has since been lifted, the notion of local food as small-scale, direct, and geographically proximate remains prevalent. In a compact, territorially integrated country like Hungary, many consumers extend this interpretation to all domestically produced food. Reflecting this context, our study allowed respondents to define "local food" according to their own understanding. Second, food system transformation faces

structural challenges in Hungary, including a historically weak civil society and low levels of trust-based cooperation (Baranyai et al. 2018). These challenges have been further exacerbated by recent political polarization and declining civic engagement (Cianetti et al. 2020; Gerő and Kerényi 2025). Since values play a crucial role in fostering cooperation and collective action (Huttunen et al. 2022; Rosol and Barbosa 2021), understanding how producers and consumers align in their orientations provides important insights into the social foundations of resilient local food systems.

The next section explains the theoretical framework more in detail.

Theoretical framework: the Schwartz's theory of basic human values

It is important to distinguish between values and attitudes. Values are broad, trans-situational principles that reflect what individuals find important in life and tend to remain stable over time (Schwartz 1992). Values influence how they evaluate products, people, and events, and serve as guiding principles rooted in personal identity and socially desirable goals (Princ et al. 2021; Schwartz 2012). Attitudes, by contrast, are more specific evaluations of objects, behaviours, or issues, such as preferences for food attributes (Ajzen 1991; Nazirova and Borbala 2024).

A substantial body of literature has demonstrated that positive values and attitudes towards sustainability do not necessarily translate into corresponding purchasing or production behaviour, a phenomenon widely referred to as the “attitude-behaviour gap” (Vermeir and Verbeke 2006). Even when individuals express strong pro-environmental or ethical orientations, actual practices are often constrained by situational factors such as availability, price, habits, trust, or institutional settings (Ajzen 1991; Carrington et al. 2014). Consequently, values and attitudes should not be interpreted as direct predictors of action, but rather as underlying motivational dispositions that shape how actors interpret and evaluate food-related attributes (Schwartz 2012). Understanding attitudes and behaviours in LFSs therefore requires analytical tools that account for both ethical and pragmatic motivations, which often coexist and interact in these settings (Hinrichs 2000). Several theoretical frameworks have been proposed to explain how values, attitudes, and other cognitive or contextual factors influence behaviour. The Value-Attitude-Behaviour model (Homer and Kahle 1988) posits a hierarchical flow from abstract values to attitudes and, ultimately, specific behaviours. While influential, the model has been criticised for its oversimplified linear structure and neglect of mediating factors such as lifestyle, context, or culture (Ajzen et al. 2018; Fischer 2017; Milfont et

al. 2010). The Theory of Planned Behaviour (Ajzen 1991), similarly, focuses on the relationship between intentions and actions but does not adequately account for value-based motivational structures or the role of deeper orientations across groups (Gourlan et al. 2019; Protogerou et al. 2012; Taghavi and Maharati 2024). The Behaviour Change Wheel (Michie et al. 2011), developed primarily for designing interventions, systematises behaviour change mechanisms (Demir et al. 2024; Ogden 2016) but may underplay the embedded, value-laden nature of choices in food systems. While all three models provide valuable behavioural insights, their strong context-dependence limits their suitability for comparative, cross-actor analysis.

In contrast, Schwartz's Theory of Basic Human Values (TBHV) provides a structured, empirically validated typology of universal values (Schwartz 2012, 1992). These values reflect broad, trans-situational motivational goals and guide how individuals evaluate trade-offs between self-interest, social responsibility, tradition, and innovation – issues that are central to food production and consumption. The TBHV (Schwartz 1992) identifies ten universal values: (1) self-direction (independence and creativity), (2) stimulation (novelty and excitement), (3) hedonism (pleasure and enjoyment), (4) achievement (success and personal competence), (5) power (social status and dominance), (6) security (safety and stability), (7) conformity (adherence to social norms), (8) tradition (respect for customs and culture), (9) benevolence (concern for the welfare of others), and (10) universalism (appreciation for diversity, equality, and the environment). These values form a circular motivational structure in which adjacent values are compatible and opposing values are in tension (Fig. 1).

To measure these values, the Schwartz Value Survey and the Portrait Values Questionnaire (PVQ) are widely used (Schwartz et al. 2001). The PVQ, particularly its 21-item version developed for the European Social Survey (Verkasalo et al. 2009), is favoured for its simplicity and reliability. It assesses respondents' value orientations through “portraits” of individuals, asking them to rate their similarity to each description on a six-point scale. The TBHV consistently demonstrates that while individuals prioritize values differently, societal groups often exhibit shared hierarchical value structures (Dobricki 2011; Verkasalo et al. 2009). The PVQ avoids direct self-reporting of values by presenting neutral character portraits and asking respondents to rate their similarity. This indirect approach helps mitigate social desirability bias, a common challenge in value measurement (Schwartz et al. 2001). However, it still relies on self-perception and interpretation, which may introduce subtle distortions (Danioni et al. 2020), particularly in normatively loaded contexts such as sustainability.

