

RURAL SUSTAINABILITY THROUGH SHORT SUPPLY CHAINS

Florin PUIU, Adrian TUREK-RAHOVEANU

University of Agronomic Sciences and Veterinary Medicine Bucharest of Bucharest, 59 Marasti Boulevard, District 1, 011464, Bucharest, Romania, Phone: +40213182564, Fax: +40213182888, E-mails: florin.puiu@gmail.com; turek.adrian@managusamv.ro

Corresponding author: turek.adrian@managusamv.ro

Abstract

This research focuses on consumers' level of interest and perception regarding short supply chains of local agri-food products in the context of rural development. The study aims to analyze a series of aspects regarding the factors that motivate consumers to choose local products, the barriers against the expansion of these short supply chains, and their economic efficiency. Through the case study conducted at the level of the Central Region (Alba and Sibiu counties), there were also analyzed consumers' perceptions regarding the advantages and disadvantages of these short supply chains, including their impact on prices, product quality, diversity of offer and their accessibility for different consumer groups. The research contributes to the formulation of recommendations for improving and strengthening this type of supply, to support the development of a more sustainable local food economy and to meet consumer requirements and preferences. The findings highlight that interest in local products is often influenced by socio-cultural and economic factors, such as concerns about health and sustainability, but also by the accessibility of these products.

Key words: short supply chain, agricultural marketing, sustainable agriculture, local economy

INTRODUCTION

In the recent decades, globalization and increased international trade have significantly changed the structure of agri-food supply chains. In this context, there is a growing trend of consumers reorienting themselves towards local food products, especially in the context of concerns about health, food safety and environmental impact [13], [9]. Short supply chains of local agri-food products – those distribution systems that involve a reduced number of intermediaries and/or direct contact between producers and consumers – have become a topic of interest in economic, social and ecological research, being seen as a sustainable alternative to traditional globalized supply models [5], [2].

The growing consumer interest in local products is influenced by a combination of economic, environmental and social factors. First, a large proportion of consumers perceive local products as having a higher quality than those coming from long supply chains [14]. This perception is fueled by the idea that local products are fresher, more natural and less processed, having, in many

cases, a more authentic taste [16]. There is also a general belief that local products are safer because consumers can have direct access to information about their provenance and production methods [4]. In addition, the interest in supporting local economies plays an important role, being seen as an act of solidarity towards small farmers and producers, who directly benefit from this type of consumption [18].

On the other hand, consumers are increasingly aware of the environmental impact of their food choices [17]. Short supply chains are perceived as an environmentally friendly solution, helping to reduce the carbon footprint associated with long-distance transportation [7]. These are seen as a way to support a more sustainable food system, in which local production is promoted, thus protecting natural resources and reducing dependence on global agri-food industries, which often have a significant impact on the environment [20]. In addition, short chains are considered more resilient, as they are based on direct and transparent relationships between producers and consumers, which can contribute to greater economic stability at local and regional levels [12], [11].

However, consumer perceptions and attitudes towards short supply chains are often divided, and several practical barriers may limit their expansion [6], [1]. One of the main obstacles identified is the higher price of local products, which are often not accessible to all consumers, especially the more economically vulnerable segments [3], [15]. Furthermore, the accessibility of these products is often limited by insufficient infrastructure, either due to the lack of adequate local markets or the difficulty of reaching points of sale, especially in rural or more remote areas. Furthermore, some studies suggest considerable uncertainty about the sustainability and safety of local agri-food products, despite general trust in them [19], [8]. These uncertainties may be linked to the lack of clear regulations on production standards, as well as concerns about the ability of these supply chains to cope with scalability and long-term sustainability requirements [10].

In this context, the purpose of this research is to investigate the level of interest and consumer perception towards short supply chains of local agri-food products, a central topic in the context of sustainable development of rural areas, presenting a study case in the Central region of Romania, including Alba and Sibiu counties.

