

## **CIRCULAR CHARACTERISTICS OF ORGANIC FOOD CONSUMPTION, NEW CONSUMPTION TRENDS IN HUNGARY**

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**Abstract:** Consumers have an important role to play in the transition to a circular economy by making more sustainable decisions and further supporting the functioning of value groups through their consumer choices. To this end, it is necessary to promote circular and sustainable policies and practices that can lead to the emergence of demonstration initiatives. From the theory of the circular economy and the sustainability literature, 10 groups of factors can be identified that can influence the acceptance of circular products and services for consumers. None of the aspects were specifically related to the consumption and recycling of organic food. Food supply systems are identified as a potential area for the implementation of circular concepts; however, these concepts focus mainly on food production and the recycling of surplus food. Current circular solutions place less emphasis on food-related consumption, separating it from production or waste streams. In the next study, we would like to demonstrate that consumption trends have surprisingly overlapped in recent years (during Covid), resulting in a generational change in the consumption of organic food. And the clear driving force of this change is circular thinking and gaining preferences.

**Keywords:** organic food, food consumption, circular economy, food supply, consumer behaviour

### **1. Introduction**

Due to climate change and the need for an environmentally sustainable production system, circular economic characteristics have come to the fore in a number of studies. However, moving towards a circular value chain poses a lot of challenges for market participants. However, it is also undisputed that an analysis of consumer behaviour is essential because, without their commitment, circular systems do not work properly. In this paper, we examine the circular characteristics of the consumption habits of Hungarian consumers related to food purchases. Factor and cluster analysis was used for market segmentation. Our research question was as follows: "Is there a consumer segment in the Hungarian organic food market for which the use of circular economic solutions can be encouraged by marketing or state regulatory means?" According to our hypothesis, consumer segments are well defined and separable, so increased participation in the Hungarian circular value chain can be facilitated by business models. We believe that highly educated young people who are very conscious food consumers and have high incomes may have a good chance of future innovations in the circular innovations, healthy food production. These young consumers tend to buy organic food, are confident internet and software users, live in cities, and follow a healthy lifestyle. In the future, finding the right marketing tools to integrate consumers more effectively and build commitment to sustainable, circular systems is a key challenge. Gathering from various databases and continuously analyzing consumer feedback can be a huge step towards increasing sustainable consumption and avoiding food waste. The significance of our study is that we have found a dynamically growing consumer group that strongly expresses its acceptance of circular economic values and can thus be a target group for policies that integrate circular systems.

It should be emphasized that more and more studies have recently been carried out highlighting the importance of consumers and the nature of consumption in the further development of circular solutions. Consumers may also play different roles in circular systems, may be conscious buyers, sellers, distributors,

storages, enhancers, collaborators, and may also act as waste disposers [1]. Some authors have pointed out that the active participation of consumers in achieving circular goals is at odds with current trends, which are characterized by a complete lack of consumer awareness [2]. There are researchers who suggest conducting analytical studies of the types of individuals or groups that are more likely to accept circular solutions [3] and examining policy strategies that influence acceptance in the context of them [4, 5]. This would make it possible to identify potential target groups among the relevant consumers. In order to identify groups with a commitment to circular principles, markets should be differentiated based on circular conceptual considerations, but we do not currently have adequate data for this [6; 7]. Therefore, researchers should use other indicators for their analysis.

