

SFSC and its impact on food waste and the connection of them with sustainable LED

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Abstract:

Sustainable economic development (SED) and Local Economic Development (LED) are in the centre of attention among customers, NGOs, as well as policy makers in the European Commission (EC CAP, 2011). There is a great demand for environmentally friendly and sustainable methods in food system since it is a key factor on long term for both LED and SED (Sonnino et al, 2014). The purpose of Short Food Supply Chain (SFSC) is to minimise the intermediates of stakeholders involved in production, processing, trade and consumption of food in a defined reduced geographical area as the ideal being a direct contact between the producer and the consumer (Marsden – Sonino, 2007).

The aim of this research is to explore the possibilities in Short Food Supply Chains (SFSC) considering the rural circumstances (EIP-AGRI, 2015). SFSCs favour the direct interaction between farmers and consumers, thus promoting the development of trust and social capital, contribute to quality of life of rural areas and higher share of value added to be retained locally (EC 2013), while it might contribute to the more efficient resource use in the region, reduce the generated food waste and the pollution arising from unnecessary transport (Parfitt et al, 2010). A highlighted aspect of this paper is to approach possibilities of SFSCs from the perspective of food waste reduction. This study reviews the international literature on case studies considering SFSC and community supported agriculture, investigates the role they play in LED, and their interconnectedness (Leight, 2016). The lessons learnt from the previous good practices, case studies allow some concluding remarks on the state-of-play of SFSC in the development, and allows us to investigate the feasibility of these methods and exercises in Hungary (Randelli et al, 2014), (Czuppon et al, 2015).

The research method mainly focuses on qualitative methods including field work and a research camp (Bernard - Russel, 2013), (Czuppon et al, 2017). Meanwhile, in Balaton upland the participants of the food supply chain are interviewed, and with the use of the previously selected good practices further possibilities for cooperation will be explored, aiming to innovate the existing food supply chain in order to re-connect the customers and producers, re-localising agricultural and food production, and to find possibilities for alternative food networks and direct sale opportunities.

In addition to the exploratory nature of this study, it assumes that mainly the lack of trust and communication between the participants stand in the way of cooperation. Also, typically farmers who already joined a LEADER organisation, or have higher marketing, promotion and communication skills are more open to the establishment of new partnerships and test of innovative methods. Further assumptions are in connection with the difficulties of the implementation of new smart media and contemporary communications technology tools aiming to bring together the customers and farmers.

INTRODUCTION

The way food is treated, grown, distributed and eaten affects the environmental, social, and economic well-being of a community. Food is an important component of a healthy, sustainable way of living in a region, and the food system has a major impact on employment, waste management, transportation, and the general health and well-being of the larger ecosystem (Feenstra et al, 1997).

Although these days the phrases ‘food value chain’, ‘short food supply chain’, ‘economic development’ became more and more fashionable, it is not a novelty. Keen in 1993 already mentioned the ecological and social costs of the global food system, what described a vision of a more local sustainable food system built on justice and community (Keen 1993). Conventional food systems are focused on commodities and they offer short-term solutions for us while socially designed, community based food systems make use of food value chains, which focus on smaller food producers within a smaller geographical area. These new systems look beyond economic profit and short term solutions to promote social values, save the environment when connecting agricultural products on markets (Dillemuth, 2017). The degree of perceived control and transparency present in SFSCs is impossible in traditional long FSCs due to the lack of contextual information delivered with a commodity product and the relational distance between producers and consumers.

There is a broad confusion about these phrases and if we take into consideration the definition both of SED, LED and SFSC, we see that there are given goals and perspectives they all share. LED encourages local stakeholders to work together to achieve sustainable economic growth and development, bringing economic benefits and improved quality of life for all residents in a region. SED also attempts to satisfy the needs of the people but in a manner that sustains natural resources and the environment. These criteria could have described a SFSC with the stipulation that the number of intermediaries between farmer and consumer should be minimal or ideally zero,

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what refers to the proximity (social distance) . Several types of SFSCs can be identified, but in general, they are dominantly small- or micro-enterprises, composed of small-scale producers, often coupled with organic farming practices. Social values (quality products to consumers and direct contact with the producer) are the values usually highlighted by SFSCs before environmental or economic values (EC 2013).

