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MAKING REGIONAL FOOD SYSTEMS MORE SUSTAINABLE

Talis TISENKOPFS, Baltic Studies Centre, Kokneses prospekts 26-2, Riga LV1014, Latvia; talis.tisenkopfs@lu.lv
Sandra ŠUMANE, Baltic Studies Centre, Kokneses prospekts 26-2, Riga LV1014, Latvia; Sandra.sumane@gmail.com
Mikelis GRIVINS, Baltic Studies Centre, Kokneses prospekts 26-2, Riga LV1014, Latvia; Mikelis.grivins@gmail.com
Anda ADAMSONE-FISKOVICA, Baltic Studies Centre, Kokneses prospekts 26-2, Riga LV1014, Latvia; anda@lza.lv
Emils KILIS, Baltic Studies Centre, Kokneses prospekts 26-2, Riga LV1014, Latvia; emils.kilis@gmail.com
Vilma ATKOČIUNIENĒ, Business and Rural Development Research Institute, Vytautas Magnus University, Vytautas Magnus University, K. Donelaičio g. 58, Kaunas, Lithuania; vilma.atkociuniene@vdu.lt (*corresponding author*)

This paper analyses and compares regional food systems in Latvia and Lithuania from the perspective of sustainable food security and poses three questions: (i) what are the general food system characteristics and drivers of change in Latvia and Lithuania? (ii) how are the regional food systems constructed and performing? (iii) what are the conditions and pathways for regional food systems to become more sustainable? The paper examines in-depth the food systems in two regions – Pierīga region in Latvia and Vilnius region in Lithuania. The research is carried out within the framework of the EU projects TRANSMANGO and SALSA, and the Latvian Council of Sciences project SINFO. We find that food chain concentration and the interests of big food industries and retailers drive food systems in Latvia and Lithuania while civic and consumer-driven initiatives are becoming more important in stimulating a transition towards sustainable diets. The regional food systems are a complex intertwinement between the agro-industrial, proximity, domestic, and ecological subsystems. The pathways towards more sustainable regional food systems are difficult to negotiate and enforce as they require collaboration among various stakeholders who have different agendas. The long-term prospects of the regional food systems in terms of social and economic sustainability cannot be viewed in isolation from the demographic trends in the region, the steady depopulation in rural areas and efforts in strengthening urban-rural synergies.

Keywords: Food and nutrition security, Regional food systems, Latvia, Lithuania, Social innovation, Sustainability pathways

INTRODUCTION

Our food systems can be understood as composed of activities performed by actors (production, distribution, consumption, waste management), governing institutions (regulative, normative, cognitive), natural and human-made assets involved in food production (land, water, financial resources, etc.), and food system outcomes in terms of food and nutrition security (availability, access, stability, and utilisation of food), as well as environmental and socio-economic outcomes (Brunori et al, 2014). There is growing pressure on food systems to ensure food and nutrition security (FNS) to the growing world population, to safeguard and improve the well-being of farming and rural communities, and to reduce the environmental pressures contemporary food practices create (Conway, 2012; MacDonald and Reitmeier, 2017). Food systems deliver more affordable food at larger quantities than ever, but this often comes at the expense of the environment, human health and socio-economic equity. The current food systems are not fit for the future, and the grand challenge achieving climate-smart, sustainable food systems for a healthy Europe by 2030 (European Commission, 2018). The dominant food governance modes and practices along the whole food chain are ill-suited to satisfying environmental, economic and social needs in a complementary way. They need to be revised and adapted to move towards more sustainable regional food systems (SRFS) (IPES, 2015; Fresco, 2019).

Several directions of work have been indicated to make food systems more sustainable: (i) improve dietary patterns and life-styles to reduce the incidence of non-communicable diseases, while tempering the environmental impact of food consumption; (ii) create circular and resource-efficient food systems; (iii) boost innovation; (iv) empower communities and implement inclusive governance mechanisms for resilient and safe food systems (Mazzucato, 2018; Fabbri, 2017). Addressing these challenges requires changes in food systems at various scales: from international food systems to national, regional and local ones. Whereas global food chains are increasingly dominated by multinational companies, local and regional food systems become an arena of diverse sustainability-oriented innovations (Lever, Sonnino et al, 2019). In this paper we examine and compare food systems in Latvia and Lithuania and focus on the regional level of food provision. We pose three research questions: (i) what are the general food system characteristics and drivers of change in Latvia and Lithuania? (ii) how are the regional food systems constructed and performing? (iii) what are the conditions and pathways for regional food systems to become more sustainable and better fit for food and nutrition security purposes. We have chosen two distinct regions for comparison – Pierīga region in Latvia and Vilniaus apskritis in Lithuania. After reviewing the general