These include the zero-kilometer food indicator (for locally produced, sold and consumed food), organic farming indicators, 'small amount of food and drink' followers who do not want to be obese) and confidence /confidence index are important aspects in a circular system [8]. The activities of target groups can be triggered by a combination of certain motives and characteristics of more sustainable products and services [9]. It is also a challenge for policies to initiate a change in consumption patterns, as many people believe that their food choices are a private matter and any government recommendations violate freedom of choice. Related to this is an interesting question about the role that the media can play in creating the conditions for the transition to a circular economy [10]. Many consumers are unaware of the whole food chain, the various actors involved and the moral implications of their decisions. The consumer environment in which people make routine decisions today does not support more sustainable consumption habits [11]. Research shows that young adults are primarily concerned with shopping and the environmentally friendly conditions of purchase, and are less interested in the process of sustainable use and disposal. The main obstacles in this process are the lack of information and the lack of knowledge and skills [12]. Other studies have shown that consumption patterns differ greatly in terms of gender, age, and income [13]. In addition, the results of some studies show that the sustainable consumption behaviour of young adults is less different than that of older adults. Regarding food consumption, when young adults (14-17 years old) buy food on their own, they want cheap and tasty products without considering the composition or the manufacturer. Some people prefer organic foods, but primarily for their own health rather than for ecological or environmental reasons [14]. Other research shows that young adults are in virtually constant contact with each other and actively communicate through social media. In doing so, they are basically able to find the missing information about healthy or harmful products, social work conditions, or waste management programs, and they can also share this information [15]. Regarding sustainable consumer behaviour, the results show that there were no significant differences in age, gender, and financial expenditures. In addition, eating habits are related to people's value orientation, emotions, personal and collective identity, traditions, and eating culture [16]. For example, meat consumption is also associated with certain masculinity and ethnicity [17].

## **2. Local practice vs. sustainable production**

Consumers of organic products tend to accept circular economic values because the main motivations for consuming organic food in many countries are considerations of positive health effects, environmental protection, and animal welfare [18; 19; 20; 21; 22; 23]. Circular solutions require consumers to integrate new products, reuse existing infrastructures, or register in a completely different way, such as by introducing consumer service systems [24; 25;]. This will make it easier to involve consumers who are open and ready to apply innovative solutions. In organic farming, there are various innovative sourcing systems and direct sales forms that are used by an increasing number of consumers. Community purchasing groups and community-supported agricultural production are also operating successfully in different countries. It is clear to everyone that there are many opportunities to use sustainable assets in short supply chains if they meet specific economic, environmental and social conditions. However, Born and Purcell (2006) [26] emphasize the need to avoid 'local traps', which means that local systems should not automatically be declared 'good practice', as 'local food' is not always the same as 'sustainable food' [27]. Circular economic models are based on the prudent and balanced use of resources to reduce environmental burdens. This requires strong support from producers and a shift in consumers' food purchasing habits towards sustainability. Examples include the use of a low-carbon footprint, the promotion of zero-kilometer products, and conscious action to avoid food waste and reduce waste (food banking system). The potential positive effects of short supply chains on the circular economy and sustainability goals can be achieved by supporting local food and smallholders. This could lead to a significant reduction in waste and, among other things, to greater trust between producers and consumers.

### 3. Consumer trust and product labelling

Controlling production, the production of the product and its unquestionable confidence in its intrinsic value have long been central to the sale of organic products. In the case of indirect purchases through commercial partners and sales networks, consumers can only find out about the content value and place of origin of the product through the trademarks placed on the product. The display of this information is a mandatory element of the marketing of the product, but how reliable is this information for imported goods? Central to this is the practice of certification by certification bodies around the world and the presence of information to help consumers make a purchase! Whether healthy food is really healthy, or many claim it is based on the usual scheme, is “the same as traditional, only sprayed at night,” so they don’t even think about buying organic products, and it doesn’t really matter what price they offer!

In this connection, it should be mentioned that, according to Csíkné (2014) [28], the most important influencing factors in the purchase of food for the average Hungarian consumer are price, freshness, food safety and choice. He found that the least influential factors were direct personal contact with farmers, knowledge of production methods and the reduction of pollution. In Hungary, organic production is very export-oriented: the majority (90-95%) of the main products (eg. maize, sunflower seeds, wheat, pumpkin seeds, rye, animal products) go abroad unprocessed. Organic food of Hungarian origin rarely appears in the retail trade, consumers can only buy imported products, sometimes of lower quality. In the organic market, there are problems on both the demand and supply side, products are marketed that are not needed and some desired products are missing [29].