Aiming to achieve one aspect we will inevitably tumble into the other as well, as there are often overlapping methods. Establishing a farmers market is a typical LED tool, that often use a more environmentally friendly way of product flow, meeting the requirements of SED as well. In fact, since the farmers directly meet the end users of their products it can create a perfect short food chain. We should not stick to these suggestions so tightly, taking into consideration the example that there can be the case of a farmers' cooperatives that sell their products to consumers in shops managed by cooperatives of consumers. This case according to the number of intermediaries could be called as "long food supply chain". When we rethink the food system of our region we should not decide to use one given method. We have to assess the existing situation, pick our own preferences, look at the demand and supply situation, and we have to design our own way from the mixture of these good practices.

THE CONTRIBUTION OF SFSC TO LED, GENERAL BENEFITS

The establishment of SFSC contributes to LED bringing economic, social, environmental and health benefits. Having local food systems with the use of SFSC does not mean that the region isolate themselves completely from trade but that they adopt local food production and markets based on environmental and community health priorities (Feenstra et al, 1997). The practice shows that even if the main focus of these solutions is not economic, they lead to development on long term. It might strengthen import substitution by replacing a certain proportion of a region's food imports with locally produced food (Dilleuth, 2017) and it can increase food supply resilience, meaning that they are more flexible and adaptable to new situations and consumer needs, traceability can be more easily checked, and they are based on a wider range of producers (Galli – Brunori, 2013). Direct connection with customers might support customer loyalty, and reduce economic uncertainties.

Socially, the aim of SFSC is to establish more just relationships across the food chain and revalue the cultural attributes of food (Sonnino and Griggs-Trevarthen, 2013), build closer ties to the community as the connection of customers and producers ensure fairness and trust. The customer might gain valid information about not just the origin, production method, sustainability of product but also about identity, values and ethics of the producer. This increased knowledge and concern about food amongst people might lead to the adoption of healthier lifestyle (Galli - Brunori, 2013) and a more conscious shopping behaviour. Typically the establishment of SFSC in a region means more nutritious food accessible as for example it does not need so much preserving.

SFSC holds potential for ecological, environmental sustainability as it reduces fossil fuel usage of transportation and typically use less packaging than supermarkets, what makes them use less resources (Galli - Brunori, 2013). The less energy used for storage can be a key factor in reducing their environmental impact. It often also means less processing which saves further energy and resources as well (Edwards-Jones, 2010).

RESEARCH BACKGROUND

As we mentioned previously several types of SFSCs can be identified, not just in the different member states of the European Union, but inside a country as well, since each community and location has particular capabilities, strengths and benefits. On the one hand, a key benefit of SFSC is that it offers flexibility, what we would destroy by setting strict restrictions. On the other hand, they need some coordination and organisation of the different and many forms of cooperations between the stakeholders. This role can be fulfilled by LEADER organisations. It is a community initiative for the development of the rural economy, builds on the co-operation between local stakeholders and gives their communities a real decision-making power (Térport 2018).

This article deals in detail with the situation in the Balaton upland, where the most significant LEADER organisation is the *Éltető Balaton-felvidékért Egyesület* (hereinafter ÉLTETŐ) where local governments, NGOs, farmers, craftsmen, producers, service providers and individuals work together for the development of the region. Their operational area of ÉLTETŐ is 59 settlements.

Fig. 1 The operational area of ÉLTETŐ
Self generated map based on (ÉLTETŐ 2018)



Their goals, inter alia, are to help the establishment of agreements between the roughly 150 members, to increase the reputation and sales of locally produced products and services and to strengthen active social cohesion, create a stronger local identity, encourage community thinking and work, and to ensure their conditions. To do so, ÉLTETŐ owns a special trademark, used by 95 partners in the region. They also created a strategic rural development program, organise local markets, established special stores called 'Éltető pont': places where products with the special trademark are sold, and buy 'shelves' in big shops to present the local product (ÉLTETŐ 2018). This case is not SFSC anymore, their goal is to familiarise the local product to the customers.

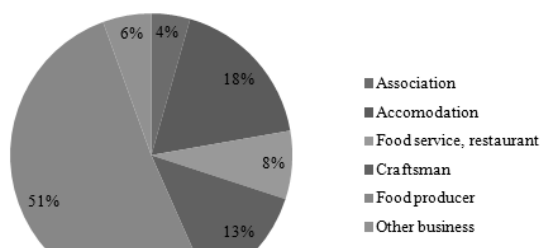


Diagram 1. Self generated diagram based on data collected from the special trade mark users

The special trade mark users based on main activity
The participants of the ÉLTETŐ were examined, with the use of secunder data received from the organisation, data collected during Bakony Expo, and primer data collected during interviews with the local producers. Bakony Expo is a local event where producers and craftsmen coming from the area are offering their goods, and the customers can get to know more about the gastronomic and folk cultural traditions typical of the Veszprem area, Balaton Uplands (Bakony Expo 2018).

