



Short supply chains: Frameworks and extensions to public procurement

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ABSTRACT

Recently, policymakers' interest in short supply chains (SSCs), i.e., removing the non-value-adding intermediaries in the supply chain, has increased as these are seen as a means of supporting employment and sustainability goals. This article aims to elaborate on the understanding of SSCs, identify what motivates participants to get involved, examine their replicability in different sectors of the economy other than the food sector and how they can be fostered through public procurement. Policymakers' objectives with public procurement align with those associated with SSCs; therefore, transferability may be possible in the context of public procurement, in addition to sustainability, and access to opportunities for SMEs. Semi-structured exploratory interviews were conducted with SSC stakeholders to examine this and conclude that SSCs can be a valuable means of conducting socially responsible public procurement, with mixed views about their ability to foster gender equality. A case study is also presented with the key message that the application of SSC should consider suppliers' capabilities in addition to the mandatory application of SSC in the tendering process. Achieving positive results will require a shift in traditional procurement logic towards more flexible forms of co-opetition.

1. Introduction

Understanding supply chains and their governance structures attracted substantial scientific attention during the last decades. Three theoretical approaches are considered to be dominant in these studies (Ketokivi & Mahoney, 2020) – 1) Research-based on competency and resource-based theories focuses on the most capable actor performing the production activity 2) Inter-organizational power and resource dependence approaches seek to answer who controls the supply chain 3) Transaction cost theory focuses on efficiency. These models help to understand how supply chains, which are becoming increasingly complex with globalization, can exploit business benefits while providing cost advantages to the large firms involved. In addition to these theories, the ideas of Smith and Ricardo are an essential theoretical basis for understanding the importance of world trade (Samuelson & Nordhaus, 2009). However, since the 2000s, a growing body of literature has drawn attention to the need to take social considerations in addition to business considerations and direct customer requirements (e.g. appropriate quality, innovation, etc.). The challenges of the past years (trade closures during COVID-19, problems of trade routes such as the Suez Canal, or conflicts due to war impacted transport and logistics) raise the need to rethink globalized supply chains in different ways. These have only intensified the research on backshoring and nearshoring, pointing

to their potential economic, social and environmental benefits and preconditions (Stentoft et al., 2016, Ancarani et al., 2022, Pedroletti & Ciabuschi, 2023, Casadei & Iammarino, 2023). The issue of short supply chains (SSCs) is linked to these research activities. The crises of the last few years, especially COVID-19 (Sawyer & Harrison, 2023; Thilmany et al., 2021), have brought thinking about SSCs to the fore. The focus on SSC are primarily linked to the social benefits of local, disadvantaged or even small businesses and the environmental benefits and run counter to the principles of global and efficient complex supply chains.

In research, the concept of the SSC is closely linked to the agricultural sector (Paciarotti & Torregiani, 2021). Like many other areas, food production has become globalized, but there are several benefits to focusing on local producers, both environmentally and socially. Similarly, such objectives also exist outside the agricultural sector. Therefore, a query may arise regarding where this SSC model can be applied. Public procurement could be a possibility, as when public money is spent, it focuses on fulfilling needs and its additional social and environmental impact. Public procurement can support various social objectives, including promoting direct access to SMEs as bidders (reducing their involvement as subcontractors) and favouring women-owned businesses (WOB) as core bidders and sub-contractors. It is, therefore, essential to understand the interpretations of SSCs in public procurement and the benefits and complexities of prioritizing WOBs therein.

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The business case for preferring SSCs to traditional, multi-actor long supply chains is increasingly recognized among public and private buyers (Bayir et al., 2022). Proponents of SSCs credit them with producing benefits in all areas of sustainability: economic, social, and environmental, while also being better able to track and control supply chains. Short supply chains typically reduce the number of actors in a transaction, thereby helping establish direct relationships between buyers and sellers whereby both parties interact and exchange knowledge, establishing social relations (Kiss et al., 2019). Reducing the number of intermediaries is associated with an immediate pay-off for producers as it leads to more significant profits, while for buyers, quality can be more easily guaranteed because the chain is traceable (Malak-Rawlikowska et al., 2019). When buying food from SSCs, consumers pay particular attention to different aspects such as product quality, direct contact with the producer, health and nutritional value, price-to-quality ratio, confidence in product origin, and impact on the local economy (Solarz et al., 2023). The environmental impact of any economic activity can also be reduced by minimizing waste, emissions, and pollution if planned and executed thoughtfully.