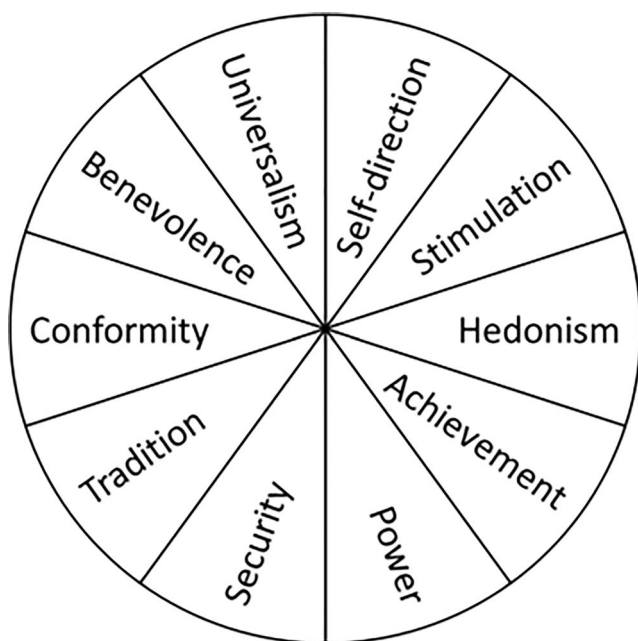


Fig. 1 The Schwarz theory of basic human values. Source: Schwartz (1992), cited in Giménez and Tamajón (2019), fig. 1

The TBHV's value dimensions are particularly well suited to the LFS context, where actors often balance ethical and pragmatic concerns. Values such as universalism and benevolence reflect sustainability and community-oriented motivations, while security, conformity, and tradition may capture more risk-averse or routine-based preferences. While the TBHV may not capture situational variability or behavioural inconsistencies, its strength lies in identifying stable motivational patterns that shape how actors interpret and evaluate key food attributes. In this study, our focus is not on predicting behaviour, but on revealing potential value-based affinities that can support more coherent actor alignment in LFSs.

Materials and methods

Methods

The primary objective of this study is to explore whether actors in local food systems, irrespective of their role as producers or consumers exhibit aligned or divergent value orientations, and which factors influence such alignment. Accordingly, our empirical strategy targets value-based orientations and attitudinal structures rather than observed behavioural outcomes, allowing us to analyse alignment at the level of motivations and perceptions rather than market transactions. This research question calls for a methodological approach capable of detecting latent attitudinal patterns and comparing them across heterogeneous populations

such as consumers and producers. We therefore employed a sequential analytical strategy: (1) identifying clusters based on shared food-related attitudes in a pooled sample of producers and consumers; and (2) examining the role of value orientations and sociodemographic factors in predicting cluster membership. The specific variables used for clustering, as well as the measurement of value orientations and producer perceptions, are described in detail in Section "Data".

Given the ordinal and categorical nature of the attitudinal variables, standard parametric tests such as t-tests would be inappropriate. Instead, we first applied Kruskal–Wallis tests (Kruskal and Wallis 1952) to assess median differences across selected consumer and producer responses. This non-parametric method is appropriate for non-normally distributed data and has been widely used in agri-food research (Benedek et al. 2018; Pivarski et al. 2023; Kumari and Kumar 2024).

Rather than relying on subjective criteria, we then applied unsupervised machine learning techniques, specifically, k-means clustering, to uncover latent structures in the dataset. This technique is well suited for identifying natural groupings in heterogeneous populations. This method enables the classification of individuals into internally coherent subgroups based on their food-related attitudes. Our approach aligns with recent applications of clustering techniques in segmentation research in the context of LFSs (Adanacioglu 2021; Benedek et al. 2022). The number of clusters was determined using the Caliński-Harabasz pseudo F-test (Caliński & Harabasz, 1974). Solutions with two, three, four, and five clusters were evaluated; however, models with more than two clusters proved difficult to interpret. For further details on clustering and multivariate methods, see Everitt and Hothorn (2011) or Kothari (2015). Finally, we examined the predictors of cluster membership using binary logistic regression, with particular attention to the role of value orientations (based on Schwartz's framework) and sociodemographic characteristics. Since cluster membership is a categorical dependent variable, logistic regression is an appropriate modelling technique for assessing its relationship with independent variables (see e.g., Long and Freese 2006).

Data

The data collected for this study comprise three analytically distinct components. First, both consumers and producers responded to the same set of statements on local food attributes: consumers evaluated the importance of these attributes for themselves, while producers assessed how important they believe these attributes are for consumers. These attitudinal responses were pooled and later used as the

sole input for the clustering analysis. Second, both consumers and producers reported their own basic human values using Schwartz's Portrait Value Questionnaire. These value orientations were not included in the clustering procedure, but were subsequently used as explanatory variables in the analysis of cluster membership. Third, producers' assessments of consumer priorities were analysed separately to examine producer-consumer misalignment.

Data collection was carried out in two rounds: one targeting consumers and the other targeting small-scale food producers who (also) sell directly to consumers. The [name removed for the review process] granted approval regarding ethical compliance for this study.

For consumers, the survey was conducted by a professional survey company in May 2021. The sample consisted of 1031 respondents, representative of the Hungarian population (aged 18 and above) based on gender, age, education, type of municipality, and regional distribution, using data from the 2016 micro-census.