characteristics and trends in food system dynamics in the two countries we examine regional food systems with a focus on comparable products. Then we delineate future pathways for how these food systems can be made more sustainable, highlighting the role of social innovation and stakeholder collaboration in the value chain.

METHODS

The study draws on combined findings of EU research and innovation programme projects TRANSMANGO (assessing drivers of change in Europe's food and nutrition security), SALSA (examining the role of small farms and small food businesses and sustainable food security) and the Latvian Council of Sciences project SINFO (addressing the role of social innovation in sustainable food provision). Several methods of data collection and analysis are the basis of this analysis: media analysis and expert interviews have been conducted in Latvia and Lithuania to identify key food system drivers at country level; statistical data, interviews and participatory workshops have been used to design and analyse regional food system maps for certain product groups; scenario workshops with food system stakeholders have been conducted to elaborate the future pathways of regional food systems. Interaction and discussion between the Latvian and Lithuanian research teams has been a part of collaborative comparative study and helpful for framing comparisons.

RESULTS

Food system characteristics and drivers in Latvia and Lithuania

This section provides an overview of key similarities and differences in food system characteristics and drivers in Latvia and Lithuania. In terms of structural similarities: (i) both countries have a large segment of small farms; (ii) the overall agricultural productivity is relatively low (Eurostat, 2019b); (iii) the share household income spent on food is higher than the EU average (Eurostat, 2019a); (iv) openness to global markets is associated with a rapid intensification of the agricultural sector and concentration tendencies in food chain; (v) finally, both in Latvia and in Lithuania food production contributes a notable share to the national economy.

There are also differences between the two countries: (i) Lithuania is a slightly larger market; (ii) the food system in Lithuania is more concentrated in the hands of bigger industries and retailers; (iii) the agri-ecological systems also differ, with Lithuania being characterised by slightly more productive agricultural land and a milder climate; (iv) in Latvia we observe comparatively more developed alternative food chains (e.g. short supply chains) and urban-based civic food initiatives; (v) in Lithuania the food governance system is characterised by a higher degree of centralisation and *paternalistic sentiment* (pride in Lithuanian food industry, quality of Lithuanian products).

The drivers causing food system changes can be classified as market, policy and socio-cultural drivers, and they are similar in both countries. For example, some consumer-related drivers, such as food insecurity and the need to support certain vulnerable groups of the population, are pronounced in both countries. However, in Lithuania social solidarity seems to play a greater role in food assistance. Consumer awareness and concern about healthy and sustainable diets is on the rise in both countries. However, in Latvia consumer-driven and civic food initiatives seem to play a greater role in shaping new diets and sustainable food choices. In both countries consumer food habits are massively influenced by the food industry promoting consumption of processed (and often unhealthy) foods. The responsibility for sustainable and healthy diets as well as incidences of food poverty is largely placed on the shoulders of consumers themselves and civil society organisations. Both countries are witnessing a revival of traditional foods, artisanal products and the associated shortening of the supply chain, albeit these processes are more advanced in Latvia. There is an ongoing *normalisation* of purchasing directly from a farmer as well as bridging relations between local small scale producers and conventional supply chains.

However, the power of local actors to change the food system is limited when compared to the power held by multinational processing and retail corporations. In both countries, market concentration is still a key driver in shaping the food systems. Furthermore, media and experts in both countries identify climate change as a threat and highlight the role of research, innovation and knowledge-sharing in shaping sustainable food systems. Finally, the national governments of Latvia and Lithuania favour integration of agri-food systems in the global markets, and the role played by local and regional food systems is often underestimated.

