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How sustainable are territorialised food systems? A DELPHI approach for routine quantitative analysis

Faced with climate change and the increase in food-related diseases, policy makers are looking for new levers to encourage more sustainable consumption behaviour and food systems. The reterritorialisation of food, mainly addressed through the development of short food chains and local food policies, is presented as a potential solution. Often defined as an "alternative to the agro-industrial system", territorialized food systems (TFS) can be considered as the set of actors, and their interrelationships, who are located in the same geographical area (from the regional to the inter-municipal level), and who produce, process, sell, circulate, buy and consume "local food" (Kneafsey et al., 2013). However, TFS are still vague systems, in constant evolution, and on which quantitative data are still rare. They concentrate strong expectations in terms of sustainability - often included in their definition - without these expectations necessarily converging or being all verified, in a context where new actors (supermarkets, digital platforms, collective food catering, etc.) have recently entered these systems. The objective of the PLAT4TERFOOD project carried out in France (2023-2028) is to develop robust methods and adapted devices to produce new data allowing to better characterize these systems and to evaluate their impacts in the long term. The results will help researchers and stakeholders, including policy makers, to understand how and under what conditions these systems are, or can become, levers for changing consumer behaviour and food systems towards more sustainable practices.

The objective of this communication is to present the results of the DELPHI approach used at the beginning of the project to both co-circumscribe TFS and co-define indicators for routine quantitative analysis of their contribution to sustainability. These indicators are intended to be measured in the field at regular intervals, by research or development players, to facilitate the monitoring and steering of TFS, in particular in conjunction with local food policies that are developing in Western countries (Loudiyi, 2020).

1. From sustainable local food systems to territorialised food systems to be evaluated

There is an abundance of scientific and professional literature on local food systems. For example, in Feenstra's oft-quote definition, LFS are "rooted in particular places, aim to be economically viable for farmers and consumers, use ecologically sound production and distribution practices, and enhance social equity and democracy for all members of the community" (Feenstra, 1997).

However, like in the Feenstra's definition, local food systems are often defined as inherently sustainable, as an alternative to the agro-industrial systems model. Without going into the many debates on alternative food systems here (see, for instance, Holloway et al., 2017), the aim is to rethink the analysis of these systems without any positive preconceptions, but by adopting a collective definition in order to circumscribe them, so that they can be identified and assessed.

Moreover, territorialised food systems cannot be reduced to local food systems, where local food are produced and consumed. They include some of the social, economic, environmental components of what makes a place vibrant and different from others. This calls for a more complex definition of 'territorialised food system'.

From an assessment perspective, numerous lists of sustainability indicators exist for studying food systems, such as the SAFA tool proposed by the FAO. However, these lists include a large number of indicators that are sometimes difficult to measure and are not necessarily suited to territorialised food systems.

2. Methods

The method consists of consulting experts using the Delphi method. This iterative method involves presenting a series of questions on several occasions to a group of experts selected in advance. Each iteration allows the questions to be modified according to the input and comments of each expert. The method therefore has the advantage of preserving the individual and anonymous nature of each expert's contribution, since they each answer separately, while benefiting from a form of collective intelligence through the gradual enrichment of the questionnaire through their feedback. The aim is to identify a convergence of ideas, or even a consensus, or on the contrary a diversity of opinions. The survey sometimes concludes with a group session where the results are presented to the experts. This method has been used to develop metrics on sustainable food systems (Allen et al., 2019).

In this research, about 200 experts in TFS and/or sustainable food systems from France were contacted to take part to the consultation. The list of experts was composed with 4 types of actors: actors from research/high schools; actors from the agricultural/food sectors; iii) actors from civil society; iv) actors from institutions related to public action/public policies. Experts were first asked to comment an operational definition of TFS made from a literature review, then invited to select key quantitative indicators for measuring the contribution of TFS to 13 sustainability issues. Both sustainability issues and indicators were specified from desk research and previous experience in research-development projects or expertise on short/local food chains.

Two questionnaires were sent to experts, between February and March 2024. A final webinar was organised in June 2024 to agree on 20 key quantitative indicators addressing the contribution of TFS to sustainability issues.

3. Results

The results will cover i) comments on the operational definition of the TFS, i) the selection of indicators, the proposal of other indicators, the comments on indicators; iii) and the prioritisation of the sustainability issues to which the TFS can respond, or in relation to which they must make progress. About 50 experts already answered the first questionnaire one week after they received it (questionnaire open for 15 days).

4. Discussion

The aim of the discussion will be i) to discuss the added value of the definition of TFS reformulated on the basis of the experts' responses; ii) to put the experts' opinions on the contribution of TFS to sustainability issues into perspective with the results of the DELPHI methods used on food systems in general or specific value chains (e.g., short food chains for ancient grains products) (Cirone et al., 2023); iii) to highlight the methodological issues involved in routinely measuring the chosen

indicators, from the perspective of participatory research and citizen science; iv) to point out the limits of the DELPHI method that we carried out (number and types of experts, etc.).

References

Allen, T., Prosperi, P., Cogill, B. et al. A Delphi Approach to Develop Sustainable Food System Metrics. Soc Indic Res 141, 1307–1339 (2019). https://doi.org/10.1007/s11205-018-1865-8

Cirone F., M. Masotti, P. Prosperi, S. Bosi, G. Dinelli, M. Vittuari, 2023. Business strategy pathways for short food supply chains: Sharing value between consumers and producers, Sustainable Production and Consumption, Volume 40, 458-470, https://doi.org/10.1016/j.spc.2023.07.017.

FAO, 2020. Sustainability pathways: SAFA tool. https://www.fao.org/nr/sustainability/sustainability-assessments-safa/safa-tool/en/ (Accessed on February 15, 2024)

Feenstra GW. Local food systems and sustainable communities. American Journal of Alternative Agriculture. 1997;12(1):28-36. doi:10.1017/S0889189300007165

Holloway, L., et al., 2007. Possible food economies: a methodological framework for exploring food production-consumption relationships. Sociologia Ruralis, 47 (1), 1–19. doi:10.1111/j.1467-9523.2007.00427.x

Kneafsey, M.; Venn, L.; Schmutz, U.; Balazs, B.; Trenchard, L.; Eyden-Wood, T.; Bos, E.; Sutton, G.; Blackett, M. *Short Food Supply Chains and Local Food Systems in the EU. A State of Play of Their Socio-Economic Characteristics*; Joint Research Center: Seville, Spain, 2013. Available online: http://ipts.jrc.ec.europa.eu/publications/pub.cfm?id¼6279 (Accessed on February 15, 2024).

Loudiyi S., 2020. Construire une géographie des politiques alimentaires intégrées : Acteurs, échelles et gouvernance. Université Clermont Auvergne, 249 p.