The producer sample was constructed as follows. A database was compiled using contact details of producers who had subscribed to official local producer registries (e.g., National Chamber of Agriculture) or NGO platforms (e.g., LEADER groups), as well as those featured on the websites of local shopping communities or Facebook groups (see Table S1 of the Supplementary Materials for a detailed list of mapped databases). This initial database contained 1514

records in which we applied a random sampling approach to select producers for telephone-based surveys conducted in January 2021. This process resulted in 224 completed questionnaires, achieving a response rate of 47%. While the resulting sample may not fully represent all Hungarian small-scale producers, it provides a robust snapshot of those actively engaged in or aspiring to participate in LFSs.

Data were collected on respondents' socio-demographic characteristics and their values using a section replicating the Portrait Value Questionnaire developed by Schwartz (1992). The questions, adapted from Pascucci et al. (2016) and translated for this study, are detailed in Table S2 of the Supplementary Materials. Responses to the 21 items were aggregated into ten values by calculating mean scores from paired questions (or triplets for one value), constructing a Schwartz value profile for each respondent. Another section of the survey focused on assessing the importance consumers place on various attributes of local food or, in the case of producers, their perceptions of what consumers value in local food (Table 1). The scale for each variable was defined so that higher scores indicate higher intensity.

Several attitudinal items in the consumer questionnaire explicitly referred to local food (e.g., "Local food products are tasty/fresh"; "Supporting local farmers is an important consideration"). Others, such as "Food products purchased directly from the producer are healthy/safe," focused on direct producer-consumer relations, which, within the Hungarian regulatory and consumer context, are generally interpreted as local. A third group of items (e.g., prioritizing chemical-free food, concern about transport-related environmental impacts, or packaging waste reduction) referred more broadly to food choices but are particularly relevant attributes in the context of local food (Feldmann and Hamm 2015). We therefore included them to capture the broader set of motivations that may influence engagement with local food systems.

One section of the consumer questionnaire explored respondents' own interpretation of what constitutes "local food" (e.g., produced within a certain distance or within Hungary) and their frequency of purchase via different sales channels, such as farmers' markets, festivals, farm-gate sales, or organized consumer groups. To account for potential variation in these interpretations, a robustness check was conducted by re-running the analyses on a subsample of respondents (82.3%) who reported purchasing local food at least occasionally. The direction and statistical significance of the results remained unchanged. However, we present the findings based on the full consumer sample, which is nationally representative. This approach avoids the bias that may result from focusing on a self-selected subsample.

Table 1 Statements about local food attributes in the two questionnaires

Attribute	Statements in the consumer questionnaire	Statements in the producer questionnaire
-	-	Why do you think your customers prefer local food products?
Tasty	Local food products are tasty.	Tastier
Fresh	Local food products are fresh.	Fresher
Support for local farmers	Supporting local farmers is an important consideration for me.	Supporting local producers
Healthy	Food products purchased directly from the producer are healthy.	Richer in nutrients
Safe	Food products purchased directly from the producer are safe.	Safer
Chemical-free	I prioritize food that is produced without chemicals.	Chemical-free
Transport-related footprint	I am concerned about the environmental impact of food transport.	Lower environmental impact from transport
Zero-waste	I pay attention to reducing the amount of packaging materials.	Free of packaging

Sample characteristics

To provide context for the empirical analysis, we first describe the characteristics of the producer and consumer subsamples. Fig. 2 shows that 43% of respondents consider all food produced in Hungary to be local, reflecting the country's relatively small size and territorial coherence, others defined local food based on distance (50 km radius is enough to cover most counties). Overall, 82.3% of respondents reported purchasing local food at least occasionally, with farmers' markets confirmed as the most popular sales channel, consistent with earlier findings (Benedek et al. 2022, 2018).

Table 2 depicts key sociodemographic indicators, average value orientations, and mean scores for local food attribute evaluations.

These descriptive results provide a basis for assessing potential mismatches or alignments between producers' perceptions and consumer priorities.

Results and discussion

Producers' awareness of consumer preferences

This section addresses the first research question: to what extent are producers aware of their consumers' preferences regarding key local food attributes? We begin by comparing consumers' self-reported importance ratings with producers' estimates of those same attributes (Table 3), in order to assess potential mismatches in perceived priorities.

Significant gaps were observed between what consumers report as important in local food attributes and what producers believe consumers prioritize. Producers tended

to overestimate attributes tied to their direct farming experience and personal values, such as freshness (the largest discrepancy, see also Fig. 3.), safety, taste, carbon footprint, and support for local farmers. These attributes reflect the producers' own strengths and values. Conversely, producers attributed relatively less importance to attributes like zero-waste, which received higher scores from consumers. This gap may be linked to differing exposure to emerging urban and pragmatic consumer trends, reflecting newer sustainability concerns and lifestyle preferences that may not be as salient to producers.

Although this divergence does not imply a fundamental misalignment, it suggests that producers may benefit from more direct and up-to-date insights into consumer expectations. Addressing these misperceptions could help producers tailor their marketing strategies and product offerings more effectively, bridging the disconnect between their assumptions and consumer-driven demand. Workshops, consumer feedback systems, and improved communication tools could provide producers with real-time insights into evolving consumer preferences, fostering stronger alignment and deeper connections within local food systems.