MATERIALS AND METHODS

To achieve the main purpose of the paper, several research methods were used that allowed a comprehensive approach to the subject. First, a comparative analysis was used, from both a quantitative and qualitative perspective, to obtain a detailed and nuanced understanding of consumers' perceptions and attitudes towards short supply chains of local agri-food products. Quantitative analysis was applied to identify significant trends and correlations between the studied variables, while the qualitative approach allowed for exploring consumers' opinions and motivations more deeply, detailing not only what consumers think, but also why they think that way. By combining these methods,

the aim was to obtain a complete set of data to support the research conclusions.

One of the main tools used in the survey was the questionnaire, which was applied to a number of 250 respondents from the Centru Region, including Alba and Sibiu counties. The choice of this region was motivated by the economic and social diversity of the area, which includes both urban areas with easy access to local products and rural communities, where short supply chains could play an essential role in sustainable development. The questionnaire was designed to capture a wide range of information, from the level of consumer interest in local products to the perceived obstacles in their access to products from short supply chains. It was distributed in both urban and rural areas, to ensure a diversity of responses and a wider coverage of the socio-economic context.

Regarding the structure of the questionnaire, formulating the questions was a carefully planned process, given the need to obtain clear and relevant information. The questions were designed to address both objective aspects, such as the frequency of purchasing local products, and subjective aspects, such as consumers' attitudes and perceptions towards short supply chains. Ordering them in a logical sequence was essential to facilitate the natural flow of the questionnaire and encourage respondents to express their opinions coherently. In addition, the questionnaire was structured in such a way as to allow comparative analysis between groups of consumers with different socio-demographic characteristics, such as age, income or education.

The questionnaire was applied face-to-face, through direct interviews during August-September 2024 in Alba County and during October-November 2004 in Sibiu County. The locations where the interviews were conducted covered urban areas (Sibiu and Alba Iulia), but also rural areas in the vicinity of these cities: Ciugud and Oarda Communes in Alba County, as well as Șelimbăr and Cristian Communes in Sibiu County.

Face-to-face interviews offered the possibility of support in completing the questionnaire, ensuring that all questions were correctly

understood by the respondents. Finally, the completed questionnaires were processed and analyzed using appropriate statistical methods, to draw clear conclusions regarding the level of interest and barriers perceived by consumers regarding short supply chains for local products.

RESULTS AND DISCUSSIONS

The Central Region of Romania, which includes the counties of Alba and Sibiu, is one with a diverse rural landscape and a deep-rooted agricultural tradition.

Agriculture continues to be an essential sector for the economic development of the region, having a significant impact on the economic and social structure of rural localities. In this rural area, agricultural activities predominate, including both cereal and vegetable production, as well as activities related to animal husbandry and fruit growing.

Many of the inhabitants of these counties directly depend on agriculture, and small and medium-sized farms represent the backbone of the local economy, contributing significantly to employment and maintaining agricultural traditions.

At a time when the local economy is facing multiple challenges, including rural population migration and market globalization, short supply chains can represent a solution for the revitalization of rural communities.

Through this field research, it was aimed to obtain a clear picture of how consumers in Alba and Sibiu counties perceive these short chains, as well as their behaviors regarding the purchase of local products.

This information is essential to understand whether the interest in local products is a sustainable trend in the long term, which could support the economic development of rural regions.

In addition to identifying consumer interest, the questionnaire also focuses on potential obstacles that may hinder the development of short supply chains.

In this regard, the questions were designed to explore both the difficulties consumers face in accessing local products and the challenges

they perceive related to prices, infrastructure and food safety.

Understanding these barriers is necessary for the development of local and regional strategies to support small producers and improve consumer access to local food products.

Thus, the questionnaire becomes a valuable tool in the context of sustainable development, which not only supports the rural economy, but also reduces the ecological footprint associated with the transport and distribution of food products.

Thus, by analyzing the data obtained, we can identify best practices and innovative solutions to improve distribution processes and increase transparency in the supply chain, and we can better understand how to build a more efficient local supply system that meets both consumer needs and economic and environmental sustainability requirements.