THE USE OF SFSC TOOLS

The previous studies and good practices suggest several tools and methods of cooperation for the stakeholders. In the examined area the application and usability of the most common practices were examined amongst the participants who have the right to use the trademark in the region. Amongst the possible tools the main focus was on the types of SFSC market venues. SFSCs are being set off from the bottom up, by farmers or consumers as social innovation that transforms the traditional direct sales system (usually at marketplaces) into new forms of interaction with the consumer, within a trust-based network. (Wieliczko B., Wigier M., Chmieliński P., 2017). Keeping economic exchanges local, cutting profit taking middlemen out of the supply chain, and even generating additional economic activity, an effect called an economic multiplier (Canning, 2011).

Agritourism, on farm sales

As traditional foods enjoy a high reputation among consumers, the confirmation by the sales platform of the authenticity of the production process and the quality of the products offered is a sufficient guarantee for potential buyers. The added value of the product is its identity, which the producers give through the story telling, which not only covers the description of the production process but also the personal histories of the people involved (Wieliczko B., Wigier M., Chmieliński P., 2017). Agritourism is the best way to sell considering SFSC criteria, and on farm sales are really common in the region, 87,69% of the producers sell at the place of production, giving the possibility to the visitor to see how the product is made, buy product there, see the special techniques and build customer-producer partnership. Authenticity, trust, and social/geographical context of production is generated through personal interaction.

Promoting each other, selling each other's products

Widespread technique amongst the stakeholders to recommend each other's product as an accompanying product, such as the winemakers during the Winery visit offer special local cheese for the special wines, and vice



Diagram 2: Self generated diagram based on data collected about the special trade mark users

versa. This tool holds a great – and in the examined area not always fully utilised - possibility for the partners since the recommendation of an already trusted producer is the best marketing for the other producer. In case of

deeper trust and cooperation between the producers, they even sell each other's products, having just one intermediate in the food chain. This technique is not utilized perfectly, since in the region only the classic examples are widely present – accommodation offers local food- but in many cases, when they only recommend each other they might lose those customers, who do not want to make effort travelling for a single product. Another benefit of the trust amongst producers is that farmers in the area might offer a wide range of products and they will protect each another.

The proportion each platform is used at time of sale

If one producer faces difficulties, the other can deliver raw material for them. Trust and cooperation allow to maintain production capacity reserve and minimise risk against seasonal crop failures

Farm to school programs, cooperation with schools

It is important to target specific activities to raise awareness of the regional products through promotional activities. Local craftsmen could familiarise children with the local folklore, local product through shows and activities, transferring the local values, or small food producers could invite groups to teach children the way food is grown, and to transfer the real value of food. Studies show that children who do not see how food is actually grown but meet it only in shops tend to waste more food later and underestimate the real value of food (Secondi, L., Principato, L. & Laureti, T., 2015). This indirect technique is rarely used in the region, though some examples are present. These affect the shopping habits of the customers indirectly, on the long term, but the strength of this tool should not be underestimated.

Local markets

The maintenance and development of a platform for traditional food sales depends on good economic relationships, but above all on social relationships between suppliers and consumers. ÉLTETŐ organises or contributes to several local markets, and informs customers about them with a special timetable on their website, also marking the upcoming events and exhibitions where the producers have the possibility to attend. Nonetheless for the producers only 44,62% utilized this opportunity, 56,92% attends to exhibitions and events occasionally presenting their products, though 30,77% do not attend to any of these occasions. The presumable causes that they underestimate this platform, do not have the time to attend continuously, do not have the personnel, or they feel they already have enough sale platforms. Being present in these local markets allows producers to directly communicate the values they want embodied in their foods, and also for customers to confirm through questioning and observation that the values they are looking for are present.

Direct internet sales

It was assumed that in the region smart media tools and internet possibilities are not utilized or developed properly. Customers tend to trust products more which about information can be accessed online, and the rate of online food sales rises in the European Union. In Hungary, it was 1.1% in 2017, but the rate is expected to rise in the near future (Statista 2018). For producers who are looking to the future would be worth it to start the development of their online and social media presence – even if they do not aim to sell their products online, providing information and 'to be present' becomes more and more important, especially for those aiming the younger customer groups as well.