Explaining local food attribute evaluations: the role of values and sociodemographic factors

Building on these findings, the next section explores how basic human values and sociodemographic factors help explain differences in how consumers evaluate, and how producers perceive, the importance of local food attributes. Rather than focusing on role-based distinctions, we examine whether shared attitudinal profiles emerge across the two groups, irrespective of whether the views reflect

Fig. 2 Consumer perceptions of what constitutes local food

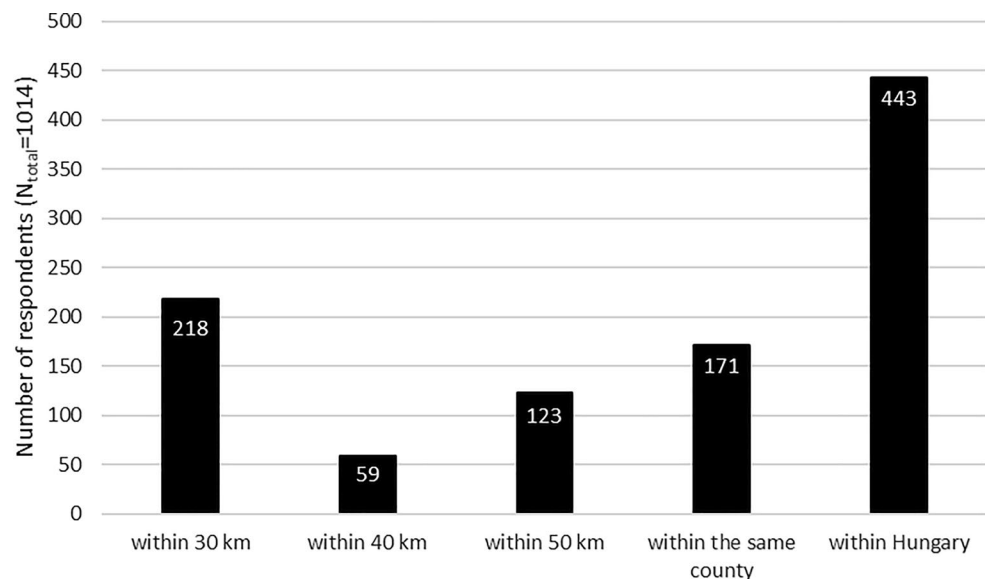
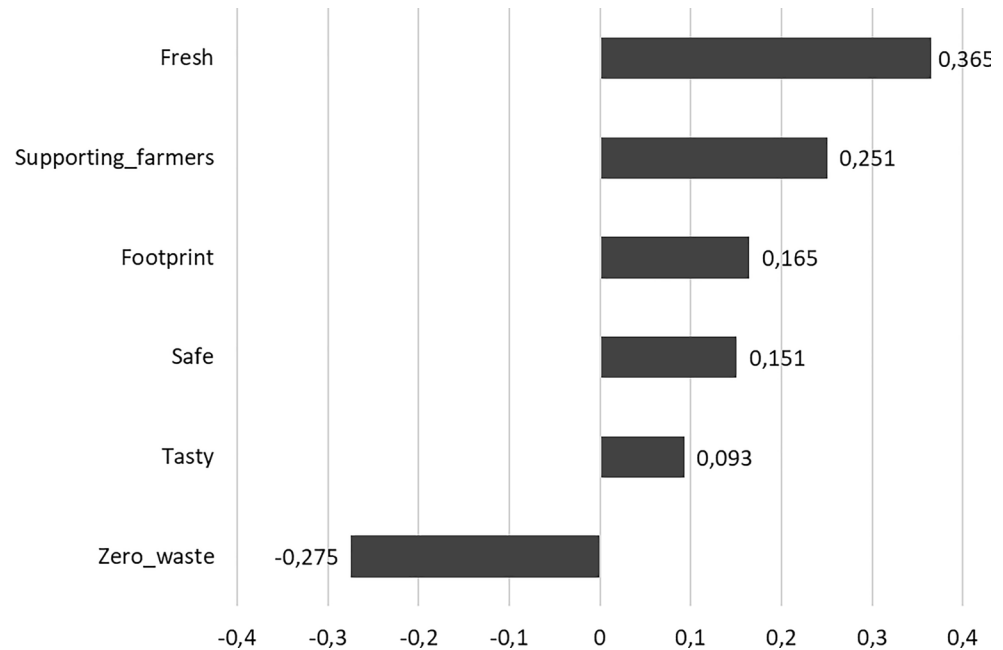