In order to obtain the greatest possible variety of answers, the 250 respondents from Alba and Sibiu counties who answered the questionnaire were 39% from rural areas and 61% from urban areas.

Regarding the gender of the questioned individuals, the situation is: 55% were women and 45% men.

The age category of the respondents varied, 20% under 25 years old, 40% between 25-40 years old, 30% between 41-60 years old and 10% over 60 years old.

Regarding *the consumption habits* of the respondents, we wanted to find out how often they buy local products (Fig. 1).

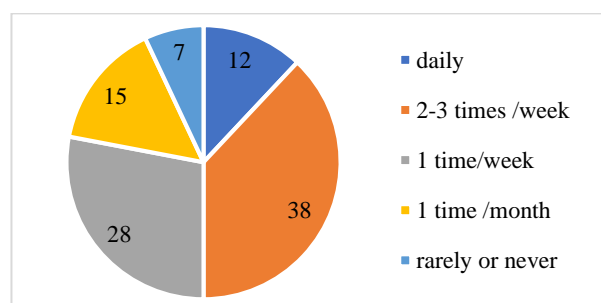


Fig. 1. How often do you buy local agri-food products?
Source: Own design based on questionnaire output data.

We also wanted to know *what types of products are purchased most often*. We offered respondents the opportunity to choose

a maximum of 3 products from the list, and the answers indicated their purchasing tendency (Fig. 2). From this point of view, it resulted the following situation in the decreasing order: vegetables, fruits, dairy products, meat and meat preparations and honey.

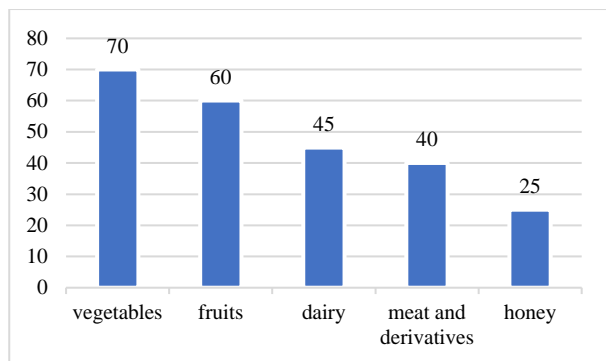


Fig. 2. What type of local products do you consume most often?
Source: Own design based on questionnaire output data.

At the question: *which are the sources of purchase for local products*, it was offered the possibility to provide multiple answers, the obtained results being: 55% of respondents generally buy from agri-food markets, 42% directly from producers, 30% from local stores, 12% supermarkets and only 8% use online platforms (Fig. 3).

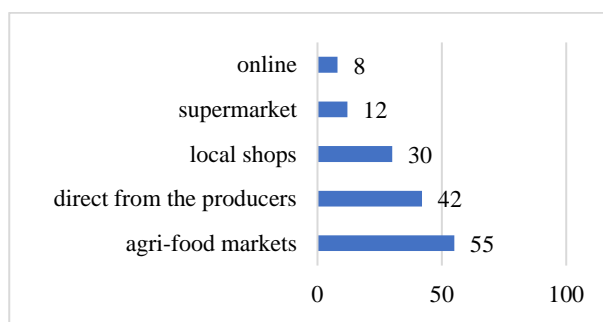


Fig. 3. Where do you usually buy local products?
Source: Own design based on questionnaire output data.

Regarding *consumer perceptions of local products and short supply chains*, we wanted to find out which are the most important aspects taken into account by respondents to buy local products, offering the possibility of multiple answers (Fig. 4).

Most of the interviewees, 65%, considered that product quality is the main reason to buy a product, 44% considered that the product must be fresh and healthy, 36% buy products

from local producers and 31% buy depending on the product price.