Furthermore, the resilience of SSCs to externalities, such as supply chain shocks from border closures, war, or other interruptions, makes them an ideal solution for building independent economies and reducing dependence. SSCs are also associated with the UN's Sustainable Development Goals (Goal 12: Responsible Production and Consumption) (UN, 2030). With the recent coronavirus pandemic disrupting global value chains, shorter supply chains have been preferred to increase supply reliability and robustness through localization and the diversification of suppliers, especially in sectors of strategic significance (Gopalakrishnan et al., 2022).

This paper aims to develop a comprehensive understanding of the SSC approach and highlight its advantages and drawbacks. Our research questions focus on the characteristics and application of SSC on the one hand and its interpretation in public procurement on the other. We focus on the achievability of public policy objectives in procurement through SSC. Additionally, although most of the identified examples are connected to the food sector, this research investigates the transferability of the SSC model to other industries. It highlights SSCs in the public procurement context.

Following the introduction, we first summarise the results of the relevant literature review. After presenting the research questions and methodology, the findings of the interviews are described.

2. Literature review

In this literature review, SSC's approaches to and advantages will first be outlined and then linked to public procurement. Finally, from a social point of view, the relationship between women-owned businesses and public procurement is described, considering the emergence of SSCs in specific sectors.

2.1. Short supply chains and their advantages

Even though the concept of short supply chains has been widely studied, no single definition has emerged (Paciarotti & Torregiani, 2021). Although public governance is also increasingly paying attention to SSCs, EU Member States and other institutions still need to adopt a uniform definition (Markuszczyńska et al., 2012). The legal definition employed in the European Union is provided by Art. 2.1(m) of Regulation EU No. 1305/2013, which defines an SSC as a buyer-intermediary-seller (producer-processor-consumer) relationship of limited actors within geographical and social proximity characterized by collaboration and local economic development. It lacks a concrete definition of how many actors could be considered limited or what distance is social proximity. According to most authors (Bazzani & Canavari, 2013; Malak-Rawlikowska et al., 2019; Kiss et al., 2019), the primary characteristics of an SSC are the distance involved and the number of

intermediaries.

The relationships between stakeholders and the nature of communication are essential starting points for research on SSCs. The frequent, often informal, exchange of information between parties is noted in several studies and has thus become part of the understanding of SSCs. Marsden et al. (2000) emphasized the importance of information-sharing between buyer and producer in the supply chain concerning the number of times a product changes hands and the distance a product travels, defining SSCs based on relationship-building and value creation. Elghannam et al. (2017) highlighted that social networks (online or offline) could contribute to developing SSCs, while Kawecka and Gębarowski (2015) emphasized transparency. SSCs typically minimize the number of links and distances that goods travel without quantifying these parameters (Peters, 2012). By emphasizing direct relations and frequent communication, SSCs develop resilience (Michel-Villarreal et al., 2021), strengthening the sense of community. SSCs may also help revive local traditions that could be lost due to unfamiliarity and weaker demand outside the territory owing to the generosity of choice associated with longer supply chains.

SSCs are usually associated with local production and sales (Jarzębowski et al., 2020; Pató & Kiss, 2020; Canfora, 2016; Argypoulou et al., 2019; Gopalakrishnan et al., 2022) since the critical characteristic of locally produced goods is that they are produced and sold close to one another and reach consumers directly or through a single intermediary.

Presently, SSCs are primarily identified in the food and catering sector, leading to the sub-category "short food supply chain" (SFSC). Almost 15 % of farms in EU sell more than 50 % of their produce directly to consumers (European Parliamentary Research Service, 2016). The two abbreviations, SSC and SFSC, are often used interchangeably or discussed as interrelated terms (e.g., Thomé et al., 2021; Paciarotti & Torregiani, 2021). Its primary motive is to ensure better quality and fresher food which is more wholesome and traceable (Sellitto et al., 2018; Kirwan, 2004) while providing a fair return to the producers (Jarzębowski et al., 2020; Moore et al., 2022). Local-level economic growth is an outcome of SSCs as local businesses are supported, and jobs may be created (Kneafsey et al., 2013; Falguieres et al., 2015). SFSCs help farmers by providing them with fair earnings and promoting sustainability by reducing food waste and miles; they are also instrumental in promoting social inclusion (Jarzębowski et al., 2020) and ensuring quality. Thomé et al. (2021) see sustainability as a driver of short supply chains. However, there are doubts about whether SFSCs are environmentally preferable due to their significant variability in terms of environmental performance (Loiseau et al., 2020).