Table 2 Details of the variables used

Variable	Categories	N	Frequency/mean	SD	Min	Max
Gender		1255				
	Producer male	132	10.5%	-	-	-
	Producer female	92	7.3%	-	-	-
	Consumer male	448	35.7%	-	-	-
	Consumer female	583	45.5%	-	-	-
Age	Age - producer	224	50.0	12.1	20	86
	Age - consumer	1 031	51.9	17.3	18	91
Education		1254				
	Primary -producer	12	1.0%	-	-	-
	Secondary - producer	113	9.0%	-	-	-
	Tertiary - producer	98	7.8%	-	-	-
	Primary - consumer	153	12.2%	-	-	-
	Secondary - consumer	649	51.8%	-	-	-
	Tertiary - consumer	229	18.3%	-	-	-
Schwartz values						
	Power - producer	219	3.1	1.1	1	6
	Achievement - producer	221	4.2	1.2	1	6
	Hedonism - producer	218	4.6	0.9	2	6
	Stimulation - producer	219	4.1	1.1	1	6
	Self-direction - producer	223	5.5	0.6	2.5	6
	Universalism - producer	213	5.2	0.7	2.7	6
	Benevolence - producer	220	5.3	0.7	2	6
	Tradition - producer	221	4.8	1.0	1	6
	Conformity - producer	220	4.6	1.2	1	6
	Security - producer	213	4.9	1.1	1.5	6
	Power - consumer	1,029	3.7	1.1	1	6
	Achievement - consumer	1 028	4.2	1.2	1	6
	Hedonism - consumer	1 031	4.8	0.9	1	6
	Stimulation - consumer	1 030	4.0	1.1	1	6
	Self-direction - consumer	1 030	4.9	0.9	1	6
	Universalism - consumer	1 024	5.2	0.7	1.3	6
	Benevolence - consumer	1 029	5.1	0.8	1	6
	Tradition - consumer	1 027	4.6	1.0	1	6
	Conformity - consumer	1 029	4.9	0.9	1	6
	Security - consumer	1 015	5.2	0.8	1	6
Variables of attitudes related to local food						
	Tasty - producers	214	4.4	0.9	1	5
	Fresh - producers	213	4.6	0.8	1	5
	Support for local farmers - producers	214	4.2	1.1	1	5
	Healthy - producers	214	4.1	1.1	1	5
	Safe - producers	212	4.4	0.9	1	5
	Chemical-free - producers	215	4.2	1.1	1	5
	Transport-related footprint - producers	213	4.0	1.1	1	5
	Zero-waste - producers	210	3.7	1.2	1	5
	Tasty - consumers	1 017	4.3	0.8	1	5
	Fresh - consumers	1 023	4.3	0.8	1	5
	Support for local farmers - consumers	1 020	4.0	1.0	1	5
	Healthy - consumers	1 011	4.3	0.8	1	5
	Safe - consumers	1 017	4.3	0.8	1	5
	Chemical-free - consumers	1 024	4.2	0.9	1	5
	Transport-related footprint - consumers	1 020	3.9	1.0	1	5
	Zero-waste - consumers	1 029	4.0	1.0	1	5

Table 3 Main descriptive statistics of the variables of attitudes in the producer and consumer sub samples, and the *p* values of the Kruskal-Wallis tests

Variables of attitudes	Producers (<i>N</i> =224)		Consumers (<i>N</i> =1.031)		Total (<i>N</i> =1,255)		Kruskal-Wallis <i>p</i> value
	Mean (SD)	Median	Mean (SD)	Median	Mean (SD)	Median	
Tasty	4.369 (0.909)	5	4.276 (0.839)	4	4.292 (0.852)	4	0.042
Fresh	4.638 (0.804)	5	4.273 (0.788)	4	4.336 (0.803)	4	<0.001
Support for local farmers	4.220 (1.063)	5	3.969 (1.004)	4	4.012 (1.018)	4	<0.001
Healthy	4.131 (1.127)	5	4.254 (0.806)	4	4.233 (0.871)	4	0.895
Safe	4.420 (0.897)	5	4.269 (0.825)	4	4.295 (0.840)	4	0.002
Chemical-free	4.172 (1.082)	5	4.241 (0.899)	4	4.229 (0.934)	4	0.893
Transport-related footprint	4.038 (1.136)	4	3.873 (1.042)	4	3.901 (1.061)	4	0.006
Zero-waste	3.724 (1.166)	4	3.999 (0.980)	4	3.952 (1.018)	4	0.005

Fig. 3 Misalignment between producer perceptions and actual consumer preferences

self-reported preferences (in the case of consumers) or assumed consumer expectations (in the case of producers).

The Caliński-Harabasz pseudo-F test identified a two-cluster solution as optimal for this combined dataset, as shown in Table S2, since the pseudo-F value was the highest in this case. This suggests that participants tend to group around two sets of priorities when it comes to local food attributes, regardless of whether they are producers or consumers. This clustering approach allowed us to move beyond traditional producer-consumer distinctions. Instead, we examined shared value orientations and preferences across all participants in LFSs.

Following the identification of the optimal cluster configuration, the cluster analysis revealed two distinct groups with clearly divergent attitudes toward local food attributes (Table 4). The medians for each cluster highlight systematic differences in how participants evaluate key dimensions such as health, sustainability, and freshness. Because the cluster analysis is based on pooled attitudinal profiles of producers and consumers, it provides an interpretive

framework for assessing the implications of the producer-consumer misalignments observed in Table 4. In particular, discrepancies that combine strong normative meaning with uneven producer recognition, such as waste reduction, are likely to carry different weight than more instrumental attributes like taste or safety.

