FOODLEVERS

Deliverable 2.4:
Report on consumer behaviour change

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1. Acronyms

Adjusted goodness of fit	AGFI
Average variance extracted	AVE
Community supported agriculture	CSA
Comparative fit index	CFI
Composite reliability	CR
Confirmatory factor analysis	CFA
Non-normed fit index	NNFI
Organic Research Center	ORC
Perceived Behavioral Control	PBC
Root mean square error of approximation	RMSEA
Structural Equation Modeling	SEM
Theory of Planned Behavior	TPB

2. Summary

This deliverable delves into the role of consumers in transforming food systems for sustainability using the leverage points framework. This framework envisions altering fundamental goals to drive change, with consumers crucial for alignment with innovative practices. The study employs the Theory of Planned Behavior (TPB) to assess cognitive factors affecting behaviors, such as attitudes and perceived control. It extends this through the leverage points framework, suggesting pioneer consumers supporting innovation hold beliefs aligned with it.

In this context, a survey, part of the FOODLEVERS project, was developed, covering TPB and leverage points constructs. It also considered contemporary factors like the impact of COVID-19 and inflation. Project cases showcase innovation, reestablishing the connection between humans and agriculture, with a focus on organic food shopping behavior. The survey underwent two qualitative and quantitative validation phases and was deployed across seven partner countries.

The analysis of collected data indicates that attitudes and subjective norms significantly influence organic food behavior. Pioneer consumers' attitudes and perceived control are linked to leverage thinking, indicating broad beliefs. However, this doesn't necessarily affect subjective norms, implying less network connectivity. The document progresses to methods, analysis approach, demographics, and measurement model creation. The summary concludes with key observations and results.

3. Introduction

There is an increasing focus on instigating systemic change and driving the transformation of food systems toward sustainability. To facilitate this transition, various methodologies have been proposed, including the leverage points framework (Abson et al., 2017) which is rooted in Meadows's principles (1999). The fundamental premise of the leverage points framework lies in envisioning the system we are a part of as a pyramid structure, with the bedrock encompassing the system's goals, objectives, and intentions, subsequently shaping the entire framework of the system.

In this context, one of the potentially compelling mechanisms for effecting change—albeit theoretically—is to initiate transformations by altering the fundamental goals of the system. When this approach is applied to food systems, Abson and colleagues (2017) contend that achieving a reorientation for transformation necessitates a three-pronged strategy: “rethink”, “restructure”, and “reconnect”. Under this perspective, “rethink” entails a comprehensive overhaul of knowledge production and utilization, harmonizing with the envisioned change in system goals. “Restructure” signifies the imperative of instituting new arrangements and institutional shifts, while "reconnect" underscores the need to amplify the interconnections between humans and the nature.

Within this context, the significance of consumers comes to the forefront as pivotal agents in embracing endeavors aligned with the transformation of food systems. While the production system might necessitate innovative approaches to incorporate environmentally responsible practices, consumers—situated on the opposite end of the supply chain—must reciprocate by either aligning with or demanding for such innovations.

In this regard, it is paramount for consumers to harbor intricate belief systems that empower them to be attuned to initiatives recognized as the “seeds for change” (Geels et al., 2016). These belief systems serve as guiding frameworks that steer their attention toward endeavors capable of catalyzing transformative shifts or in a simpler way paying attention to certain products (Wensing et al., 2021) or type of grocery shopping.

Following this line of reasoning, our inquiry seeks to address two primary research questions: (1) how the pioneer consumers’ beliefs are shaped by the broader set of beliefs? (2) how the set of broader beliefs influence the willingness to support innovation in food chains?

To explore the aforementioned research inquiries, we initially draw upon the Theory of Planned Behavior (TPB) developed by Ajzen (1991), a widely employed framework adept at gauging the cognitive factors steering individuals toward specific behaviors. According to this theory, attitudes, subjective norms, and perceived behavioral control (PBC) pertinent to particular behaviors stand as principal determinants of intentions. Subsequently, these intentions are pivotal in shaping the subsequent behavior. Following this rationale, an individual's alignment with a specific belief system, harmonization with their social context, and the degree of control they wield over their actions collectively steer them toward adopting a particular behavior. In essence, a consumer's conduct hinges on the interplay between their individual beliefs, social influences, and personal agency. Additionally, TPB is widely used in the organic food consumption area (Scalco et al., 2017). The main components and hypotheses of the TPB concerning organic consumption were tested;

however, many researchers have considered the inclusion of additional concepts, such as trust (Canova et al., 2020), moral norms and identity (Yazdanpanah & Forouzani, 2015), and affective and moral attitudes (Arvola et al., 2008).

Similarly, yet differently, we extend our conceptual framework, which is based on the TPB, to encompass the leverage points framework in the context of consumers. In this context, we posit that pioneer consumers who endorse innovative practices within food chains are likely to be underpinned by an expansive spectrum of belief systems that resonate with the leverage points framework. These belief systems subsequently mold their attitudes, PBC, and social surroundings. Through this approach, we establish a linkage between the leverage points framework and TPB.

To operationalize our investigations, we have devised a survey within the framework of the FOODLEVERS project, encompassing constructs that embrace both the TPB and the leverage points framework. Furthermore, we have incorporated questions that address the more contemporary aspects such as the impact of the COVID-19 pandemic and inflation, along with the participants' responsiveness to fluctuations in food prices.

In our endeavor to capture the essence of innovation and the notion of a "seed for change", we have drawn upon the existing cases documented within the FOODLEVERS project. These cases uniformly showcase instances of innovation within their respective chains, fostering a closer and more direct connection between producers and consumers. In this context, we hypothesize that these cases are orchestrated with the intent to reestablish the symbiotic relationship between humans and agriculture. This encompasses the creation of novel institutional arrangements, entailing a process of restructuring. Additionally, these cases embrace a "rethink" strategy, characterized not only by the utilization of knowledge but also by the fundamental reshaping of food systems, ultimately leading to non-conventional behaviors.

Furthermore, the focal point of the cases, congruent with the overarching goals of the FOODLEVERS project, lies in the production of organic goods. Consequently, a central theme within our survey pertains to behaviors associated with organic food shopping.

In conducting the survey, we initially undertook a two-phase validation process. The first phase encompassed a qualitative aspect, involving cognitive testing of the questions with a select group of interviewees. Subsequently, in the second phase, we proceeded quantitatively, testing the timing and construct validity of the survey. Following minor adjustments stemming from insights garnered during the validation phase, we turned our attention to the seven partner countries within the FOODLEVERS project: Belgium (Flanders), Finland, Germany, Italy, Poland, Romania, and the UK. In line with this focus, we launched the survey in the native languages of these countries to ensure local relevance and resonance. Data collection resulted in a total of 1186 complete responses.

In order to analyze the survey data, we commence by offering an exhaustive account of the survey items, encompassing socio-demographic details and consumer segmentation as well as assessing the qualitative results from the open-ended questions.

Subsequently, we formulate a collection of hypotheses that encompass the TPB, the leverage points framework, and their interplay. Utilizing a Structural Equation Modeling (SEM) approach

(Kline, 2023), we subject these hypotheses to rigorous testing to ascertain our findings. All analyses are conducted using the *R* programming language. Particularly for the hypotheses testing, we have employed the "lavaan" package within R programming language (Rosseel, 2012) as a specialized tool.

In summary, the results primarily demonstrate that consumers' behavior concerning organic food is predominantly influenced by their attitudes and subjective norms, while the role of PBC seems to be of lesser significance. Secondly, the attitudes towards organic food consumption and the perceived behavioral control of pioneer consumers are found to be intertwined with the concept of leverage thinking. This suggests that these pioneering consumers possess a more expansive array of beliefs and exhibit a critical mindset. However, it's noteworthy that the leverage thinking of these consumers doesn't appear to correlate with their subjective norms. This implies that such consumers might have fewer connections with similar pioneers, indicating a less interconnected network.

The remaining content of this document is organized as follows. Firstly, we present a comprehensive methods section that outlines the survey's design, structure, and includes a full list of survey items. We also provide a brief overview of the validation phases. Secondly, we elaborate on the analysis approach by delving into the specifics of the sampling process, demographic data, and summarizing the survey items based on different groups. Within the same analysis section, we furnish details about the creation of three distinct measurement models. These models were developed to explore the hypotheses associated with the TPB and the leverage points framework, as well as the interactions between these two frameworks. We further conclude the document by drawing upon the most significant observations and results obtained from the analysis. Last, we are also providing an annex containing qualitative insights from BE, UK focused groups alongside the full survey.

4. Methods

a. Survey design and structure

To design the survey, we followed the main principles of the Theory of Planned Behavior (TPB), as well as the leverage points framework. Additionally, we considered behavioral elements related to the sensitivity of food choices to price, aiming to determine whether consumers have a certain threshold when it comes to maintaining their food diets (organic vs. conventional). Several questions were also designed to explore external shocks such as reactions to the COVID-19 pandemic, inflation, and energy prices. Lastly, in addition to sociodemographic-related questions, a few screening questions were developed to categorize respondents based on whether they are the main food purchasers in their household, how they define organic food, and whether they see themselves as active organic consumers.

Screening questions

- *Influence on food purchasing decision-making*, with this question, we are checking whether the respondent has any influence on decisions related to food purchasing in his/her household. The rest of the survey is conditioned based on the answer to this question; if the respondent has no influence, then he/she will not answer all the questions.
- *Perception of organic food,* construct measures the attributes that respondents associate with organic food (e.g., local, without chemical fertilizers or chemically synthesized

pesticides, etc.), as well as whether consumers consider themselves as organic consumers. Based on the answers to these questions, the survey will follow a certain logic for the respondents.

Food shopping behavior

- *Frequency and origin,* the respondent chooses the location/mode and frequency at which they buy their food. Locations/modes vary from supermarkets to direct sales on farms.
- *Transport for purchasing,* this measure indicates which mode of transport individuals use to reach their target location for buying food. The modes of transport vary from bike to car.

Demographics

- *Demographic*, This construct characterizes the age, gender, living country, living area (e.g., urban vs. rural), household size (including children), education, general occupation, and whether the occupation is related to the food industry.

Behavioral characteristics towards organic consumption based on the TPB

- *Behavior*, data was collected to measure the frequency with which the respondent purchases organic food products. The products in this measure are itemized into different categories.
- *Intention*, data was collected to measure whether respondents are planning to buy organic food products in the near future (i.e., within three months).
- *Perceived Behavioral Control (PBC)*, data was collected to measure the self-believed behavioral control towards purchasing organic food products. This measure includes factors such as affordability and accessibility.
- *Attitude*, data was collected to address the general attitude of the consumers towards organic food products. This measure includes how consumers perceive organic food and how they attribute it (e.g., liking, enjoying, etc.).
- *Subjective norms*, data was collected to address the extent to which peers influence the behavior of the respondent (self-believed). This measure includes, for example, whether important peers think the respondent should increase their organic food consumption.

Control dimensions to count for the TPB main dimensions

- *Open questions* for attitudes (i.e. perceived the advantages and disadvantages of the organic consumption) and perceived behavioral controls (i.e. perceived difficulties in purchasing the organic food products).
- *Behavioral beliefs,* was collected to measure the beliefs that influence attitudes towards organic consumption. Items such as taste, contribution to the environment, etc., were designed to explore these beliefs.
- *Normative beliefs* for subjective norms, measuring how the respondent feels approved or disapproved by the peers.
- *Control beliefs* for perceived behavioral control, data was collected to measure the consistency between perceived control (affordability and accessibility) and living conditions. Instead of using typical items (e.g., not buying organic food due to lack of nearby shops) to avoid repetition in the survey, living conditions were used to assess the consistency between economic aspects and perceived behavioral control.

Control dimensions to count for the leverage points framework

- *Beliefs of (general) food consumption towards general issues* This construct measures whether consumers see a connection between food consumption and ongoing issues related to climate, health, welfare, fairness, etc.

Leverage points for organic and sustainable food systems

- *Production system related concerns,* this construct measures consumers' sensitivity to issues in food production, consumption, and transport.
- *Seeking information behavior*, this construct measures whether consumers actively seek information about the organic products they consume. The information may be related to origin, social conditions, etc.
- *Critical thinking of organic food systems*, this construct measures whether consumers are critical of organic food systems.
- *Supporting innovative chains,* this construct measures whether consumers are willing to support innovative initiatives (inspired by FOODLEVERS cases) that enable change in the food systems.

Food choices and identity sensitivity

- *Choice sensitivity*, this construct measures how resistant the consumer is to an increase/decrease in prices, which may result in switching to conventional/organic food choices.
- *Identity sensitivity*, this construct checks how individuals perceive their food identity, to what extent they believe in their current choices, and how these choices influence their social environment.

Reaction to external shocks

- *Covid shock*, this construct measures whether the COVID-19 pandemic affected organic food consumption and inclinations towards buying more directly from farms.
- *Inflation and energy shock,* this construct measures consumers' concerns related to general inflation and energy prices, as well as whether they felt the need to cut expenses.
- *Inflation related cuts,* this construct measures whether some expenditure cuts occurred based on different categories.

Table 1 displays the questions designed with their descriptions in terms of dimensions and levels.

Table 1- Designed questions, dimensions, levels

Dimension/measure	Item/question	Levels
Influence on food purchasing decision-making		
	What is your role in your household's food purchasing?	a) I make the decisions about what is bought (with or without someone else). b) I have an impact on what is bought by writing the shopping list or by making requests. c) I have no influence whatsoever on food purchase decisions.
Perception of organic food		
	According to you, what are the typical properties of organic food? Organic food is always...	a) Traditional food b) Vegetarian food c) Locally produced food

		d) Produced on farms that emphasize soil health e) Produced without chemical fertilizers or chemically synthesized pesticides f) Produced with more emphasis on animal welfare than conventional food g) Produced on farms that employ underprivileged workers (e.g. workers with a disability, long-term unemployed) h) Fairtrade food, insuring better working conditions and fairer pay for farmers and workers i) Other: *(Note: multiple answers can be provided)*
	Do consider yourself as an organic food consumer? (Note: an official definition or organic food is provided here)	a) Yes b) Sometimes c) No d) I don't know
Frequency and origin		
	Supermarket (physical store, not e-commerce)	7-point scale (0 = "never", 6 = "daily")
	Hard discount supermarket (physical store, not e-commerce)	7-point scale (0 = "never", 6 = "daily")
	Neighborhood supermarket (physical store, not e-commerce)	7-point scale (0 = "never", 6 = "daily")
	Specialty store (physical store, not e-commerce)	7-point scale (0 = "never", 6 = "daily")
	Online store (e-commerce)	7-point scale (0 = "never", 6 = "daily")
	Weekly or regular market (Not a farmers' market)	7-point scale (0 = "never", 6 = "daily")
	Farmers' market or other mobile farm sale	7-point scale (0 = "never", 6 = "daily")
	Organic or natural food shop	7-point scale (0 = "never", 6 = "daily")

	Direct farm sales, with personal contact with the farmer('s family)	7-point scale (0 = “never”, 6 = “daily”)
	Direct farm sales, without personal contact	7-point scale (0 = “never”, 6 = “daily”)
	Direct farm sales online	7-point scale (0 = “never”, 6 = “daily”)
Transport for purchasing		
	On foot	5-point scale (1 = “never”, 5 = “always”)
	Bike	5-point scale (1 = “never”, 5 = “always”)
	E-bike	5-point scale (1 = “never”, 5 = “always”)
	Scooter or Motorcycle	5-point scale (1 = “never”, 5 = “always”)
	Car (petrol, diesel, hybrid)	5-point scale (1 = “never”, 5 = “always”)
	Electric car	5-point scale (1 = “never”, 5 = “always”)
	Shared Car	5-point scale (1 = “never”, 5 = “always”)
	Public transportation	5-point scale (1 = “never”, 5 = “always”)
Intention (TPB)		
	I would like to increase how much I buy	5-point scale (1 = “strongly disagree”, 5 = “strongly agree”)
	I strongly intend to increase how much I buy	5-point scale (1 = “strongly disagree”, 5 = “strongly agree”)
	I plan to increase how much I buy	5-point scale (1 = “strongly disagree”, 5 = “strongly agree”)
Perceived Behavioral Control (TPB)		
	I could increase my consumption of organic food if I wanted to	5-point scale (1 = “strongly disagree”, 5 = “strongly agree”)
	I am able to afford organic food	5-point scale (1 = “strongly disagree”, 5 = “strongly agree”)

	I have access to organic food	5-point scale (1 = "strongly disagree", 5 = "strongly agree")
	What factors or circumstances would enable you to increase your consumption of organic food?	Open question
	What factors or circumstances make it difficult or impossible for you to increase your consumption of organic food?	Open question
Attitude (TPB)		
	Overall, I like the principles of organic food production	5-point scale (1 = "strongly disagree", 5 = "strongly agree")
	Overall, I enjoy consuming organic food	5-point scale (1 = "strongly disagree", 5 = "strongly agree")
	Overall, I think that organic food is important for increasing the sustainability of food production	5-point scale (1 = "strongly disagree", 5 = "strongly agree")
	What do you believe are the advantages of consuming organic food?	Open question
	What do you believe are the disadvantages of consuming organic food?	Open question
Behavioral Beliefs (TPB)		
	If I increase my consumption of organic food, then I will feel that I have done something positive for the environment	5-point scale (1 = "strongly disagree", 5 = "strongly agree")
	If I increase my consumption of organic food, then I will feel that I have done something	5-point scale (1 = "strongly disagree", 5 = "strongly agree")

	positive for my health or the health of my family	
	Buying organic food instead of conventional will negatively affect my savings	5-point scale (1 = "strongly disagree", 5 = "strongly agree")
	Organic food is tasty	5-point scale (1 = "strongly disagree", 5 = "strongly agree")
	Organic food tastes better than non-organic food	5-point scale (1 = "strongly disagree", 5 = "strongly agree")
	I am willing to pay higher prices for organic food (I am aware that non-organic food products are generally cheaper)	5-point scale (1 = "strongly disagree", 5 = "strongly agree")
Behavior (TPB)		
	Frequency of buying organic fruits and vegetables	5-point scale (1 = "never", 5 = "always")
	Frequency of buying organic meat	5-point scale (1 = "never", 5 = "always")
	Frequency of buying organic milk and dairy	5-point scale (1 = "never", 5 = "always")
	Frequency of buying organic eggs	5-point scale (1 = "never", 5 = "always")
	Frequency of buying organic bread	5-point scale (1 = "never", 5 = "always")
	Frequency of buying organic packaged foods (e.g. veggie burgers, meat substitutes, pasta, jam, biscuits)	5-point scale (1 = "never", 5 = "always")
	frequency of buying organic drinks (e.g. fruit juice, wine)	5-point scale (1 = "never", 5 = "always")
Adjusted control beliefs (TPB)		
	If you think about the amount of money available for grocery shopping in your household, which of	a) I have enough money to buy any food I want and I scarcely consider price when shopping for food (=5).

	these statements best suits you?	b) I could afford to buy any food I want, but I am still conscious of the price (=4). c) For financial reasons I sometimes need to limit my choices when purchasing food (=3). d) I need to consider prices very carefully. This always limits the type of products that I can purchase (=2). *Note: value 0 is assigned to consumers without influence on purchasing decisions*
	How do you assess your household's living standard, compared to the average household in your region?	5-point scale (1= much lower than average, 5=much higher than average)
Subjective norm (TBP)		
	My peers think that I should increase my consumption of organic food	5-point scale (1 = "strongly disagree", 5 = "strongly agree")
	Many people like it when I buy organic food	5-point scale (1 = "strongly disagree", 5 = "strongly agree")
Normative beliefs (TPB)		
	I value my peers' (relatives, friends, colleagues…) food choices	5-point scale (1 = "strongly disagree", 5 = "strongly agree")
	My peers influence my food choices	5-point scale (1 = "strongly disagree", 5 = "strongly agree")
	Most of my peers approve of my food choices	5-point scale (1 = "strongly disagree", 5 = "strongly agree")
	Certain posts or channels on social media influence my food choices	5-point scale (1 = "strongly disagree", 5 = "strongly agree")

Beliefs of (general) food consumption towards general issues (Broader thinking)		
	My health or the health of my family	5-point scale (1 = "not important", 5 = "very important")
	Mitigating climate change	5-point scale (1 = "not important", 5 = "very important")
	Environmentally friendly food production	5-point scale (1 = "not important", 5 = "very important")
	Animal welfare	5-point scale (1 = "not important", 5 = "very important")
	Fair income for farmers and farm workers	5-point scale (1 = "not important", 5 = "very important")
Seeking information (leverage point)		
	When buying organic food, do you seek information on how it is produced?	1 = No, never 3= Sometimes I search for information 5= Yes, always
	Which type of additional information do you seek when buying organic food?	a) Country/region of origin b) Production conditions (e.g. pesticide use, animal welfare, etc.) c) Social conditions (e.g. working conditions, fairtrade, etc.) d) Presence of (chemical) food additives e) Nutritional value *(Note: multiple answers can be selected and based on which the value is given)*
Production system concerns		
	I am concerned about the way we consume food	5-point scale (1 = "strongly disagree", 5 = "strongly agree")
	I am concerned about the way food is produced	5-point scale (1 = "strongly disagree", 5 = "strongly agree")
	I am aware of the impact of transportation and delivery of the food I consume	5-point scale (1 = "strongly disagree", 5 = "strongly agree")

Critics on organic		
	I think organic food itself needs to be reconsidered, specifically how it is produced and delivered	5-point scale (1 = "strongly disagree", 5 = "strongly agree")
	I look for organic food that is produced in the most sustainable way	5-point scale (1 = "strongly disagree", 5 = "strongly agree")
	I hope that by consuming organic food, I can make our food systems more sustainable	5-point scale (1 = "strongly disagree", 5 = "strongly agree")
Willingness to support innovation		
	I think food should be bought either directly from the farm or from local delivery points that collect it directly from farms, to shorten supply chains and support local farmers	5-point scale (1 = "strongly disagree", 5 = "strongly agree")
	I like the idea of offering organic food in catering (e.g. in schools, hospitals, etc.) that is produced in a very environmentally friendly way	5-point scale (1 = "strongly disagree", 5 = "strongly agree")
	I am willing to support initiatives (e.g. financial donations, volunteer work, etc.) offering organic catering that is produced in a very environmentally friendly way	5-point scale (1 = "strongly disagree", 5 = "strongly agree")
Choice sensitivity		
(organic)	If the price of organic food increases significantly, I will choose cheaper products that maybe non-organic.	0= NO 1= Yes
(organic)	How much would organic food prices have to increase to make you hesitate to	5= 0 to 25% increase 4= More than 25% increase 3= More than 50% increase 2= More than 75% increase

	continue buying organic foods?	(Note= 1 is assigned to whom does answered NO in the previous question)
(conventional)	If the price of organic food decreases significantly, I will buy organic food.	0= NO 1= Yes
(conventional)	How much organic food prices have to decrease to make you keen to start buying organic food?	5= 0 to 25% decrease 4= More than 25% decrease 3= More than 50% decrease 2= More than 75% decrease (Note= 1 is assigned to whom does answered NO in the previous question)
Identity sensitivity		
(organic)	I eat almost exclusively organic foods and I do my best to not buy conventionally produced food products.	5-point scale (1 = "strongly disagree", 5 = "strongly agree")
(organic)	I encourage my peers to buy organic food.	5-point scale (1 = "strongly disagree", 5 = "strongly agree")
(organic)	If I know that my peers who used to eat primarily organic food have now started buying primarily conventional food, I will consider doing that too.	5-point scale (1 = "strongly disagree", 5 = "strongly agree")
(conventional)	If there are more promotions in the supermarket, I will buy organic foods.	5-point scale (1 = "strongly disagree", 5 = "strongly agree")
(conventional)	I have concerns in my life outside of organic food consumption.	5-point scale (1 = "strongly disagree", 5 = "strongly agree")
(conventional)	I discourage my friends from buying organic food.	5-point scale (1 = "strongly disagree", 5 = "strongly agree")
(conventional)	If I know that my peers who eat conventional food are switching to organic foods, I will also consider switching.	5-point scale (1 = "strongly disagree", 5 = "strongly agree")
Covid shock		

	The Covid pandemic had a lasting impact on my opinion of organic food.	5-point scale (1 = “strongly disagree”, 5 = “strongly agree”)
	Since the Covid pandemic I buy more organic food.	5-point scale (1 = “strongly disagree”, 5 = “strongly agree”)
	Since the Covid pandemic I buy more food directly from the farm.	5-point scale (1 = “strongly disagree”, 5 = “strongly agree”)
Inflation and energy shock		
	The general inflation and increase in energy prices concern me.	5-point scale (1 = “strongly disagree”, 5 = “strongly agree”)
	The general inflation and increase in energy prices has made me cut my food expenses.	5-point scale (1 = “strongly disagree”, 5 = “strongly agree”)
Inflation related cuts		
	Clothing	1=no change 2= some cuts 3= strong cuts 4= cut out completely
	Food for home consumption	1=no change 2= some cuts 3= strong cuts 4= cut out completely
	Restaurants	1=no change 2= some cuts 3= strong cuts 4= cut out completely
	Heating and electricity	1=no change 2= some cuts 3= strong cuts 4= cut out completely
	Transportation	1=no change 2= some cuts 3= strong cuts 4= cut out completely
	Miscellaneous household products	1=no change 2= some cuts 3= strong cuts

	(e.g. soap, detergent, household paper, hygiene products, pet food, etc.)	4= cut out completely
	Travel and tourism	1=no change 2= some cuts 3= strong cuts 4= cut out completely
	Technical equipment (electronics and household appliances)	1=no change 2= some cuts 3= strong cuts 4= cut out completely
	Entertainment (either at home or out, e.g. movies, streaming services, amusement park, etc.)	1=no change 2= some cuts 3= strong cuts 4= cut out completely
	Cultural activities (e.g. literature, museums, theatre, concerts, etc.)	1=no change 2= some cuts 3= strong cuts 4= cut out completely
	Healthcare and medication	1=no change 2= some cuts 3= strong cuts 4= cut out completely
Demographics		
Age	How old are you?	a) 18-25 b) 26-35 c) 36-50 d) 51-65 e) 66-75 f) Over 75
Gender	What is your gender?	a) Female b) Male c) Non-binary d) Prefer not to say
Country	In which country do you live?	a) Belgium b) Finland c) Germany d) Italy e) Poland f) Romania g) United Kingdom h) Other
Urbanization	In which area do you live?	a) Large city

		b) Small city c) Urbanized area (town or village) d) Countryside
Household size	How many people live in your household (including yourself)?	a) 1 b) 2 c) 3-4 d) 5 or more
Children	How many of these people are children?	a) No children b) 1 c) 2 d) 3-4 f) 5 or more
Education	What is your level of education?	a) No formal education b) Primary education c) Secondary education or high school d) Vocational training e) Bachelor's degree f) Master's degree or higher
Employment	What is your main occupation?	a) Management b) Employee c) Self-employed d) Unemployed e) Retired
Relation to food industry	Does your job involve food production or food services?	a) Yes b) No

b. Survey validation

i. Qualitative phase

Once the essential and primary structure of the survey had been defined, before administration, it was necessary to verify its comprehensibility by people outside the working group. The survey was pre-tested by means of cognitive interviews. These interviews allowed to check the manner in which respondents understand, mentally process and respond to the material presented in the inquiry. In particular their comprehension, recall, decisions, and judgement and response processes are checked. The draft questionnaire is administered, while collecting additional verbal information about the survey responses. The goal is to detect problems in the questionnaire and whether the questions are generating the information that the author intended, so that the associated response errors in the final may be reduced (Willis, 2004).

For this pretest, the Italian partner CNR involved five people, the Belgian ILVO six. The testers were identified in the relationship circles of the researchers to allow for a mutually confident approach. People who were willing to dedicate time to the project have been identified. Care has been taken to represent: gender diversity and heterogeneity of age, social position and income. In Italy, testers were selected that are sensitive to the issue of organic farming, in Belgium random consumers were used.

In this pilot phase, the meetings with the testers were individual and carried out face-to-face. The interviewees were asked to “think-aloud” while they were completing the survey. Furthermore, the interviewers used verbal probing techniques, as well as, to elicit thinking about each question. The testers were prompted with questions such as: "What do you think we are asking with this question?"; “Do you understand the meaning of this term?”; “Do you find it difficult to answer within the proposed alternatives?”; “Is the range of answers provided clear/convenient for you?”. The intent was to verify, for each question, its lexical understanding, its congruence, its effectiveness, its complementary function with respect to the others. All the answers to these questions were noted as useful feedback to make the survey more accessible and more interesting.