Comparing regional food systems: example of dairy production

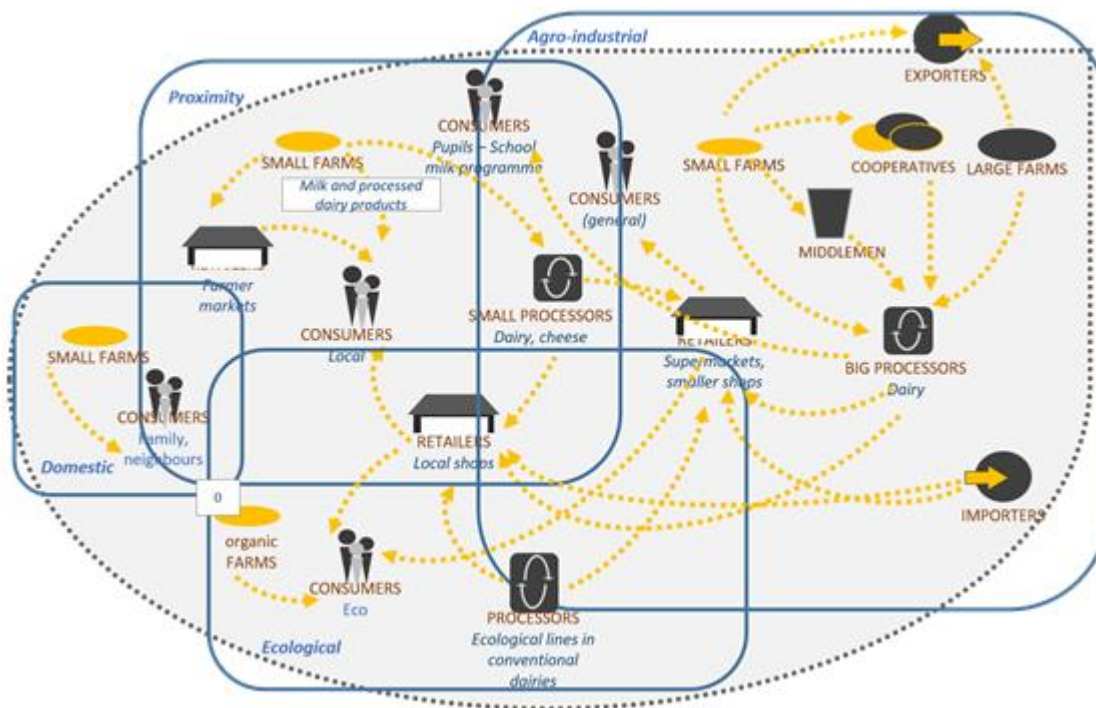
In this section we present and compare dairy food systems, and the key actors and trends within them in Pieriga and Vilnius regions, which were studied in-depth in the SALSA project. We pay particular attention to the position of small farms (up to 5ha or 8 ESU) in the regional food systems, as they compose the majority of dairy farms in both regions and their potential to contribute to a transition to more sustainable regional food systems is underexplored.

Milk is a typical food product in both regions in terms of its production and consumption. While in Pieriga there is a positive consumption – production balance (production surpasses consumption), in the Vilnius region, consumption and processing capacity has exceeded the regional production volume, and milk is imported. Vilnius region is not self-sufficient in dairy sector; the production in the region is lower than the consumption by 72 %. Meanwhile, in Lithuania, milk production is almost double the milk consumption. Despite the ongoing concentration in milk production in both regions, small-scale dairy farming prevails. An average dairy farm in Pieriga counts for 7.8 cows, while in Vilnius region it is 5.7 cows.

In both regions the dairy sector has experienced a severe crisis during the last decade, caused by the Russian embargo, abolishment of EU milk quotas, and fluctuating market prices. These economic and political impediments have been accompanied by unfavourable weather conditions, such as droughts (Vilnius). Some dairy farmers have switched to

a different branch of agriculture or have developed on-farm processing of dairy products in order to ensure sufficient income and economic stability.

Picture 1 illustrates that there are several subsystems co-existing in the regional dairy food systems: agro-industrial, proximity, domestic, and ecological. Each of the subsystems is characterised by different food system actors and practices, but they are interlinked.