The logistic regression results in Table 5 identify the two factors' alignment with the Schwartz value system. The producer/consumer variable was not significant, indicating that clustering was not determined by whether the respondent was a producer or consumer. Instead, shared values emerged as the defining factor shaping the two clusters. These findings underscore the importance of a value-driven approach to understanding attitudes toward local food, moving beyond simplistic producer-consumer dichotomies.

Among Schwartz's basic human values, universalism and tradition were positively associated with membership in the second cluster (see also Fig. 4), consistent with expectations from prior studies (Drew et al. 2022; Krystallis et al. 2012). These findings suggest that individuals who value

Table 4 Differences between the medians of the two clusters

Variables of attitudes	Cluster 1 – Self-Oriented Actors	Cluster 2 – Community-Oriented Actors	Total	Kruskal-Wallis <i>p</i> value
N	453 (38.5%)	724 (61.5%)	1,177 (100.0%)	-
Tasty	4	5	4	<0.001
Fresh	4	5	4	<0.001
Support for local farmers	4	5	4	<0.001
Healthy	4	5	4	<0.001
Safe	4	5	4	<0.001
Chemical-free	4	5	4	<0.001
Transport-related footprint	3	5	4	<0.001
Zero-waste	3	5	4	<0.001

Note: Final cluster labels are introduced below, following value-based interpretation

Table 5 Factors associated with cluster membership

Variables	Coefficient	Significance
Producer/consumer	-0.124	
Power	-0.185	**
Achievement	0.204	**
Hedonism	-0.332	**
Stimulation	0.058	
Self-direction	0.070	
Universalism	0.483	**
Benevolence	0.149	
Tradition	0.398	**
Conformity	-0.026	
Security	0.067	
Age	0.012	**
Education	0.140	
Gender	0.371	**
Intercept	-4.933	**
Number of observations	1125	
Pseudo R-squared	0.1	

Note: ** *p* < 0.05

environmental sustainability, social equity, and cultural customs are more likely to prioritize local food attributes. The significant positive influence of achievement in predicting Cluster 2 membership underscores the role of entrepreneurial skills and proactive engagement, as highlighted in Graskemper et al. (2022), in aligning with principles of sustainability and community support.

In contrast, power and hedonism were negatively associated with Cluster 2 membership (Fig. 4). This suggests that individuals who prioritize social dominance, control, or pleasure-driven motivations are less likely to value attributes such as sustainability, freshness, and support for local farmers. These contrasting value orientations reflect broader tendencies: individuals in the first cluster may rely more on integrated, large-scale food systems that prioritize convenience and assurances provided by external institutions, while the second cluster seeks alternative systems that align with their ecological and community-oriented values.

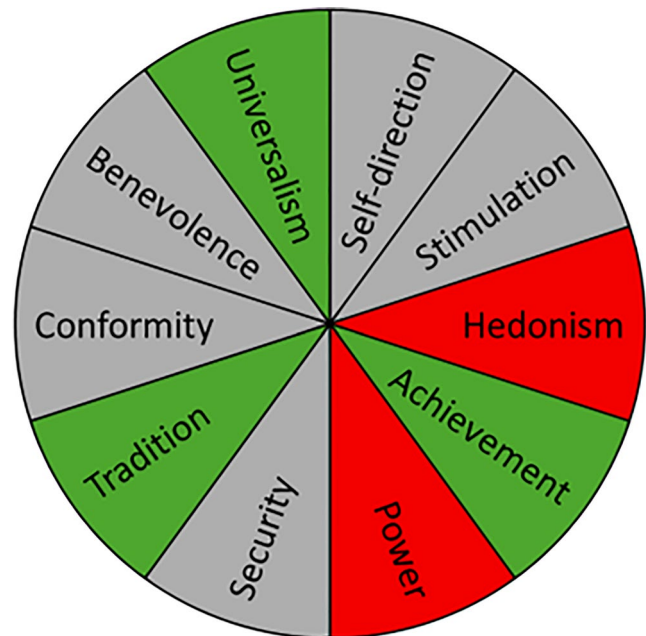


Fig 4 Values associated with cluster 2 (“Community-Oriented Actors”) membership. Note: values highlighted with green are positively associated, while values highlighted with red are negatively associated with cluster 2 membership

Based on the attitudinal patterns and the value orientations identified through logistic regression, we now turn to the interpretation and naming of the two clusters. The first cluster could be called Self-Oriented Actors (Cluster 1). This represents individuals with a practical and self-focused perspective. They emphasize personal comfort, food safety, and pragmatic benefits. Hedonism and power define this group’s value system, highlighting a preference for individual enjoyment, resource control, and prestige. These participants place relatively less importance on attributes such as healthiness, environmental impact, and community support. The second cluster, Community-Oriented Actors (with a strong sustainability focus, Cluster 2), aligns closely with the principles of sustainable and community-oriented food

systems. This group is characterized by a strong emphasis on sustainability, ecological balance, and social justice (universalism). They also value tradition, respecting cultural customs and engaging with local communities, while striving for achievement through proactive and innovative efforts. Community-Oriented Actors prioritize attributes like healthiness, freshness, sustainability, and supporting local farmers.