Hungarian organic food stores focus mainly on vegan foods, and only a few of them deal with meat products, although this may be more appropriate for traditional eating habits [30]. Knowledge of the demand and supply characteristics of the market is contrary to the principle of a circular economy, ie. suppliers need to know demand and customers need to know reliable suppliers. This fact also underscores the role of a well-functioning label. A well-functioning label or trademark can build trust in the marketing of organic food. The results of a Chinese survey have shown that the information provided on the label of organic food plays a key role in encouraging consumers to turn to organic food with confidence [31]. Rác (2013) [32] found that in many cases Hungarian consumers are unfamiliar with the objective meaning of food labels. This uncertainty can be caused by the number of labels, so consumers are unable to gather extensive information before making a purchase decision due to the lack of uniform sustainability labels and the use of several label formats [32]. The various domestic promotional campaigns, as well as the labelling of foods that are produced in Hungary or contain raw materials produced in Hungary, have been operating for years. However, the special marketing program for organic food produced in Hungary and the related labelling system do not work at all. The research question related to the above is how fast will the relationship system of traditional organic food consumption change in the near future?

### 4. Materials and Methods

The research related to the eco-market trends was conducted in February 2018, in the largest Hungarian organic farming market (Bioculture Ecoparket). After conducting five consumer test surveys, we evaluated the questionnaire and further developed it based on common expert suggestions. Interviewees had the opportunity to judge specific questions. We used the aspects discussed in the literature review from the survey to determine what circular values are available to Hungarian consumers. The focus of the survey was on the relationship between consumers and producers, consumer health awareness and the use of direct sales channels, which contribute to the development of producer-consumer interactions (loops), ie a structure that supports circular operation. There has been no similar study on the product lines of the Hungarian food industry so far, so we can analyze the current situation primarily from the consumer's point of view.

### 5. Results

The circular economy, which we refer to today as synonymous with sustainability, cannot function without commitment. Appropriate characteristics of consumer behaviour and attitudes are essential. Based on four clusters, in our survey we can distinguish two clusters, special groups, from the 1st youth (21–30 years) cluster and the 2nd mature adults (41–65 years) cluster, in which the opinions of the stakeholders are in line with the characteristic values of the circular economy (Figure 1.). Summarizing the characteristics of the different clusters, we can state that the members of clusters 1 and 2 think mainly in the local dimension, their

attitude is the most appropriate for the circular economic values. Direct contacts with product chain actors are most preferred. Cluster 1 in particular is noteworthy for this study. Highly educated, young people who are very conscious consumers with good income conditions. They usually buy organic food and live in a big city. Finding the right marketing tools in the future to integrate into consumption systems and be committed to the concept of cyclical development can be a very important challenge in the future. for the introduction of circular systems. The amount of food wasted is significantly lower for more expensive and better quality foods than the linear (global) or traditional produce-consume-discard model.