From the special trademark users, only 62,22% owns a web page, and 63,33% is present on Facebook or other social media. The possibility to buy the product online is only 20,31% as it is more common amongst them to use phone calls in case of order. Surprisingly there are 21,11% who do not have any presence online (except for the website of ÉLTETŐ). Eventually there are reasons why a producer does not aim to sell online, but providing information and making a connection with customers is recommended for each producer. 93,65% of the stakeholders who were present at Bakony Expo thought that the social media appearance is extremely important. Nonetheless from only 41,27% said that online purchase is available.

Community gardening, wild food foraging

However, these indirect techniques are widespread SFSC tools, they are not yet a custom in Hungary. Occasionally we find examples, but it has a long way to strike root in the region. Although wild food foraging might be problematic due to safety and legal issues, and community gardening does not have the tradition, aiming to utilize the whole potential of the area, it is suggested to find those unused gardens, non harvested foods on the trees, not to leave anything to waste, not to lose value.

Public catering, restaurants and food service

The most common barriers for the utilization of this indirect platform are legal barriers, standards, quantity issues. In this region these stand in the way as well, but we still find good practices, mostly in the accommodation-winery, accommodation-producer aspect. Still, it is quite rare for wine to be present in the local pubs, what could be a way to go. To spread this platform the help of local governments and general legal concessions would be necessary.

Special local stores

Besides small stores present in the region, the ÉLTETŐ operates a special type of store in the region called 'Éltető pont'. This is a quite widespread technique all around the European Union, products are produced and retailed within a specific region, but the retail sale is conducted by a party other than the producer. Product is still delivered with socially contextualizing information, and consumers are made aware of its local nature (Wieliczko B., Wigier M., Chmieliński P., 2017).

SFSC and food waste, efficient resource use

Lappé mentioned the link between food waste and SFSCs in 1975, that generally greater food security for all people could be achieved if we ate lower on the food chain (Lappé 1975). Since several studies dealt with the beneficial effects of SFSC on food waste reduction. According to (Gustavson et al 2011) in Europe about 2/3 of food loss occur in production and retail due to quality standardisation of supermarkets. Moreover, consumers with more knowledge and attention to food can be assumed to produce less food waste on household level. As previously mentioned, SFSC being present in the region might increase the consciousness of the customers as well, and they tend to value food more than just judged by the price of the product, therefore they might not waste as much as others. Also, the distance product travels from producer to customer can be shortened with fewer intermediates, and besides the evidential benefits as less pollution, we will have less food loss and food waste as during transportation, distribution, cooling, loading, storage, there is always some avoidable waste generation. Ecologically, they promote environmentally friendly practices through reduced packaging, waste and food miles (Sonnio et al, 2014). The vast majority of food waste could be recycled into something useful. Perfect food waste utilization is the case present in the examined region, when wineries collect the grape seeds and create products from them, selling as vitamin pills or seed flour, what is a common and proven-to-work technique. The ÉLTETŐ's one criteria is that the producer treats food waste properly, but many producers when they are asked about the waste they generate do not consider many parts, such as when the marmalade makers report that they do not generate any waste, not considering the non-eatable parts of fruit, seeds, defective foods or defect semi-finished products. Even so great caution can be observed amongst the producers, they aim to use environmentally-friendly raw materials and package, use proper waste management techniques such as composting, and try to prevent unnecessary food waste generation.

CONCLUSION

The rural development policy 2014-2020 of the European Union puts more emphasis than before on short food supply chains, aiming to support SFSCs and local markets, as a way to ensure a fair price for producers and reconnect food products with their locality of origin. Due to the growing supply of local, ecologically-friendly and traditional products, well-organized shopping networks can be considered to have a chance for economic success, but they also become opportunities for the development of small farms. Collaborative networks and social innovations are crucial factors forming successful SFSCs (Wieliczko et al, 2017), and the proximity to consumers and their demands leads to the need for more environmentally responsible farming practices.

For resilience of rural areas, it is important to maintain their sustainability and multi-functionality.

It is already visible that the stakeholders who joined ÉLTETŐ are motivated, eager to work together, to build trust and help each other. They do not have all the partnerships they could establish, presumably due to the lack of knowledge about each other, and the lack of trust. Collective or collaborative action participants is a common feature and shared values and goals are important.

There is already a relevant raw material flow between the stakeholders, but we need to establish a data bank accessible, to show them what further materials (and possible partnerships) are accessible in the region. We also need a model that facilitates flow of raw material and information. Many participants think that given raw materials and services they need are not accessible within the region, or not in the right quality, therefore further examination is necessary to find the connection network which helps cooperative solutions. For the examination of the feasibility of the suggestions made, the authors will participate in a research camp as going to the field to meet the stakeholders.

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