SELECTED INNOVATIVE CASE STUDIES OF SHORT FOOD SUPPLY CHAIN IN EUROPEAN COUNTRIES, WITH APPLICATION TO SLOVAK MARKET

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Abstract

Throughout the European Union, local producers have a significant role, which is increasingly becoming more aware of consumers, and their products are increasingly demanding. This trend can be seen especially in more developed Western European countries. The current situation in Slovakia in the area of production and processing of local products is that retail chains offer low sales prices to producers, which compensate for the quantity of product. In this situation, there is a problem where this business relationship with the local producer is for only cover the costs with minimum profit for producers. We assume that the current situation will be local farmers to seek new opportunities to sell products. The short food supply chain is one of the alternatives of the long-globalized food chain. Sale of local products that producers distribute as soon as possible in full quality, freshness, and signs of local origin are the future sale of local products with value added. The aim of the paper is to review of the literature and best-case studies selected from the European Union countries in which the developed food distribution system for short food supply chain has been established. To achieve the main goal, we use comparative methods to compare case studies in different countries and also the deductive methods based on which we
deduce conclusions. Based on the review of scientific papers evaluate application and success of short food supply chain in the Slovak market. In conclusion, identify the possibilities of applying these successful cases to the local producers in Slovak market.

**Keywords:** local products, short food supply chain, local farmers, value added, European Union

**JEL classification:** R11

## 1 Introduction

Recently, the term "local product" is increasingly mentioned in general and research literature. Problems with the quality of imported products, patterns and inequalities in the quality of Western and Eastern European products force customers to be more interested in, where the product comes from and what it contains. Purchase of local product is one of the ways to ensure the origin and contents of products. At present, "retail chains", a local farmer has difficult conditions and is hard to keep on the market, as retail chains set conditions that are not acceptable to small farmers. One of the most effective alternatives to sell products from the region to customer table is short food supply chain. Strategy of selling products is not only economically efficient, but also ecological and has a positive effect on building communities, improving the customer relationship between customer and farmer, improving the health status of the population and improving the quality and freshness of food. The food chains are more complicated than others, because local products are more perishable, and that's another reason why short food supply chains are a good alternative system to selling local products. The EU has many successful local farms and businesses that distribute products using short food supply chains and build a community of people and standard of living in the region. The better understanding of different methods and identify factors of success selling local products in other EU countries leads to the possibility of applying to the Slovak market.