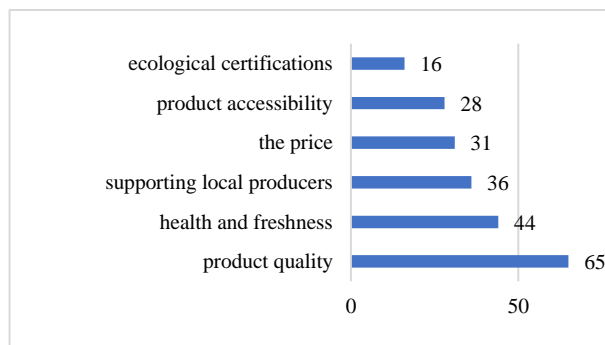


Fig. 4. What aspects do you consider most important when buying local products?
Source: Own design based on questionnaire output data.

We also wanted to find out *the opinion of potential consumers regarding the main obstacles to buying local products*, noting that this question also had the possibility of a maximum of 3 answers, and the answers received were: 63% higher prices, 43% reduced variety of products, 31% problems related to distribution and delivery, 26% lack of access to points of sale, 12% lack of information about producers, 8% lack of trust in the quality of the products (Fig. 5).

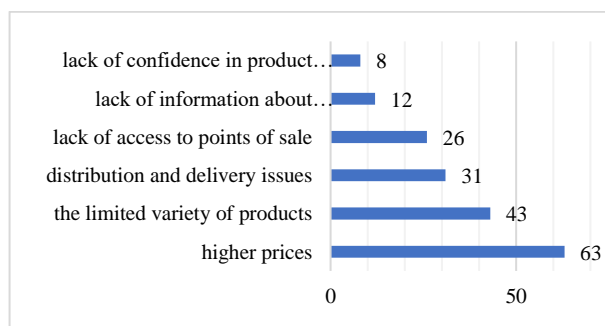


Fig. 5. What aspects do you consider most important when buying local products?
Source: Own design based on questionnaire output data.

Regarding consumers' interest in the short supply chain, we wanted to find out if they would be interested in *purchasing local products through a direct delivery system from producers*: 55% considered that such a system would be very useful, 28% would accept this system, but only for certain products, and 17% do not accept this idea, being used to purchasing local products from regular sales outlets (Fig. 6).

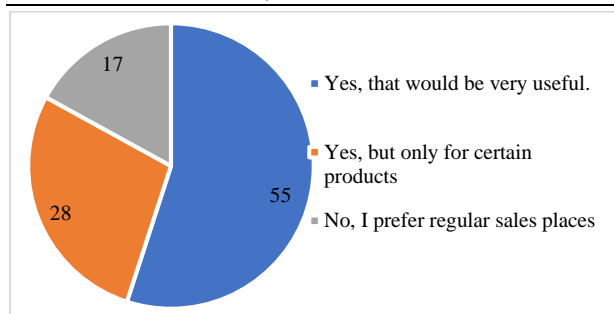


Fig. 6. Would you be interested in purchasing local products through a direct delivery system from producers?
Source: Own design based on questionnaire output data.

We also analyzed the correlation between some variables:

- Age and frequency of purchases: people between 25-40 years old are the most active in purchasing local products (50% buy several times a week).
- Preferred purchase channel by age: people under 25 prefer online purchases, while those over 40 prefer agri-food markets.
- Interest in direct delivery: 55% of respondents consider a direct delivery system from producers to be very useful.
- Obstacles and price perception: those who do not buy frequently cite high prices and lack of accessibility as the main barriers.

CONCLUSIONS

Short supply chains for local agri-food products have started to become an increasingly relevant option for the development and support of rural economies in the Centre Region. These short chains are characterized by a direct link between producers and consumers, without the intervention of major intermediaries, which allows for a fast and efficient distribution of local agri-food products. They also represent an opportunity to promote sustainable agriculture and healthy products and support small farmers who, in many cases, face difficulties in accessing large markets or competing with imported products. In Alba and Sibiu counties, these short chains can contribute to strengthening economic and social ties between communities, fostering the growth of a circular economy and reducing the environmental impact of food transport.