Having acquired the impressions and comments, the questionnaire was adapted to make it:

- more explicit in its logical articulation (e.g. dividing it into sections and placing titles that explicitly refer to the contents of the TPB);
- less redundant in some parts (e.g. the question section regarding purchasing behavior);
- appropriate in the list of choice options; inspiring in its compilation.

Specific problems that were detected and subsequent changes made to the survey include:

- Some of the Belgian interviewees showed insufficient understanding of what “organic food” actually is (they for instance, thought we were talking about vegetarian/vegan food). Evidently, responses from respondents who do not really know what they are responding to, would pose a major problem and make responses unreliable. Even more so, since the answer to the question “Do you consider yourself as an organic food consumer?” (Q7), partly determines the survey logic, i.e. which questions the respondent sees in the remainder of the survey.

    ⇨ In order to accommodate for this potential flaw, a verification question was added before “According to you, what are properties for organic food? Organic food always is…”, listing both right and wrong answering options and an open option in which respondents could amend the list (Q6)

    ⇨ The definition of organic food that was already in the test version, was made more prominent and mandatory to read before proceeding to Q7.

- In the section on the respondent’s shopping budget,

In Q4, “If you think about the amount of money available for grocery shopping in your household, which of these statements best suits you?”, the answering option “I have enough money to buy any food I want” was amended with “and I scarcely consider prices while shopping for food”, while and additional option “I have enough money to buy any food I want, but I do shop price-consciously for food” was added, as many of the interviewees made that remark.

At Q5 “What is, approximately, the monthly combined net income of your household?”, interviewees were either reluctant to give an actual amount, said they don’t know exactly what their partner is earning, or had calculation difficulties.

⇨ Therefore, this was replaced by "How do you assess the monthly combined net income of your household, compared to the average household income in your region?", with an answering range between "much lower than average" to "much higher than average" and an "I don't know" option.

- Many of the questions had an answering scale "strongly disagree / disagree / neither agree nor disagree / agree / strongly agree.

  ⇨ "(dis)agree" was changed to "somewhat (dis)agree", as many interviewees did not see sufficient difference with the extreme options.

- In multiple questions that just had yes/no answering options, an "I don't know" option was added, as some interviewees indicated they had insufficient knowledge of some issues.

- On the perception of organic food, the statement "I find it easy to increase my organic food consumption", the Belgian interviewees, who all were all non or moderate organic consumers, who did not particularly want to increase their organic consumption. Even though they all had this similar reasoning, they came up with the whole range of answers (from "disagree" to "strongly agree"). These answers would thus be invalid.

  ⇨ The statement was dropped from the survey.

- In a number of questions/statements/answering options, examples were added for clarification, e.g. in types of supermarkets (Q2) or in entertainment/cultural activities (Q28).

- The long list of professions listed in the test version, was reduced to only 6 types of main occupation (Q37).

ii. Quantitative phase

In the quantitative phase, our objective was to assess the functionality of the survey and the platform. We also aimed to identify any potential missing values and evaluate the construct validity of the main survey components. The pilot phase involved 46 participants, with an average completion time of under 15 minutes, positioning the survey as concise and easily manageable. Therefore, the survey was well-received in terms of its length and timing. Regarding the validity of constructs and the adequacy of the measurement models, specifically the TPB and leverage point framework, a comprehensive analysis has been conducted and is presented in the results section.

5. Analysis

a. Sampling

The survey was conducted in seven countries: Belgium (Flanders), Germany, Italy, Poland, the UK, Romania, and Finland. The data collection started from the 15 of June 2023 and ended in end-Oct 2023. Based on the survey's structure and project goals, various groups were targeted, including those who identify as: 1) active organic consumers, 2) partial organic consumers, and 3) not-at-all organic consumers. Furthermore, for those who identify as organic consumers, an additional question is asked to measure whether they seek extra information when purchasing organic products.

Therefore, this approach aims to identify consumer clusters related to organic consumption and their positioning within the leverage-points framework. Table 2 presents the sociodemographic data of the survey respondents.

Table 2- Sociodemographic data

	Percentage (%)							
	Total	**BE (FL)**	**DE**	**IT**	**PL**	**FN**	**RO**	**UK**
Sample size	*n=1189*	*n=310*	*n=286*	*n =201*	*n=206*	*n=86*	*n=67*	*n=34*
Age								
18-25	13.33	12.26	27.02	6.57	4.04	7.14	22.73	0
26-35	18.68	18.06	26.32	11.11	16.16	13.1	28.79	14.71
36-50	32.77	28.39	20	34.34	48.99	44.05	39.39	32.35
51-65	2564	27.74	2.75	34.34	22.73	28.57	9.09	29.41
65-75	7.72	10	4.2	12.12	7.07	7.14	0	11.76
over 75	1.82	3.55	0.7	1.52	1.01	0	0	11.76
Gender								
Female	64.22	52.43	72.24	68.02	70.59	68.67	54.55	52.94
Male	34.24	46.6	24.56	31.47	28.43	28.92	45.45	44.12
Non-binary	0.68	0.65	1.42	0	0	2.41	0	0
Prefer not to say	0.85	0.32	1.78	0.51	0.98	0	0	2.94
Living area								
Countryside	25.36	35.16	21.4	20.1	23.88	18.29	23.08	29.41
Large city	22.29	11.61	10.88	25.77	37.81	26.83	60	20.59
Small city	38	29.35	52.63	46.91	28.86	46.34	13.85	23.53
Urbanized area (town or village)	14.35	23.87	15.09	7.22	9.45	8.54	3.08	26.47
Household size								
1	16.17	17.21	22.89	15.58	11.88	10.84	9.23	5.88

2	36.00	38.31	38.38	28.14	32.67	42.17	38.46	41.18
3-4	40.77	37.66	31.34	49.75	46.53	43.37	41.54	52.94
5 or more	7.06	6.82	7.39	6.53	8.91	3.61	11.77	0
Number of Children								
No children	58.81	54.09	72.81	66.87	43.86	54.79	58.62	50
1	16.48	19.46	9.22	14.72	19.88	17.81	20.69	21.88
2	19.88	20.23	14.29	15.34	30.41	23.29	13.79	25
3-4	4.84	6.23	3.69	3.07	5.85	4.11	6.9	21.88
5 or more	0	0	0	0	0	0	0	0
Education								
No formal education	0.09	0	0	0.52	0	0	0	0
Primary education	1.72	2.91	0	4.64	1	0	0	0
Secondary education or high school	28.39	50.49	28.32	36.6	8.46	3.61	4.55	5.88
Vocational training	6	3.88	12.09	5.15	1.49	7.23	1.52	5.88
Bachelor's degree	23.76	29.77	18.28	36.08	4.48	18.07	37.88	44.12
Master's degree or higher	40.05	12.94	40.5	17.01	84.58	71.08	56.06	44.12
Employment								
Employee	65.05	54.05	80.49	52.91	76.38	72.84	75	31.25
Management	6.29	4.53	4.53	4.65	5.53	8.64	15.38	21.88
Retired	12.67	22.01	6.34	13.95	7.54	6.17	0	25
Self-employed	8.76	3.24	4.88	21.51	9.05	7.41	7.69	21.88
Unemployed	7.24	16.18	2.93	6.98	1.51	4.94	1.92	0
Food industry relations								
NO	86.68	90.65	93.07	84.83	74.6	73.17	75.44	60.61
YES	15.32	9.35	6.93	15.17	25.4	26.83	24.56	39.39

Note: BE stands for Belgium, FL stands for Flanders, DE stands for Germany, IT stands for Italy, PL stands for Poland, FN stands for Finland, RO stands for Romania, UK stands for the United Kingdom

Table 1 demonstrates that the sample collected for Belgium (Flanders) can be considered representative for the overall population. Specifically, for Belgium (Flanders), the data was collected with the assistance of iVOX[1], a company experienced in reaching out to different consumer segments based on factors such as gender, education, and living area. Through numerous interactions aimed at ensuring a representative sample, the data collection for Belgium (Flanders) was successfully concluded.

For Italy, The survey focused on a local area situated in the center of Italy, within the boundaries of Lazio and Umbria. This region had been previously utilized in research related to the local food network. The population of this area comprises approximately 60,000 inhabitants. The research team collaborated with local associations that expressed interest in topics such as food, organic produce, environmental issues, and local development. The survey implementation followed a series of steps, including: (1) mapping of associations in the territory, (2) identification of relevant categories, (3) contact and definition of engagement, and (4) first launch and recall. The team estimates that they successfully reached approximately 1000 individuals, each distinct in terms of education, wealth, income, and age.

Regarding Germany, the survey was disseminated through various channels to ensure widespread outreach. These included distribution via the University's internal mailing list for employees, covering all departments, including professors, research assistants, administrative staff, and other personnel. Additionally, the university's internal mailing list for students was utilized to reach students across all departments. To enhance visibility, the survey was also shared through private chat groups on platforms such as WhatsApp, Telegram, and Signal. Work-related Slack groups, accessible by the Slack app, served as another way of reaching the target audience. Furthermore, the survey's dissemination strategy leveraged word of mouth, encouraging participants to share the survey with others, thereby facilitating a snowball effect in its distribution.

In the context of Poland, the team utilized various channels for survey dissemination. Facebook, personal contacts, and targeted emails were employed to engage with potential respondents. Notably, the Organic Agriculture Forum in Poland played a pivotal role in survey distribution, with support from organic companies and organizations leveraging their social media reach. Additionally, the researcher tapped into the collective email platform of IUNG, reaching approximately 250 workers within the organization.

In Romania, the survey was disseminated across diverse networks to ensure broad public engagement. This included reaching out to a network of 2.2K individuals with an interest in locally produced food, as well as tapping into a network of 10K managed by local producers. The survey was also extended to students and employees of USAMV, expanding its reach within educational and professional circles. Furthermore, strategic visibility was established through the sharing of the survey on the Foodlevers Facebook page, and additional dissemination occurred through personal Facebook pages. This multi-network approach aimed to capture a varied cross-section of respondents and enhance the representativeness of the survey results in the Romanian context.

For UK, the distribution strategy for the Organic Research Center (ORC) involved leveraging both online and traditional communication channels. Social media platforms such as Twitter and

[1] http://www.ivox.be/

LinkedIn were utilized to reach a diverse audience, encompassing both organic and non-organic consumers. Additionally, the ORC employed a targeted approach by utilizing the ORC News Bulletin, distributed quarterly via email. Similar approach was also utilized in Finland by focusing on the social media platforms as well as associations.

Regarding the representativeness of the data across different countries and the number of observations, unfortunately, not all countries managed to collect a representative sample of consumers. This is particularly evident in the cases of the UK[2], Romania, and Finland, where there is limited data being collected. In the case of Germany, there is a significant overrepresentation of young, employed females who are predominantly organic consumers (as discussed in the later section on Organic Food Perception and Attribution). Given that the share of organic products in Germany amounted to 7% in the year 2022 (STATISTA, 2023a), the German dataset becomes biased towards organic consumers. Similarly, the Polish dataset appears to lean towards a highly educated population, introducing bias into the dataset. Nonetheless, two datasets maintain higher quality and representativeness—those from Belgium and Italy. In the later section, we describe their representativeness. However, using multiple graphs, we display the descriptive results from the other partner countries. For Belgium (Flanders), specifically, the self-reported gender and age align with the official data (STATISTIEK VLAANDEREN, 2023). However, there is a slight overrepresentation of females and older age categories. In terms of household size, the data indicates an underrepresentation of one-person households (approximately 16% less) compared to official statistics (STATBEL, 2023). This discrepancy is evident when considering the number of children. Official statistics show that around 38% of households have children, whereas our sample reports approximately 46% of respondents with children. Regarding education, due to potential issues with self-reported formal and informal education, we do not solely rely on reported data. Nonetheless, according to official statistics (STATBEL, 2022), about 63% of Flanders' inhabitants have pursued an educational degree, while our data indicates that around 48% have obtained a degree (including vocational training and higher education). This number can be seen also representative if we base ourselves on the STATISTIKEN VLAANDEREN[3], where about 46.7% are reported with a higher education level.

In the case of Italy, a similar observation is noted, particularly regarding the overrepresentation of the female population. However, it seems that, in general, females are more likely to respond to the surveys. Upon closer examination of the data collected in Italy, it is noteworthy that a majority of respondents (approximately 84.42%) reported living in a household with two or more members. Consequently, the influence of gender can be mitigated and integrated into household behavior. A comparable rationale can be extended to account for the slight overrepresentation of the female population in the Belgian (Flemish) dataset. Regarding income and purchasing power, subsequent to the survey, we provide an account of the responses to the following two questions: 1) considerations taken into account when purchasing food, and 2) perceptions of household living standards in comparison to neighbors. Figure 1 below illustrates the responses to the question “If you think about the amount of money available for grocery shopping in your household, which of these statements best suits you?”.

[2] Qualitative insights from UK are provided in the Annex section.
[3] https://www.vlaanderen.be/statistiek-vlaanderen/onderwijs-en-vorming/bevolking-naar-onderwijsniveau-scholingsgraad

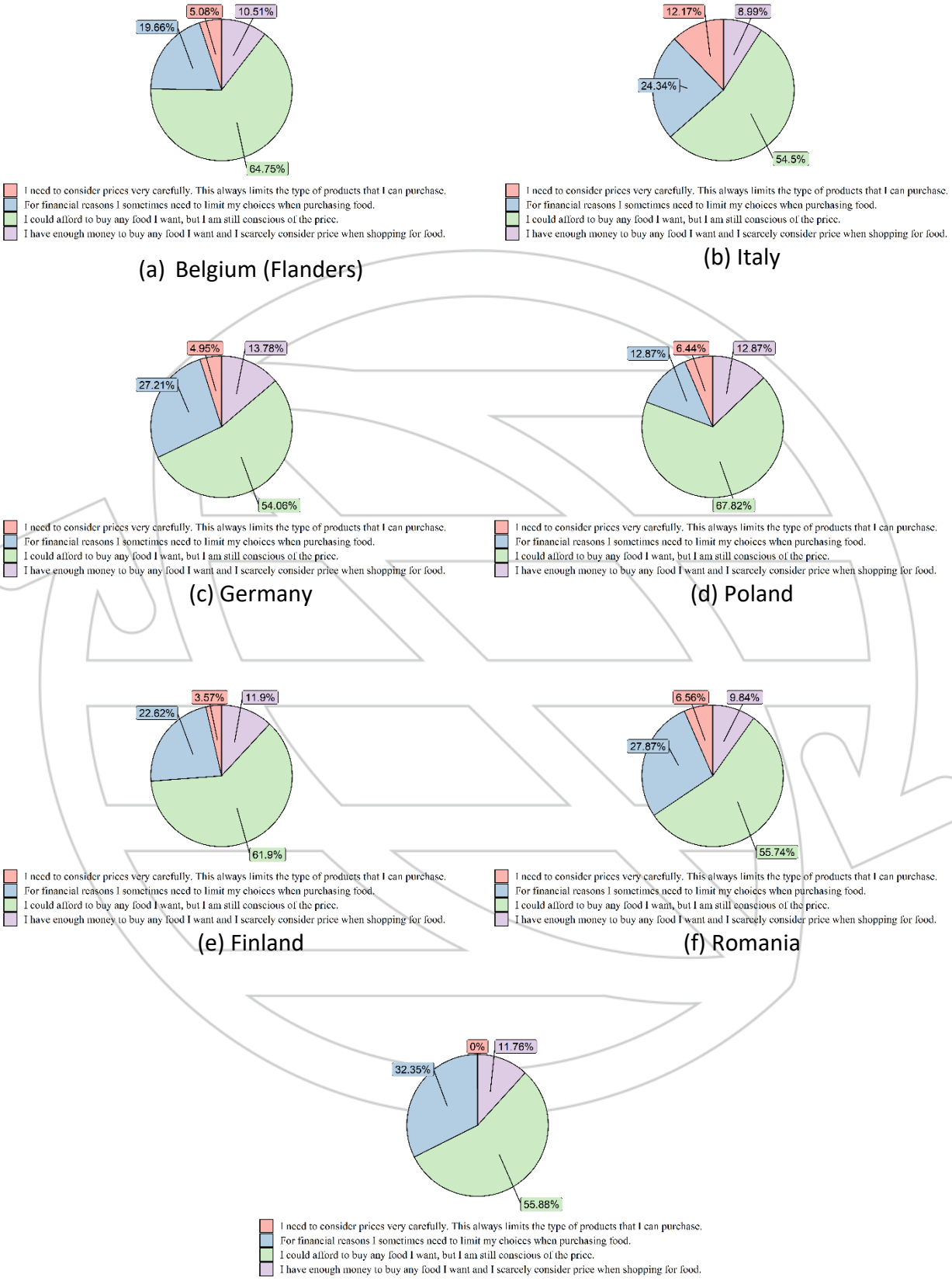


Figure 1- Perceived amount of money available for grocery shopping

As depicted in Figure 1, a significant majority of respondents indicate a relatively high level of control, wherein they can afford to purchase food with minimal concern. Likewise, Figure 2 displays the responses to the question “How do you assess your household's living standard, compared to the average household in your region?”

Figure 2- Perception of household's living standard

As indicated by Figure 2, a significant majority of respondents believe that their living standard is either average or somewhat above average (higher or much higher). These results confirm that a majority of respondents perceive themselves as having considerable purchasing power and do not feel aligned with lower economic classes when compared to their neighbors.

b. Results

The survey included multiple dimensions by which we can characterize the general behavior of consumers regarding food consumption, as well as their specific consumption of organic food.

In terms of general food consumption behavior, we begin by displaying the frequency of food shopping for each shopping type (e.g., supermarkets, local stores, etc.) among consumers. Secondly, we present the modes of transportation used for food shopping.

Concerning organic food consumption behavior, we first present how consumers define organic food and whether they identify themselves as organic food consumers. Secondly, we explore potential differences between groups based on their identification as organic consumers and variations in how they define organic food. We then proceed to demonstrate whether (self-identified) organic consumers actively seek information when purchasing organic food and, if so, what types of information they search for.

Furthermore, we delve into the purchasing behavior of organic products, such as fruits, vegetables, eggs, meat, etc., by highlighting which products are more frequently purchased. We also provide clarification based on different (self-identified) organic consumption identities.

We also examine common beliefs about organic consumption, determining whether consumers perceive organic food consumption as positively impacting health, the environment, taste, and even if they associate it with higher expense..

Lastly, we present several dimensions pertaining to consumer sensitivity to prices and external shocks, such as the Covid-19 pandemic and inflation resulting from increased energy prices.

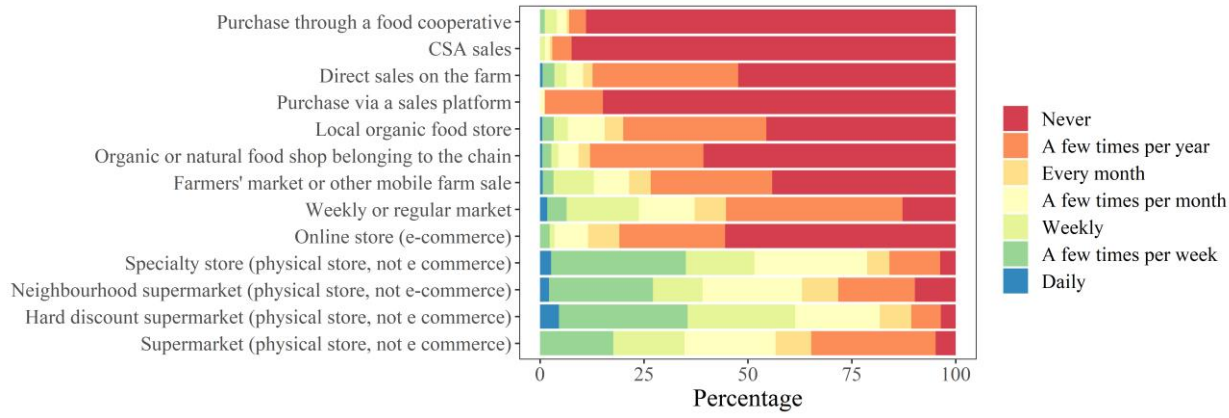
i. Food Shopping Behavior

***Shopping Frequency and locations*:** Figure 3 presents the outcomes related to the query, "Where do you purchase food from and how frequently?" which was posed to all respondents. Specifically, survey participants were requested to specify their shopping frequency at distinct retail locations, encompassing supermarkets, hard discount supermarkets, local neighborhood supermarkets, specialty stores (such as bakeries, butcheries, etc.), online stores, weekly markets, farmers markets, organic and natural stores, direct farm sales with and without personal interaction with the farmer (or their family), and direct online farm sales.

(a) Belgium (Flanders)

(b) Italy

(c) Germany



(d) Poland

(e) Finland

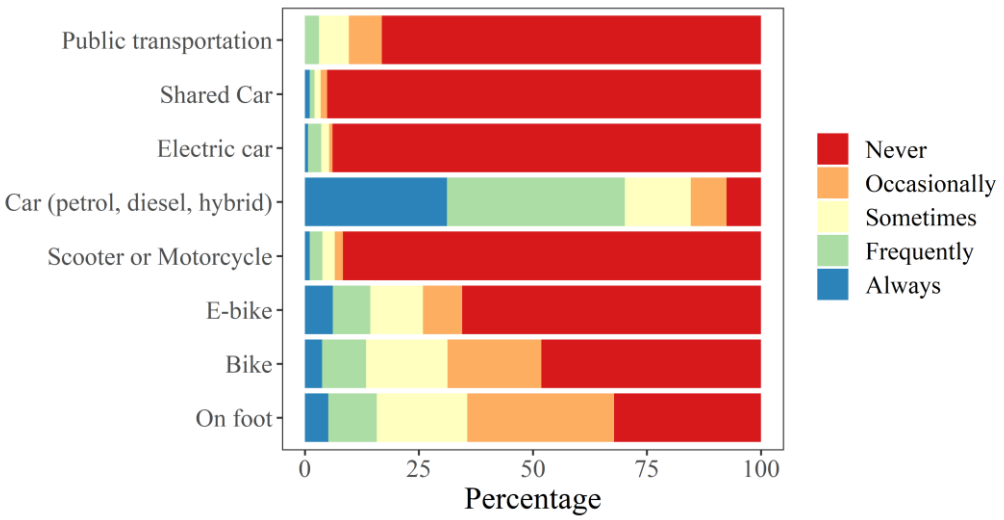
(f) Romania

(g) UK

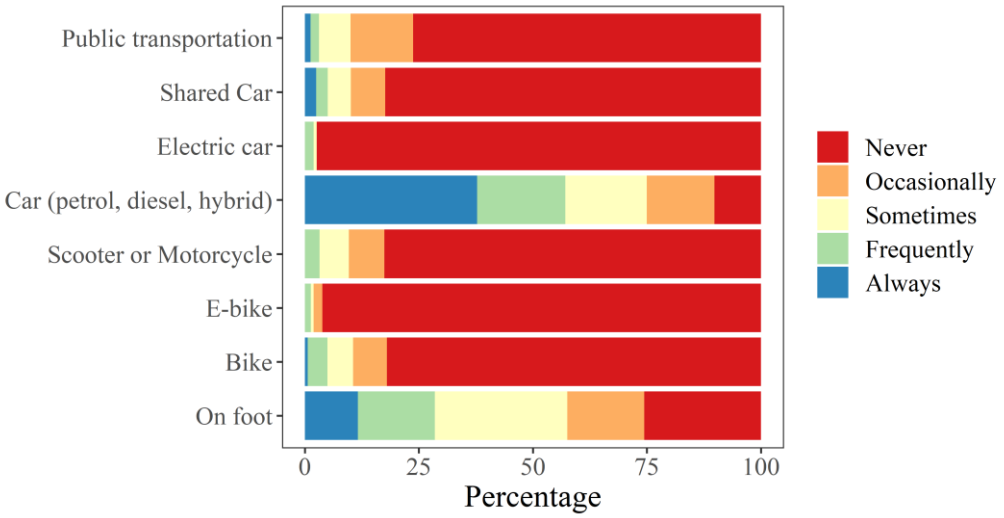
Figure 3- Shopping locations and frequencies

As depicted in Figure 3, the majority of respondents prefer to buy their food from various types of supermarkets and specialty stores. Among the array of food retail options, there seems to be a slight inclination towards attending weekly or regular markets varying based on countries. For example, in Italy, the weekly markets are reported more often used comparing it with Belgium (Flanders). When it comes to organic and natural food shops as well direct sales from the farm, the frequency of visits appears to be comparatively low.

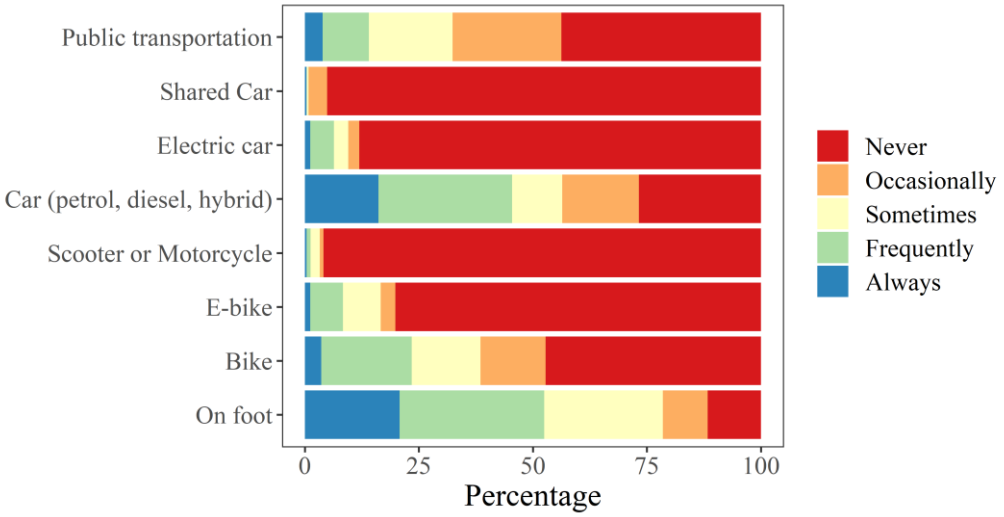
Transportation for food shopping: Figure 4 illustrates the outcomes of the query, "What type of transportation do you utilize to acquire your food?" In this context, participants were given the possibility to select the frequency with which they employ various transportation options provided. The frequency options ranged from "never" to "always." The available modes of transportation were diverse and encompassed on-foot, bike, e-bike, scooter or motorcycle, car, electric car, shared car, and public transportation.