## 2 Literature review

Increased globalization along with a growing world population have a vast influence on the sustainability of supply chains, mainly within the food sector. The way food is actually produced, processed, carried, and consumed has massive impact on whether sustainability is actually realized throughout the whole food supply chain (Govindan, 2018). All supply chain concepts are trying to be more
efficiently in all the processes involved. It is most important to ensure and capable supply chains in food systems from scale, such as macroeconomic levels such as environmental, economic and social to micro level, such as individual farmers or individual consumers. One of the main factors for this improvement is the increase and growth of the world's population. The world population has improved from 2.53 billion in 1950 to around 7.6 billion in 2018, as well as the prediction show a population growth of 9.6 billion after 2050 (www.ourworldindata.com, 2018). More and more important emphasis will be placed on all activities which ensure the saturation of folks, beginning with farmer work productivity, cereal production, and efficiency of distribution channels. All the activities that allow the flow of food from farm to fork is considered as the food supply chain (FSC) (Bourlakis & Weightman, 2004; Dani, 2015). Over the past years, food-related supply chains have been completely industrialized on a worldwide scale and re-shaped exactly how food is actually produced, accessed as well as consumed. With a concentration positioned on economic efficiency, foods producers have systematically struggled to run despite lower financial returns although, at exactly the same time, implementing heavy pressure on ecosystems to satisfy the need for low priced food (Pretty, 2001). The Food supply chain will have to conform the way food is actually produced, stored, handled, distributed, and also accessed to meet the challenges that it's faced with. In past times, all of these processes occurred locally in a small location. Such a FSC isn't sustainable and can't deal with the demand of the whole world population. Thus, the FSC is transformed into a global FSC in which all or some parts of distribution processes, process, storage, or the production will be performed in multiple areas world (Gharehgozli, 2017). The fact is that each year over 200 billion metric a ton of foods are actually shipped 60 % by sea, 35 % by land, along 5 % by air around the world (Ackerley, Sertkaya, Lange, 2010; Bendickson, 2007). The increased shipment of foods in quantity and distance is actually linked with logistics risks caused primarily by low logistics technology and ineffective logistics management. These risks causing major damage to the agricultural sector, because they lead to a loss of food, food contamination, spread of diseases (animals and humans) and environmental damage (Bosona, 2013), today food is not grow and produce directly for feed customers, but for travel to customer. Food must endure long transportation and still remain fresh for the customer. Not all foods are able to grow or produce in the region, but if the country has the conditions to produce products that are high quality, safe and able to satisfy demand, it should use them and feeding their inhabitants. The conditions for the production or cultivation of certain foods are demanding and there must therefore be a long-range distribution, but why import food that can be produced in a given region. The set of activities that includes the entire processes
is called agri-food supply chains. The term agri-food supply chains (ASC) has been developed to describe the activity of production to distribution, that provide agricultural or horticultural commodity (Aramyan et al., 2006) from the farm to the plate. ASC form organizations responsible for production (farmers), processing, distribution and marketing of agricultural commodity to consumers. The supply chain of agri-foods, as any other supply chain, is a system of organizations collaborate in different processes and activities to bring products and services to market to meet customer satisfaction and demands. (Christopher, 2005). ASC is completely different from other supply chains, the importance of factors such as quality and food safety and variability related to weather (Salin, 1998). Other relevant features of agro-food products include their limited durability, demand and price variability, making it more difficult to manage than other supply chains. New prescription global research agri-food systems, dominated by vertically integrated large private enterprises, undoubtedly contributed to achieving higher food production and productivity levels within the food supply chain. However, this success has led to several negative economic, environmental and social externalities that have led to increased marginalization, huge contrast and vulnerability of small family farms (Cleveland, 2014). Farms that are declining in profitability, price depression of commodity production (Canning, 2014) and many developed economies, can shipping, processing, and marketing activities charge up to 80% of the food costs paid to consumers. This indicates that the common farmer now receives just 20% of the retail food price (Feher, 2012). An alternative to long globalized food chain are short food supply chains (SFSCs), originally created by Marsden (2000), was created to address these societal discomposure. Mikro scale business concepts throughout the world are becoming trendy among consumers and their increasing interest (Migliore et al., 2015). SFSCs allow consumers to evaluate the real value of the food product (Kneafsey et al., 2013). This means that products are embedded with information that allows consumers to understand how and where food is produced, so that creating a stronger confidence between consumers and producers. In other words, the supply chain makes it easier to build confidence through close relationships between producers and consumers by removing intermediaries (processor, distributor, wholesale) and allowing direct relationships. Despite the fact that the vast majority of consumers come to supermarkets due to weekly grocery shopping, the growing number of people are increasingly aware of their role in managing changes in the food sector (Lockie 2009). They are known as "citizens consumers" and promote ethical and environmental focus on food production (Wilkins 2005). Consumers are increasingly demanding food that is safer, healthier, safer, tastier and more environmentally friendly or more natural friendly (Krasnodębski, Ciešlik, 2001;
Matysek, Zafrański 2009; Gao et. al. 2010). In this sense SFSCs as an alternative food market, which minimizes intermediaries between producers and consumers (Rentals., 2003) and offer products that embed localization of economies and social welfare (Marsden et al.2000). SFSC concept appeared at the turn of the century in the context of a broader discussion on "Alternative food chains" (Liberia et. al., 2005), which is an important part of ASC. SFSCs are analyzed and translated as a method to greatly improve the resilience of family farms along with the support of relevant consumers, local communities as well as civil society organizations. SFSC is increasingly devoted to the consideration of European food and rural policies as a driver of agri-food systems and rural development (Galli et. al. 2013). In Rural Development Programmes 2014-2020 the European Commission integrated short supply chains in its regulation. According to article 2 "m" of the Regulation (EU) No. 1305/2013"short supply chain means a supply chain involving a limited number of economic operators, committed to co-operation, local economic development, and close geographical and social relations between producers, processors and consumers".