Age and gender were also significant predictors of cluster membership. Older individuals and women were more likely to align with the priorities of the Community-Oriented cluster. This finding aligns with field observations and previous research (Feldmann and Hamm 2015; Zepeda and Li 2006), which highlight the significant role of middle-aged women as primary participants in LFSs, particularly as consumers. Women are often the main decision-makers in household food purchases, and their preferences for health, freshness, and sustainability align closely with the values emphasized by Cluster 2. Moreover, older individuals may exhibit stronger connections to traditions and community-oriented practices, further reinforcing their alignment with the Community-Oriented cluster. In contrast, education did not have a significant impact on cluster membership, suggesting that value-driven dynamics are more influential than formal qualifications.

Cluster 2 (“Community-Oriented Actors”) exhibits a seemingly paradoxical mix of values: a strong respect for tradition alongside a marked preference for chemical-free, sustainable food. At first glance, this combination may appear contradictory, as tradition is often associated with conservation and resistance to change (Schwartz 1992), while sustainability implies innovation and transformation. However, these values can be mutually reinforcing in food systems where environmental care is interpreted as part of cultural heritage. Previous studies show that many consumers view organic and chemical-free farming as a return to more authentic, ancestral practices (Graskemper et al. 2022; Krystallis et al. 2012). Similarly, traditional farming knowledge such as composting, low-input cultivation, or seed saving often aligns with agroecological principles (Chiffolleau et al. 2019). The strong presence of both tradition and universalism among Community-Oriented Actors thus reflects a holistic ethos, where ecological sustainability is seen not as a break from the past, but as a way to preserve cultural continuity and community well-being (Nemes et al. 2023). Potential tensions may still arise if long-standing practices (e.g., conventional pesticide use) contradict consumer expectations, but these can be mitigated when sustainability is framed as a revalorisation of local knowledge and food heritage.

These insights highlight the importance of tailoring strategies in LFSs to engage groups that align with sustainability

and community support while leveraging entrepreneurial traits for effective participation. Future research should explore how these dynamics evolve over time and whether interventions aimed at enhancing producer awareness of consumer values can lead to more inclusive and resilient local food systems.

Implications for practice and policy

The identification of two distinct attitudinal clusters, Community-Oriented Actors and Self-Oriented Actors, has practical relevance for both producers and policymakers aiming to strengthen LFSs. To address areas of producer-consumer misalignment, especially around waste reduction and health concerns, targeted interventions are needed. Educational initiatives, including workshops, mentorship programs, and consumer feedback mechanisms, can help producers better understand and communicate the values prioritized by the Community-Oriented cluster. These consumers place strong emphasis on sustainability, health, and environmental considerations, which may not always be fully recognized or reflected in producer communication strategies, particularly among those in the Self-Oriented cluster who place emphasis on comfort and safety. Intermediaries such as local non-governmental organizations or producer-consumer platforms may play a key role in translating shared values into action.

Policy support can also play a role by addressing structural barriers that may limit producer engagement with value-oriented markets. This includes support for sustainable production practices, investment in infrastructure adapted to small-scale operations, and the development of local networks or cooperation frameworks that reduce logistical constraints. Practical support in the form of marketing training, assistance with certification or logistics, and seed funding to join local food initiatives can enable producers with limited resources or visibility to participate more actively in LFSs. Finally, supporting peer-to-peer exchange between more and less market-oriented producers could be beneficial, particularly in translating value preferences into everyday production and marketing decisions.

Beyond producer support, public engagement strategies and policy instruments should reflect the diverse motivations that shape consumer behaviour. For participants aligned with the Community-Oriented profile, communication and support schemes are likely to be more effective when they emphasise collective and long-term benefits, such as environmental protection, waste reduction, biodiversity conservation, and contributions to local livelihoods. Instruments that enhance transparency (e.g. labelling of environmental and social attributes), support short and low-waste supply chains, or strengthen community-based distribution

channels can reinforce these motivations and translate them into sustained engagement. In contrast, for more Self-Oriented and pragmatically motivated actors, moral or strongly normative sustainability narratives may be less persuasive. Engagement may therefore be more feasible when local food is framed in terms of immediate, personally relevant and instrumental benefits, such as perceived freshness, food safety, reliability, or convenience. From a policy perspective, this suggests that bridging perception gaps and fostering alignment requires not only information provision but also differentiated framing and channel design, tailored to distinct motivational structures.

In contexts characterised by low levels of trust or fragmented producer-consumer relations, such value-sensitive approaches can help create common reference points and reduce communication failures. By building on shared but differently articulated concerns, policy and producer initiatives can more effectively support participation, coordination, and social cohesion in the transformation of local food systems.

Strengths and limitations

This study provides a novel analytical approach for understanding producer-consumer interactions in local food systems. By employing a robust analytical design that combines attitudinal data with Schwartz's Theory of Basic Human Values, the research identifies shared values that bridge the gap between producers and consumers, allowing for the identification of meaningful clusters across producers and consumers. The consumer sample is representative of the Hungarian population, and the producer group, though not statistically representative, captures a broad range of small-scale farming experiences. These findings are particularly relevant in Central and Eastern Europe, where small-scale producers face similar structural challenges (Jehlička et al., 2020).