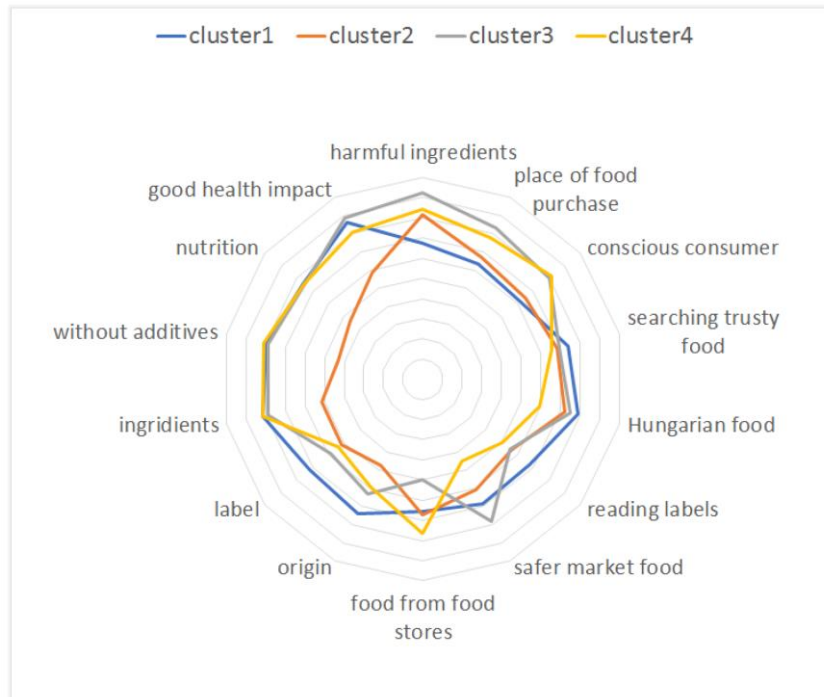


Figure 1. Images of each cluster (cluster 1, cluster 2, cluster 3, cluster 4)

Food waste can be significantly reduced by creating loops / cycles in a locally operated organic farm. The characteristics and speed of the process depend on consumer decisions, the basic building blocks of circular systems, such as the sharing of databases, the latest information available to all, the introduction of short supply chains, accurate and detailed knowledge of market players, and the customization of consumption. in consumer communities are more or less already known. However, the introduction of circular business models is still in a very early stage in the value creation processes of organic food. Current research findings may provide a starting point for future surveys and studies where we can make effective use of the experience gained. It would be interesting to get an accurate answer to the question of whether consumers of organic food can be committed to circular technologies and methods or clearly reject new, innovative, digital and value-based food supply systems. Trends show that the main consumers of organic food are changing significantly (younger and higher-income consumers may take the lead in the coming years) and the volume of consumption may increase significantly as a result of digitalisation. Our research has also found that the 41-65 age group, which today plays the most significant role in the consumption of organic and premium foods, is much more inflexible in the use of key elements of the circular value chain. The demand for local food is not as strong in them as it is for the conscious younger (and more digital) generation. The results of the research mainly show that a group of consumers with high incomes and relatively little information (mainly in the 21-30 age group) has appeared on the market of organic products.

## 6. Discussion and Conclusions

The circular economy, which we refer to today as synonymous with sustainability, cannot function without commitment. Appropriate characteristics of consumer behaviour and attitudes are essential. Based on our survey, we can distinguish two clusters, the cluster of young people (aged 21–30 years) and the cluster of mature adults (aged 41–65 years), in which the opinions of the stakeholders are in line with the typical values



of the circular economy. Summarizing the characteristics of the different clusters, we can state that the members of clusters 1 and 2 think mainly in the local dimension, their attitude is the most appropriate for the circular economic values. Direct contacts with product chain actors are most preferred. Cluster 1 in particular is noteworthy for this study. Highly educated, young people who are very conscious consumers with good income conditions. They usually buy organic food and live in a big city. Finding the right marketing tools to integrate into consumption systems and be committed to the concept of cyclical development can be a very important challenge in the future. Together with other authors, I believe that clarifying the link between food consumption and food waste is a key area for the introduction of circular systems. The amount of food wasted is significantly lower for more expensive and higher quality foods than for the linear (global) or traditional product-discard model.

Food waste can be significantly reduced by creating loops / circuits in the locally operated bioeconomy. The characteristics and speed of the process depend on consumer decisions, the basic building blocks of circular systems, such as the sharing of databases, the latest information available to all, the introduction of short supply chains, accurate and detailed knowledge of market players, and the customization of consumption process in consumer communities is more or less already known. However, the introduction of circular business models is still in a very early stage in the value creation processes of organic food. Current research findings may provide a starting point for future surveys and studies where we can make effective use of the experience gained. It would be interesting to get an accurate answer to the question of whether consumers of organic food can be committed to circular technologies and methods or clearly reject new, innovative, digital and value-based food supply systems. Trends show that the main consumers of organic food are changing significantly (younger and higher-income consumers may take the lead in the coming years) and that the volume of consumption may increase significantly as a result of digitalisation.