There are many different examples of SFSCs. Some will be described in the second part of this article. Examples include the following:

- **farmers directly to consumers:** farmers market, village market, food delivery, direct sales, pick products in collection point/store, farm store, scheme boxes, road-side, selecting pick your own, CSA farm
- **indirectly:** Farmers local store, restaurants purchasing products from farmers, online sales, community cooperatives, consumers cooperatives (Maciejczak, 2014).

A study of Roman (2017) found that for most consumers in developed countries it is very essential for food to be natural. They choose foods that are grown, produced and processed in a traditional way and in harmony with nature. Further research from Roy (2017) shows that restaurants, chefs and buyers are more confidence in local products, but also plays a major role in how you build a relationship between farmers and consumers in the local market chains. Face to face relationship is the most efficient concept. Central European consumer behavior survey showed that Czechia, Slovakia and Poland are countries whose price is one of the main factors in the purchase of goods, but for milk products, meat products, fruit and vegetables prefer quality (Horská, 2011). Research literature has extensively discussed the potential importance of local products and impact of SFSCs. By combining local food distribution and Rural development, SFSC is an effective alternative to the other supply chains that can achieve sustainability in agri-sector. A significant share in the creation of a rural economy has agriculture,
which is being created mainly out of cities (Rovny, Nagyova 2007). Taking into account that 44 percent of the world's population living in rural areas and proportion of developing countries is even higher, which is 55 percent. At European level, the Commission for Agriculture and Rural Development considers that rural areas report for 85 percent of the total area and affects directly or indirectly more than 50 percent of the European population (Sin, & Nowak, 2014).

3 Methodology

The main aim of the first part of our discussion paper are better understanding how SFSCs are important and identifying opportunities for improvement that can help to be successful on Slovak local market. Achieve this aim we beginning with research of literature some background about the better understand how the SFSCs works and which major impact have on the environment, human health, consumer needs and population growth. Literature reviews are designed to provide an overview of sources (Fink, 2005), and we used a more research to clarify important role of SFCs in food supply chains. However, the literature is complete and it is clear that there is a need to understand how it works (Handfield and Melnyk 1998) and case studies are a useful tool to study and develop theory (Halinen, 1998). Our research will discuss the challenges facing collaborative SFCs in European countries and their access to markets, logistics and distribution. To construct a representative database of existing local food schemes in the EU falling in different categories: e.g. e-shop, pick products in store, Labelling scheme, farmers market, open air markets, collective farmer shops, Farmer store, on-line sales, direct selling, Direct sales, automatic machines, B2B, Farm store, delivery sales, e-shop, selling directly to restaurants, pick products in collection point/store, boxes scheme. Conduct detailed case studies to generate more precise, quantitative data in regard to the impact of schemes in local food for a determined area or products. Five detailed case studies were preferred reflecting different categories of SFSC, as well as geographical diversification in the EU - 27. While all of this research is valuable, coherent set of best practices cases in short food supply chain across several European countries. In the present paper, we identifying and analyzing case studies of 5 best practice cases selling product through SFSCs. For better analysis, we selected companies with a longer tradition as well as new companies. In the second part discussion, our main aim is to identifying coherent and testable opportunities, which are possible adapt in Slovak food market. The plan to achieve the main goal, we first analyze the best cases from all over Europe, that have available information. We obtained the information from the websites of selected businesses or from documents and research established by the European
Community and European Commission. We use comparative methods to compare case studies in different countries and also the deductive methods based on which we deduce conclusion. In conclusion, we identify factors of success, and also barriers. It makes proposals for further research of Slovak farmers, if they are willing to accept this alternative supply chain.