However, the implementation and development of short supply chains in this region is not without challenges. Although there is a growing interest from consumers for local products, limited access to markets, poor infrastructure in some areas and lack of information on the benefits of local consumption can represent important obstacles. In addition, consumers in rural areas, although familiar with local products, sometimes face higher prices and a narrower offer, which can affect their purchasing decision.

In this context, for short chains to become a viable and sustainable option, constant support from local and regional authorities is necessary, as well as continuous education of consumers on the advantages of local products, both in terms of quality and economic and environmental impact.

Recommendations for improving the short supply chain to support the sustainability of rural areas:

- Developing a direct delivery system: a significant percentage of consumers are interested in such an initiative.
- Consumer education: increasing the level of information on the benefits of local consumption through awareness campaigns.
- Diversifying the products offered: expanding the range of products available can help attract more consumers.
- Creating dedicated local markets: the accessibility of points of sale is an essential factor.
- Policies to support local producers: reducing distribution costs and promoting support schemes for small producers.

REFERENCES

- [1]Acella, M., Petrini, A., Bulgari, R., Ertani, A., Sebök, A., Devecchi, M., Nicola, S., 2024, Quality Perception of Short Food Supply Chains Products: From the Producer's to the Consumer's Point of View. *International Journal of Food Studies*, 13(1), 127-144. <https://doi.org/10.7455/ijfs/13.1.2024.a10>
- [2]Aprile, M. C., Caputo, V., Nayga, R. M., 2016, Consumers' Preferences and Attitudes Toward Local Food Products. *Journal of Food Products Marketing*, Vol. 22(1), 19-42. <https://doi.org/10.1080/10454446.2014.949990>