Due to the reduction in the number of intermediaries, the smaller quantity of products sold, greater acceptance of non-standardized products, and fewer packaging and refrigeration requirements, SSCs can contribute to sustainability by reducing waste (Kiss et al., 2019) and environmental footprints (Wertheim-Heck et al., 2018) by minimizing transportation costs and CO₂ emissions while supporting biodiversity (Canfora, 2016). It is also environmentally advantageous since it uses less packaging to preserve food (Beitzen-Heineke et al., 2017). SSCs may also help implement circular agendas such as local waste management by reducing transportation costs and motivating users to separate waste (Berruti & Palestino, 2017), benefiting local inhabitants and stakeholders through greater reuse and recycling (Rigillo et al., 2020).

Giampietri et al. (2016) found that sustainability, convenience, typicality, and personal satisfaction were the key sources of motivation for buying from local SFSCs, even at a higher price. Researchers agree that concerns about the quality and freshness of purchases and a sense of reliability are primary sources of motivation for consumers of SSCs (Sage, 2003; Migliore et al., 2015): those who buy from short supply chains typically believe that the products are fresher and of higher quality if purchased first-hand (Bakos, 2017; Watts et al., 2017). In addition, maintaining and communicating product authenticity is easier when the supply chain is shorter, as consumers often play a proactive

role in establishing and supporting SSCs in their localities (Markuszczyńska et al., 2012). SSCs also help generate employment, reducing urban migration among young people (Falguieres et al., 2015).

However, the seasonality of goods and limited local demand (Kiss et al., 2019) can hinder the stable flow of income for producers. The associated lack of availability of products may reduce consumers' commitment to SSCs. Price may influence purchasing decisions, as consumers are still price-sensitive (Berg & Preston, 2017). For businesses such as hotels, for which the quality of products and delivery time are critical, SSCs may be preferred; however, the high prices of related products and the availability of appropriate quantities of products as needed are still a hindrance (Argyropoulou et al., 2019). The smaller margins, high prices, and steep learning curves associated with SFSCs make them viable on a small scale, but growing and mainstreaming them have proven challenging as they may be outcompeted by conventional supply chains, which are typically more cost and resource-efficient; hence, SFSCs are usually idiosyncratic success stories and are unlikely to completely replace longer food supply chains (Moore et al., 2022).

Also, definitions of short supply chains vary, with the public procurement approach highlighting distance and the number of intermediaries as the two more tangible elements. However, we can also identify approaches focusing on relationships, information flows, and trust. A significant share of the related benefits is linked to sustainability: these include environmental benefits, aspects of social responsibility, and economic benefits (e.g., employment, more flexibility, and a higher quality supply). These aspects can also be explicitly linked to the greater objectives of public procurement.

2.2. Socially responsible public procurement and local firms

Socially responsible public procurement advocates looking beyond the cheapest offers for the best value for money. This helps create positive social outcomes such as more jobs, better working conditions, social inclusion, gender equality, and non-discrimination (European Commission, 2021). Since the public sector procures various goods and services for its day-to-day operations, for which it devotes a significant portion of its budget, small business owners may benefit from this. The European Single Market Scoreboard (Public Procurement Scoreboard, 2021) claims that 71 % of bidders in public procurement are SMEs, on average. Public organizations allocate a significant proportion of their budgets to buying activities, so achieving positive social impacts should be the ideal consequence. Supporting SSCs through public procurement, especially in agriculture, is critical to reducing the need to support the sector through other public interventions and spending (Storey, 1994; Canfora, 2016). However, price is still the most significant decision criterion in public buying (evaluated at almost 60 % of the decision weight on average in 2021 by the Public Procurement Scoreboard), which impedes sustainable public procurement.

It is also vital to investigate if SMEs see the public sector as a favourable customer based on their policies and payments; if not, they may hesitate to participate in public procurement (Loader, 2013). Typically, pride in selling to the government, the certainty of payments, and predictable demand (Loader, 2005) are the sources of motivation. However, local producers are reluctant to commit to being suppliers, especially for professional public kitchens, because this requires consistent delivery of large quantities of products as part of the supply contract (Lehtinen, 2012). The logistical and capacity weaknesses of SMEs are thus significant obstacles. Although legislators may stipulate that the latter should be supported, there are limits to what can be achieved. The personal motivation of purchasers and the resulting search for innovative individual-level suppliers may represent a solution (Vörösmarty & Tátrai, 2019).