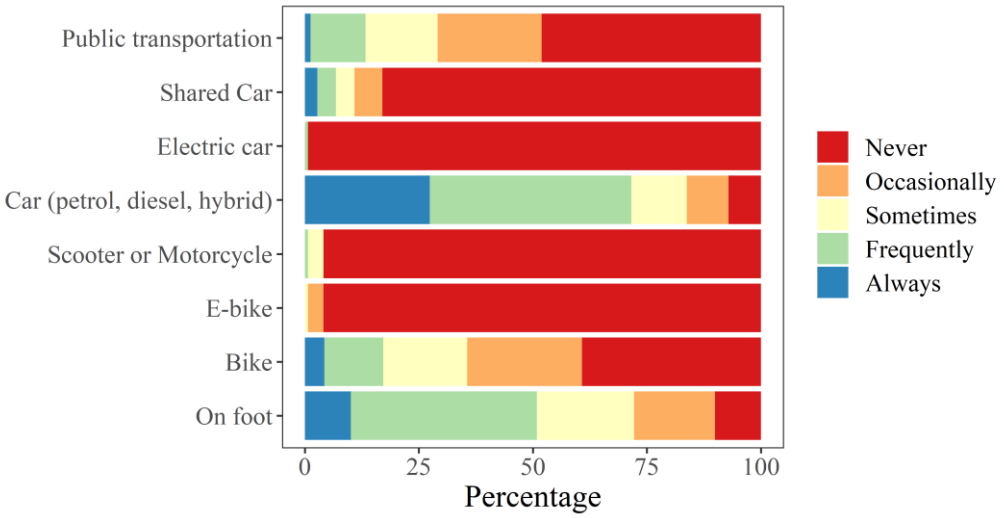
(a) Belgium (Flanders)



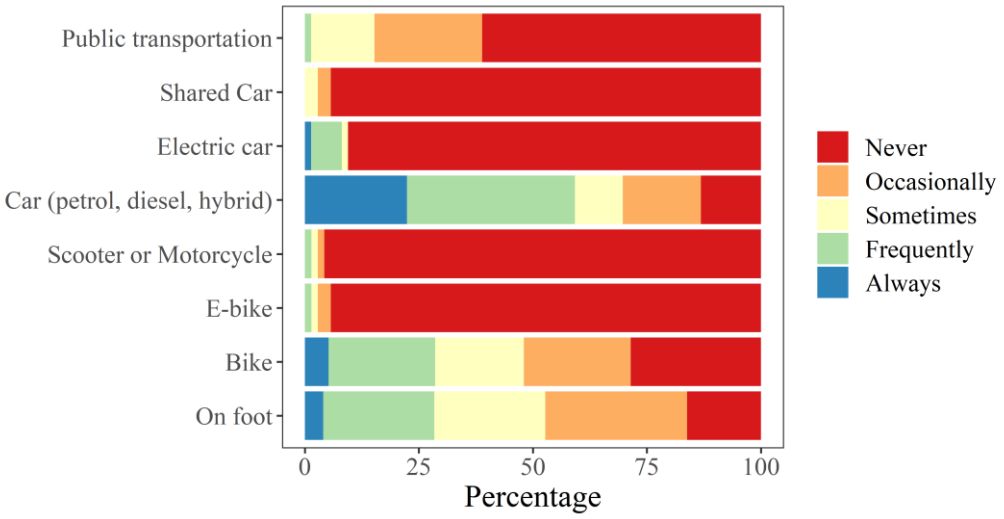
(b) Italy



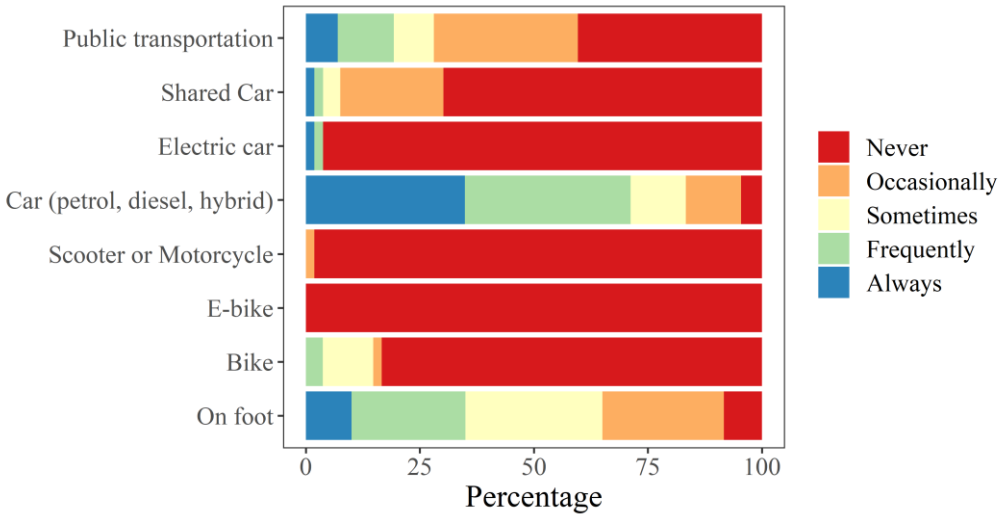
(c) Germany



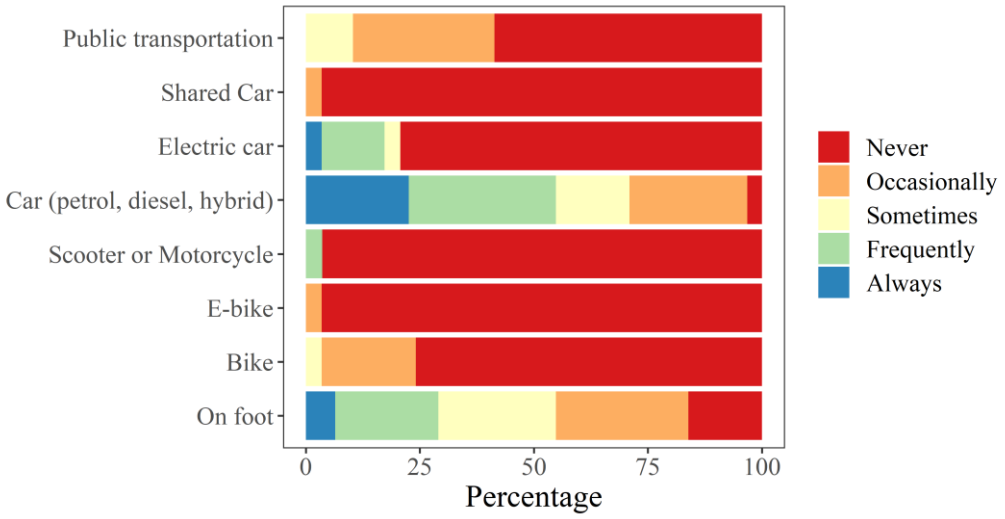
(d) Poland



(e) Finland



(f) Romania



(g) UK

Figure 4- Transportation used for food shopping

As illustrated in Figure 4, a substantial proportion of the respondents primarily depend on their automobiles when it comes to grocery shopping. Interestingly, beyond car usage, there is a noteworthy adoption of other transportation modes such as walking, cycling, and E-bike riding. The preference for car usage can be attributed to the fact that a great majority of the respondents reside in small cities, rural and urbanized settings (towns or villages), where cars arguable constitute the predominant mode of transportation due to their prevalent practicality and accessibility.

ii. Organic Food Perception and Attribution

Attribution of the organic food properties. Figure 5 presents the outcomes of responses to the question, "According to you, what are the typical properties of organic food? Organic food is always..." Through this type of inquiry, our objective was to discern any potential biases in comprehending and defining organic food. Respondents were provided with multiple answer options, including: 1) traditional food, 2) vegetarian food, 3) locally produced food, 4) produced on farms that emphasise soil health, 5) produced without chemical fertilisers or chemically synthesised pesticides, 6) produced with more emphasis on animal welfare than conventional food, 7) produced on farms that employ underprivileged workers (e.g. workers with a disability, long-term unemployed), and 8) Fairtrade food, insuring better working conditions and fairer pay for farmers and workers.

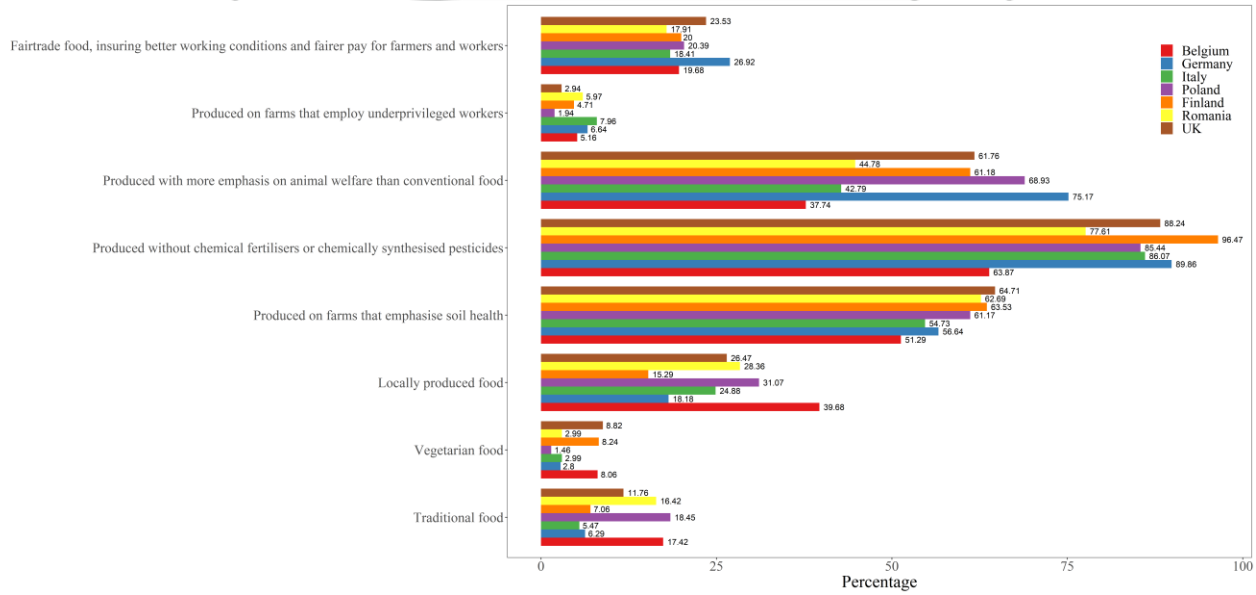


Figure 5- Organic food attribution across different countries

As depicted in Figure 5, the majority of respondents (e.g. in Belgium 63.87%, in Italy 86.07%) believe that organic food is always produced without chemical fertilizers or chemically synthesized pesticides. This response was closely trailed by the belief that organic food is always produced on farms that prioritize soil health. Interestingly, for Belgium (Flanders), the third most chosen response indicates that respondents believe organic food is always locally produced (39.68%), slightly surpassing the belief that it is always produced with a greater emphasis on animal welfare than conventional food (37.74%). This is not the case for the Italian respondents who are associating organic food less (18.18%) with the "local" aspect of the production.

Moreover, in Belgium (17.42%) and Poland (18.45%) a notable proportion of respondents, assert that organic food is synonymous with traditional fare. These findings suggest that certain consumers link organic food with diverse notions, potentially diverging from the precise legal definition of organic food. This definition encompasses various elements, including the avoidance of chemical fertilizers and chemically synthesized pesticides, the consideration of animal welfare, and the promotion of soil health, among other factors (European Commission, 2023).

Identification to organic food consumption. Figure 6 illustrates the results regarding responses to the question, "*Do you consider yourself an organic food consumer?*" This question was presented alongside a definition of organic food derived from both the European Commission and national agencies. Upon reading the definition, respondents were presented with four answer choices: "*I don't know*", "*No*", "*Sometimes*", and "*Yes*".

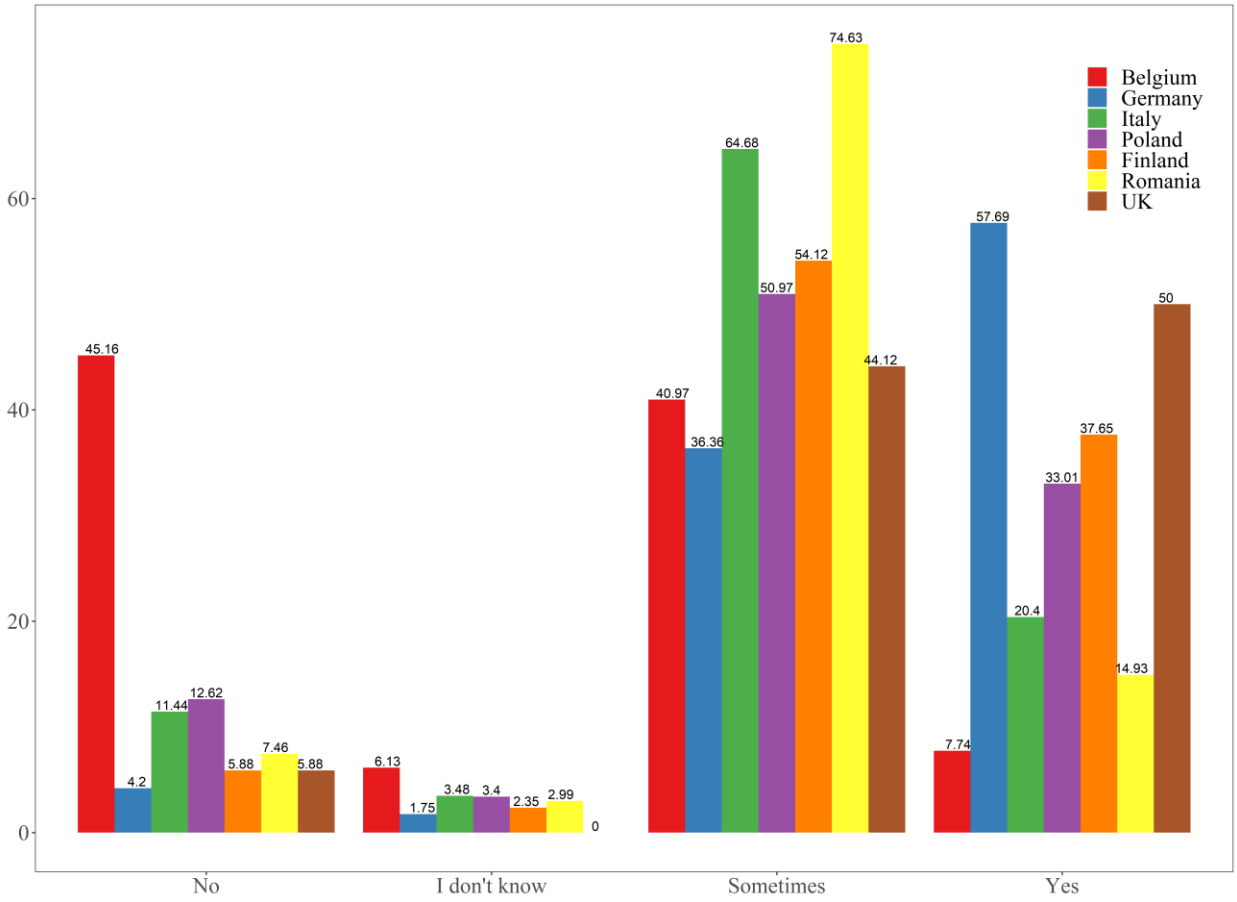


Figure 6- Identification to organic consumption

As depicted in Figure 6, the majority of respondents indicate that they consume organic food. However, in Belgium (Flanders), compared to other countries such as Italy and Poland, a significant portion of respondents (45.16%) stated that they do not consider themselves organic consumers. The second most prevalent response was "sometimes" (40.97%), suggesting a partial inclination towards consuming organic food. These figures align with the overall modest prevalence of organic products in Belgium, accounting for a 3.8% market share (FiBL Statistics, 2022), as only approximately 7.7% of respondents identified themselves as organic consumers.

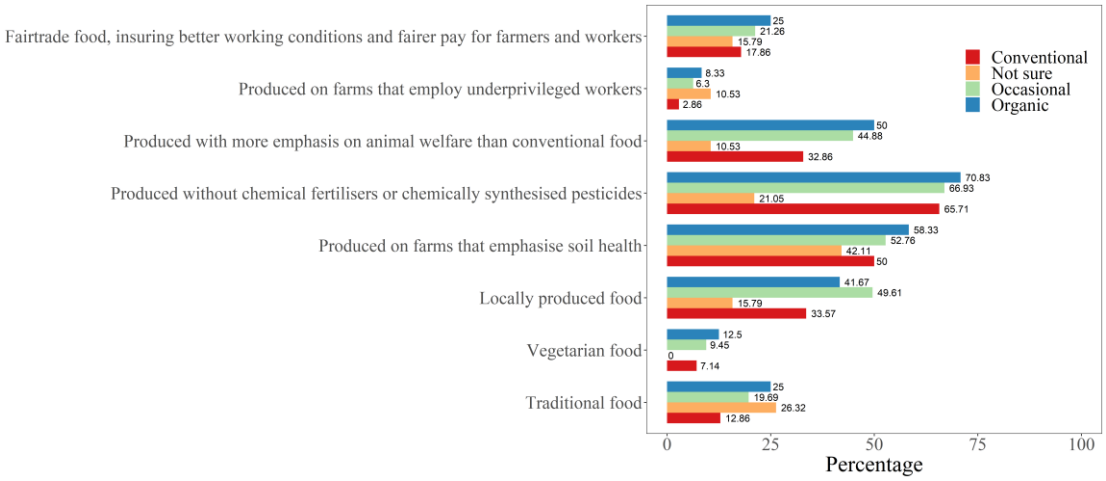
Examining the country-level results for nations with a substantial number of observations (Belgium, Italy, Germany, Poland) presented in Figure 6, it becomes evident that Italy and Poland follow a similar trend, with a significant majority leaning towards being hybrid consumers. In contrast, the German dataset appears biased towards strong organic consumption, while Belgium seems to strike a more balanced representation by reporting a higher number of conventional non-organic consumers. These results suggest that, to ensure a certain heterogeneity in the

analysis while accounting for representativeness, the data from Belgium, Italy, and Poland can be merged.

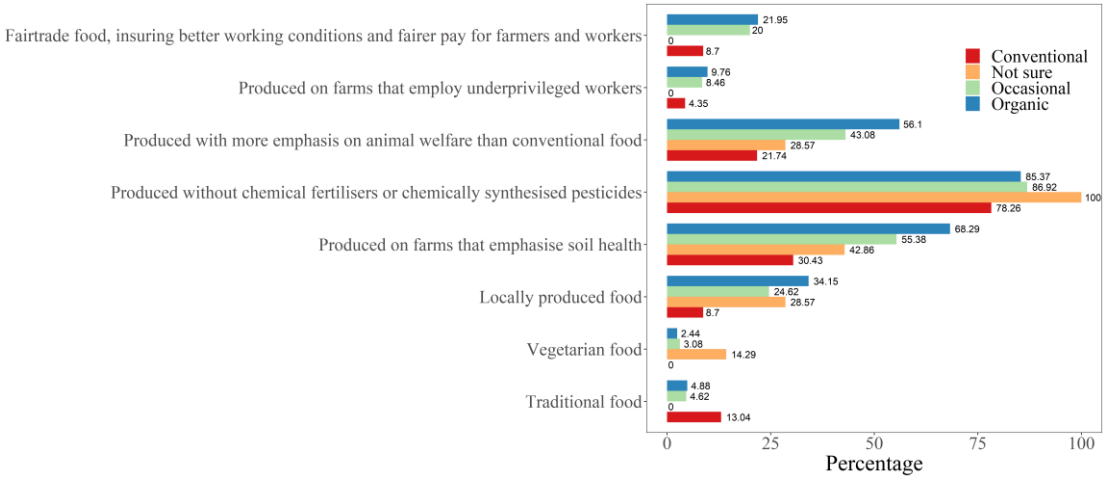
Group differences in organic food attributions. Considering the (self-reported) identification of consumers with organic food consumption, Figure 7 indicates whether distinctions arise among consumers in terms of their definitions of organic food. Intriguingly, in Belgium, among the group identifying as organic consumers (i.e., those who responded "yes"), 41.7% of respondents chose "organic food is always locally produced," while 25% selected "organic food is always traditional food". Same results are reported for the case of Poland where ca. 30% of the self-claimed organic consumers associate organic food with local food. While this is not the case for Italy, these findings are still intriguing not because they explicitly negate the possibility of locally or traditionally produced food being organic, but rather, because they underscore the assumptions consumers, in some countries, hold when delineating the characteristics of organic food – highlighting their perceptions of what organic food is or ought to be. These results also hold for those occasional consumers (i.e., those who responded "sometimes").

Furthermore, in Belgium (Flanders), it appears that individuals who are uncertain about whether they are consuming organic food do not accurately associate with the characteristics of organic food (i.e., those who responded "I don't know"). Specifically, they place the greatest emphasis on soil health (42.11%), but significantly less emphasis on the absence of chemical fertilizers and pesticides (21.05%). These findings underscore the prevailing lack of awareness among consumers who are uncertain about their consumption of organic products. Interestingly, this is not the case for both Poland and Italy. The "Not sure" consumers in these two countries seem to possess a comprehensive knowledge of the definition of organic food. In this regard, one could argue that they have hesitated to answer "yes" or "sometimes" to the question of "whether you consider yourself as an organic consumer" since they were unsure about which frequency of organic food shopping would categorize them as occasional or frequent organic consumers.

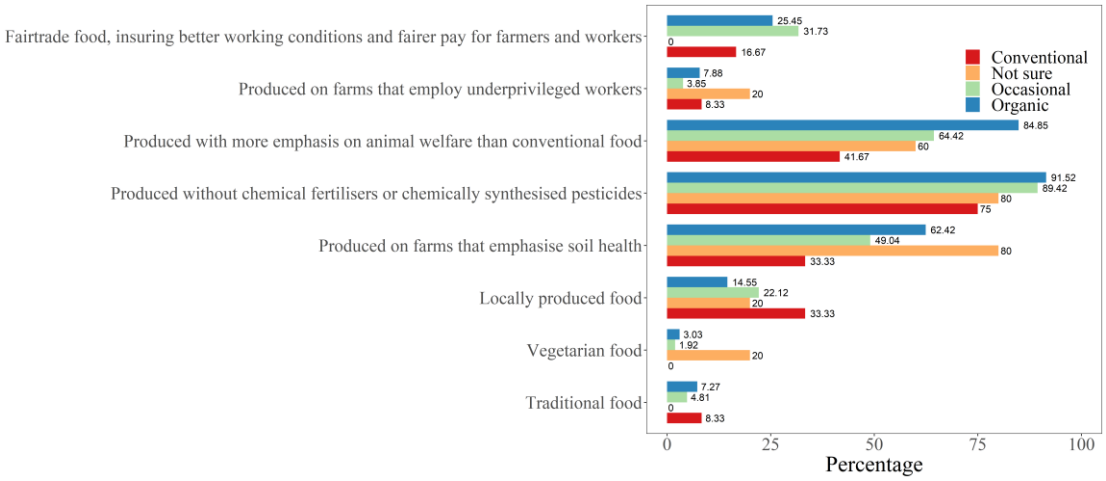
Last but not least, the consumers who are not considering themselves as organic consumers, define organic foods in a manner akin to organic consumers, visible in all countries. This observation is particularly intriguing as it could indicate either a broad consensus in the discourse surrounding organic food within the EU context or a noteworthy level of awareness among non-organic consumers concerning organic food. This awareness might provide them with their individual incentives, both monetary and non-monetary, for not actively seeking out organic food products.



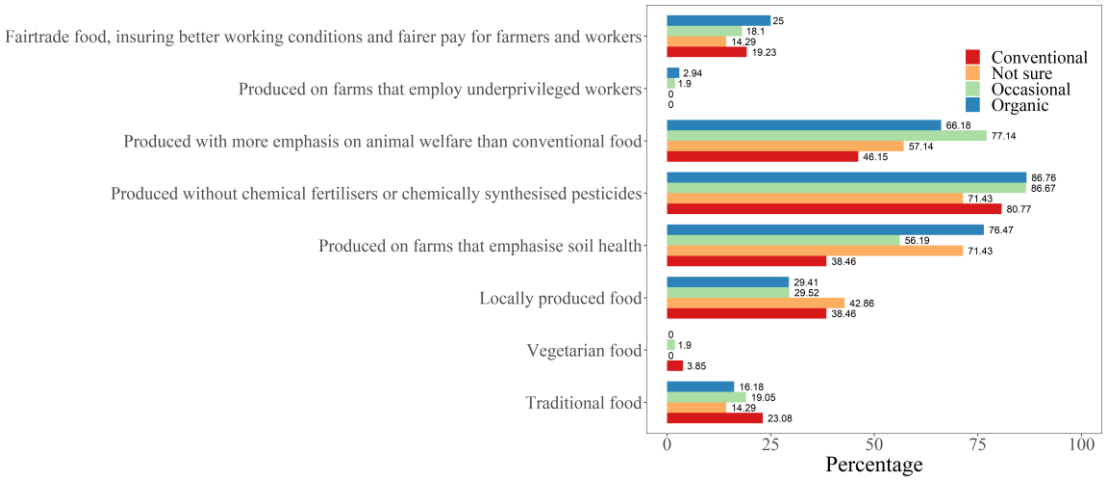
(a) Belgium (Flanders)



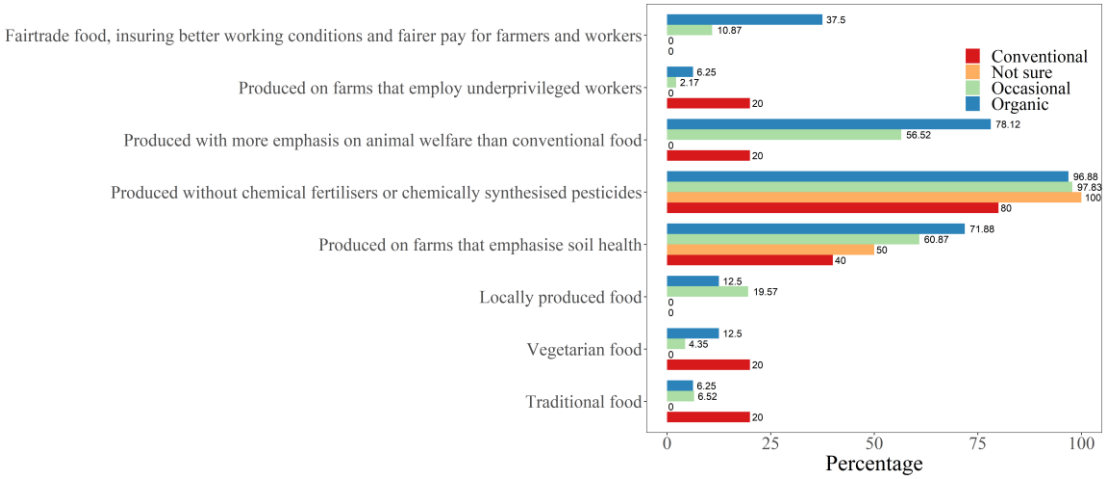
(b) Italy



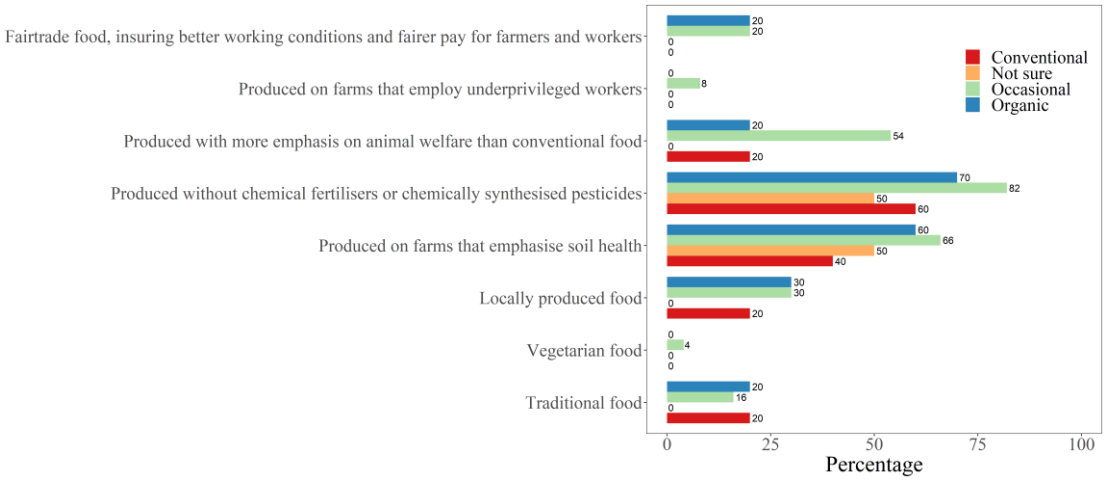
(c) Germany



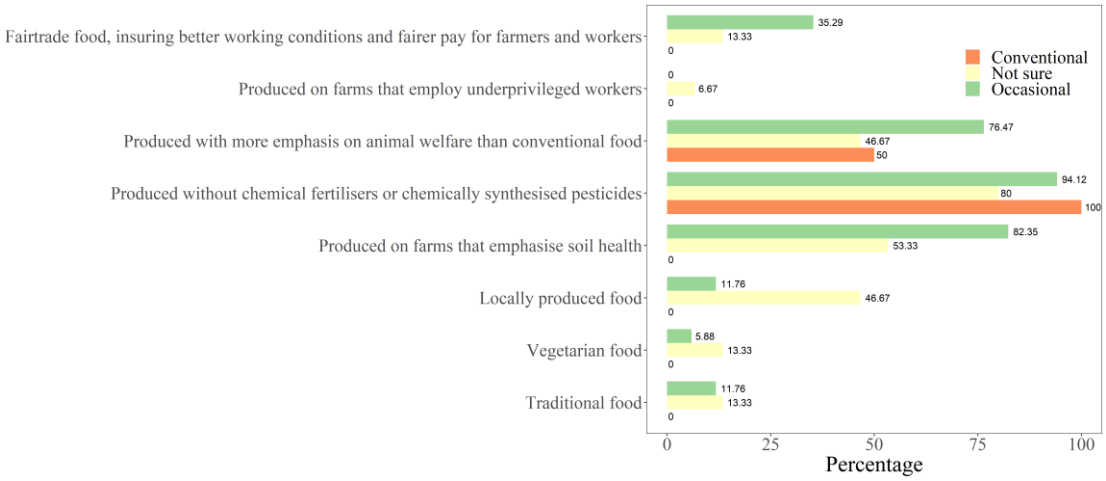
(d) Poland



(e) Finland



(f) Romania



(g) UK

Figure 7- Organic food attribution differences within groups in Belgium

Information seeking behavior of the organic consumers. To begin with, respondents, who are at least occasional organic consumers, were queried about their inclination to seek information on the production methods of organic food when making a purchase. Subsequently, those who responded affirmatively or occasionally were guided to an additional question inquiring about the specific type of information they seek when purchasing organic food. In this regard, respondents had the option to select multiple answers, including "*country/region of origin*", "*production conditions (such as pesticide use, animal welfare, etc.)*", "*social conditions (including working conditions, fair trade, etc.)*", "*presence of (chemical) food additives*", and "*nutritional value*". The merged results of these two questions are consolidated in Figure 8.