4 Discussion

The literature review showed that Short food supply chains are still developing as well as EU mentioned in Rural Development Programmes 2014-2020 the European Commission integrated short supply chains in its regulation. Very few papers compare cases of different types of SFSCs across several regions. It appears that authors use various approaches to identify cases which they go on to use in their papers: Online searches, knowledge due to prior research, personal familiarity with region. In present papers we use online searching and research of project founded by European Commission. In our research, we identified more than 20 best case studies across the EU member states but was difficult to choose some to analyze. We have chosen 5 best examples (Table 1) by following principal attentions: Slovak market doesn't use efficiently particular scheme or method, outstanding and innovative, service with value-added, active user of the online communication and service performed within the region.

Table 1 Quick referent guide

<table>
<thead>
<tr>
<th>Country</th>
<th>Name</th>
<th>Type of SFSCs</th>
<th>Products</th>
<th>Branding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Speisle Lokal</td>
<td>e-shop, pick products in store</td>
<td>Fruits and vegetables, eggs, cheese, meat, bread, pasta, fruit juices, cereals, herbs, oil and vinegar, honey and jams, biscuits and cakes, chutney, beer and wine</td>
<td>Logo created</td>
</tr>
<tr>
<td>France</td>
<td>La Marches des Producteurs de Pays</td>
<td>Labelling scheme, farmers market, open air markets, collective farmer shops</td>
<td>Only organic food from local farmers</td>
<td>Strong branding based on history and quality of markets</td>
</tr>
<tr>
<td>Country</td>
<td>Name</td>
<td>Type of SFSCs</td>
<td>Products</td>
<td>Branding</td>
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</tr>
<tr>
<td>Poland</td>
<td>Paczka od rolnika</td>
<td>Farmer store, online sales, direct selling</td>
<td>Vegetables and fruits, eggs, dairy products, cereals, juice, herbs, others</td>
<td>Creative design, effective online marketing</td>
</tr>
<tr>
<td>Belgium</td>
<td>WDM Boerderijautomaten</td>
<td>Direct sales, automatic machines, B2B</td>
<td>All kind of products</td>
<td>-</td>
</tr>
<tr>
<td>Germany</td>
<td>Ökodorf Brodowin</td>
<td>Farm store, delivery sales, e-shop, selling directly to restaurants, pick products in collection point/store, boxes scheme</td>
<td>Cow milk, goat milk, cheeses, butter, cottage cheese, oil, honey, meat and product with value added</td>
<td>Valuable merchandising, web design, social media communication, digital marketing</td>
</tr>
</tbody>
</table>

Source: Own processing based on Speislelokal!.org, Reseaurural.fr, odrolnika.pl, automaten.wdmnv.be, brodowin.de, 2018.

1. Speiseloal (Austria)

Community Supported Retailing

Speiseloal started as a consumer-oriented initiative in cooperation with a female organic farmer. Speiseloal was originally considered to be a platform that brings together people who are interested in local food, providing information on local and global food systems and on various aspects of food, nutrition or horticulture. It is curious that most farmers in the region have agreed to deliver their products through this platform. Speiselokal! sells products what farmers have chosen to offer each week. Therefore, only local and seasonal products are sold. The products must come from small farms, seasonally and ecologically/produce as close as possible, with very few exceptions (beer, butter) no more than 80 km (Galli et. al., 2013). Speiselokal! it still serves as a platform that connects people and initiatives. Every month, it organizes trips to farmers who deliver. Organizes, coordinates and supports kitchen workshops, lectures, seminars, celebrations and other food events. It provides information on the (sustainable) production, distribution and consumption of food, and helps people share their ideas, recipes, initiatives. A customer can order products through a web store, post office, phone at the specified time. If you need goods every week, you can enter a permanent
order and the products will be automatically prepared. Products are delivering each week at the same time in the shop, where customers can get the order. It is also ecological because customer can bring own package. Products that have a longer service life are still available in shops, beverages, cereals and seeds. The order planning and packaging system saves the environment because the SpeiseLokal! avoid overproducts and food waste from products.