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### References

- [1] **Maitre-Ekern, E. & Dalhammar, C.** (2019). Towards a hierarchy of consumption behaviour in the circular economy. *Maastricht Journal of European and Comparative Law*, 26, 394–420.
- [2] **Kirchherr, J., Piscicelli, L., Bour, R., Kostense-Smit, E., Muller, J., Huibrechtse-Truijens, A. & Hekkert, M.** (2018). Barriers to the Circular Economy: Evidence From the European Union (EU). *Ecological Economics*, 150, 264–272.
- [3] **Catulli, M., Lindley, J., Reed, N., Green, A., Kiri, S.P. & Hyseni, H.** (2013). What is Mine is NOT Yours: Further insight on what access-based consumption says about consumers. *Consum. Cult. Theory* 2013, 15, 185–208.
- [4] **Mugge, R., Jockin, B. & Bocken, N.** (2017). How to sell refurbished smartphones? An investigation of different customer groups and appropriate incentives. *Journal of Cleaner Production*, 147, 284–296.
- [5] **Hazen, B.T., Mollenkopf, D.A. & Wang, Y.** (2017). Remanufacturing for the Circular Economy: An Examination of Consumer Switching Behavior. *Business Strategy and the Environment*, 26, 451–464.
- [6] **Sijtsema, S.J., Snoek, H.M., Van Haaster-de Winter, M.A. & Dagevos, H.** (2020). Let's Talk about Circular Economy: A Qualitative Exploration of Consumer Perceptions. *Sustainability*, 12, 286.
- [7] **Meemken, E.-M. & Qaim, M.** (2018) Organic Agriculture, Food Security, and the Environment. *Annual Review of Resource Economics*, 10, 39–63.
- [8] **Kiss, K., Ruszkai, C. & Takács-György, K.** (2019). Examination of Short Supply Chains Based on Circular Economy and Sustainability Aspects. *Resources*, 8, 161.
- [9] **Xu, J., Deng, Y. & Yao, L.** (2014). Sustainable development-oriented industrial restructuring modeling and analysis: A case study in Leshan. *Clean Technologies and Environmental Policy*, 16, 267–279.
- [10] **Camacho-Otero, J., Boks, C. & Pettersen, I.N.** (2018). Consumption in the Circular Economy: A Literature Review. *Sustainability*, 10, 2758.
- [11] **Popp, J., Oláh, J., Kiss, A., Temesi, A., Fogarassy, C. & Lakner, Z.** (2019). The socioeconomic force field of the creation of short food supply chains in Europe. *Journal of Food and Nutrition Research*, 58, 31–41.
- [12] **Kreuzer, C., Weber, S., Off, M., Hackenberg, T. & Birk, C.** (2019). Shedding Light on Realized