While our producer sample primarily consists of actors engaged in local food systems, it also includes producers with varying degrees of involvement in longer and more conventional supply chains. As a robustness check, we examined whether producers' perceptions of consumer preferences differed systematically according to the importance they attribute to longer supply chains. The absence of substantial differences suggests that our results are unlikely to be driven by this within-sample heterogeneity and may therefore represent a conservative estimate of producer-consumer misalignment.

At the same time, the findings should be interpreted with an awareness of their scope. Our analysis captures motivational orientations and evaluative frames rather than realised purchasing or production behaviour. Consistent with the

sustainable and ethical consumption literature, even strong pro-environmental or community-oriented values do not automatically translate into practice due to constraints such as availability, price sensitivity, habitual routines, trust relations, or institutional and market settings (Carrington et al. 2014; Vermeir and Verbeke 2006). Accordingly, the identified clusters indicate the potential for alignment and mutual understanding between producers and consumers, while the translation of such orientations into concrete participation in local food systems remains context-dependent.

Some additional limitations should also be acknowledged. First, participating producers tended to have higher levels of human and social capital, including digital literacy, entrepreneurial traits, and stronger connections to formal networks. This selection bias may exclude perspectives from more marginalized or less connected producers, who may face distinct barriers. Second, while the consumer sample is representative of the Hungarian population in terms of key demographic variables, the findings may not fully capture cultural or structural differences in LFSs across other countries or regions. In particular, the absence of a universally accepted definition of "local food" introduces interpretive ambiguity. While respondents were explicitly allowed to apply their own understanding, this flexibility, combined with potential variation in how "local" is interpreted (e.g., based on product origin, processing location, or producer scale) may have influenced how they framed attitudinal responses, complicating comparisons and limiting cross-context generalizability. Third, this study focused on Schwartz's Theory of Basic Human Values and selected sociodemographic characteristics, and other considerations, including specific marketing strategies, geographic proximity, product branding, trust-building mechanisms, or historical and cultural traditions, may also play crucial roles in shaping alignment.

Conclusions

This study examined how shared values and sociodemographic characteristics shape stakeholder engagement in local food systems. One key finding is the limited awareness among producers of the specific attributes consumers prioritize in local food. Producers tended to overestimate attributes closely tied to their own strengths, notably freshness, taste, safety, and support for local farmers, while underestimating the importance consumers place on zero-waste characteristics. These perceptual mismatches highlight the need for more effective feedback mechanisms and clearer communication strategies to foster stronger producer-consumer relationships.

The cluster analysis revealed two distinct groups that cut across producer and consumer roles, based on priorities for local food attributes. The Self-Oriented Actors represent a group with a practical, self-focused perspective, emphasizing personal comfort, food safety, and pragmatic benefits, with preferences that reflect values such as hedonism and power. In contrast, the Community-Oriented Actors embody sustainability, community support, and health-focused principles, aligning with preferences consistent with universalism, tradition, and achievement. While the clusters were derived from preferences alone, the subsequent analysis of values provided insight into the underlying motivations shaping these priorities. Notably, value profiles, rather than stakeholder roles, proved to be the defining factor in cluster membership. This challenges conventional assumptions about producers and consumers as fundamentally distinct groups and highlights the potential of value-based segmentation to inform more targeted engagement strategies in local food systems.

From a scholarly perspective, the study advances our understanding of how shared values influence coordination and engagement across stakeholder roles in local food systems by demonstrating how abstract human values translate into food-related priorities across stakeholder groups. It contributes methodologically by operationalizing Schwartz's Theory of Basic Human Values as a shared analytical framework for both producers and consumers, an approach that remains rare in food system research and offers potential for comparative analysis across diverse contexts. While our analysis is grounded in the Hungarian context, characterized by regulatory path dependencies, limited civic engagement, and fragmented trust structures, the underlying mechanisms may be relevant to other food systems where actors must navigate weak formal coordination and rely on informal, value-based alignment. In particular, the dual role of symbolic and practical motivations in shaping local food preferences may hold across cultural contexts, making the applied value-based typology a transferable heuristic for mapping stakeholder dynamics elsewhere. Future research should expand the geographic scope of this study to explore how cultural and institutional contexts shape producer-consumer dynamics in other regions. Longitudinal studies would provide valuable insights into how shared values and alignment evolve over time, particularly in response to external shocks, such as economic crises or environmental changes. Additionally, interdisciplinary approaches that incorporate cultural studies, behavioural economics, or digital innovation could deepen our understanding of the complex interplay between values, market dynamics, and socio-demographics in local food systems.

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Data availability The data that support the findings of this study are available from the authors upon reasonable request.

Declarations

Ethics approval This study was performed in line with the principles of the Declaration of Helsinki. Approval was granted by the Ethical Committee of the ELTE Centre for Economic and Regional Studies (ELTE KRTK), Hungary (Reference number: 20/038; 03/03/2020).

Informed consent An informed consent was obtained from all the respondents.

Competing interests 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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