Interestingly, a big group of respondents (on average ca. 20%), in Italy, Poland and Belgium, do not actively seek information when purchasing organic food. However, among those who do seek such information, it becomes evident that the primary area of interest is the "country/region of origin" (above 50%), followed closely by the presence of "(chemical) food additives" (above 30%). These findings imply that, irrespective of how organic consumers individually define organic food, there is a shared sensitivity toward the local and health-related aspects of the food products.

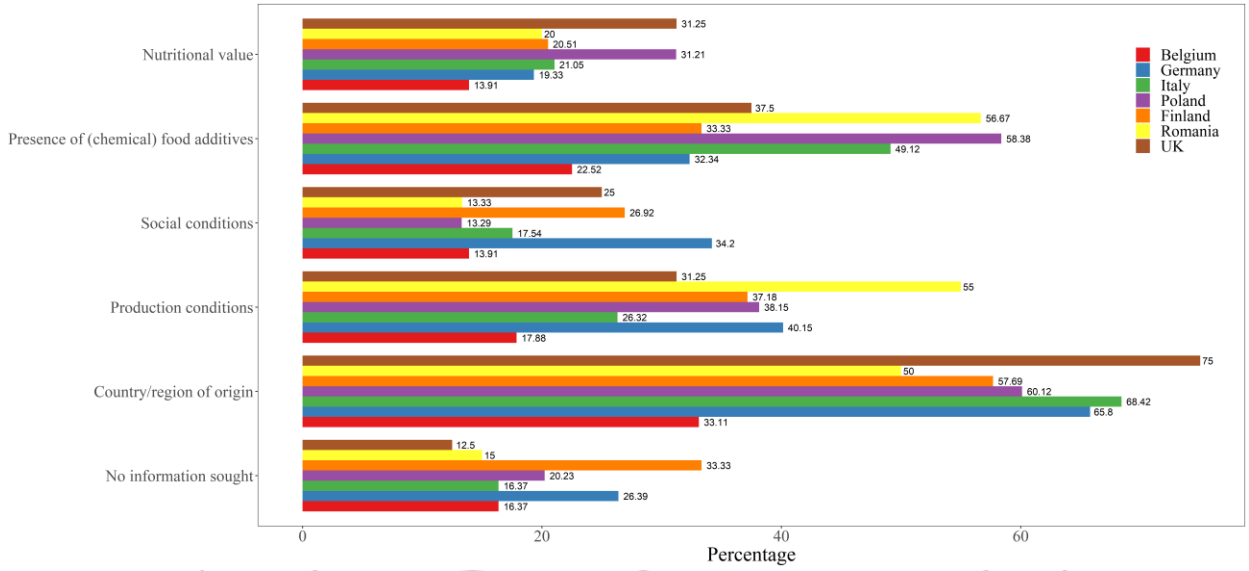
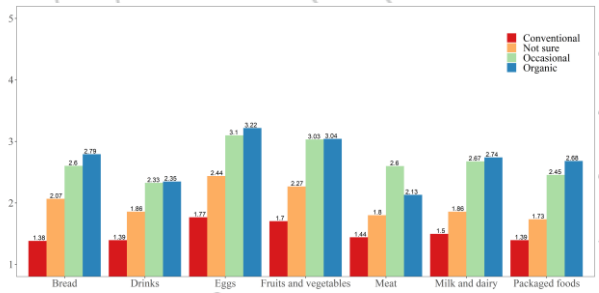


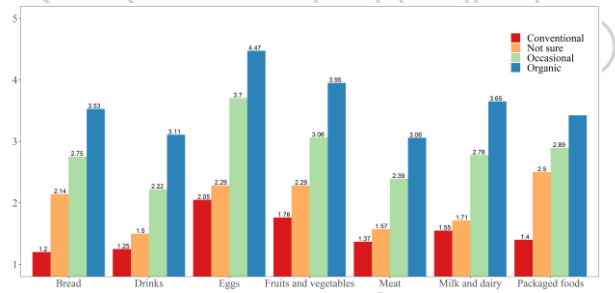
Figure 8- Organic consumers information seeking across different countries

iii. Organic Consumption

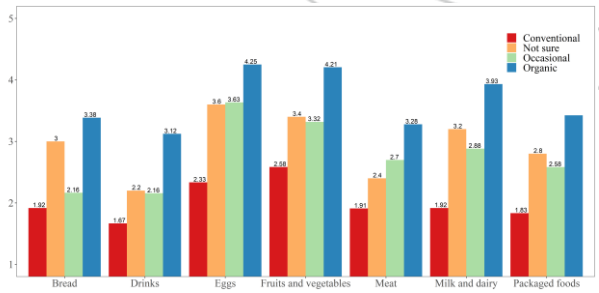
Products share. We delve deeper into the organic consumption behavior among the respondents. To this end, Figure 9 presents the outcomes of the question, "How frequently do you purchase the following types of organic food?" The selected types of organic food include “fruits and vegetables”, “meat”, “milk and dairy”, “eggs”, “bread”, “packaged foods (e.g. veggie burgers, meat substitutes, pasta, jam, biscuits)” and “Drinks (e.g. fruit juice, wine)”. Respondents' answers spanned from never (=1) to always (=5).



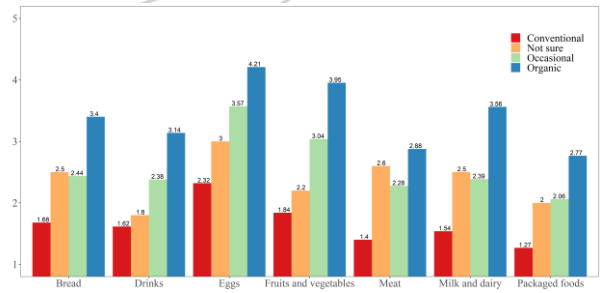
(a) Belgium (Flanders)



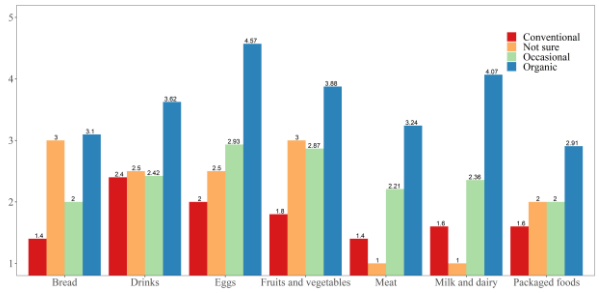
(b) Italy



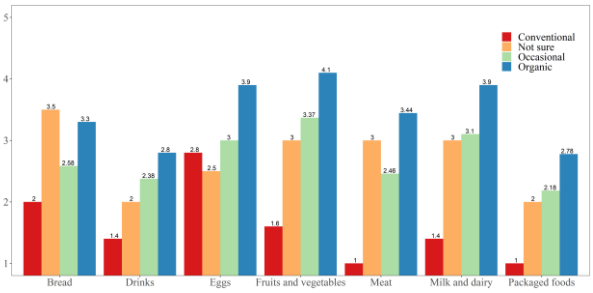
(c) Germany



(d) Poland



(e) Finland



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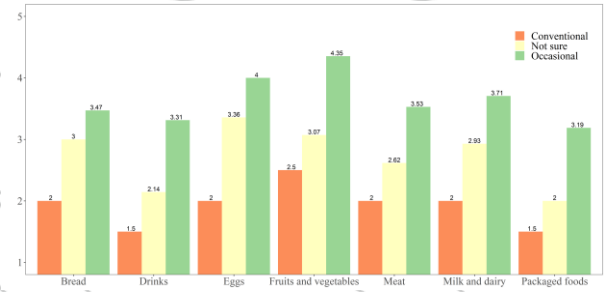


(g) UK

Figure 9- Organic food consumption among all groups (average values)

As illustrated in Figure 9, respondents who consider themselves (at least) occasional consumers ("yes" and "sometimes") exhibit a greater consumption of organic food across all categories. In contrast, non-organic consumers ("no") consistently display the lowest consumption of organic food in all categories. Intriguingly, their consumption is not entirely absent; rather, it falls within the range of 1 to 2. This implies that even though they classify themselves as non-organic consumers, they still engage in some degree of organic food consumption. This observation resonates with official statistics in 2021 that indicate an average Belgian consumes organic fresh products at least once a year (Statista, 2022b; VLAM, 2021). This also holds true for Italy where there is a certain level of spending on organic food (Statista, 2022c)

Regarding the distinctions among the various product categories, it becomes evident that the preferred choices primarily encompass fruits, vegetables, eggs, bread, and dairy. This trend generally aligns with official statistics, albeit with some variation in their ranking. To be more specific, for example, according to VLAM (2021) and Statista (2022b; 2022c), Belgin and Italian consumers predominantly favor vegetables and fruits, yet our findings indicate that eggs are the more prevalent choice. This discrepancy doesn't necessarily denote a contradiction; rather, it could suggest that while consumers might purchase fewer quantities of eggs compared to fruits and vegetables, they display a stronger inclination to opt for organic options when it comes to eggs.

Behavioral beliefs towards organic consumption. Figure 10 depicts the results of the survey question concerning general beliefs about organic consumption. Respondents were presented with a Likert Scale, allowing them to rate the provided statements on a scale ranging from strongly disagree (=1) to strongly agree (=5). The statements evaluated were as follows: (1) If I increase my consumption of organic food, then I will feel that I have done something positive for the environment, (2) If I increase my consumption of organic food, then I will feel that I have done

something positive for my health or the health of my family, (3) Buying organic food instead of conventional will negatively affect my savings, (4) Organic food is tasty, (5) Organic food tastes better than non-organic food, and (6) I am willing to pay higher prices for organic food (I am aware that non-organic food products are generally cheaper)

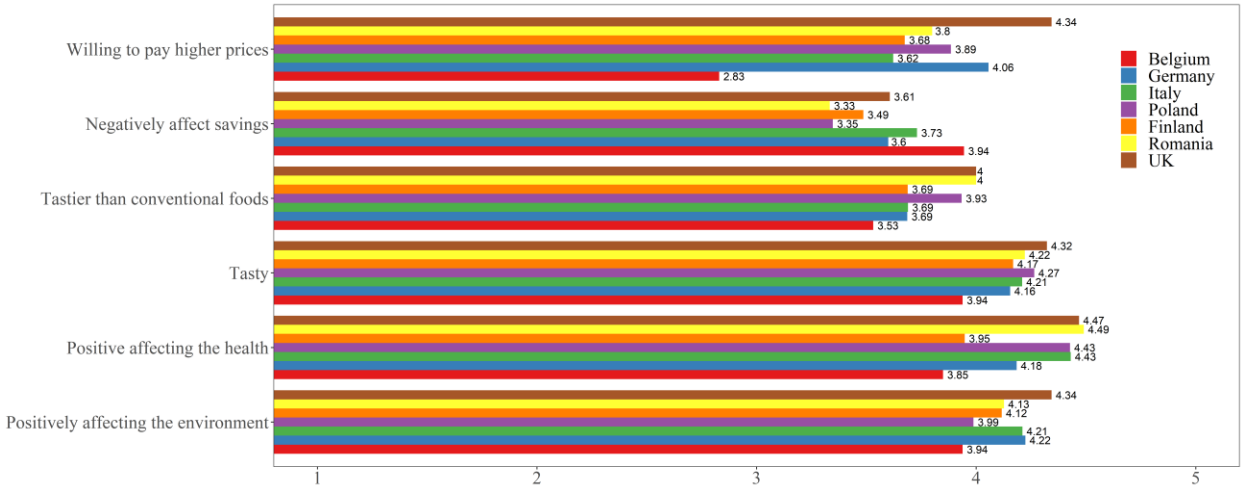


Figure 10- Beliefs towards organic consumption (average values)

As illustrated in Figure 10, for Belgium (Flanders), with the exception of the statement regarding the willingness to pay higher prices for organic food products, all the other statements received an average score higher than 3.5. In other countries, including Italy and Poland, there seems to be a greater willingness to pay higher prices for purchasing organic food (i.e., scores on average are higher than 3.6).

This suggests that a majority of respondents affirmed their general beliefs about organic consumption to a significant extent, with a rate of at least 70%, indicating strong agreement. Based on these findings, we can argue that most respondents hold the belief that: (1) consuming organic food products has a positive impact on both the environment and health, (2) organic foods are tasteful and preferred over their conventional counterparts, and (3) there is a perception that organic foods could be costly (noticeably evident in Belgium), which might explain the reluctance to pay higher prices for them.

Sensitivity to organic food prices: Hesitation. To investigate the sensitivity of (at least occasional) organic consumers to price increases, two sets of questions were posed. Initially, they were inquired whether they would opt for less expensive products, which might not be organic, in the event of a significant rise in the price of organic food. Subsequently, if the response to the preceding question was affirmative, they were prompted to specify the extent to which organic food prices would need to increase for them to contemplate discontinuing their purchase of organic foods. Response options included: "0 to 25% increase", "more than 25% increase", "more than 50% increase", and "more than 75% increase". Figure 11 consolidates the outcomes of these inquiries.

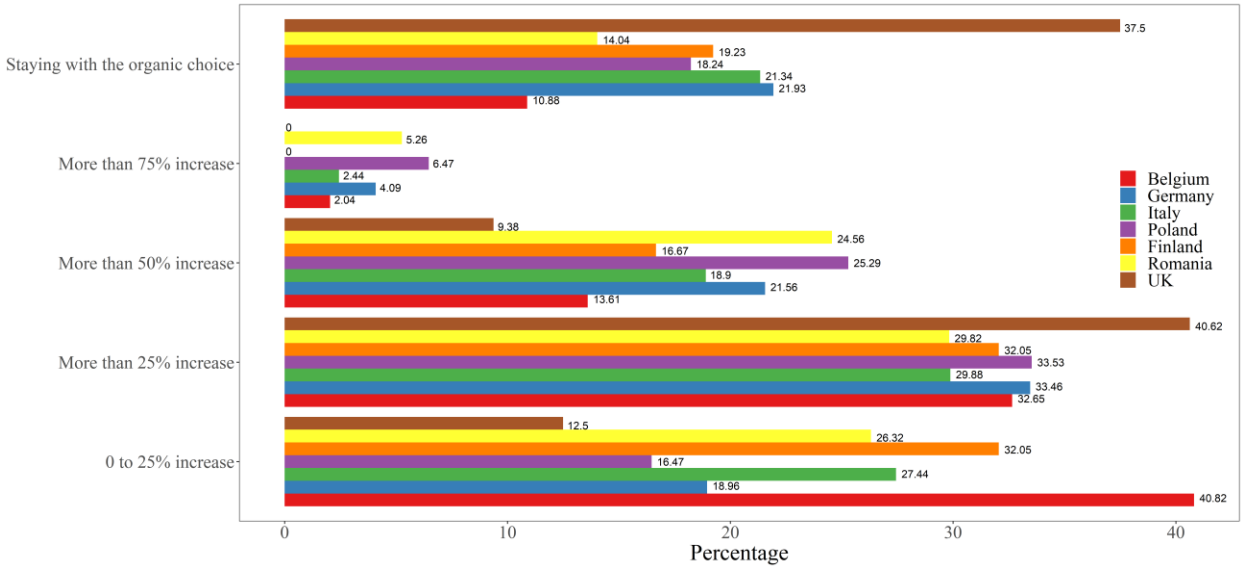


Figure 11- Demotivating increase in organic prices

As indicated by Figure 11, a big group of respondent organic consumers (Belgium=40.81%,Italy=18.96%,Poland=30.43) would contemplate opting for a more affordable alternative if prices increased by 0 to 25%. This is closely followed by a significant response of 32.65% for Belgium, 61.69% for Poland, 33.46% for Italy, suggesting that with an increase of more than 25% in the cost of organic food, they might switch to a less expensive option. Additionally, a small group of Belgian respondents (10.89%), and bigger groups for Poland (33.7%) and Italy (21.34%), believe that they would remain committed to their preference for organic foods regardless of any price increase.

These results highlight two perspectives. On one hand, they emphasize the role of price perception as a predominant economic factor influencing the organic food purchasing behavior of a substantial majority. On the other hand, there exists a subgroup for whom economic considerations seem to play a less significant role in shaping their approach to organic food purchases.

Sensitivity to organic food prices: Motivation: Here, in order to explore the pricing conditions that might encourage non-organic consumers to consider purchasing organic food products, two sets of questions were posed. Initially, respondents were asked whether they would be inclined to buy organic food if the price of such products were to decrease significantly. If the response to this question was affirmative, a subsequent inquiry aimed to specify the degree of price reduction necessary for them to contemplate buying organic foods. The response options provided included: "0 to 25% decrease", "more than 25% decrease", "more than 50% decrease", and "more than 75% decrease". The outcomes of these inquiries are summarized in Figure 12.

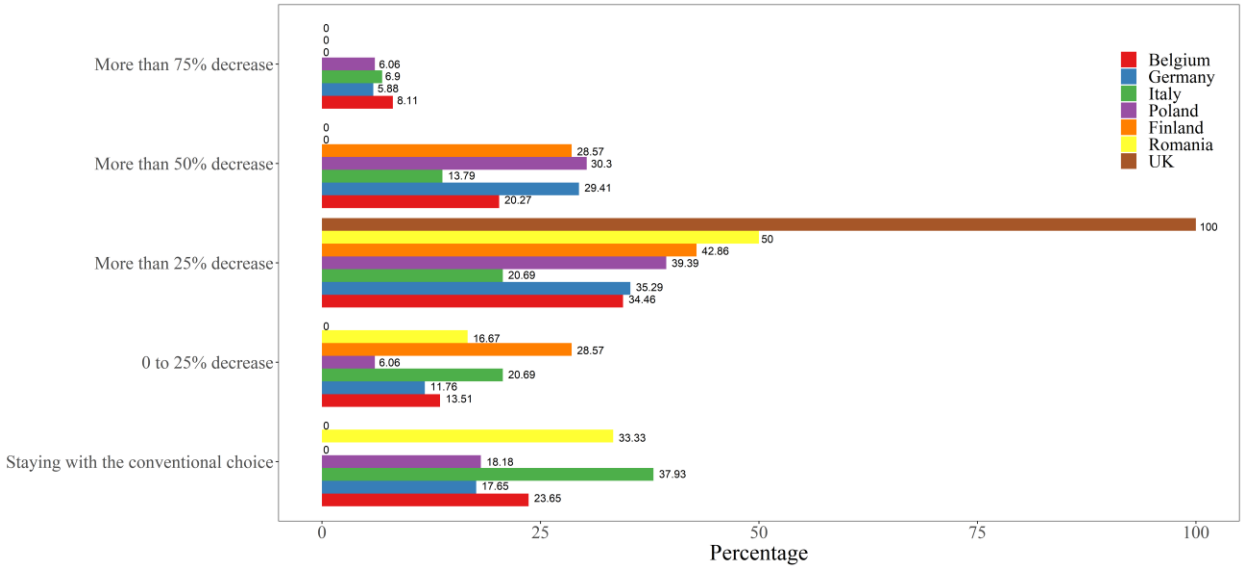


Figure 12- Motivating decrease in organic prices

As shown in Figure 12, ca. 34.46% of non-organic consumers in Belgium, ca. 20.69% in Italy, ca.56.52% in Poland, appear to contemplate purchasing organic food products if there is a reduction of more than 25% in organic food prices. For Belgium and Poland, the second majority are the group who might transition to purchasing organic foods if the price experiences a decrease of more than 50%. Whereas for Italy, the second majority appear to have a lower threshold, meaning that with a 0 to 25% decrease in organic food price, they may consider the transition. Additionally, a notable group (ranging from ca. 17% in Belgium, to 40% in Italy) seems inclined to remain loyal to conventional food products even in the event of a reduction in organic food prices.

These results offer a dual perspective. On one hand, they suggest that a significant portion of the population would consider transitioning to organic food products if their prices were to drop, underscoring once again the significance of economic factors. On the other hand, a subgroup remains dedicated in their commitment to conventional food products, highlighting the idea that economic factors might not invariably exert a major influence.

Perception of recent shocks. Considering the recent crises, including the COVID-19 pandemic of 2019, as well as inflation in prices, the survey asked respondents for their reflections on these two matters. More precisely, the first three questions were designed to determine whether the respondents believed that the COVID-19 pandemic had any influence on them, specifically regarding their opinions towards organic food, whether it led them to buy more organic food, and if it encouraged them to buy more food directly from farms. The next two questions aimed to assess (1) whether inflation and the general increase in prices concerned them and (2) whether they had to reduce their food expenses due to the energy and inflation crises. The respondents answered these questions using a Likert Scale approach, indicating a range from strongly disagree (=1) to strongly agree (=5). Figure 13 depicts the results of these questions.

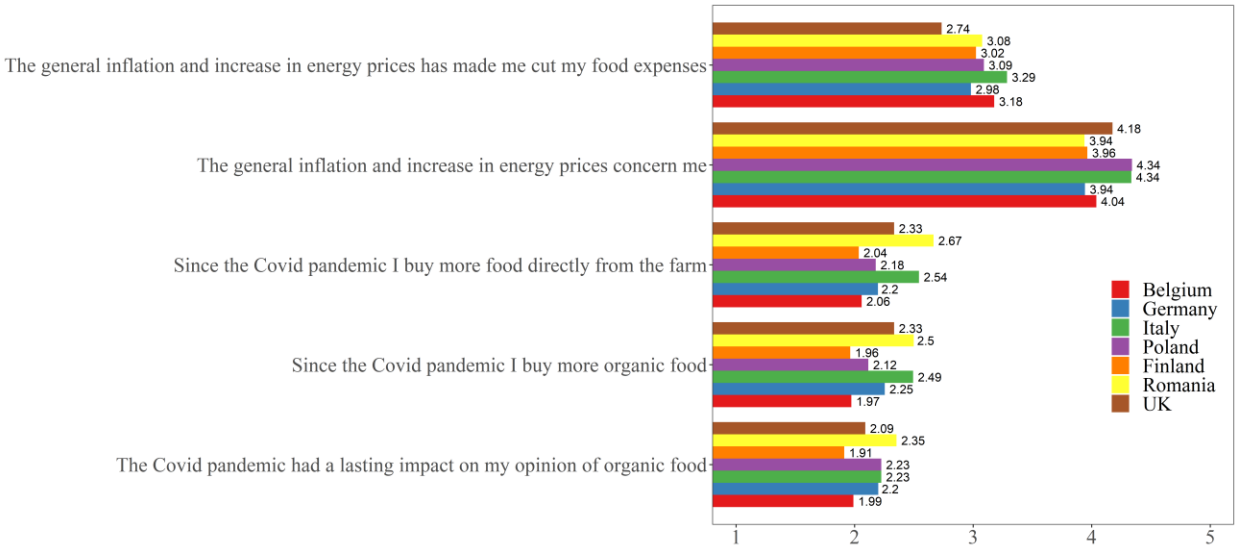
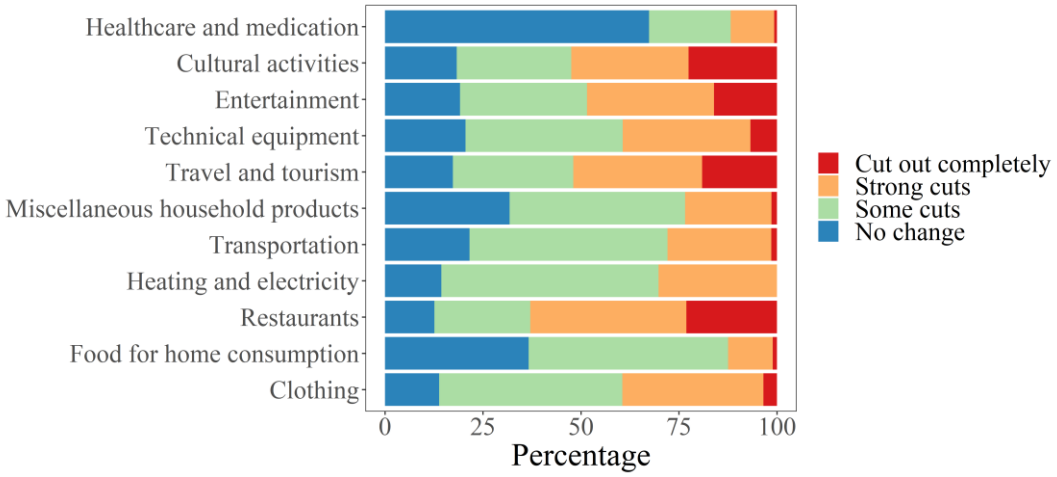


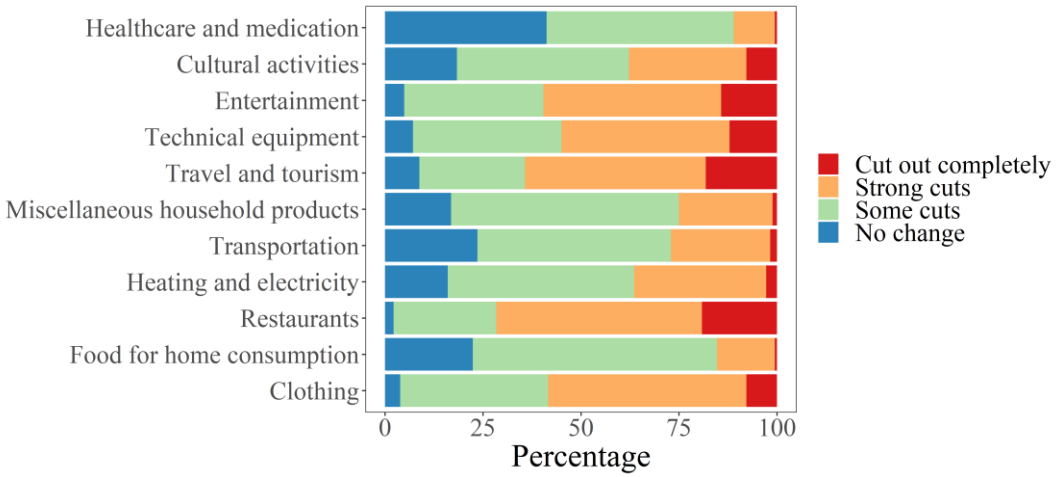
Figure 13- Shocks perception

Following Figure 13, it appears that there is a greater concern regarding inflation and the increase in energy prices when compared to the impacts of the COVID-19 pandemic. Despite indicating a strong level of concern (above ca. 3.9), respondents, while expressing moderately high agreement, have mentioned that they have reduced their food expenses (scored above 3 for Italy, Belgium and Poland). Interestingly, the impacts related to the COVID-19 pandemic are perceived as minor by the respondents, with most values provided falling below 2. This indicates disagreement or at least a partial disagreement. These results are particularly interesting, as they suggest that even though COVID-19 may have had an impact, its lasting effects on consumer behavior regarding organic food were minor or temporary.

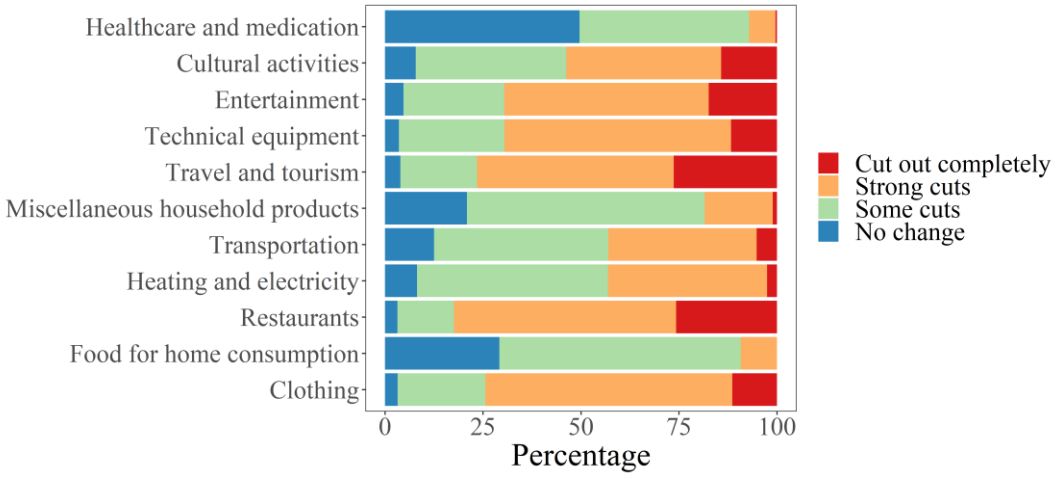
Inflation effect and cuts. Delving deeper into the consequential effects of inflation, the survey included a question that inquired of respondents, "What type of expenditure would you cut if inflation made it impossible for you to maintain your current lifestyle?" The expense categories were comprehensively defined to encompass various sectors, including clothing, food for home consumption and dining out, heating and electricity, transportation, miscellaneous household products (such as soap, detergent, household paper, hygiene items, and pet food), travel and tourism, technical equipment (electronics and household appliances), entertainment (both at home and outside, encompassing movies, streaming services, amusement parks, etc.), cultural activities (like literature, museums, theater, concerts, etc.), and healthcare and medication. Consequently, respondents were given the opportunity to indicate the extent of reduction they would apply to each expenditure category, spanning from "no change" to "cut out complete". Figure 14 shows the results of this query.