Source: SALSA

Picture 1. Regional dairy food system (consolidated for Pierīga and Vilnius regions)

Comparatively bigger herds, dairy cooperatives, big processors, retailers and supermarket chains, middlemen who are linked to export/import markets characterise the sector's agro-industrial subsystem in the regions. Considerable public investments in the agro-industrial production model via subsidies and support to production modernisation have contributed to its dominance over other subsystems. Few small dairy farms in Pierīga, but more in Vilnius region operate in the agro-industrial system; they are connected to it mainly as suppliers to big processors in the region. Higher collection and control costs, quality issues as well as less advantageous contracts (lack of long-term contracts, lower price) with processors are the key reasons for small farms' limited involvement in this subsystem.

The proximity model is represented by smaller processing companies and retailers, niche and artisanal processors, and farmers who sell in short food chains. This is a typical sub-system where small dairy farmers operate as they sell milk and dairy products almost exclusively to individual customers in their vicinity. Proximity to the capital cities in both regions has encouraged small farmers to engage in various direct market exchanges with consumers there: in farmers' markets, direct purchasing groups, delivery to enterprises and other regular customers. Dairy farmers in more distant places from the capitals face far more difficulties in building stable individual market channels due to a smaller number of local customers and lower purchasing power. A significant share of direct sales within this subsystem is believed to be informal in nature.

Many small farms, in particular semi-subsistence farms, operate in the domestic dairy subsystem as they use a considerable share of their milk for personal consumption (including for animal feed) and offer or sell it in their very nearest neighbourhood and social networks (family, friends, neighbours). The number of farms operating primarily within this model is declining due to high production costs and very low income that does not cover the effort and costs of delivery.

Finally, there is a consolidating ecological dairy subsystem in both regions, which partly overlaps with the other three subsystems. In the agro-industrial model, there are examples of conventional processors which have opened also organic processing lines. However, it is common that organic dairy farms sell milk in conventional chains due to underdeveloped organic processing capacity or long distances to organic processors. Many organic farms are involved in the proximity subsystem by selling fresh and processed milk in a range of short food chains. Stakeholders saw good potential in this subsystem in the future, but with two policy and market conditions: (i) favourable policy measures in terms of public payments for the production of organic milk and (ii) physically accessible organic processors in the region.

While the agro-industrial model can effectively meet consumer demand for food products in sufficient volumes, it is receiving criticisms for its social and environmental practices. Farmers, in particular smaller ones, are in a vulnerable situation due to their poor negotiation power in this model. In the Vilnius region, it was also found that farmers in the agro-industrial model have been suffering more often from fluctuating milk prices than those selling milk and dairy products directly to the consumers (Vilnius). The proximity and the domestic models are more focused on delivering

special quality products, such as organic, traditional or products with a unique taste. Therefore, they also value local cultural resources, ie local production knowledge and traditions. In addition, farmers regain their market power in direct market exchanges with consumers, as they can better control the price and adapt flexibly to consumers demand. The key contribution of the ecological model to sustainable regional food systems stems from the reduced environmental impact of agricultural production.

Pathways to sustainable regional food systems

The scenario method allows to model different possible futures and imagine the ways for bringing them about or adapting to the envisaged conditions. The scenario workshop organised in Latvia in the framework of the SALSA project allowed visioning the conditions and pathways for strengthening the sustainability of the regional food systems, focusing especially on the role of small farms and small food businesses.

For more peripheral regions, the economic and environmental sustainability considerations point into the direction of developing trade within the region and focusing on the local market (incl. public procurement) as a feasible strategy. Along with on-farm trade and other forms of individual direct selling, this also requires a joint initiative by food producers and retailers to promote the sales and consumption of locally-sourced products, as well as formal and informal cooperation among farmers themselves to be able to collectively offer a full spectrum of products to consumers. Likewise, the economic and environmental sustainability of the regional food system can be increased by boosting the role of processing of farm products to both prolong their shelf life and reduce food waste. Land use also takes a prominent place in the debate over the sustainability of regional food systems as there is a need for ensuring sufficient access to and use of agricultural land by farms of various sizes (incl. new entrants) to avoid land grabbing and maintain biological diversity through the presence of scattered plots of different crops.