- [3]Aouinait, C., Chang, B., Braun, S., Janssen, F., Kuitens, J., Lameris, M., Cruz, E.S., Alfaro, B., Petropoulou, E., Gawlik, D., Aouinait, C., Fricz, A.S., Major, A., Kujani, K., Hegyi, A., Hieke, S., Reipurth, M., Massri, C., Carlen, C., Christen, D., 2022, Barriers and facilitators of purchasing from short food supply chains in Europe: insights from a stakeholder perspective. *International Journal of Food Studies*, 11(3), 196-207.
<https://doi.org/10.7455/ijfs/11.si.2022.a6>
- [4]Bayir, B., Charles A, Sekhari A, Ouzrout Y., 2022, Issues and Challenges in Short Food Supply Chains: A Systematic Literature Review. *Sustainability*, 14(5), 3029, <https://doi.org/10.3390/su14053029>
- [5]Caratus Stanciu M., 2018, Analysis of the behaviour and motivation of consumers towards short food supply chains. *Scientific Papers. Series "Management, Economic Engineering in Agriculture and Rural Development"*, Vol. 18(4), 73-78.
https://managementjournal.usamv.ro/pdf/vol.18_4/Art11.pdf , Accessed on September 5, 2024.
- [6]Csordás, A., Lengyel, P., Füzesi, I., 2022, Who Prefers Regional Products? A Systematic Literature Review of Consumer Characteristics and Attitudes in Short Food Supply Chains. *Sustainability*, 14(15), 8990 <https://doi.org/10.3390/su14158990>
- [7]Dunay, A., Lehota, J., Mácsai, É., Illés, C. B., 2018, Short supply chain: goals, objectives and attitudes of producers. *Acta Polytechnica Hungarica*, 15(6), 199-217. <http://dx.doi.org/10.12700/APH.15.6.2018.6.17>
- [8]Esteso, A., Alemany, M. M. E., Ortiz, A., 2018, Conceptual framework for designing agri-food supply chains under uncertainty by mathematical programming models. *International Journal of Production Research*, 56(13), 4418–4446, <https://doi.org/10.1080/00207543.2018.1447706>
- [9]Gracia, A., 2014, Consumers' preferences for a local food product: a real choice experiment. *Empirical Economics*, 47(1), 111–128.
<http://dx.doi.org/10.1007/s00181-013-0738-x>
- [10]Krstić, M., Elia, V., Agnusdei, G.P., De Leo, F., Tadić, S., Miglietta, P.P., 2024, Evaluation of the agri-food supply chain risks: the circular economy context, *British Food Journal*, 126(1), 113-133.
<http://dx.doi.org/10.1108/BFJ-12-2022-1116>
- [11]Maryniak, A., Kliber, P., 2023, Resilient Chains and Chain Shortening-Trade Exchange Perspective. *Scientific Papers of Silesian University of Technology Organization and Management Series No. 178*, 431-447 <http://dx.doi.org/10.29119/1641-3466.2023.178.24>
- [12]Michel-Villarreal, R., 2023, Towards sustainable and resilient short food supply chains: a focus on sustainability practices and resilience capabilities using case study, *British Food Journal*, 125(5), 1914-1935.
<http://dx.doi.org/10.1108/BFJ-09-2021-1060>
- [13]Pearson, D., Henryks, J., Trott, A., Jones, P., Parker, G., Dumaresq, D., Dyball, R., 2011, Local food: understanding consumer motivations in innovative retail formats, *British Food Journal*, 113(7), 886-899, <https://doi.org/10.1108/00070701111148414>
- [14]Puiu, F., Turek-Rahoveanu A., 2024, Short food supply chains: key concepts, benefits, risks, European Union support, models from Romania, strategies of development. *Scientific Papers. Series "Management, Economic Engineering in Agriculture and Rural Development"*, Vol. 24(1)819-828.
https://managementjournal.usamv.ro/pdf/vol.24_1/Art82.pdf, Accessed on 3 June 2024.
- [15]Rucabado-Palomar, T., Cuéllar-Padilla, M., 2020, Short food supply chains for local food: a difficult path. *Renewable Agriculture and Food Systems*. 35(2), 182-191, <https://doi.org/10.1017/S174217051800039X>
- [16]Stanciu, M., Popescu, A., Rasvan, R.I., 2022, Short food supply chains and young people's attitude towards healthy eating. *Scientific Papers. Series "Management, Economic Engineering in Agriculture and Rural Development"*, Vol. 22(1), 625-636.
https://managementjournal.usamv.ro/pdf/vol.22_1/Art70.pdf, Accessed on 5 August 2024.
- [17]Stanco, M., Lerro, M., Marotta, G., Nazzaro, C., 2019, Consumers' and farmers' characteristics in short food supply chains: an exploratory analysis. *Studies in Agricultural Economics*, 121(2), 67-74.
<http://dx.doi.org/10.7896/j.1905>
- [18]Tanasa, L., Bruma, I.S., Ulman, S.R., Hoha, G.V., 2022, Theoretical approach with regard to the main benefits of short supply chains. Focus on small producers and local communities. *Scientific Papers. Series "Management, Economic Engineering in Agriculture and Rural Development"*, 22(3), 743-752.
https://managementjournal.usamv.ro/pdf/vol.22_3/Art81.pdf , Accessed on 5 August 2024.
- [19]Thompson, J., Millstone, E., Scoones, I., Ely, A., Marshall, F., Shah, E., Stagl, S., Wilkinson, J., 2007, *Agri-Food System Dynamics: pathways to sustainability in an era of uncertainty*. The Institute of Development Studies and Partner Organisations. Report. <https://hdl.handle.net/20.500.12413/2472>, Accessed on 5 August 2024.
- [20]Todorova, S., 2020, Short food supply chains as drivers of sustainability in rural areas. *Scientific Papers. Series "Management, Economic Engineering in Agriculture and Rural Development"*, 20(2), 483-492.
https://managementjournal.usamv.ro/pdf/vol.20_2/Art65.pdf , Accessed on 5 August 2024.