- Sustainable Consumption Behavior and Perceived Barriers of Young Adults for Creating Stimulating Teaching–Learning Situations. *Sustainability*, 11, 2587.
- [13] **Pinto, D.C., Herter, M.M., Rossi, P. & Borges, A.** (2014). Going green for self or for others? Gender and identity salience effects on sustainable consumption. *International Journal of Consumer Studies*, 38, 540–549.
- [14] **Fischer, D., Böhme, T. & Geiger, S.M.** (2017). Measuring young consumers' sustainable consumption behavior: Development and validation of the YCSCB scale. *Young Consum.* 2017, 18, 312–326.
- [15] **Kanchanapibul, M., Lacka, E., Wang, X. & Chan, H.K.** (2014). An empirical investigation of green purchase behaviour among the young generation. *Journal of Cleaner Production*, 66, 528–536.
- [16] **Nagy-Pércsi, K. & Fogarassy, C.** (2019). Important Influencing and Decision Factors in Organic Food Purchasing in Hungary. *Sustainability*, 11, 6075.
- [17] **Schösler, H., De Boer, J. & Boersema, J.J.** (2012). Can we cut out the meat of the dish? Constructing consumer-oriented pathways towards meat substitution. *Appetite* 2012, 58, 39–47.
- [18] **Oroian, C.F., Safirescu, C.O., Harun, R., Chiciudean, G.O., Arion, F.H., Muresan, I.C. & Bordeanu, B.M.** (2017). Consumers' Attitudes towards Organic Products and Sustainable Development: A Case Study of Romania. *Sustainability*, 9, 1559.
- [19] **Popa, I.D. & Dabija, D.C.** (2019). Developing the Romanian Organic Market: A Producer's Perspective. *Sustainability*, 11, 467.
- [20] **Akhondan, H., Johnson-Carroll, K. & Rabolt, N.** (2015). Health consciousness and organic food consumption. *J. Fam. Consum. Sci.* 2015, 107, 27–32.
- [21] **Yazdanpanah, M. & Forouzani, M.** (2015). Application of the Theory of Planned Behaviour to predict Iranian students' intention to purchase organic food. *Journal of Cleaner Production*, 2015, 107, 342–352.
- [22] **Vietoris, V., Kozelová, D., Mellen, M., Chreneková, M., Potclan, J.E., Fikselová, M., Kopkáš, P. & Horská, E.** (2016). Analysis of Consumer Preferences at Organic Food Purchase in Romania. *Polish Journal of Food and Nutrition Sciences*, 66, 139–146.
- [23] **Bryła, P.** (2016). Organic food consumption in Poland: Motives and barriers. *Appetite* 2016, 105, 737–746.
- [24] **Mont, O.K.** (2002). Clarifying the concept of product–service system. *Journal of Cleaner Production*, 10, 237–245.
- [25] **Tukker, A.** (2015). Product services for a resource-efficient and circular economy—A review. *Journal of Cleaner Production*, 97, 76–91.
- [26] **Born, B. & Purcell, M.** (2006). Avoiding the local trap: Scale and food systems in planning research. *Journal of Planning Education and Research*, 2006, 26, 195–207.
- [27] **Deppermann, A., Havlík, P., Valin, H., Boere, E., Herrero, M., Vervoort, J. & Mat-hijs, E.** (2018). The market impacts of shortening feed supply chains in Europe. *Food Security*, 10, 1401–1410.
- [28] **Csíkné M, E.** (2014). Direct Selling on the Market of Agricultural Product. Ph.D. Thesis, Szent István University, Gödöllő, Hungary, 2014. [https://szie.hu/file/tti/archivum/Csikne\\_Macsai\\_Eva\\_thesis.pdf](https://szie.hu/file/tti/archivum/Csikne_Macsai_Eva_thesis.pdf) (accessed on 20 May 2022).
- [29] **Szente, V., Torma, D. & Szendrő, K.** (2017). Organic and local food market – alternatives or cooperation possibility? *International Journal of Multidisciplinarity in Business and Science* 3: 3 p. 85–92.
- [30] **The Canadian Trade Commissioner Service** (2011): Our Offices in Canada and Abroad 2010–2011. Monograph. <http://publications.gc.ca/site/eng/382535/publication.html> (accessed on 20 May 2022).
- [31] **Ayyub, S., Wang, X., Asif, M. & Ayyub, R.M.** (2018). Antecedents of Trust in Organic Foods: The Mediating Role of Food Related Personality Traits. *Sustainability*, 10, 3597.
- [32] **Rácz, G.** (2013). The Effects of Value Transformation and Trend of Sustainable Development on the Domestic Food Consumption. Ph.D. Thesis, Szent István University Gödöllő, Gödöllő, Hungary, [https://szie.hu/file/tti/archivum/Racz\\_Georgina\\_thesis.pdf](https://szie.hu/file/tti/archivum/Racz_Georgina_thesis.pdf) (accessed on 20 May 2022).