Sustainability of the regional food systems and the possibilities for ensuring FNS depend not only on production, but also on consumption. Alongside improved knowledge and skills in entrepreneurship, marketing and product development by farmers gained from advisors and peers, and special branding of local products, notable potential is seen in the contribution of regional small farms to more diverse, ecological and healthier diets for consumers. Here the role of better food awareness and education of regional consumers about the nutritional and health aspects of food, and the social, economic and environmental impact of different farming practices and systems is seen to be crucial. There is also an important role to be played by public authorities, who can develop and enforce regulations and policies governing food production that are also supportive of local producers and conducive to the legalisation of their production and trade practices. This would increase the overall transparency and traceability in the food chain. The possibilities for improving the resilience of small farms lie with the development of niche products (also special quality foods for special dietary requirements) and multifunctional on-farm activities (incl. various ecosystem services), as well as introduction of on-farm innovations (incl. resource-saving technologies of production), thereby making small farms economically, socially and territorially fit to contribute to food and nutrition security.

The long-term prospects of the regional food systems in terms of social and economic sustainability cannot be viewed in isolation from the demographic trends in the region and the wider surrounding area. This is a common topic of concern given the ongoing depopulation trends in rural areas and increasing urban sprawl. This calls for new efforts in strengthening urban-rural synergies (incl. tourism), boosting the ethos of solidarity within the regional food system and beyond, stimulating return migration of population, promoting environment-friendly rural lifestyles, and intensifying consumer-producer collaboration.

CONCLUSIONS AND DISCUSSION

Relevance of regional food systems for food and nutrition security

Regional food systems are internally diverse and composed of several subsystems which interact and can be both complementary and conflicting. These subsystems contribute to different sustainable food system goals and do so to different extents. Production efficiency – aimed at producing a sufficient amount of food for an accessible price - has long dominated food system practices and governance, which is reflected by the dominant position of the agro-industrial subsystem in the analysed regional milk food systems. In parallel, other food subsystems - proximity, domestic, ecological - have been operating or emerging which better addresses contemporary demands for socially just, environmentally safe, nutritious and healthy food.

Civic food initiatives organised in a bottom-up manner can be interpreted as forms of social innovation (Moulaert et al., 2005), which continue to grow in Latvia and Lithuania and show their transformative potential by introducing changes in food chain organisation and governance, and by reorienting food consumption to also meet social and environmental objectives.

Governments at various levels can use public policies to encourage new practices in regional food systems to improve their sustainability. For instance, urban food policies and territorial food strategies are quite broadly applied instruments in Europe to (i) develop a systemic approach to food as a multifunctional public good, (ii) engage civil society in food governance and (iii) collectively support transitions to sustainable food systems (Sonnino, 2019). The involvement of consumers, food industry, retailers and policy-makers in making regional food systems more sustainable is of particular importance to induce changes and coordinate the complexity of food systems in collaborative way.

Role of social innovation

Social innovations can complement conventional food system pathways by rectifying unaddressed issues and creating new connections between food system actors to make food systems more inclusive. Furthermore, in the project

SINFO we note that sustainable food initiatives, which are expressions of social innovation, aim to change the way food is purchased and consumed, and the way food is perceived. What is more, these initiatives address all dimensions of sustainability, even though some may focus on, for example, environmental sustainability (e.g. reduction of food waste), while others are more interested in economic and social aspects.

While their overall impact is difficult to assess with precision, a tentative answer can be provided regarding the transformative potential of sustainable food initiatives, based on Kropp (2018). She identifies four domains where the effects of sustainable food initiatives are quite clear:

1. the transformation of food practices and material conditions (doing). Initiatives generate changes in the landscape and changes in the objects present in communities.
2. the transformation of organization and governance (organizing). Initiatives can reinvent the relations between people who can try to achieve a common goal.
3. the transformation of meaning and interpretive patterns. Initiatives introduce new or strengthens alternative framings of processes in contemporary food systems.
4. the transformation of knowledge and competencies. Initiatives can stimulate the participants to obtain new skills and forms of knowledge and develop new practices.

By focusing on the specific novelties and disruptions that social innovation can introduce, we can see that even small-scale grass-roots innovations, such as farmers' and mobile markets can facilitate gradual shifts in the way food is purchased and valorised. Most importantly, this has the potential to be a holistic approach that acknowledges the environmental, economic and social dimensions of sustainability. Coordination and up-scaling of these innovations is a precondition to raise their transformative power and incite a shift of conventional regimes in regional food systems towards more sustainable ones (Bui, 2016; Ingram, 2015).

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