(a) Belgium (Flanders)



(b) Italy



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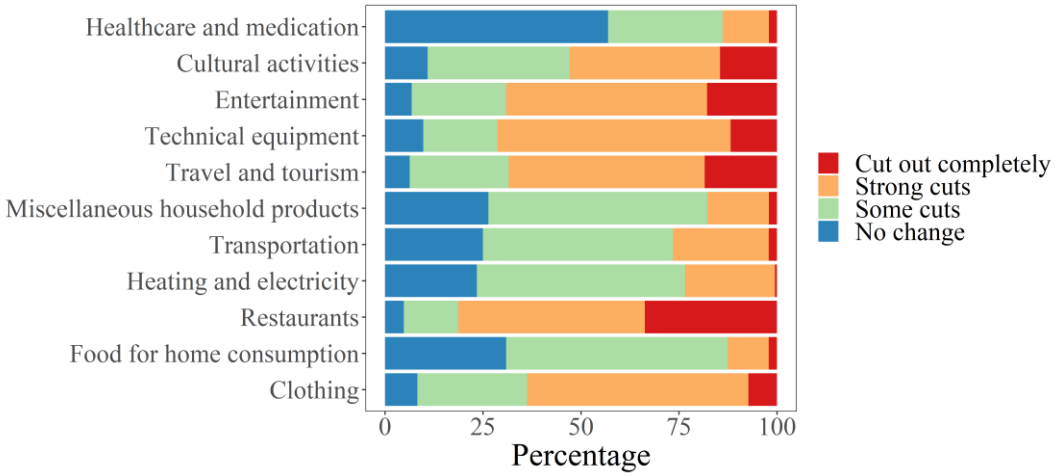
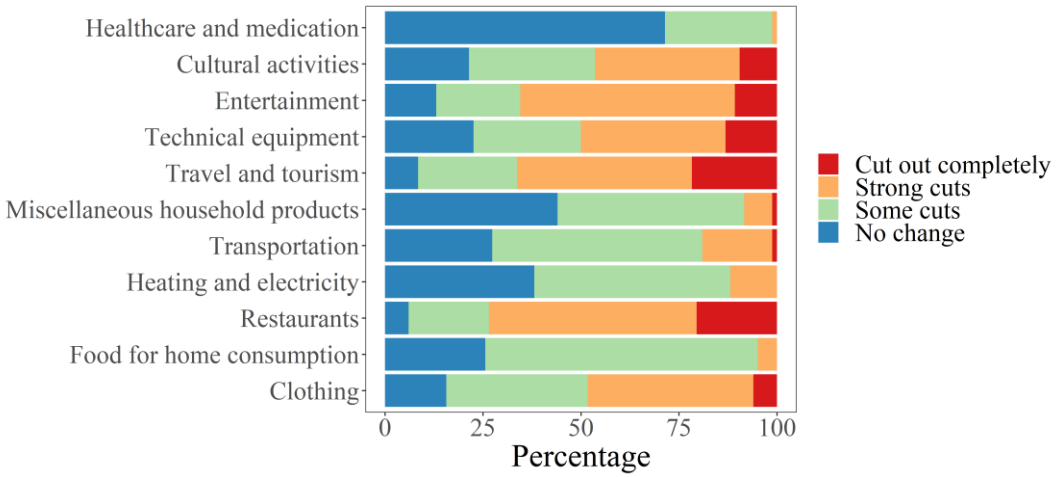
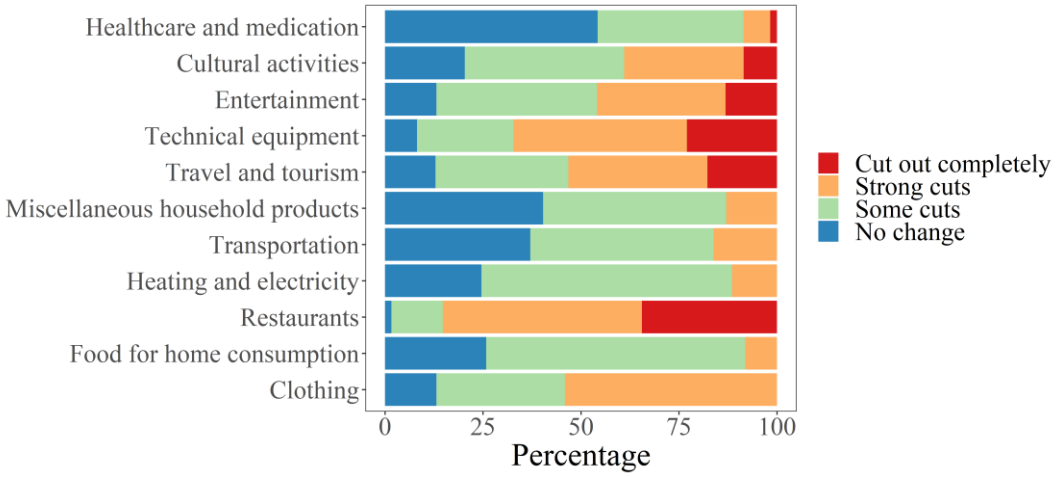


(d) Poland



(e) Finland



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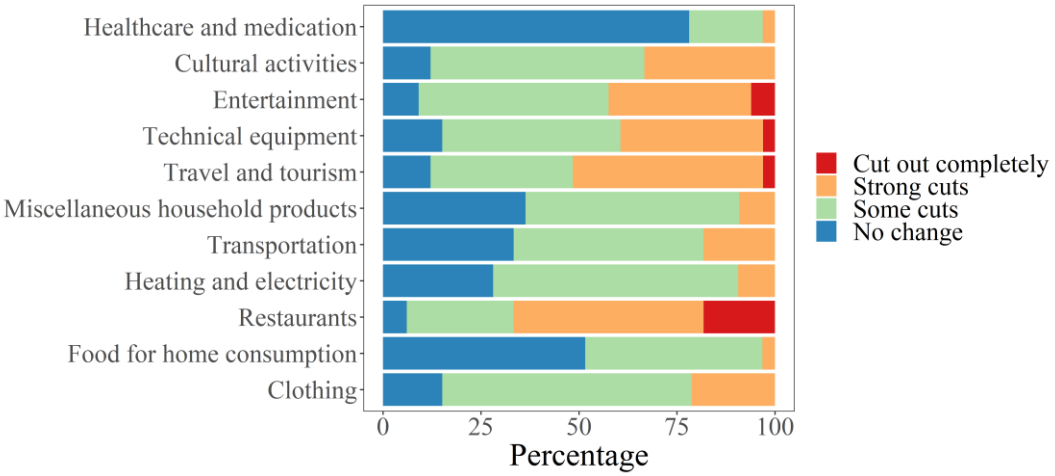

(g) UK

Figure 14- Inflation related cuts

As depicted in Figure 14, reductions prompted by recent inflation exhibit variations across distinct expenditure domains. Notably, in all countries, "restaurants" appear to experience significant reductions from consumers. Equally noteworthy, within the "food for home consumption" category, despite encountering some reductions, a majority have opted for "no cuts" or "some cuts," underscoring the resilience and importance of this expenditure segment. This trend aligns with the reduction impact observed in the "miscellaneous household products" category (including items like soap, detergent, household paper, hygiene products, and pet food), which might be perceived as essential expenses.

Furthermore, barring the "healthcare and medication" category, for which most respondents indicated "no change," the remaining categories exhibit a similar trend of reduction effects.

iv. (Self-reported) barriers and enabling factors for organic consumption

Moreover, the survey contained two open questions, in which respondents were asked about the factors hindering or enabling their organic consumption:

Q13: What factors or circumstances would enable you to increase your consumption of organic food?

Q14: What factors or circumstances make it difficult or impossible for you to increase your consumption of organic food?

As responding to these questions was not made mandatory, evidently not all respondents filled them out. However, response rates were good to extremely good (Table3).

Table 3- Response rates to open questions on barriers and enabling factors for organic consumption

	Overall	**BE**	**DE**	**IT**	**PL**	**FN**	**RO**	**UK**
Sample size	*n=1189*	*n=310*	*n=286*	*n =201*	*n=206*	*n=86*	*n=67*	*n=34*
Q13	61%	71%	30%	76%	81%	56%	46%	82%
Q14	65%	72%	33%	78%	89%	60%	52%	91%

The responses were manually divided into categories using Excel tables. For elaborated answers, that touched on different issues, the responses were split up over multiple categories. Doing so, we could identify 898 barriers and 932 enabling factors that were mentioned. These were at first attributed to a quite broad set of categories. In a second round, similar categories were clustered together. We thus came to 16 categories of barriers and levers. Figures 15 and 16 summarize them, while Figures 17 and 18 show details by country.

Some general observations on the dataset:

- Overall, the responses about barriers and enabling factors mirror each other quite well.
- While the quantitative responses to the closed questions in the survey generally show very similar orders of magnitude across countries, the qualitative, free responses to the open questions show remarkable variation between countries.

The barrier for organic consumption that is mentioned most often by the respondent clearly is the **price of organic products**, more precisely organic prices being (far) higher than those for conventional products. 24% of all respondents feel that this makes it difficult or impossible to increase their organic consumption. For many respondents we cannot deduce from their answer whether they are not willing or not able to pay higher prices. However, 8% overall explicitly state that they find their **income** is not high enough to afford organic food and/or refer to the still high level of inflation in the summer of 2023, when this survey ran.

> *"Unfortunately, I often fall back on "non-organic foods", as I need to check each time what purchases I can afford at that moment."*
>
> *"Price is a barrier, I already buy as much organic as I dare to spend extra money on."*
>
> *"Inflation makes everything much more expensive and my budget for food smaller."*
>
> *"I find many organic products overpriced compared to the other options available. In other words, I don't want to buy them even if I can afford them."*

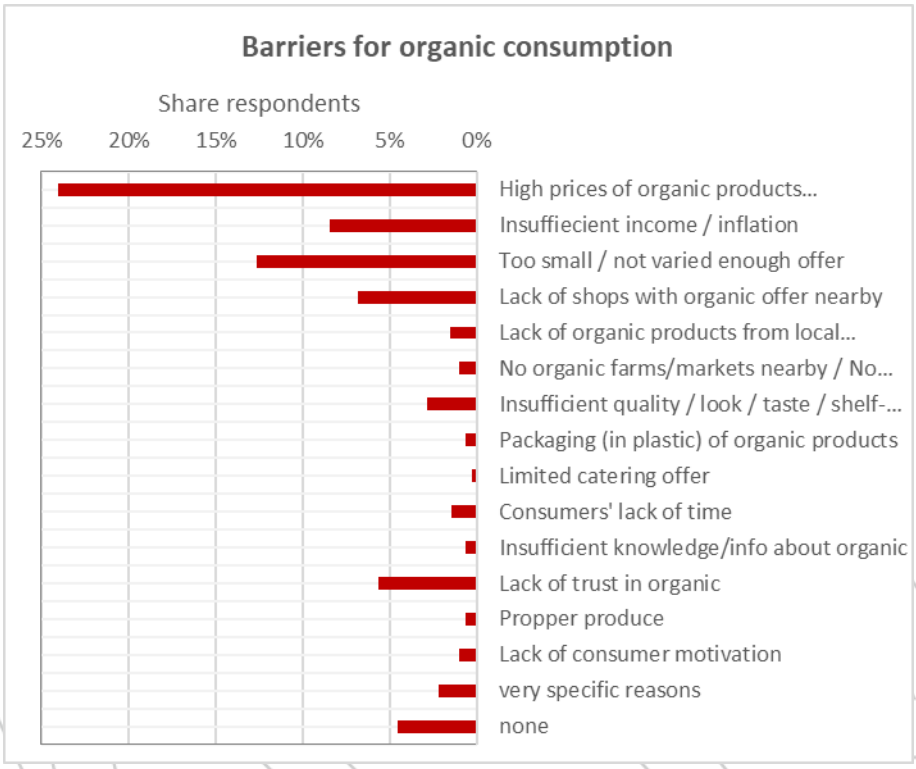

Figure 15 - Barriers for organic consumption as stated by all respondents to the survey

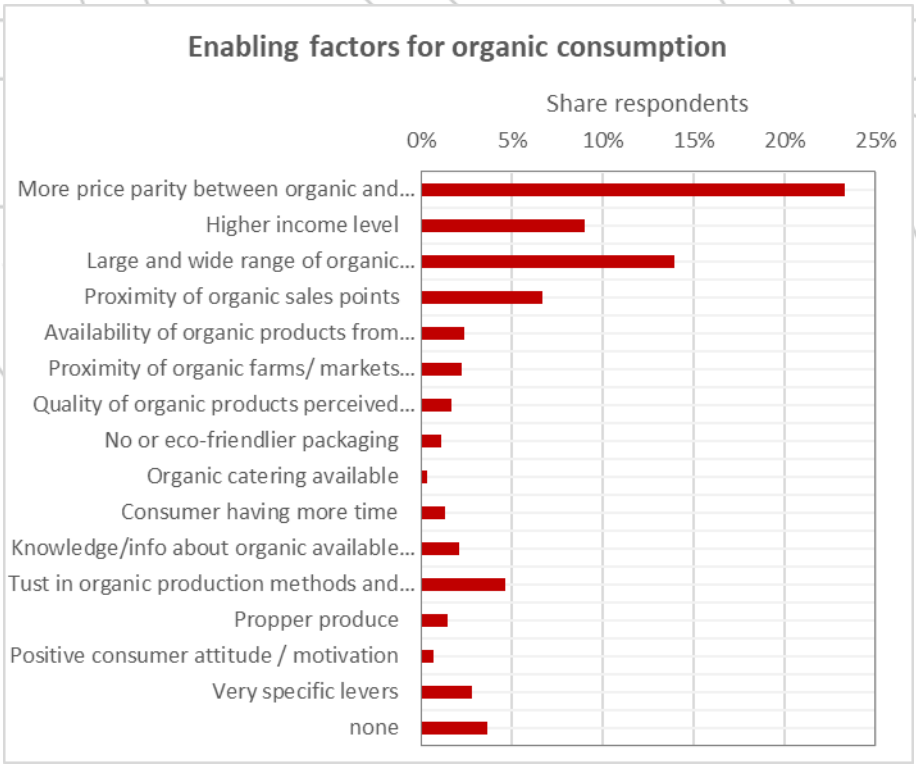

Figure 16- Enabling factors for organic consumption as stated by all respondents to the survey

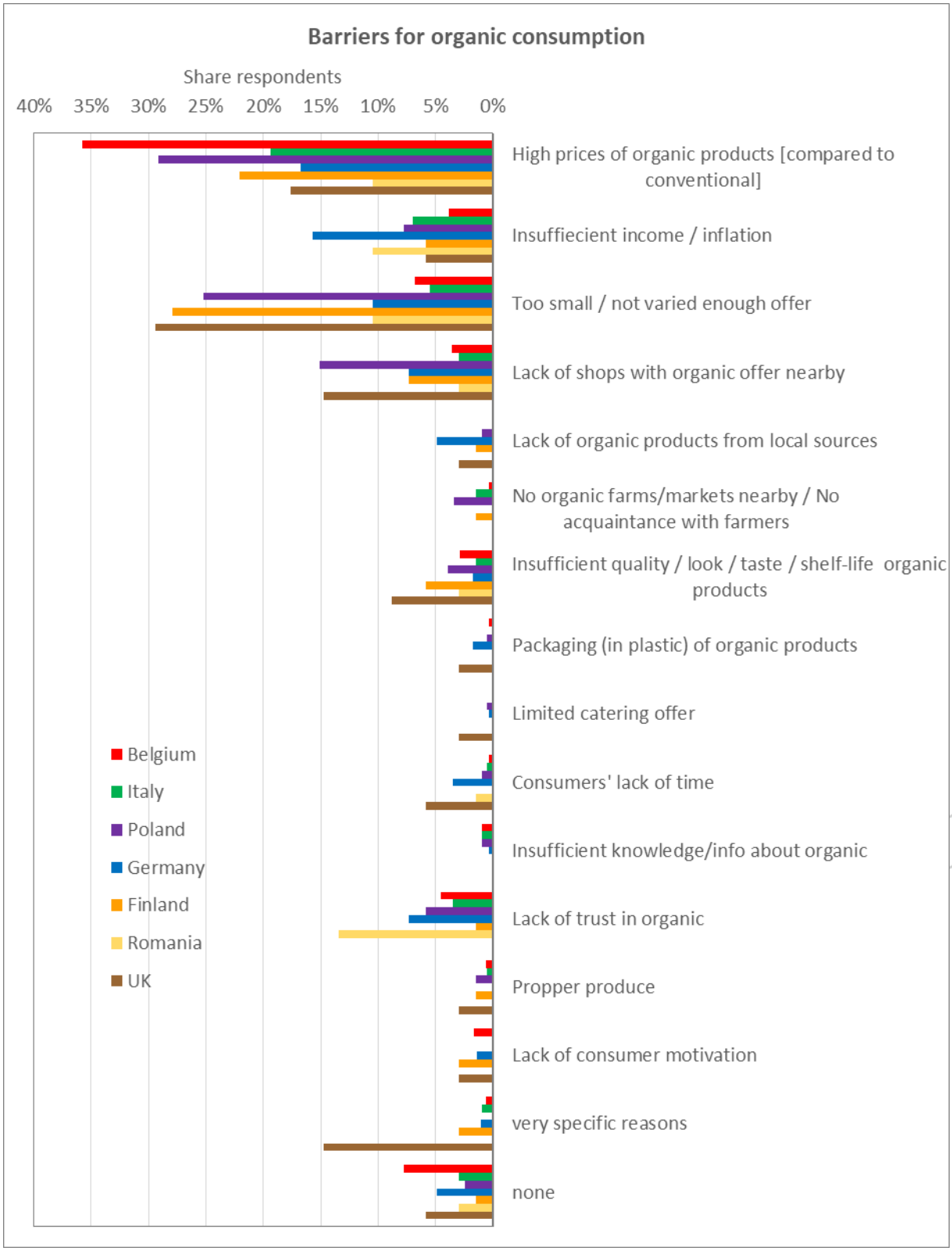

Figure 17- Barriers for organic consumption as stated per country by respondents in the survey

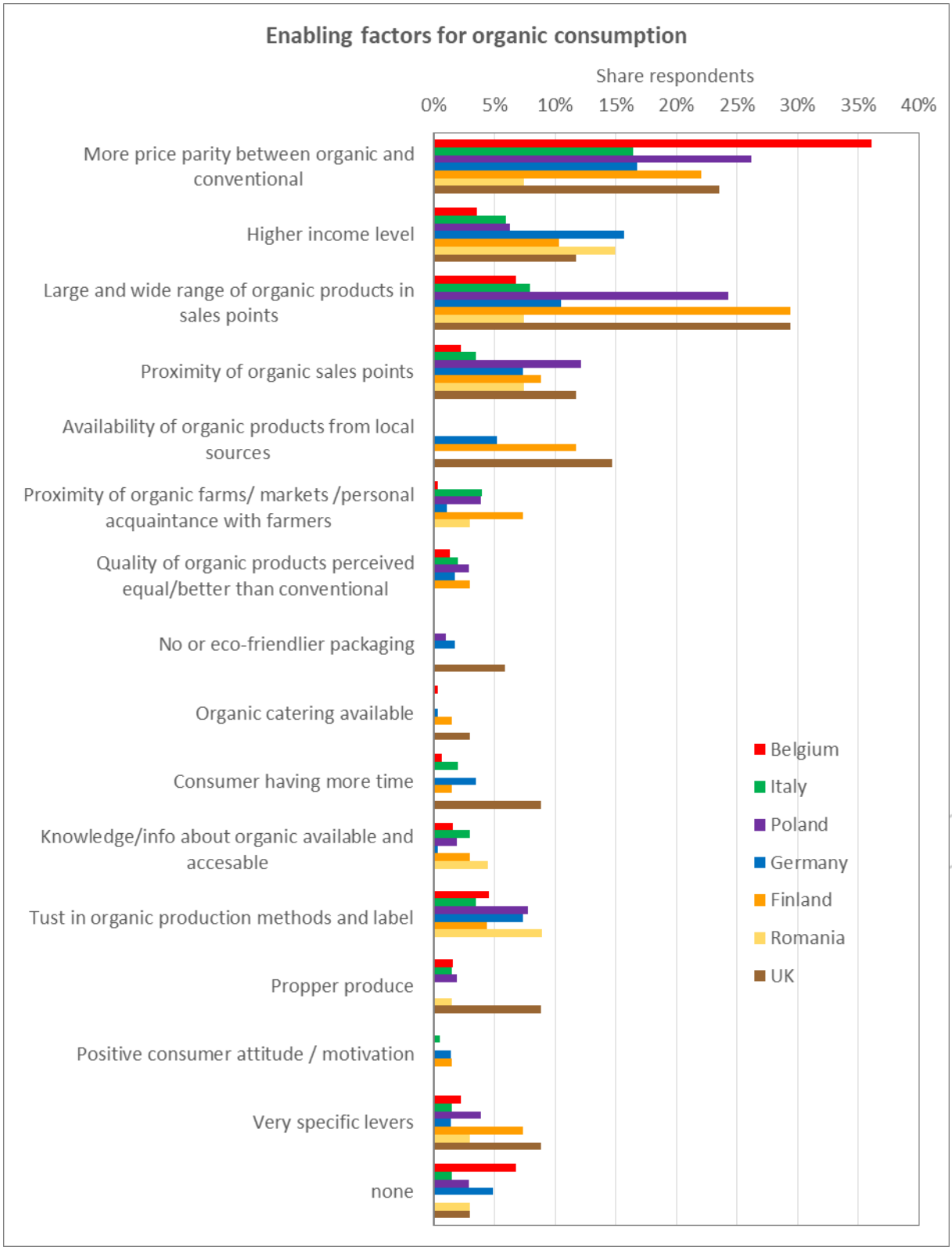

Figure 18- Enabling factors for organic consumption as stated by per country by respondents in the survey

The share of respondents mentioning price as a barrier varies strongly between the countries. Prices are most perceived as barriers is Belgium (36%), while only 4% mention a link with their income. This is consistent with only 5% of them stating "I need to consider prices very carefully, which always limits the type of products that always limits the type of products that I can purchase", when asked about the amount of money they have available for grocery shopping (Figure 1 under a. Sampling). This may be explained by Belgian wage levels being coupled to the index of consumption prices, which is quite rare in Europe[4].

In contrast, in Romania price level and income are mentioned about as often as barriers. Also in Germany many respondents talk about limited income, which may reflect the overrepresentation of students in the German sample.

An obvious lever to increase organic consumption would then be to try to **close the gap between the organic and conventional food prices** to attract more consumers. This will not be easy, since the higher price for organic products obviously reflects the larger efforts needed to grow vegetables or raise animals in an organic way. On the other hand, there also are respondents who suspect that the retail sector is taking larger margins on organic products than on conventional ones, because organic would be in the luxury segment (a suspicion we also heard during one of the workshops with the organic sector in Belgium). If true, there could be room to lower prices for organic there. Another way, price gaps can be narrowed via taxation, could be considered by the government, by e.g. lowering or removing VAT on organic products.

The second most frequently mentioned barrier was the **too small or not varied enough offer** of organic products in the sales points that the respondents shop at. 13% of all respondents overall mention this. Again there was a striking difference by country. In Finland and the UK this was the most important barrier, even larger than the price, mentioned by 28% and 29% of the respondents respectively. Also in Poland 25% stated this as an issue limiting their organic consumption. Respondents ask for more availability and variety, mainly in supermarkets, also in discounters, but also in local shops or on local markets. Moreover, they use products of which they cannot find an organic version. By contrast, availability and variety of products hardly seem an issue in Italy and Belgium, where it was only mentioned by 7% and 5% of the respondents respectively.

Proximity of sales points of organic products forms a barrier for 7% of the respondents overall. This mainly is an issue in Poland and the UK, where 15% of the respondents find the lack of nearby shops offering organic products a barrier for them to increase their consumption. Also in Germany and Finland proximity is a barrier for 7% of the respondents. Perhaps counterintuitive, multiple respondents mention having trouble finding organic products in rural areas. Especially in Germany, respondents also mention the lack of organic products from local sources as a barrier, stating that they would rather not buy organic products that have many food miles on their counter. Having **more local organic products** available would be an enabling factor to raise their organic consumption. In Italy, Poland and Finland **proximity of organic farms with direct sales or farmers markets or even personal acquaintance with organic farmers** are mentioned as levers to raise organic consumption.

[4] https://www.nbb.be/doc/ts/indexation/annex1.pdf

Lack of trust in organic is a serious issue for raising organic consumption. Some form of distrust is mentioned by 6% of respondents overall. Especially in Romania distrust is a large problem, as some form is mentioned by 13% of the respondents there. Over the whole sample of respondents, "distrust" can actually take two very different forms:

1. **Distrust in the claims** made under the organic label, going as far as calling it "a fraud". This is the most prevailing form in Romania.

   "Lack of trust in these products (I don't trust that they are really what it says on the label)"

   "There is sometimes a dubious ideology behind organic food (Demeter) that I don't want to support."

   "Personal aversion to the illusion that organic equals good/healthy"

2. Respondents that often actually show a lot of leverage thinking (concerned about the effect of their shopping behavior on the climate, concerned about animal welfare, etc.), regularly mention that they **feel that what is required under the organic label does not go far enough**. Especially in Germany, respondents use arguments such as their preference for local products with low food miles or a higher level of concern for animal welfare than what they think is required under organic, as reasons not to buy organic, or at least to argue that the higher price for organic cannot be justified.

   "I am not convinced by "organic" food. As far as I know, this "label" is misused too often, which is why it makes no sense for me to buy expensive organic products […]. Many foods carry the label "organic" and yet come from faraway countries […]. They are unlikely to be delivered to Europe by climate-neutral sailing boat. I only buy eggs, for example, from the mobile chicken shed around the corner. It doesn't have an organic label […], but I can see that the chickens are out in the fresh air, have space and always have fresh grass. Plus, these eggs really do come from the local area. That's organic for me. Some foods also call themselves organic, even though some toxins are used because they are classified as safe by the authorities."

Sometimes the above arguments clearly stem for a lack of knowledge about organic production. In this sense, making **more knowledge or information about organic available and accessible** may be a enabling factor, although communication with "disbelievers" has often been shown to be difficult, 2% of respondents overall state themselves that more knowledge would enable their organic consumption. In Romania this was even 4%.

Insufficient quality of organic products fortunately does not seem a very large barrier. However, some form of quality issue is mentioned by 3% of respondents overall. Again, whether quality is perceived as a barrier is very country dependent (figure 3). Among the quality barriers mentioned are the "looks" of the products in the shops, the fact that they do not always seem fresh, organic products no fulfilling the taste requirements of the respondents and rather often also the feeling that fresh organic products have a shorter shelf-life than conventional ones and go bad faster.

Few respondents mention a **lack of time** as a barrier for increasing their organic consumption. When they elaborate, they usually mention not having the time to go to multiple shops or to farm shops or farmers markets to find organic products. Also an increased **catering offer** is sometimes mentioned as a potential enabling factor to raise organic consumption. Especially in Finland there

also is some demand for online shopping (also being delivered to small towns). There might be opportunities for organic farmers in all these types of "convenience" consumers.

The barrier or lever "**proper produce**" entails either respondents who do not buy organic food because they produce it themselves (few farmers among respondents or hobby gardeners), or people stating that they would only eat organic when they could produce it themselves (in that sense also expressing a kind of distrust).

Also some very **specific barriers** are mentioned, which are hard to categorize. Examples are "unfriendly salespeople in the organic shop", a handicap that makes transport to organic shops/markets difficult, or the unavailability of gluten-free organic food.