Innovation: SpeiseLokal prepares weekly meals that you can enjoy during picking orders. Recipes are publishing on the website, if the customers are interested in the SpeiseLocal, they can make an order of this food e.g. soups, salads and cakes (Speiselokal !, 2018).

2. La Marches des Producteurs de Pays (France)

Farmer market platform

It is the national labeling system developed by the Permanent Representation of French Chambers of Agriculture (APCA). This system provides accurate rules manufacturers may use labels. The labels proof that products are produced and processed by identifiable farmers who use a defined proportion of components from a designated farm. Farms must adhere to strict rules on the origin and transformation of products, marketing and labeling and the conditions and requirements to host on the farm (at least once a year). The farmer has to pay an annual fee for securing the label, but in return, he gets the training and advertising required for the farm. The MPP is a trademark owned by APCA. The aim is to develop local economies by building relations between farmers and consumers in the same region, to valorize agricultural products and farmers knowledge and to protect rural development. The MPP Charter is a guarantee to consumers that the products they buy come from the exact farms. MPP is the marketplace, where only producers from the province and neighbors are. Markets can be organized by local Chambre d’Agriculture or other local authorities. Approval of a market organization must be approved and renewed annually. It can be a year round market, seasonal, or even one day. The MPP mark must be promoted by all producers on the market. The producer fee is included in the APCA annual fee, but for other farmers, the fee is required because Chambers provides advertisements for them.

Innovation: La Marches des Producteurs de Pays has created such a strong brand, that if you are a community, a tourism organization or a producer and want to organize an event within a region, you can rent the MPP brand.
3. Paczka od rolnika (Poland)

Delivery direct sales

This project is realize only by farmers who sell their own products under the "Odrolnik" brand and in the form of "Farmers' packages", which consists in the fact that all producers sell directly, and the association of ODRLNIKA GROUP and the Environmental Education Foundation serves as co-ordinator at the same time dealing with the development of the project and the promotion of the idea of direct sales.

Project Green Office

Collaboration with a Green Office certificate company where they are involved in each weekly or two-week delivery of organic food packages for employees of the office. They are trying to achieve a collective amount of at least 50 orders per week with an average order value of PLN 100.00 delivered to one address/office. Its implementation can contribute to savings by rational resource management and increase environmental awareness of employees. With the implementation of Green Office's green office, companies often choose to train their employees. It is not only about purchasing local products but also about training to introduce the issue of green office between employees. In practice, best practice in the day-to-day operation of the company is knowingly using water, energy or paper for office purposes.

Innovation: Created groups with a subscription in a given location. If the locals who are interested in local products create a group that will be followed by the coordinator and establish a point where according to the specified conditions, the customer will pick up their order of local, fresh products. Products are imported on a weekly or two-week basis. Expanding the community that are interesting for fresh, local products creates space for creating a new community (odrolnika..pl, 2018).