Finally, the category "**none**" among the barriers is about respondents that do not perceive any barriers, because they either already mostly consume organic food or have absolutely no plans for doing so. The category "none" among the enabling factors is usually about the latter.

In conclusion, the diverse barriers and enabling factors mentioned, do support the premise that there are opportunities for innovative organic farms, such as the ones studied in FOODLEVERS cases (see Annex- part a, Figure 22, for the description of the FOODLEVERS cases), selling their produce via a short chain and contribute to providing the locally produced food that is gaining more and more attention. They often can provide a large variety of products, either from proper produce (the CSA farms) and/or through collaboration with other producers (as in the DE and BE2 cases[5]). They often offer delivery to pick up points in the city, in smaller towns or to shops, with limited food miles or environmental impact (DE, BE2, RO and UK cases). They can easily convince consumers about an elevated level of animal welfare (IT and PO cases). By eliminating intermediaries' margins, they may also deliver organic food at more compatible prices than in the long chain, although the perception exists that even short chain is expensive. A thorough comparison of prices in this type of short chain with mainstream organic products would make an interesting follow-up research. Even if food prices in the innovative short chain would be higher than for conventional food, the farmers having direct contact with their consumers have more opportunities to explain any price gap and bring their stories to the consumers. Finally, the DE and BE1 cases prove the opportunities that lie in producing food products for catering.

[5] Some more detailed information about the cases were communicated via https://www.foodlevers.org/

v. Consumer Segmentation

All consumers (Belgium, Italy, Poland)[6]. Based on the defined questions and the observed (self-reported) behavior related to shopping for organic food, our objective is to identify clusters of consumers that can be compared. One of the formulated questions pertained to whether consumers identify themselves as organic consumers (refer to Figure 6). The second set of questions aimed at helping identify these clusters by exploring consumers' reflections on how their food consumption relates to issues such as health, climate change, animal welfare, and more. Through these question sets, we categorize consumers into clusters based on their general awareness and actual behavior towards consuming organic food.

In doing so, we initially perform hierarchical clustering using the Ward method (Kaufman & Rousseeuw, 2009; Ward Jr, 1963). This involves incorporating organic shopping behavior and consumers' beliefs regarding the relationship between food consumption and broader societal issues. Subsequently, we proceed to compare the identified clusters using a one-way ANOVA test. The results from the hierarchical clustering using the Ward method show that there are three clusters. Table 4 summarizes the differences among the three clusters based on the mean values of the selected variables.

Table 4- Identified clusters based on the organic shopping behavior and broader beliefs related to organic foods

	Cluster 1 *N* = 212 (29.57%)	**Cluster 2** *N* = 285 (39.75%)	**Cluster 3** *N* = 220 (30.68%)	***F***	***p*-value**
Broader beliefs	3.41	3.72	4.58	165.16	.0000***
Organic shopping behavior	1.34	2.71	3.06	491.60	.0000***

*Note: ***p <0.001,**p<0.01, *p<0.05*

As indicated by Table 4, the three clusters exhibit significant distinctions from one another. According to the reported mean values, Cluster 3 appears to represent the most pioneering group, displaying moderately high values in their broader beliefs and organic shopping behavior. Similarly, Cluster 2 seems to encompass more occasional organic consumers (hybrid), also exhibiting relatively high values in their broader beliefs regarding food consumption. Furthermore, Cluster 1 appears to consist of conventional food consumers with very low levels of organic food consumption and moderate levels of broader beliefs.

Based on these findings, the clusters are indeed markedly dissimilar; however, the disparities related to broader beliefs seem less pronounced when compared with variations in organic shopping behavior. This suggests that, despite the high levels of broader beliefs, they may not inherently account for the variations in organic shopping behavior.

[6] As explained earlier, we have decided to merge the datasets from Italy, Poland, and Belgium (Flanders). This approach will allow us to encompass significant heterogeneity stemming from differences in the demographics reported by each country, as well as variations in cultures.

Within organic consumers. Aligned with the primary objective of the FOODLEVERS project, we also seek to delve into the transitions occurring within the organic sector. This entails identifying potential distinctions among organic consumers, particularly exploring what sets certain individuals apart as more inclined to adopt innovative organic products.

Similarly, we group organic consumers who said "yes" or "sometimes" to being organic consumers. We use the Ward method to organize them based on their organic shopping behavior. Next, we see if these groups are significantly different regarding the leverage-points framework and their general grocery habits, like whether they prefer organic stores or direct shopping. We do this by using a test called one-way ANOVA to compare the differences between these clusters.

The results from the hierarchical clustering using the Ward method show that there are three main clusters. Table 5 summarizes the differences among the three clusters based on the mean values of the selected variables.

Table 5- Identified clusters based on the organic shopping behavior for organic consumers

	Cluster 1 *N* = 121 (24.44%)	**Cluster 2** *N* = 246 (49.69%)	**Cluster 3** *N* = 128 (25.86%)	***F***	***p*-value**
Production system concerns	3.82	3.98	3.87	1.98	0.14
Willingness to support innovation	3.65	3.82	3.72	2.22	0.1
Critics on organic	3.49	3.80	3.53	8.08	0.000***
Broader thinking	3.82	4.23	4.02	13.38	0.002**
Direct farm grocery	1.59	1.97	1.62	13.70	0.001**
Organic shopping behavior	1.92	3.40	2.45	457.03	.0000***

Note 1: *the segmentation is based on the organic shopping behavior*
*Note 2: ***p <0.001,**p<0.01, *p<0.05*

As shown in Table 5, the three clusters stand out as notably distinct from each other when it comes to organic shopping behavior. This aligns with the hierarchical clustering logic using the Ward method, which was based on organic shopping behavior (*p*-value < 0.0001). Interestingly, the identified clusters also display significant differences in the dimensions of the leverage-points framework, except for the aspect of "willingness to support innovation" (*p*-value = 0.1) and “Production system concerns” (*p*-value=0.14). It's noteworthy that all clusters express a fairly high level of support for innovation in the organic food sector.
Furthermore, Cluster 2 appears to comprise pioneers who not only have higher awareness and consumption of organic food but also tend to prefer direct grocery channels like buying directly from farms. On the other hand, Clusters 3 and 4 seem to represent more of a follower-type group of consumers in this context.

vi. Measurement Models: Enabling factors organic consumption

Below, we present the results of three measurement models: (1) the original Theory of Planned Behavior (TPB), (2) the leverage points framework, and (3) the combined leverage points framework and TPB. For each measurement model, we showcase the descriptive results and test the hypotheses that characterize these measurement models.

The original Theory of Planned Behavior

Here, we delineate each construct related to the theory of planned behavior, encompassing its item loadings, average variance extracted (AVE) (Fornell & Larcker, 1981), Cronbach's alpha (Cronbach, 1951), and construct validities within the framework of the measurement models (as elucidated in the subsequent sections). Table 6 summarizes the pertinent information in this regard.

Table 6- Items, means, standard deviations, loadings, AVE, Cronbach alpha and composite reliability for the theory of planned behavior

Constructs	items	Mean	SD	loadings	AVE	alpha	CR
Theory of Planned Behavior							
Behavior					0.53	0.89	0.89
	beh_1	2.81	1.13	0.77			
	beh_2	2.20	1.08	0.65			
	beh_3	2.46	1.17	0.80			
	beh_4	3.11	1.46	0.70			
	beh_5	2.40	1.27	0.76			
	beh_6	2.29	1.15	0.85			
	beh_7	2.17	1.13	0.67			
Intention					0.77	0.92	0.91
	int_1	3.47	1.17	0.82			
	int_2	3.17	1.12	0.92			
	int_3	3.17	1.14	0.89			
Attitude					0.72	0.86	0.88
	att_1	4.02	0.92	0.80			
	att_2	3.84	1.05	0.90			
	att_3	3.96	1.03	0.83			
Subjective norm					0.53	0.63	0.69
	sub_n_1	2.55	0.98	0.59			
	sub_n_2	3.09	0.92	0.86			
PBC					0.32	0.57	0.59
	PBC_1	3.48	0.99	0.56			
	PBC_2	3.58	1.01	0.50			
	PBC_3	3.39	1.07	0.57			

Following the information provided in Table 6, the mean score of *Behavior* construct is about 2.5 with a standard deviation of ca. 1.19 suggesting that the organic consumption behavior is at not-

high level, nonetheless there is considerable variation meaning that the consumers are relatively heterogeneous. The items' loadings of this construct range from 0.67 to 0.85 suggesting that these items are strong indicators for this construct. The AVE of this construct is 0.53 indicating that an acceptable proportion of extracted variance is explained by the construct implying good convergent validity. Cronbach alpha is 0.89 and the CR is 0.89 indicating high internal consistency and reliability among the construct items. Similar interpretations can be applied to other constructs in the TPB. The Cronbach's alphas, CRs, and AVEs are all at relatively high or accepted levels, along with loadings ranging from 0.5 to 0.92. These loadings indicate a strong correlation for each indicator with its corresponding construct.

Nonetheless, it is worth mentioning that the mean scores for perceived behavioral control (*PBC*) and *Attitude* are above 3, indicating moderately high values. Within the PBC construct, the lowest value (m=3.39) corresponds to the third item, which reflects the statement "I have access to organic food". This suggests that while attitudes are scored relatively high, there appears to be a potential issue with access to organic food.

Furthermore, *Intention* and *Subjective norm* exhibit lower averages when compared to *PBC* and *Attitude*. This implies that the social environment around consumers might not exert as strong an influence as attitudes do. Additional details regarding the relationships among the constructs of the TPB are presented below.

Regarding the relationships among the constructs of the TPB, we are testing the hypotheses that underlie this theory. To be more precise, there are five primary hypotheses characterizing the original TPB, which we list below:

> ***H1**: Positive attitudes toward organic foods influence the intention to increase organic food consumption.*
>
> ***H2**: Positive subjective norms related to organic food consumption influence the intention to increase organic food consumption.*
>
> ***H3**: Greater perceived behavioral control (ability and access) regarding organic foods positively affects the intention to increase organic food consumption.*
>
> ***H4**: Intentions to increase organic food consumption lead to an increase in consumption behavior of organic foods.*
>
> ***H5**: Perceived behavioral control (ability and access) with regard to organic food positively affects organic consumption behavior.*

Based on the aforementioned hypotheses, we conducted the analysis using a Structural Equation Modeling (SEM) approach. We examined the hypotheses by presenting the regression paths alongside their corresponding levels of significance. The outcomes of the analysis, illustrating the regression paths, are depicted in Figure 19.

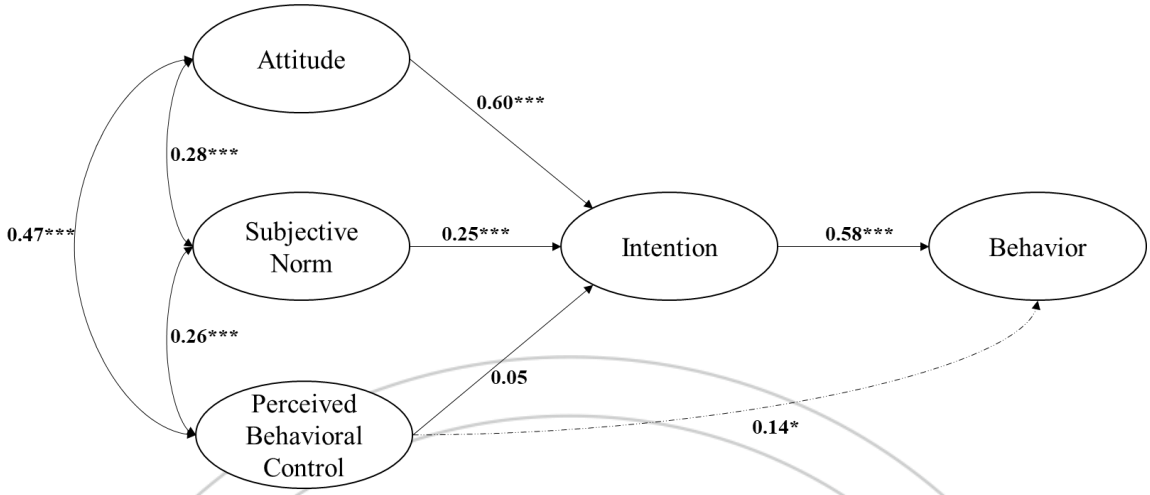

Figure 19- Theory of planned behavior paths

Table 7 provides additional elaboration on the outcomes of the SEM and hypothesis testing. It presents the standardized path coefficients, along with their corresponding *z*-values and *p*-values. These reported values enable informed decisions to be made and conclusions to be drawn. Furthermore, Table 7 furnishes insights into the model's quality through various indicators, including χ2, normed χ2, *p*-value(χ2), root mean square error of approximation (RMSEA), non-normed fit index (NNFI), comparative fit index (CFI), and adjusted goodness of fit (AGFI). These indicators facilitate a more comprehensive evaluation of how the measurement model aligns with the population's responses.

Based on the Table 7 results regarding the model's goodness measure, all the reported values stand at an acceptable level, signifying a strong alignment between the diversity of the population and the models devised for analysis. Notably, the *p*-value(χ2) holds significance, indicating the presence of meaningful relationships between the constructs in the measurement model. The RMSEA value is 0.072, which is less than the threshold of 0.08, affirming a commendable fit (Awang, 2012; Byrne, 1994). The NNFI stands at 0.91, surpassing the 0.90 benchmark, while the CFI at 0.93 also exceeds the 0.90 threshold—both indicating a strong fit (Byrne, 1994). Additionally, the AGFI is 0.87, slightly below the 0.90 mark but still suggestive of an acceptable level of fit.

Table 7- Theory of planned behavior measurement model hypothesis and model testing

		Standardized path coefficient	*z*-value	*p*-value	Decision
H1	Attitude has a positive effect on the organic buying intention	0.60	10.64	0.000***	Supported
H2	Subjective norms have a positive effect on the organic buying intention	0.25	5.16	0.000***	Supported
H3	Perceived behavioral control has a positive effect on the organic buying intention	0.05	0.88	0.38	Not supported
H4	Intention to increase organic food consumption has a positive effect on the organic buying behavior	0.58	10.04	0.000***	Supported
H5	Perceived behavioral control has a positive effect on the organic buying behavior	0.14	2.13	0.03*	Supported
				Model measures	**goodness**
					χ2=419.35
					normed χ2=3.31
					p-value (χ2) = 0.000
					RMSEA=0.072
					NNFI=0.913
					CFI=0.928
					AGFI=0.865
*Note: ***p <0.001,**p<0.01, *p<0.05*					

As indicated by Table 7 and Figure 19, most of the hypotheses are supported, except for *H3*. Specifically, there exists a significant positive relationship between attitudes towards organic consumption and intentions to increase organic consumption (*H1*). Similar conclusions apply to *H2*, indicating a substantial positive influence of subjective norms on the intentions to increase organic food consumption. However, *H3* shows that there is not a significant relationship between PBC and intention towards organic consumption.

When comparing *H1* and *H2*, the reported effect (path coefficients) for attitudes is higher than that for subjective norms. This observation is intriguing, as it implies that the inclination to consume more organic foods primarily stems from positive attitudes rather than subjective norms. Furthermore, upon reflection on the results of *H3* in conjunction with *H1* and *H2*, one could argue that the intention towards organic consumption does not derive from high (positive) PBC, but rather it arises from existing positive attitudes and subjective norms toward it.

Upon deeper consideration of the effect of PBC, *H5* is supported, indicating a significant relationship between PBC and organic consumption behavior, meaning that the perception of

control can influence the final behavior, however, the effect size is not substantial. Finally, *H4* also garners support, signifying a noteworthy positive connection between intentions to increase organic food consumption and actual behaviors.

These findings are particularly intriguing as they suggest that PBC, even when indicating substantial (economic) capabilities and access, might not thoroughly influence organic food consumption behavior.

Leverage points framework

Here, our focus lies on respondents who answered "yes" or "sometimes" to the question of whether they consider themselves organic consumers. Accordingly, based on their responses, we outline each construct associated with the leverage thinking framework. This entails considering item loadings, AVE, Cronbach's alpha, and construct validities within the context of the measurement models, as detailed in the subsequent sections. Table 8 summarizes the pertinent information in this regard.

Table 8- Items, means, standard deviations, loadings, AVE, Cronbach alpha and composite reliability for the leverage thinking framework

Constructs	items	Mean	SD	loadings	AVE	alpha	CR
Broader thinking					0.55	0.87	0.78
	sys_think_1	4.12	0.99	0.51			
	sys_think_2	3.62	1.16	0.74			
	sys_think_3	3.89	1.03	0.89			
	sys_think_4	3.96	1.03	0.80			
	sys_think_5	3.90	1.03	0.59			
Production system concerns					0.53	0.76	0.78
	concern_sys_1	3.81	0.85	0.70			
	concern_sys_2	4.10	0.98	0.82			
	concern_sys_3	4.07	0.82	0.65			
Critics on organic					0.42	0.67	0.68
	critics_org_1	3.92	0.86	0.52			
	critics_org_2	3.58	0.98	0.67			
	critics_org_3	3.94	0.82	0.77			
Willingness to support innovation					0.37	0.54	0.54
	supp_org_inno_1	4.01	0.95	0.51			
	supp_org_inno_2	4.25	0.81	0.70			
	supp_org_inno_3	3.37	1.01	0.54			

As indicated by Table 8, all the constructs exhibit relatively high construct validity measures, including CR and Cronbach's alpha. However, the AVE does not reach a sufficiently high level. Nevertheless, due to the satisfactory levels of the other validity measures, we have chosen to retain these constructs as they are. It's worth noting that as more data collection is ongoing, we may revisit the consideration of these constructs based on the outcomes that emerge. Nevertheless, all loadings fall within the range of 0.51 to 0.89, signifying an acceptable level of correlation between each indicator and its respective construct.

Concerning the average values presented for each item, it is evident that all items are at a relatively high level, spanning from 3.37 to 4.25. When comparing the standard deviations (SDs) reported in connection with the leverage points framework to the SDs associated with the TPB, they seem to be lower. This indicates a greater uniformity in the group's responses, aligning with the subgroup that was specifically chosen for the measurement model of the leverage points framework.

Concerning the relationships among the constructs of the leverage points framework, we are examining several hypotheses that underpin this theory, rooted in the role of consumers within this framework. To be more precise, the leverage points framework operates at the systemic level, where consumers are not the central focus. Instead, this theory addresses the three foundational pillars of rethinking, restructuring, and reconnecting, all with the goal of charting pathways for transitioning food systems toward sustainability.

In this context, the role of consumers within this framework is to lend support to initiatives designed around reimagining the objectives of food systems, aligning with the imperative of restructuring, and fostering a deeper connection between consumers and nature, as well as agriculture.

Following this line of reasoning, a consumer inclined to endorse such initiatives would likely possess a systems-thinking mindset, viewing food in connection with broader issues encompassing climate, health, culture, taste, and the environment (i.e., encompassing beliefs). Furthermore, those consumers inclined to lend support to transformative initiatives may also be engaged in reimagining production and consumption systems. This implies an awareness of the current state of food production, distribution, and consumption, along with a conviction that transformation is necessary—thus underscoring the role of innovative food chains.

Lastly, such consumers might hold the belief and critics that their choices and actions regarding organic food can contribute to enhancing sustainability within food systems. Building upon these arguments, we formulate the following three hypotheses:

> ***H1****: Broader beliefs about food positively influence support for innovative chains within the organic sector.*
>
> ***H2****: Concerns about food production, consumption, and delivery positively influence support for innovative chains within the organic sector.*
>
> ***H3****: Criticisms of the organic food sector positively influence support for innovative chains within the organic sector.*

Similarly to the theory of planned behavior measurement model, we employed a SEM approach to analyze the data, in line with the hypotheses associated with the leverage points framework. We assessed these hypotheses by showcasing the regression paths accompanied by their corresponding significance levels. The results of this analysis, which display the regression paths, are visualized in Figure 20.

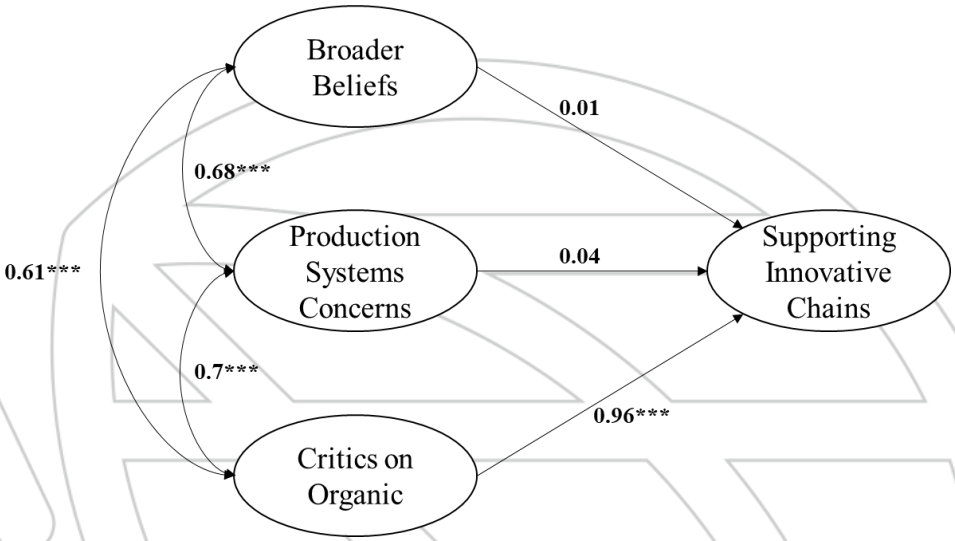

Figure 20- Leverage points framework paths

Table 9 provides additional elaboration on the outcomes of the SEM and hypothesis testing for the hypotheses associated with the leverage points framework. It presents the standardized path coefficients, along with their corresponding *z*-values and *p*-values. These reported values enable informed decisions to be made and conclusions to be drawn. Furthermore, Table 9 furnishes insights into the model's quality through various indicators, including $\chi 2$, normed $\chi 2$, *p*-value($\chi 2$), RMSEA, NNFI, CFI, and AGFI. These indicators facilitate a more comprehensive evaluation of how the measurement model aligns with the population's responses.

Based on the results presented in Table 9 regarding the goodness-of-fit measures of the model, all reported values fall within an acceptable range. This suggests a robust congruence between the diversity of the population and the models crafted for analysis. Notably, the *p*-value ($\chi 2$) holds significance, indicating the presence of meaningful relationships between the constructs in the measurement model. The RMSEA value is 0.08, about the threshold of 0.08, affirming a reasonable fit (Byrne, 1994). The NNFI stands at 0.90, at the benchmark of 0.90, while the CFI at 0.92 is also slightly higher than the 0.90 threshold—both indicating a great fit (Awang, 2012; Byrne, 1994). Additionally, the AGFI is 0.89, slightly below the 0.90 mark, but still suggestive of a potential level of fit. Overall, the goodness-of-fit measures for the model suggest a moderately strong fit.

Table 9- Leverage points framework measurement model hypothesis and model testing

		Standardized path coefficient	*z*-value	*p*-value	Decision
H1	Broader beliefs about food have a positive influence on supporting innovative chains in the organic sector	0.01	0.06	0.953	Not supported
H2	Concerns about food production consumption and delivery have a positive influence on supporting innovative chains in the organic sector	0.04	0.40	0.688	Not supported
H3	Criticisms on organic food sector have a positive influence on supporting innovative chains in the organic sector	0.96	5.65	0.000***	Supported
				Model goodness measures	
				χ2=240.42 *normed χ2=3.39* *p*-value (χ2) = 0.000 *rmsea=0.08* *nnfi=0.898* *cfi=0.92* *agfi=0.89*	

*Note: ***p <0.001,**p<0.01, *p<0.05*

Based on the outcomes presented in Table 9 and Figure 20, only *H3* is supported, whereas *H1* and *H2* are not supported. In this context, the results of *H1* does not reveal a noteworthy and positive correlation between broader beliefs and the willingness to endorse innovation within food chains. This implies that a consumer who harbors concerns encompassing health, environment, climate change, taste, and more, might not be inclined to support innovative chains that emphasize the significance of the farm and seek to foster closer connections between farmers and consumers. This would, hence, suggest that innovative chains that are more designed in a regional way might not be seen as an ultimate solution to the broader concerns consumers may have.

Drawing from the findings of *H2*, it becomes evident that no significant and positive association exists between concerns pertaining to various elements of the food system (such as production, consumption, and delivery) and the predisposition to support innovative food chains. This suggests that consumers perceive these innovative, shorter chains not necessarily as potential solutions to address sustainability challenges across food system production, delivery, and consumption.

Regarding the results of *H3*, they indicate a significant relationship between possessing a critical mindset about organic food consumption and supporting innovative food chains. In this context,

the critical mindset for organic consumption is defined as believing that the very process of organic food production should be reevaluated, while the consumer aspires to enhance food system sustainability through organic food consumption. The existence of a significant relationship here could imply that when consumers contemplate the sustainability of organic food and its potential contributions, they might perceive supporting innovative chains as a viable solution.

Moreover, all the reported values pertaining to the model's goodness measures stand at an acceptable level, signifying a strong alignment between the diversity of the population and the models devised for analysis.

Leverage points framework and theory of planned behavior

Building on the theory of planned behavior and leverage points framework, we can delve into whether the attitudes, subjective norms, and perceived behavioral controls of primarily organic consumers, in relation to organic food consumption, are influenced by more expansive beliefs, concerns, and a critical mindset specific to organic food. To explore this, we initially concentrate on respondents who responded with "yes" or "sometimes" when queried about their identification as organic consumers.

Subsequently, we introduce the concept of a construct named "*Leverage Thinking*" for these consumers. This construct integrates a broader system of beliefs and awareness, extending beyond the existing elements of the theory of planned behavior.

To establish the latent construct of Leverage Thinking, we conducted a confirmatory factor analysis to explore the loadings and relationships of each component, encompassing broader beliefs, concerns related to production systems, and criticisms of organic practices. The outcomes of this analysis are presented in Table 10.

Table 10- Confirmatory analysis results for Leverage Thinking latent construct

		Estimate	*p*-value	loadings
Leverage Thinking ~				
	Broader beliefs	0.72	0.000	0.66
	Production systems concerns	1.12	0.000	0.73
	Critics on organic	1.00		0.94

As shown in Table 10, the standardized loadings of the constructs onto the "Leverage Thinking" latent construct range from 0.72 to 1.12. These loadings signify the strength of association between each construct and the "Leverage Thinking" construct. Notably, the loading of the "Critics on organic" construct is set to 1, acting as the reference point for scaling the "Leverage Thinking" latent construct. This means that the "Leverage Thinking" construct is calibrated using the "Critics on organic" construct. The other loadings for "Broader beliefs" and "Production systems concerns" are then estimated in relation to the scaling established by "Critics on Organic Food". These loadings also suggest a higher affinity towards the Leverage Thinking construct.

With the Leverage Thinking construct at hand, we proceed to formulate hypotheses. Initially, we can posit that since Leverage Thinking encompasses broader concerns, beliefs, critiques, and

viewpoints regarding the role of food in sustainability, it is likely to impact consumers' attitudes toward organic consumption. Furthermore, individuals possessing a more expansive and critical perspective on food and its sustainability might perceive their ability to access and purchase food in a distinct manner, implying a heightened sense of control. Along a similar vein of reasoning, one might argue that such individuals are more prone to surrounding themselves with others who also hold the belief that increasing organic consumption benefits health, the environment, and so forth.

Based on these lines of reasoning, we can derive the following hypotheses, in addition to the five main hypotheses of the TPB.

> ***H6**: Leverage Thinking has a positive impact on attitudes toward organic foods.*
>
> ***H7**: Leverage Thinking has a positive impact on subjective norms toward organic foods.*
>
> ***H8**: Leverage Thinking has a positive impact on perceived behavioral control toward organic foods.*

Similar to the other measurement models, we employed a SEM approach to analyze the data, in line with the hypotheses associated with the leverage points framework and TPB. We assessed these hypotheses by showcasing the regression paths accompanied by their corresponding significance levels. The results of this analysis, which display the regression paths, are visualized in Figure 21.

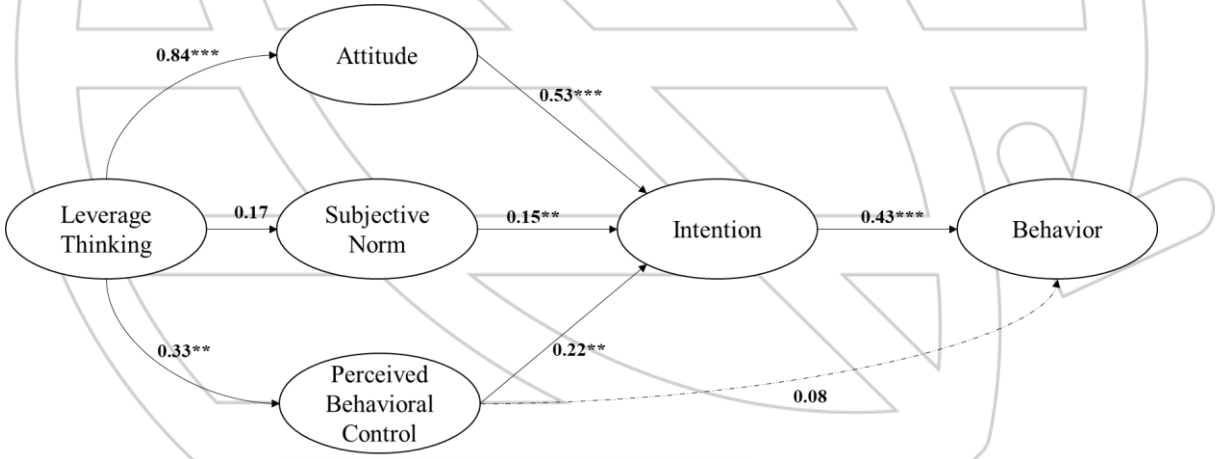

Figure 21- Leverage thinking and theory of planned behavior paths

Table 11 provides additional elaboration on the outcomes of the SEM and hypothesis testing for the hypotheses associated with the leverage points framework. It presents the standardized path coefficients, along with their corresponding *z*-values and *p*-values. These reported values enable informed decisions to be made and conclusions to be drawn. Furthermore, Table 11 adds insights into the model's quality through various indicators, including χ2, normed χ2, *p*-value(χ2), RMSEA, NNFI, CFI, and adjusted goodness of AGFI. These indicators facilitate a more comprehensive evaluation of how the measurement model aligns with the population's responses.

Based on the results presented in Table 11 regarding the goodness measures of the model, all the reported values are at an acceptable level, signifying a strong alignment between the diversity of the population and the models devised for analysis. Notably, the *p*-value (χ2) holds significance,

indicating the presence of meaningful relationships between the constructs in the measurement model. The RMSEA value is 0.058, which is below the threshold of 0.08, affirming a good fit (Awang, 2012; Byrne, 1994). The NNFI stands at 0.871, slightly below the benchmark of 0.90, while the CFI at 0.884 is also slightly lower than the 0.90 threshold—both indicating a moderate fit (Byrne, 1994). Additionally, the AGFI is 0.824, below the 0.90 mark but still suggestive of a potential level of fit. Overall, the goodness-of-fit measures for the model suggest a moderately strong fit.

Table 11- Leverage points framework and theory of planned behavior measurement model hypotheses and model testing

		Standardized path coefficient	***z*-value**	***p*-value**	**Decision**
H1	Attitude has a positive effect on the organic buying intention	0.53	6.64	0.000***	Supported
H2	Subjective norms has a positive effect on the organic buying intention	0.15	2.70	0.07*	Supported
H3	Perceived behavioral control has a positive effect on the organic buying intention	0.22	2.750	0.006**	Supported
H4	Organic buying intention has a positive effect on the organic buying behavior	0.43	5.062	0.000***	Supported
H5	Perceived behavioral control has a positive effect on the organic buying behavior	0.08	0.881	0.0378	Not supported
H6	Leverage thinking has a positive effect on the attitude towards organic foods	0.84	6.588	0.000***	Supported
H7	Leverage thinking has a positive effect on the subjective norms towards organic foods	0.17	1.460	0.144	Not Supported
H8	Leverage thinking has a positive effect on the perceived behavioral control towards organic foods	0.33	2.970	0.003**	Supported
			Model measures		**goodness**
					χ2=734.86
					normed χ2=2.01
					p-value (χ2) = 0.000
					rmsea=0.058
					nnfi=0.871
					cfi=0.884

agfi=0.824

*Note: ***p <0.001,**p<0.01, *p<0.05*

Based on the hypothesis testing results presented in Table 11, all findings pertaining to the measurement model align with the original theory of planned behavior. This implies that the subgroup chosen for this measurement model is consistent with the rationale discussed in the preceding section. Consequently, a significant portion of the inclination to enhance organic consumption stems from favorable attitudes towards organic products, followed by subjective norms and PBC.

Remarkably, within this specific group (i.e. organic consumers), PBC emerges as a more influential factor in driving intentions to increase organic consumption, in comparison to the earlier outcomes derived from the entire population sample. In this regard, here, the *H3* here is supported indicating that higher PBC score can result into higher intension towards organic consumption, whereas in the previous results (see the previous section on the original theory of planned behavior), the main effect of PBC was visible on the final organic food shopping behavior rather than the intension.

Regarding the influence of Leverage Thinking, as indicated by the outcomes of *H6*, a notable and statistically significant positive correlation with consumers' attitudes towards organic consumption becomes apparent. Particularly intriguing is the robust path coefficient of 0.84, underscoring a remarkably strong association between the Leverage Thinking and attitude constructs. Comparable insights emerge when analyzing the impact of Leverage Thinking on PBC (*H8*). While a significant positive relationship exists between these constructs, its magnitude is somewhat less pronounced when juxtaposed with the Leverage Thinking and attitude connection.

Turning attention to *H7*, which explores the connection between Leverage Thinking and subjective norm, the data does not substantiate this particular link. This observation might suggest that individuals possessing a more expansive array of cognitive frameworks and beliefs do not necessarily find themselves surrounded by corresponding personas who actively endorse and support organic consumption.

6. Conclusions

a. Reflection of the descriptive results

Reflecting on grocery behavior, gleaned from the descriptive results of the survey, it becomes evident that a substantial proportion of respondents are frequent patrons of supermarkets and specialty stores. This observation underlines the significant role these shopping venues play in influencing the adoption of organic food consumption. Moreover, the data indicates that the average respondent primarily employs a car for their shopping trips, highlighting that the adoption of sustainable transportation methods remains less widespread. This situation could be linked to numerous factors extending beyond the confines of this research's scope.

Biases in the definition of organic food are intriguing. Notably, while a majority of the population aligns their understanding of organic food with legal definitions, a significant subset of respondents associates locally produced food or even traditional food with organic food. This observation might be perceived as a challenge; however, it also underscores a distinct attraction and belief in locally sourced products. This aspect could potentially serve as a mechanism for promoting the adoption of sustainably produced organic goods.

Furthermore, it is evident that a substantial level of trust exists among organic consumers regarding organic food itself. A considerable portion of these consumers do not actively seek information when making organic food purchases. Among those who do seek information, the country or region of origin, signifying the locally produced aspect, appears to be the most sought-after information. This observation further underscores the significant attention consumers allocate to the locality aspect of food products, highlighting the potential influence of locality on the adoption of organic food. Regarding the question of why information pertaining to production conditions is not as frequently sought, one might posit that a degree of trust is already extended to the "bio green leaf" labels.

> ***Insight 1:*** *The local and regional aspects of food remain important for average consumers, which can be strategically utilized to promote sustainable food consumption.*

In regard to organic food consumption, it is interesting to note that the majority of consumers are already incorporating organic products into their diets, albeit with a considerable degree of heterogeneity. This observation implies that there exists a potential for conventional consumers to potentially transition towards adopting organic consumption practices.

Examining beliefs regarding organic consumption, the results highlight that many individuals perceive organic food as being tasty, healthy, and environmentally beneficial. However, the notion of it negatively impacting savings and the subsequent willingness to pay higher prices is notably situated at a moderately low level. Moreover, in line with this perspective, economic considerations, particularly pricing, appear to exert a significant influence on consumers.

Also visible in the qualitative analysis of the open-ended questions, among organic consumers, a noteworthy finding emerges: if prices increase by 25% or more, a considerable number would contemplate adopting a product that may not be organic. Similarly, for non-organic consumers to shift towards organic food, they would require a price reduction of more than 25%.

> ***Insight 2**: Organic food seems to be an attractive concept; however, for the average consumer, price appears to be a determining factor in choosing organic food.*

> ***Insight 3**: On average, changes in food prices can serve as an instrument to motivate or demotivate consumers in their choice of organic foods.*

This behavior or perception can also be substantiated through the results of the questions related to shocks and pandemics. On average, consumers appear to be less influenced by the COVID-19 pandemic in terms of their organic food shopping behavior, yet they exhibit substantial concern about inflation in general.

Additionally, the prospect of inflation and the necessity to cut costs may prompt individuals to reduce expenses across different sectors. This could extend to activities that are perceived as less essential, such as culture, entertainment, travel, and tourism. Interestingly, restaurants, which are closely tied to both the cultural and economic facets of food systems, might also experience the effects of such adjustments.

> ***Insight 4**: It appears that consumers, in general, are concerned about inflation, and if it occurs, expenses related to restaurants are among the main targets for cuts, putting the catering sector in a vulnerable position.*

Regarding consumer segmentation, taking into account all the observed differences, particularly concerning organic shopping behavior, we have identified three distinct consumer segments. Upon examining their respective proportions, it becomes evident that a substantial majority, around 55%, falls within one segment, while the remaining two segments account for approximately 22% each. This observation is intriguing, as it could imply that while our population exhibits heterogeneity, there exists a notable degree of similarity among them when considering the proportions.

> ***Insight 5**: Among organic consumers, there seems to be significant dissimilarity in how they critique the organic sector, direct farm grocery, and broader levels of thinking, making one group more of a pioneer type, which can be seen as agents of food systems transformation.*

b. Reflection of the measurement models

Regarding the Theory of Planned Behavior (TPB) framework, consumers' intentions to increase organic food consumption are primarily driven by their attitudes towards organic products. These attitudes are shaped by behavioral beliefs, as discussed earlier, which suggest that organic food is perceived as tasty, healthy, and environmentally friendly, though comparatively more expensive than conventional alternatives. Another influential factor on intentions is the role of subjective norms, which exert a positive influence. This implies a general social approval within the community when consumers opt for organic products.

Interestingly, perceived behavioral control (PBC), indicating economic capacity and access to organic food, has a comparatively weaker impact (if any) on the intentions to increase organic consumption. This suggests a noteworthy proposition: the decision to consume organic food is

predominantly shaped by individual beliefs, trust in organic food, and adherence to societal norms, rather than being heavily driven by economic factors.

> ***Insight 6***: Among all factors, possessing positive attitudes toward organic consumption appears to be the most influential determinant resulting in positive intentions toward organic consumption, and consequently, higher levels of organic shopping behavior.

Focusing solely on the leverage points framework measurement model, it becomes evident that pioneer consumers' inclination to support innovation in food chains is predominantly influenced by their critiques of organic food systems. Specifically, these consumers recognize that organic food itself may need reevaluation, and new initiatives could support its sustainability. With this perspective, they exhibit a heightened level of support for innovative chains, including initiatives that aim to overhaul conventional large-scale kitchen practices, facilitate direct farm sales, and shorten food chains.

In contrast, the linkage between broader levels of thinking and concerns about food production and consumption as a whole, and the willingness to support innovation in food chains, is comparatively less significant. This suggests the possibility of existing doubts perceived by consumers concerning the alignment of broader issues as a whole with innovations in food chains that include regionality and organic production strategies.

> ***Insight 7***: Being critical of the organic food system appears to be the main driver for consumers to support innovative chains, meaning that organic consumers who tend to be critical are more likely to support solutions beyond the state of the art.

In terms of the influence of leverage thinking on the cognitive processes of pioneer consumers regarding organic food shopping behavior, the reported results establish robust connections between leverage thinking and attitudes, as well as PBC. This implies that consumers exhibiting a higher score in leverage thinking might also possess more positive attitudes and a stronger sense of PBC concerning organic behavior.

However, the outcomes do not suggest a statistically significant correlation between leverage thinking and subjective norms. This indicates that individuals with a higher leverage thinking score might not be predominantly surrounded by like-minded consumers who endorse organic food shopping. This observation is interesting, as it suggests either a less interconnected network among pioneer organic consumers or a potential scarcity of organic consumers to form a robust normative network.

> ***Insight 8***: One of the main drivers of positive attitudes towards organic consumption stems from a "Leverage Thinking" framework. This suggests that, on average, organic consumers possess a broader range of concerns, which may incline them towards choosing organic products.

These findings provide insights into the interplay between leverage thinking and cognitive factors, shedding light on the nuanced dynamics shaping pioneer consumers' perceptions and behaviors related to organic food shopping.

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8. Annexes:

a. Description of FOODLEVERS cases

During the FOODLEVERS project, different innovative cases were studied. Following figure, depict their characteristics.

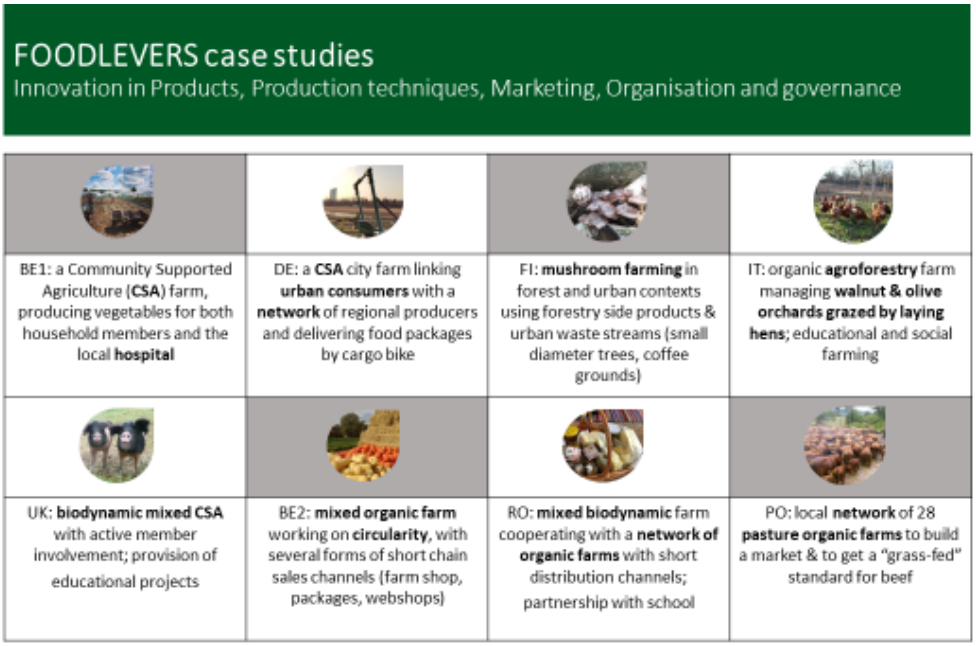


Figure 22- Short description of the FOODLEVERS case studies

b. Qualitative insights from the UK

i. Literature research insights from the UK

Despite having a relatively mature organic market, the average spend on organic food products in the UK is low compared to other European countries (Kowalska et al., 2021). The organic market in the UK experienced a **growth of 5.2%** in 2021 (Soil Association, 2022), and according to the Soil Association Market report, the UK organic market has been growing continuously for 10 years and is now worth £3.05 billion (Soil Association, 2022). The fastest developing sales outlet for organic food is the online shopping sector for organic products; in 2021 it grew 13% up to a worth of £558.6 million, making one in four organic products bought online (Soil Association, 2022). However organic market growth has not been matched by a growth in UK certified organic land area meaning the UK is increasingly reliant on organic imports to meet demand.

Price remains a constant barrier for new and/or infrequent shoppers of organic food. Studies on the willingness to pay for organic food have found that for certain products, UK consumers would expect to pay between 5 and 10% more for organic produce whilst on average, consumers currently pay a premium of 19.3% for organic products (Lampkin, Measures and Padel, 2023). As a consequence the recent trends in food price in the UK have seen the loss of organic customers on tighter budgets.

Disturbances in the UK organic food market are common as are their impacts on volume of sales annually. As such they and must be considered alongside a long-term view of shopping trends in order to grasp other key motivators for the procurement (or not) or organic produce. A survey of panel data carried out in 2005 in the UK and Denmark, although outdated, found that even though public goods were rated as an important factor in the decision to buy organic food, it is also the private good attributes that make consumers purchase organic food (Schleenbecker et al., 2013). The top reasons given today for buying organic food include 'less use of pesticides', 'health benefits', 'better taste', 'environmental benefits', 'animal welfare benefits', and 'better quality' and these motivations have changed little over time (Lampkin, Measures and Padel, 2023). Freedom from artificial ingredients was found as one motivator for purchasing organic food for consumers in the UK (Schleenbecker et al., 2013). Another study found appearance to be a motivating factor when purchasing meat for 30 UK female shoppers in the UK (McEachern and Schröder 2001).

Awareness has also been cited in multiple studies as a key determining factor as to whether or not a UK shopper purchases organic. The UK implements a private organic certification system and has as many as five possible organic labels. As such there is a great confusion in the UK as to what products are organic for shoppers less familiar with those labels. As most organic sales take place in supermarkets, if key organic products are not available in these stores, consumers are likely to buy the non-organic alternatives, including premium lines, Fairtrade or locally sourced rather than looking for alternative sales outlets that stock organic items (Lampkin, Measures and Padel, 2023). This was also seen in a survey of young UK and Polish shoppers where other foods from alternative sources in the UK may instead be seen as alternative for green consumption, e.g., regional food, local food, and domestic/home food products which are in direct competition in the marketplace with organic food products (Kowalska et al., 2021). Consumers with a high sustainability awareness have been found to be a key demographic for the organic sector and are usually older, wealthier and members of smaller households (Lampkin, Measures and Padel, 2023).

ii. Report on Results of RAU Organic Food Consumer Focus Group July 2023

Introduction

This report presents the results of one of two UK focus groups (RAU/Reading) conducted as part of the FOODLEVERS project. The FOODLEVERS project builds on Abson et. al.'s (2017) three realms of "deep leverage" to address sustainability transitions:

1. "re-connect": people to nature to encourage sustainable behaviors
2. "re-structure" institutions and consider how institutional dynamics can create an enabling environment for sustainability
3. "re-think" how knowledge is created and used, shared and validated.

The RAU Focus Group contributes to the project by exploring willingness to consume organic foods (Eyinade et. al. 2021) from the perspective of consumers and food business owners purchasing from and working in alternative food systems (See Appendix 1 for sample).

Methodology

The focus group, held online on 2nd May 2023, comprised five participants involved in the organic food sector and one RAU facilitator. The participants are engaged in the sector as personal consumers of organic food, as growers, food co-operative members/volunteers and box scheme owners/entrepreneurs. Many were known to each other through their organic food networks and Community Supported Agriculture projects.

The facilitator guided the focus group with a number of exploratory questions, broadly based on the early stages of the consumer buying decision making process[1]. The questions explored the following areas:

1. Problem /need recognition: Reasons why participants started buying/consuming organic food.

2. Participants' relationship with/ connection to the natural environment.

3. Participants' information search and acquisition of knowledge regarding organic food and sustainable consumption.

4. Evaluation criteria for comparing organic foods with non-organic foods.

5. Role of technology in promoting a more sustainable, mindful connection between people and the ecosystem. Ways of fostering these connections in daily life.

Summary of Focus Group Results

Problem /need recognition: Reasons why participants started buying/consuming organic food.

Table 12. Identifies the drivers which stimulated participants towards the purchase of organic food. While some participants noted specific 'tipping points' which prompted them to become more committed to organic foods (e.g. becoming a parent), most described a gradual journey towards a deepening involvement with organic foods based on concerns for the environment.

Table 12- Reasons and further elaborations

Reasons/Prompt	Further elaboration
Seeing 'wrongs' of current industrial agricultural system and wanting to do something different.	Stated negative impacts for environment (soil nutrient balance, habitat destruction), for human health (low nutrient food), for industry workers (low skilled, repetitive work, piece rate and not year round secure employment) and for industry (large scale farming, large machines, indebtedness).
Through competitive sport and sport nutrition	Coming to an understanding of the food system by exploring how to optimize personal sports performance.
Wanting to keep money local (local food, local jobs etc). Keeping the money local, ensuring people are getting a fair wage for what they're doing and trying to correct the false value of food.	Belief that so much of the household income is spent on food and so much of that leaves via the supermarkets.
Concern about greenhouse gas emissions	Belief that nitrous oxide emitted from "mainstream chemical agriculture" is reduced if you "go organic"
Feeling apathetic and helpless in light of global warming, wanting to doing something practical, become a more active problem solver	Desire to move away from office jobs and computers to be more practical (grower of organic produce)
Desire to buy good local food along with other parents, to avoid supermarkets, to support smaller businesses.	Observed negative influence of supermarkets on town, wish for more control over purchasing local and organic foods, developing collective purchasing schemes.

During this discussion, participants also suggested a number of barriers preventing more consumers from choosing organic foods:

- Poverty – a false assumption that people are not making the right choices because they don't want to, but they cannot afford to do so.
- Lack of knowledge - of where food comes from, of how to cook food
- Lack of connection - to others who know how to prepare and cook, to growers, to community.

In the rest of the summary, quotes from the participants are used to explain different views. More precisely, the participants are indicated with the following codes:

Leverage points for organic and sustainable food systems

E: Runs an organic veg box scheme
S: Consumer and volunteer at a Food Co-operative.
Z: Developed local community food scheme and works at a Food Co-operative
M: Consumer and volunteer at market garden
R: Consumer and part time grower of organic vegetables.

Participants' relationship with/ connection to the natural environment.

Prompted to consider whether their approach to sustainability and organic food deepened their connection with the natural environment, participants instead saw the natural environment as their primary concern with the consumption of organic food as a means of supporting it. The choice of organic food symbolised wider lifestyle choices and values involving care for the wider ecosystem. Choosing organic food was considered to be a means of doing something active and positive for the natural environment and as one element within an 'interconnected' system:

> *"You start to see how it all fits together… that sustainability and business and looking after the environment and health, they're all so interconnected. And so…. so then that really helped to, for me, to justify spending the extra on organic, it's not just a benefit in one area, it's a benefit in so many areas"* (Z)

Choosing organic food was a gateway to a stronger connection to the natural environment and to an increasing awareness of the need for change:

> *"…the spark, that was definitely what got me interested in it, made me start thinking about… (the) wider ecosystems and…like just how, what is soil health and how do we grow in a more kind of yeah, with the environment and with that system. I think part of that is rethinking like what we see as waste and what we see as a pest and what we see as weed. And yeah, it's not as black and white as maybe… like we initially understand, everything plays a part in the wider system"* (R)

The instinctive sense of connection to the natural environment was also nurtured through family members:

> *"…being out in nature, growing vegetables and with my mom as a small child and thinking about the health of the soil… I wouldn't have understood it very clearly, would I, as a very small child…But then I …feel in the earth with my mom and feeling, her telling me if it was healthy or not and just putting my hands in the soil too,…he So there's just there's an instinct, an instinctive sensation isn't there really, even for a child"* (M)

Participants' information search and acquisition of knowledge regarding organic food and sustainable consumption.

Learning to become a more knowledgeable, 'good', consumer was summarized by one participant as "*a lifetime thing*" (E), an ongoing process informed by formal and informal, verbal and written information sources as well as direct involvement in food production. Trust in that information depended on the 'authenticity' of the grower, their 'values' and their 'ethics'.

Leverage points for organic and sustainable food systems

Personal contacts were the most frequent and influential source of information and knowledge, and included family, friends, other members within a collective buying group, and the suppliers/growers of the organic produce (notably excluding mainstream supermarkets). These contacts were highly valued, trusted information sources because of their knowledge of where food had come from:

> *"…there's a lot hidden behind the barcode when food is coming in from further afield. You know, it can be dressed up in a variety of different ways, and it might not actually be the way that it's presented - behind the barcode"* (S).

A reciprocal relationship of trust and care existed between participants as consumers and their preferred food providers (e.g. food co-operatives) which contributed to greater confidence in the future and reduced the need for further information search. For example, as S explains:

> *"…the people that I trust know what they're talking about or I trust that they know what they're talking about. And to think that, that's what I'm comfortable with. You know, I don't feel like I need to know every piece of information about every item on earth in order to take a position on what a sustainable future looks like*." (S)

'Authentic' suppliers (including food co-operatives and Community Supported Agriculture schemes) were willing and able to share knowledge about where food was coming from and held particular values around growing /providing food including openness and honesty:

> "*… these guys, really ethical, so solid…(they) think about the right stuff, authentic. I trust them. …that's the critical thing for me. You know, learning who you can trust and learning why you should trust them and I feel comfortable enough with that without getting into all the intricacies of what's going on in practice"* (S)

Trust in the food provider and first-hand knowledge of their 'values' facilitated choice, as E describes:

> *"I used to shop at a place in Manchester where, what I really loved about the shop was, I knew their values. They were a vegan, organic supermarket. It wasn't all organic, but it was very obvious when it wasn't and they were very open about where they got things from. I could just trust them. I knew I could just go in the shop and I trusted them to make choices for me. Whereas I don't trust (mainstream) supermarkets at all to make choices for me"* (E)

Formal, trusted information sources included certification (specifically Soil Association certification) and labelling. Labelling was the one arena in which mainstream supermarkets were considered 'better' than local veg stores. Printed sources of consumer information mentioned by the focus group included recipes in veg boxes, newsletters about how to use vegetables and how the food was grown. Providing information on what to do with less common vegetables that people may not have used before is about education, empowering consumers to cook differently:

> *"And it's always the classic veg box thing, you get a kohlrabi, and everyone's like "what the hell would I do with a kohlrabi?" So, you know, you tell them something to do with it, and then they go, Oh, that's quite nice"* (E)

Leverage points for organic and sustainable food systems

Participants also commented on the need to provide information about eating the entire food crop (tuber and leaf tops), but noted that this was not always possible in current industrial farming practice where crop tops are often sprayed to make harvesting easier.

Evaluation criteria for comparing organic foods with non-organic foods

A number of choice criteria were mentioned:

- Cost
- Grower
- Taste
- Freshness
- Environmental impact
- Distant/local

Cost did not feature very strongly in the focus group. Some participants used a 'rule of thumb' that if the organic option is *"more than twice as expensive as a conventional, I'm very, I'm very hard pressed to buy it"* (E). Local was used as an alternative when participants cannot afford organic.

Personal knowledge of the **grower** was a determining factor. The ethics of the grower was also identified as one of the criteria for choice, although it was acknowledged that this was not always easy to see.

Taste and **freshness** are closely associated, with freshness used as an indicator of taste. It was not assumed that organic always tasted better, and freshness was considered more important than organic. For example, E comments

> "*Sometimes, you know, sometimes people aren't very good growers and they grow food which isn't actually all that great. Or their systems aren't that great, so they can't even get it to you that fresh, I mean, I think the freshness is the most critical thing*" (E)

The **environmental impact** of food production was a consideration for many. M chooses organic produce as she considers that it creates less emissions than "*… major sort of mainstream chemical agriculture*". The environmental impact of meat and dairy production, organic or otherwise, is also considered.

Discussions around choice criteria showed the heuristics used in decision making and the acceptable trade-offs between organic and non-organic foods. A key determinant here is the distance between the food producer and the food consumer. E refers to this as a 'matrix' of local/distant and organic/non-organic, with the following illustration:

> *"…sometimes people come up with silly things like, Oh, well, do you buy an organic apple from New Zealand? And I'd say, well, no, just don't buy apples if they're not in-season. So I'm really, really into seasonality and that probably would trump organic quite often for me because if something's in season and then you know, it's going to be pretty low input anyway"* (E)

Compensatory strategies were adopted in the organic/local dilemma. Local was prioritised over organic on the grounds that local was likely to indicate more seasonal produce, but there were also more future-oriented justifications as shown below:

> *"So if, for example, there was some local produce that wasn't organic and then may be 200 miles away, that was something that was organic. I would go with the non-organic stuff that was being grown locally on the basis that that producer is in a better position to transition to organic in a deep local scenario than the place that was 200 miles away who's not going to be shipping stuff in this future scenario"*(S)

The 'future scenario' envisioned by S, a consumer, is one in which there might be some "*serious issues around importation of food*" as a result of climate change and also around the importation of soil supplements that enable food to be grown in the UK. As a consequence, he suggests, local producers will become more important suppliers within their community.

A further point on choice criteria is that one person's version of ethical and sustainable is not necessarily the same as someone else's. Choosing organic therefore becomes a first step:

> *"… a useful way to come to the idea of buying things ethically. But then from there, I definitely have my own ideas of whether I want to buy something and it's not necessarily organic. I might choose local over organic or …so yeah, organic is a really good way I think, if you can afford it, to start shopping in the way that feels better for the world, socially, for the environment, for your health. But then from there … I do try and go a bit further and work out what my priorities are in terms of like buying locally, supporting local businesses and that might trump buying organically"* (Z)

Role of technology in promoting a more sustainable, mindful connection between people and the ecosystem. Ways of fostering these connections in daily life.