4. WDM Boerderijautomaten (Belgium)

Automatic food machines

This company represents a combination of automation, new technology and the agricultural industry. The company is a specialist in vending machines with suggestions and options are active for each type of agricultural product, frozen, chilled or not chilled. These vending machines are able to sell bread, drinks, fruit eggs and vegetables. The owners of the company directly meet with producers and processors of agricultural products and explain to them how the system of automatic food machines works. This model has proven to them, and there is a growing demand for both the automat and the products that are placed there.
The company offers a number of differentiations such as potato mash (potato sale), freezomat (sale of frozen and cooled products) this products from this vending machine are more expensive because the machine has to work with cooling. These vending machines can be personalized to the farmer’s request: cell size, slot size and design, and other specifications. In the fruit and vegetable sector, it is mainly about product preservation. The consumer wants to see what product, how looks like, which size will be the best for him etc.. For better presentation, they use plexiglass and LED light to enable the perfect appearance of the products. Also important is the packaging of products where, in most cases, farmers used paper bags, when products are selling in vending machines, the packaging of this products must be visible.

**Innovation:** The company is able to sell and store meat and meat products in automated machines that have refrigeration equipment. It is able keep the meat in the cell at the right temperature or freeze to ensure the freshness and durability of the products in the cells. Such a short food supply chain is one of the best solutions to link automation and sales to regional products (automaten.wdmnv.be, 2018).

## 5. Ökodorf Brodowin (Germany)

*Farm store, box scheme with delivery service*

This Dairy farm produce milk products like Mozzarella or Yogurt, a butchery for their own sausages, ham and other meat products and a store to sell all their goods. Furthermore, a cafe and a catering service. The agricultural products like wheat, potatoes and vegetables are used for feeding the cattle, the dairy cows, goats, sheep, chickens etc.. But also are sold to customers in the farm store.

*Farm store - dairy store:* Every day we process dairy products from fresh milk. We sell directly in our farmer's innovative farm shop. Specialty is that through the large glass facades we can watch and see how we produce, for example, and mozzarella cheese. Architecturally, the building combines state-of-the-art technology and architecture.

*Online delivery service:* A nicely modified web through which they sell a wide range of local organic products. On orders have created delivery service that is personalized, so each area is responsible for a specific person. This is the place to create closer customer relationships.

*Innovation:* The Brodowin Boxing scheme has a great added value. Through the online shop, the customer can order a box of local foods selected for a precise recipe or an opportunity for breakfast, lunch, vegetarian, vegan, baking, sweet, salty. The box is exactly the weight of the food for a certain number of people
the customer chooses. The given recipe is specifically delineated under the order (brodowin.de, 2018).

5 Conclusion

As a conclusion from the analysis of literature review and the cases we can see that further growth of SFSC enterprises has big potential. Economic potential SFSCs at the present state influence Slovak retail chains in the food chain is of great importance because farmers are in a weak bargaining positions. Taking into account that nowadays food for people subject to large distances and affect the quality and freshness of the products, other fact is that in rural areas lives 22.3% of the EU-27 population. Eurostat data indicate that 51.3 % of the EU’s land area is within regions classified as being predominantly rural. Slovakia is a country with diverse countryside and therefore there is a high potential for application of the potential application of effective strategies by SFSC. Slovak customers prefer low prices when buying, but products such as meat, dairy products and vegetables are also aware of the quality and local products are increasingly popular. If an effective scheme is created, the local product sales model may cause a surge in local producers in Slovakia who will start selling their products directly to customers, making them more economical for them. The analysis showed that co-operation not only with farmers but also partnership cooperation and institution support is necessary. Creating a community of customers who are interested in quality and fresh products will achieve greater awareness of these products. We see the great potential of the analyzed cases in their interconnections. Create a community using the delivery service and picking up products at collection point/store, effective online marketing and online presentation of products, farmers or host guests directly on the farms also it leads to better customer relationship with those who purchase local products in the region. We see the potential to apply direct contact between the farmer and the customer through a single structured organized event under one brand, which can also be organized in cooperation with other rural development institutions. Increase the availability and popularity of these products through SFSCs such as delivery services that deliver products to the doors, each area being addressed by a particular person who has the potential to shape the necessary personal relationship with the customer. We recommend further research on the Slovak market, to analyze the possibilities of creating an efficient, institutional and community-supported model of short food chains.
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