For the Focus Group participants technology enabled real-time access to small scale farm produce, collective buying of healthy foods and knowledge sharing on buying, preparing and cooking food. The technology adopted ranged from simple to more complex as indicated in Table 13.

While technology was an important enabler, personal contact, peer groups and community were identified as the most powerful way of building sustainable connections between people and the ecosystem and of continuing to nurture these connections.
Person to person bonds, a sense of community and knowledge sharing were fostered through alternative ways of providing and purchasing food such as Community Supported Agriculture scheme and collective buying groups. Collective buying provided the impetus for monthly meetings to agree what to purchase and also to share produce bought in bulk. It enabled peer group learning about foods, promoted community bonding over food and provided a sensory connection to the food:

> *"And know it is a big buzz when you see all the food come in and you see these veggies which have often being harvested much more recently and you see them in their natural state and you can smell them in a way that you can't in a supermarket. And it is incredible to see, you know, organic local veg that's potentially even been harvested on the day"* (Z)

Table 13- Role of technology

Technology	Connections/Benefits
Apps in small scale farming	Real time access to fresh seasonal produce as it is being picked Accessibility to fresh food Reaching wider customer base
WhatsApp	To help people access good food locally and more cheaply as a group Community feeling Observing purchasing of peer group, learning about new foods and recipes in this way. Asking others how to use ingredients.
Google Docs Spreadsheet	Managing greater numbers of customers (progress from WhatsApp group) Community feeling Observing purchasing of peer group, learning about new foods and recipes in this way.
Mobile App	Enable online collective purchasing
Web App	Enable online collective purchasing
Online store	Enable online collective purchasing

Community Supported Agriculture was seen as the key driver in fostering more mindful connections between people and the ecosystem, although it was recognised that *"Some people don't even want to be particularly connected. They just want the transaction"* (E). Participants conceded that alternative food production and consumption systems such as those mentioned took more time and effort, but they were necessary as a means of *"unmooring from the global food system"* (S) and creating a more community based food production economy.

Among the focus group participants, many volunteers, growers, producers and box scheme providers acted as opinion formers, using personal contact, knowledge sharing and social influence to encourage others to develop closer connections with food and agriculture. They achieved this through weekly on-site volunteer sessions, attending local events, talking to people and sharing information such as recipes. Fostering deeper connections to food and the environment was described by E as "*… like a fire that you nurture and make the embers grow and create a larger fire and then catch other people on to that*".

Participants adopted experiential methods of creating community and connection around food. The importance of cooking together and eating together is emphasised, such as sharing food through community feasts:

> *" … where people came along and loads of amazing people cooked loads of food and then you just paid what you felt you could afford, so lots of long tables with this,… about a couple of hundred (people), it was, yeah…And it was just this amazing sense of people coming together around food"* (E)

Leverage points for organic and sustainable food systems

On a smaller scale, encouraging people to:

> *"… cook up a lunch and eat it together…And I think it's that thing of when you're sitting down, consuming food together, you talk about stuff. And if you're talking about stuff on a site where you've grown food, you're selling food, you talk about food…about how the food is being produced. And that's a really wonderful way of connecting people. Because you start making those, having those conversations and you start thinking a bit deeper and getting like, you were asking about where you get your information from,. well, the best way is from other people"* (E)

The participants describe this process as 'closing the loop' between supporting agriculture, supporting local infrastructure, and helping to support the local environment and local businesses. Community events provided that opportunity for people to *"… come together and cook together …we just don't seem to have that in our society anymore. And so it's trying to recreate those connections and those opportunities for connection and opportunities for education"* (Z).

c. Qualitative insights from the Belgium Community Supported Agriculture participants Focus Groups

Introduction

This report presents the results of **two focus groups**, conducted by EV ILVO in Belgium in November-December 2022. The focus groups were jointly organized by the FOODLEVERS and Agroforestry.2025 projects. Their goal was to sound out barriers and enabling factors for consumers to join Community Supported Agriculture (CSA) farms, i.e. to explore their willingness to make a long-term commitment to an organic farm.

Methodology

The first focus group was held in person at ILVO and brought together eight participants, most of them not yet members of a CSA. The second focus group was held at the CSA farm that was one of the Belgian FOODLEVERS case studies. It brought together eight members of that CSA. Both focus groups were facilitated by two ILVO researchers and one note-taker.

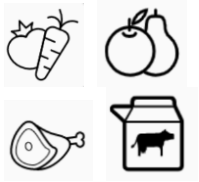
The focus groups were structured as follows:

1. **Introduction to the CSA concept**: long term engagement of members towards the farm, potential forms of farmer-citizen engagement, potential differences (e.g. self-harvest vs food packages; collection at the farm vs a pick-up point; the type of farming such as organic, agro-ecological, agroforestry; whether or not the farmer would like members to come and work on the farm sometimes).
2. **Factors hindering or enabling CSA participation**: focus group participants were first asked to write down factors on post-its, those were then collected on a wall and clustered by theme. The group discussion on the factors was guided by the questions:
    - Why do you think this factor is important in the selection process?
    - Do you have any experience with this?
    - What opportunities do you see in these factors?
    - How should these factors possibly be interpreted differently?
    - What would make it even more attractive to you?
3. **Discussion on missing factors**: the focus group participants were then presented with a list of factors previously compiled from literature and preceding individual interviews with experts. This discussion was structured around the questions:
    - Why have you not considered these factors?
    - Are these factors not relevant?
    - Are they relevant?
    - How should these factors be filled in for you?

Summary of focus group results

The table below summarizes the issues raised by the focus group participants and their comments by factor type hindering or enabling CSA participation. If a comment comes specifically from the first (mainly non-CSA-members) or second focus group (CSA-members, it is marked [1] or [2]. Comments made in both groups are not marked.

Table 1 – Summary of focus group results

Theme	Issues & comments
Offer by the CSA 	- The CSA-members praise the **variety of vegetables** available on the farm, there always is something available for them to pick[2] - Through this large variety and by trying new species/varieties every year, coming there never becomes a drag. They appreciate having multiple varieties of one species and getting to now new vegetables and state it is an advantage over mainstream retail. - Inevitable overproduction of some vegetables in certain periods of the year sharpens their creativity. They search for and exchange recipes *"To prepare a cauliflower for the fourth time in a row" or "organize a passata/preserve workshop"*. They see **abundance** as an advantage. - They state that not having such variety/abundance (e.g. if a farm has some crop failures) may be a motive to leave a CSA: coming there and finding nothing to harvest becomes a turn-off if it happens a few times. - They also praise the vegetables' **taste** and their **long shelf-life**.[2] - When asked whether they would also purchase dairy or meat in CSA, responses were divided. Some would do so, but those who like to work outside do not see what they could do on such a farm.[2]

Obtaining the products 	- The CSA-members prefer the **self-harvesting** formula over a formula in which packages are made by the farmer. It gives them the opportunity to choose the vegetables they prefer and leave the ones they do not like to eat.[2] Also being **outside** and having the **exercise** is appreciated.
	- The participants of the second focus group all were middle aged and young pensioners. They state that self-harvesting may not be an interesting formula for
	  ○ Young people with demanding jobs, children, etc. For them harvesting and cleaning vegetables may not be feasible due to **time constraints**. Having vegetable **packages** delivered may thus be more interesting for them.[2]
	  ○ Older people for whom digging out vegetables becomes **too strenuous**.[2]
	  ⇨ Both have been **reasons to leave** the CSA.
	  ⇨ Being most appealing to people in a rather narrow life-phase may become a **threat** to scaling out the self-harvesting CSA model.
	  ⇨ Here, the farmers overcome this by harvesting some vegetables themselves anyway and putting on a shelf ready to take away and by selling surpluses through by the piece through their web shop.[2]
	- Some people think a **mixed system**, with self-harvesting in summer (when the weather is nice) and packages in winter (when it is cold and wet) could be nice.[1]
	- For some products, such as fruits, juices, or milk, also vending machines can be interesting.[1]

Proximity 	- Proximity is key for a CSA according to focus group participants
	  ○ Both in light of their own time management;
	  ○ As because of environmental impact of transport.

Theme	Issues & comments
Freedom of choice 	- The CSA-members appreciate the freedom of choice that **self-harvesting** offers compared to packages prepared by the farmers (see above).[2] - In the case of packages delivered to pick-up points, having just one pick-up slot may be a constraint. Some **flexibility concerning the time of pick-up** is appreciated.[1] - Also **a say / some flexibility in the content of packages** is requested, e.g. being able to self-determine *"how often cabbages can be added to the package"*. This would turn packaging a lot more complex for the farmers though.[1]
Voluntary work on the farm 	- Many CSA-members appreciate the opportunity to work outside, work with their hands and meet other people. - Other people are reluctant to make some days of voluntary work mandatory, as it would scare off elderly people.
Participation in farm management 	- Participants appreciate having a voice in the planting plan: having their say in which species/varieties will be grown that year. - Farmers see this "general assembly" of members as an occasion to get feedback (although most of them regularly communicate with their members over the year, either in the field, or via newsletters).

Flexibility in membership fee 	- In Belgium, it is common that the membership fee for a CSA is **paid in one lump sum** at the start of the season. Focus group participants state that it might be a problem for some people to pay about 400 euro per family member in one go.
	- However, they do understand that it would be difficult for the farmer to purchase inputs and pay staff if the fee were not paid in advance.
	- They also see it as **a form of commitment** as they think it is important to experience the whole cycle, the whole growing season. If membership were to be terminable monthly the commitment would fall away.
	- Reluctance to pay in one lump sum can also be a matter of trust in the farmer for new members. Once they have experienced a whole season, they usually have less doubt about paying the next fee.[2]
	- Options that are installed on some CSAs to alleviate the burden of paying at once include:
	  ○ A **trial membership** of one month, mostly offered in summer, when plenty of produce is available.
	  ○ The option to **skip one payment** when on holidays for a longer period.
	  ○ Adopt a **price range**, with a minimum fee lower than the standard and a higher maximum. Surprisingly many members then turn out to opt for the maximum.

Leverage points for organic and sustainable food systems

Type of agriculture (organic, agro-ecological, agroforestry, etc.) 	- Sustainability of farm production clearly is a must for all participants to the focus groups. - **Organic certification**, however, is **not a *conditio sine qua non***. - Having an organic label is said to be more important in the mainstream long chain, than in the short chain, where consumers have direct contact with the farmer. - **Trust** is a main feature in the short chain. - **Transparency is a must** though: if the farmer were to explain in-depth why a pesticide treatment would be necessary, this could be acceptable, at least for existing members (could be more of an issue for new members). - Some members are also wary about greenwashing when products are offered under the organic label in shops.[2]

d. The Survey

FOODLEVERS - Consumer Research

We are studying the factors that influence people's decisions to buy and consume organic food. We would love to hear what you think about organic food and how much (or how little) you buy! This survey is part of the FOODLEVERS project.

The survey should only take 10 minutes to complete, and your responses are completely anonymous. You can take the survey only once, but it is possible to edit your responses until August 31, 2023. Questions marked with an asterisk (*) are required.

Interested in the survey results? Be sure to leave us your e-mail address at the end of the survey. If you have any questions email us at siavash.farahbakhsh@ilvo.vlaanderen.be.

We really appreciate your input!

The FOODLEVERS team

Your food shopping behaviour

Q1. What is your role in your household's food purchasing? *

Choose one of the following answers

Please choose **only one** of the following:

- I make the decisions about what is bought (with or without someone else)
- I have an impact on what is bought by writing the shopping list or by making requests
- I have no influence whatsoever on food purchase decisions

Your food shopping behaviour

Q2. Where do you buy food from and how often?

Please choose the appropriate response for each item:

	Daily	A few times per week	Weekly	A few times per month	Every month	A few times per year	Never
Supermarket (physical store, not e commerce)							
Hard discount supermarket (physical store, not e commerce)							
Neighbourhood supermarket physical store, not e-commerce)							
Specialty store (physical store, not e commerce)							

	Daily	A few times per week	Weekly	A few times per month	Every month	A few times per year	Never
(e.g. bakery, butcher, fish shop, night shop, etc.)							
Online store (e-commerce)							
Weekly or regular market (Not a farmers' market)							
Farmers' market or other mobile farm sale							
Organic or natural food shop							
Direct farm sales, with personal contact with the farmer('s family) (e.g. farm shop)							
Direct farm sales, without personal contact (e.g. veg box collection, vending machine, honesty stall)							
Direct farm sales online (e.g. veg box delivery)							

Your food shopping behaviour

Q3. What type of transportation do you use to purchase your food?

Please choose the appropriate response for each item:

	1 (Never)	2	3	4	5 (Always)
On foot					
Bike					
E-bike					
Scooter or Motorcycle					
Car (petrol, diesel, hybrid)					
Electric car					
Shared Car					
Public transportation					

Your budget

Q4. If you think about the amount of money available for grocery shopping in your household, which of these statements best suits you?
Only answer this question if the following conditions are met:
Answer was NOT 'I have no influence whatsoever on food purchase decisions' at question ' [Q1]' (What is your role in your household's food purchasing?)
Choose one of the following answers
Please choose **only one** of the following:

- I have enough money to buy any food I want and I scarcely consider price when shopping for food.
- I could afford to buy any food I want, but I am still conscious of the price.
- For financial reasons I sometimes need to limit my choices when purchasing food.
- I need to consider prices very carefully. This always limits the type of products that I can purchase.

Q5. How do you assess your household's living standard, compared to the average household in your region?
Choose one of the following answers
Please choose **only one** of the following:

- Much lower than average
- Lower than average
- About average
- Higher than average
- Much higher than average
- I don’t know

Your perception of organic food

Q6. According to you, what are the typical properties of organic food? Organic food is always... *
Select all that apply
Please choose **all** that apply:

- Traditional food
- Vegetarian food
- Locally produced food
- Produced on farms that emphasise soil health
- Produced without chemical fertilisers or chemically synthesised pesticides
- Produced with more emphasis on animal welfare than conventional food
- Produced on farms that employ underprivileged workers (e.g. workers with a disability, long-term unemployed)
- Fairtrade food, insuring better working conditions and fairer pay for farmers and workers
- Other:

Your perception of organic food

Q7. Do consider yourself as an organic food consumer? *

Choose one of the following answers

Please choose **only one** of the following:

- Yes
- Sometimes
- No
- I don't know

Organic food can be recognized by the European organic label (green leaf). For unpackaged products, the term 'organic' or 'BIO' must be used, accompanied by the mention of a control body.

Products can only carry this label or indication if they have been produced according to legally defined methods. Among others, these rules stipulate that no chemical fertilisers or chemically synthesised plant protection products can be used, the animals have a minimum living space both indoors and outdoors, and the use of antibiotics and other substances is strictly regulated and limited as much as possible. In animal husbandry, the emphasis is on animal welfare, preventive health care and organically grown feed. In crop production, particular emphasis is placed on healthy soils, long crop rotations and closing nutrient and material cycles. More information on organic production can be found at https://agriculture.ec.europa.eu/farming/organic-farming_en.

Your organic shopping behaviour

Q8. How frequently do you buy the following types of organic **food?**

Please choose the appropriate response for each item:

	1 (Never)	2	3	4	5 (Always)
Fruits and vegetables					
Meat					
Milk and dairy					
Eggs					
Bread					
Packaged foods (e.g. veggie burgers, meat substitutes, pasta, jam, biscuits)					
Drinks (e.g. fruit juice, wine)					

Q9. When buying organic food, do you seek information on how it is produced?
Only answer this question if the following conditions are met:
Answer was 'Sometimes' *or* 'Yes' at question ' [Q7]' (Do consider yourself as an organic food consumer?)
Choose one of the following answers
Please choose **only one** of the following:

- No, never
- Sometimes I search for information
- Yes, always

Q10. Which type of additional information do you seek when buying organic food?
Only answer this question if the following conditions are met:
Answer was 'Sometimes I search for information' *or* 'Yes, always ' at question ' [Q9]' (When buying organic food, do you seek information on how it is produced?)
Select all that apply
Please choose **all** that apply:

- Country/region of origin
- Production conditions (e.g. pesticide use, animal welfare, etc.)
- Social conditions (e.g. working conditions, fairtrade, etc.)
- Presence of (chemical) food additives
- Nutritional value

Your intention to buy organic food in the future

Q11. What is your intention around the purchase of organic foods in the next 3 months?
Please choose the appropriate response for each item:

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I would like to increase how much I buy					
I strongly intend to increase how much I buy					
I plan to increase how much I buy					

Your inclination to buy organic food

Q12. Please reflect on the following statements.

Please choose the appropriate response for each item:

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I could increase my consumption of organic food if I wanted to					
I am able to afford organic food					
I have access to organic food					

Q13. What factors or circumstances would enable you to increase your consumption of organic food?

Please write your answer here:

Q14. What factors or circumstances make it difficult or impossible for you to increase your consumption of organic food?

Please write your answer here:

Your attitude towards organic food

Q15. Please reflect on the following statements.

Please choose the appropriate response for each item:

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
Overall, I like the principles of organic food production					
Overall, I enjoy consuming organic food					
Overall, I think that organic food is important for increasing the sustainability of food production					

Q16. What do you believe are the advantages of consuming organic food?

Please write your answer here:

Q17. What do you believe are the disadvantages of consuming organic food?

Please write your answer here:

Your beliefs about organic food

Q18. Please reflect on the following statements.

Only answer this question if the following conditions are met:
Answer was NOT 'I have no influence whatsoever on food purchase decisions' at question ' [Q1]' (What is your role in your household's food purchasing?) *and* Answer was 'Yes' *or* 'Sometimes' at question ' [Q7]' (Do consider yourself as an organic food consumer?)
Please choose the appropriate response for each item:

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
If I increase my consumption of organic food, then I will feel that I have done something positive for the environment					
If I increase my consumption of organic food, then I will feel that I have done something positive for my health or the health of my family					
Buying organic food instead of conventional will negatively affect my savings					
Organic food is tasty					
Organic food tastes better than non-organic food					
I am willing to pay higher prices for organic food (I am aware that non-organic food products are generally cheaper)					

Q18[NI].Please reflect on the following statements.

Only answer this question if the following conditions are met:
Answer was 'I have no influence whatsoever on food purchase decisions' at question ' [Q1]' (What is your role in your household's food purchasing?) *and* Answer was 'Yes' *or* 'Sometimes' at question ' [Q7]' (Do consider yourself as an organic food consumer?)
Please choose the appropriate response for each item:

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
If I increase my consumption of organic food, then I will feel that I have done something positive for the environment					
If I increase my consumption of organic food, then I will feel that I have done something positive for my health or the health of my family					
Organic food is tasty					
Organic food tastes better than non-organic food					

Q19. How important do you feel it is for you to contribute to the following issues via your food consumption?*

Please choose the appropriate response for each item:

	1 (Not important)	2	3	4	5 (Very important)
My health or the health of my family					
Mitigating climate change					
Environmentally friendly food production					
Animal welfare					
Fair income for farmers and farm workers					

Your relationship to your social environment

Q20[NI]. Please reflect on the following statements.

Only answer this question if the following conditions are met:

Answer was 'I have no influence whatsoever on food purchase decisions' at question ' [Q1]' (What is your role in your household's food purchasing?)

Please choose the appropriate response for each item:

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I value my peers' (relatives, friends, colleagues…) food choices					
Most of my peers approve of my food choices					
My peers think that I should increase my consumption of organic food					
Many people like it when I buy organic food					
Certain posts or channels on social media influence my food choices					

Q20. Please reflect on the following statements.
Only answer this question if the following conditions are met:
Answer was 'I make the decisions about what is bought (with or without someone else) ' *or* ' I have an impact on what is bought by writing the shopping list or by making requests ' at question ' [Q1]' (What is your role in your household's food purchasing?)
Please choose the appropriate response for each item:

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I value my peers' (relatives, friends, colleagues…) food choices					
My peers influence my food choices					
Most of my peers approve of my food choices					
My peers think that I should increase my consumption of organic food					
Many people like it when I buy organic food					

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
Certain posts or channels on social media influence my food choices					

Q21. Please reflect on the following statements.
Only answer this question if the following conditions are met:
Answer was 'Sometimes' *or* 'Yes' at question ' [Q7]' (Do consider yourself as an organic food consumer?)
Please choose the appropriate response for each item:

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I eat almost exclusively organic foods and I do my best to not buy conventionally produced food products					
I encourage my peers to buy organic food					
If I know that my peers who used to eat primarily organic food have now started buying primarily conventional food, I will consider doing that too					

Your sensitivity to organic food

Q22. If the price of organic food increases significantly, I will choose cheaper products that maybe non-organic.
Only answer this question if the following conditions are met:
Answer was NOT 'I have no influence whatsoever on food purchase decisions' at question ' [Q1]' (What is your role in your household's food purchasing?) *and* Answer was 'Yes' *or* 'Sometimes' at question ' [Q7]' (Do consider yourself as an organic food consumer?)
Please choose **only one** of the following:

- Yes
- No

Q23. How much would organic food prices have to increase to make you hesitate to continue buying organic foods? *

Only answer this question if the following conditions are met:
Answer was NOT 'I have no influence whatsoever on food purchase decisions' at question ' [Q1]' (What is your role in your household's food purchasing?) *and* Answer was 'Sometimes' *or* 'Yes' at question ' [Q7]' (Do consider yourself as an organic food consumer?) *and* Answer was 'Yes' at question ' [Q22]' (If the price of organic food increases significantly, I will choose cheaper products that maybe non-organic.)
Choose one of the following answers
Please choose **only one** of the following:

- 0 to 25% increase
- More than 25% increase
- More than 50% increase
- More than 75% increase

Your sensitivity to your food choices

Q24[NI]. Please reflect on the following statements.

Only answer this question if the following conditions are met:
Answer was 'I have no influence whatsoever on food purchase decisions' at question ' [Q1]' (What is your role in your household's food purchasing?) *and* Answer was 'No' *or* 'I don't know' at question ' [Q7]' (Do consider yourself as an organic food consumer?)
Please choose the appropriate response for each item:

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I have concerns in my life outside of organic food consumption					
I discourage my friends from buying organic food					
If I know that my peers who eat conventional food are switching to organic foods, I will also consider switching.					

Q24. Please reflect on the following statements.

Only answer this question if the following conditions are met:
Answer was NOT 'I have no influence whatsoever on food purchase decisions' at question ' [Q1]' (What is your role in your household's food purchasing?) *and* Answer was 'No' *or* 'I don't know' at question ' [Q7]' (Do consider yourself as an organic food consumer?)
Please choose the appropriate response for each item:

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
If there are more promotions in the supermarket, I will buy organic foods					
I have concerns in my life outside of organic food consumption					
I discourage my friends from buying organic food					
If I know that my peers who eat conventional food are switching to organic foods, I will also consider switching.					

Q25. If the price of organic food decreases significantly, I will buy organic food.
Only answer this question if the following conditions are met:
Answer was NOT 'I have no influence whatsoever on food purchase decisions' at question ' [Q1]' (What is your role in your household's food purchasing?) *and* Answer was 'No' *or* 'I don't know' at question ' [Q7]' (Do consider yourself as an organic food consumer?)
Please choose **only one** of the following:

- Yes
- No

Q26. How much organic food prices have to decrease to make you keen to start buying organic food? *
Only answer this question if the following conditions are met:
Answer was NOT 'I have no influence whatsoever on food purchase decisions' at question ' [Q1]' (What is your role in your household's food purchasing?) *and* Answer was 'I don't know' *or* 'No' at question ' [Q7]' (Do consider yourself as an organic food consumer?) *and* Answer was 'Yes' at question ' [Q25]' (If the price of organic food decreases significantly, I will buy organic food.)
Choose one of the following answers
Please choose **only one** of the following:

- 0 to 25% decrease
- More than 25% decrease
- More than 50% decrease
- More than 75% decrease

Your reaction to external factors and shocks

Q27. Please reflect on the following statements.

Please choose the appropriate response for each item:

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
The Covid pandemic had a lasting impact on my opinion of organic food					
Since the Covid pandemic I buy more organic food					
Since the Covid pandemic I buy more food directly from the farm					
The general inflation and increase in energy prices concern me					
The general inflation and increase in energy prices has made me cut my food expenses					

Q28. What type of expenditure would you cut if inflation made it impossible for you to maintain your current lifestyle?

Only answer this question if the following conditions are met:
Answer was NOT 'I have no influence whatsoever on food purchase decisions' at question ' [Q1]' (What is your role in your household's food purchasing?)

Please choose the appropriate response for each item:

	No change	Some cuts	Strong cuts	Cut out completely
Clothing				
Food for home consumption				
Restaurants				
Heating and electricity				
Transportation				
Miscellaneous household products (e.g. soap, detergent, household paper,				

	No change	Some cuts	Strong cuts	Cut out completely
hygiene products, pet food, etc.)				
Travel and tourism				
Technical equipment (electronics and household appliances)				
Entertainment (either at home or out, e.g. movies, streaming services, amusement park, etc.)				
Cultural activities (e.g. literature, museums, theatre, concerts, etc.)				
Healthcare and medication				

Your thoughts about food consumption

Q29[Organic]. Please reflect on the following statements.

Only answer this question if the following conditions are met:
Answer was 'Sometimes' *or* 'Yes' at question ' [Q7]' (Do consider yourself as an organic food consumer?)
Please choose the appropriate response for each item:

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I am concerned about the way we consume food					
I am concerned about the way food is produced					
I am aware of the impact of transportation and delivery of the food I consume					
I think food should be bought either directly from the farm or from local delivery points that collect it directly from farms, to					

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
shorten supply chains and support local farmers					
I think organic food itself needs to be reconsidered, specifically how it is produced and delivered					
I look for organic food that is produced in the most sustainable way					
I like the idea of offering organic food in catering (e.g. in schools, hospitals, etc.) that is produced in a very environmentally friendly way					
I am willing to support initiatives (e.g. financial donations, volunteer work, etc.) offering organic catering that is produced in a very environmentally friendly way					
I hope that by consuming organic food, I can make our food systems more sustainable					

Q29[Non-organic]. Please reflect on the following statements.
Only answer this question if the following conditions are met:
Answer was 'No' *or* 'I don't know' at question ' [Q7]' (Do consider yourself as an organic food consumer?)
Please choose the appropriate response for each item:

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
I am concerned about the way we consume food					
I am concerned about the way food is produced					

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
I am aware of the impact of transportation and delivery of the food I consume					
I think food should be bought either directly from the farm or from local delivery points that collect it directly from farms, to shorten supply chains and support local farmers					
I think organic food itself needs to be reconsidered, specifically how it is produced and delivered					

Getting to know you a little better

Q30. How old are you?

Choose one of the following answers

Please choose **only one** of the following:

- 18-25
- 26-35
- 36-50
- 51-65
- 66-75
- Over 75

Q31. What is your gender?

Choose one of the following answers

Please choose **only one** of the following:

- Female
- Male
- Non-binary
- Prefer not to say

Q32. In which country do you live?
Choose one of the following answers
Please choose **only one** of the following:

- Belgium
- Finland
- Germany
- Italy
- Poland
- Romania
- United Kingdom
- Other

Q33. In which area do you live?
Choose one of the following answers
Please choose **only one** of the following:

- Large city
- Small city
- Urbanized area (town or village)
- Countryside

Q34. How many people live in your household (including yourself)?
Choose one of the following answers
Please choose **only one** of the following:

- 1
- 2
- 3-4
- 5 or more

Q35. How many of these people are children?
Only answer this question if the following conditions are met:
Answer was '2' *or* '3-4' *or* '5 or more' at question ' [Q34]' (How many people live in your household (including yourself)?)
Choose one of the following answers
Please choose **only one** of the following:

- No children
- 1
- 2
- 3-4
- 5 or more

Q36. What is your level of education?
Choose one of the following answers
Please choose **only one** of the following:

- No formal education
- Primary education
- Secondary education or high school
- Vocational training
- Bachelor's degree
- Master's degree or higher

Q37. What is your main occupation?
Choose one of the following answers
Please choose **only one** of the following:

- Management
- Employee
- Self-employed
- Unemployed
- Retired

Q34. Does your job involve food production or food services?
Please choose **only one** of the following:

- Yes
- No

Thanks a lot!

Thank you for taking the time to complete this survey. We truly value the information you have provided. Your responses will contribute to our analyses in understanding food consumption.
If you are interested in the results of this survey, please leave your email address account below so that we can communicate the results with you. Please write your answer here:
Your responses are saved on our server. We will communicate the results via email (if filled in) or via our website. Please feel free to check our website in the meantime.

https://www.foodlevers.org/

Kind regards,

The FOODLEVERS Team

Submit your survey.
Thank you for completing this survey.