By working with SMEs, the public sector can support local economies, regional development, and local sourcing (Walker & Preuss, 2008) via SSCs. Morley (2021) concluded through an analysis of in-depth

interviews with companies that provide food to government schools in the UK that public procurement has the potential to stimulate broader sustainability practices throughout supply chains and societal demand for sustainable food, which may motivate businesses to develop better products as well as engage them in more sustainable practices. However, the pursuit of social and environmental sustainability, the demand for competitiveness, and free trade standards collide in the context of public procurement within the European Union (Morgan & Sonnino, 2007); for example, EU procurement laws forbid specifying the requirement for "local" food in public catering contracts, which is one of several obstacles to re-localizing the food chain (Morgan, 2007). Accordingly, new ways of facilitating the purchase of more local food via short supply chains need to be engineered. For example, Regulation No 1305/2013 (8) of the European Parliament and of the Council of 17 December 2013 on Support for Rural Development (EU, 2013) incorporates the notion of supporting young farmers, women in rural areas, creation of short supply chains, etc. as a means to achieving rural development. This could be used conjoint with public procurement to justify buying from short supply chains.

2.3. Gender-responsive public procurement and SSC

The 2030 Agenda for Sustainable Development shared by the United Nations Assembly (UN, 2030) firmly supports responsible production and consumption and reducing inequalities, such as gender inequality. One way to achieve this is by creating favourable grounds for participation for all interested parties throughout the supply chain, along with favouring women-owned enterprises due to the latter's long history of being the most disadvantaged category of business owners (Bomani, 2020). SSCs could be one answer to this; as reported in the literature, most women-owned businesses (WOB) are SMEs (Oluka et al., 2021), and this is the area where short supply chains are traditionally the most present.

Regarding financial or labour-related decisions, banks, non-governmental organizations (NGOs), and government representatives are primarily men; this lack of representation hinders women's efforts to earn better incomes and to reduce their dependence on male family members, increasing their vulnerability (Siliprandi & Pezza Cintrão, 2021). Furthermore, Malak-Rawlikowska et al. (2019) found (from a survey implemented in several European countries and Vietnam) that almost half of the labour input in food production was supplied by women and more than half from hired labour; this indicates a role for gender-responsive employment. Siliprandi and Pezza Cintrão (2021) further claim that treating women and men equally with gender-neutral regulations (i.e. as if they have equal opportunities during public procurement) deepens gender inequality because the former are not usually reimbursed for working on family farms, and if employed, are typically seasonal workers who receive wages almost 40 % less than their male counterparts; hence, there is a need to investigate the causes of this discrimination and resolve the gender inequality gap.

Currently, most national public purchasing programs are designed to attract large-scale commercial producers since small farmers, both men and women, are frequently prevented from participating due to the programs' minimal supply requirements, complicated procedures, low pricing, and late payment terms. However, public buyers increasingly try to simplify contracts to promote socially responsible public procurement (Siliprandi & Pezza Cintrão, 2021).

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3. Methodology

As interviews are the preferred method for collecting new data sets (Adams et al., 2007), we employed qualitative research methodology involving semi-structured exploratory interviews to understand SSCs from the buyer, seller, and intermediary perspectives. This helped us gather responses to a fixed set of questions that reflected the themes of our research questions while also allowing us to dive deeper. Interviewees were initially selected based on the researchers' (authors') awareness of their involvement in SSCs, along with requests via email to several European organizations identified as working with SSCs via a Google search. We also used snowball sampling to obtain contacts from interviewees to connect with other potential leads. In total, 17 interviews were conducted with stakeholders from nine countries (USA, Belgium, Scotland, France, Denmark, Italy, Sweden, Romania, and Hungary).

To find interviewees who could respond to the questions from various perspectives, we aimed to find as diverse a pool of interviewees as possible by interviewing several kinds of stakeholders.

As our article focuses on applying SSC in public procurement, it was necessary to involve public procurement experts in this research (No. of interviews: 5).

We also interviewed various professional organizations and market actors, assuming that these stakeholders, as external actors, have a more complex view of the role of both public procurement and manufacturers in the SSC (No. of interviews: 10).

Additionally, it was considered important to interview producers with direct SSC experience. Due to the lack of openness to participate in the research and language barriers, fewer interviewees were recruited (No. of interviews: 2).

To avoid the need for travel, interviews were conducted online via the MS Teams software at an agreed time and date and lasted an average of 70 min. They were recorded and transcribed using the latter software with the prior consent of the respondents to analyze later in textual form. The recordings were then replayed manually to check them against the transcriptions; missing information and misplaced words were corrected, and fillers were removed to create a clean interview version that was easier to explore.

We asked questions based on the literature review to gain insight into

the interviewees' understanding of SSCs. This referred to the aspects that define SSCs, the factors that motivate the use of SSCs, the benefits, and the typical sectors in which they are used. This article examines these specific research questions:

R1: What factors help identify SSCs?

R2: What motivates producers and consumers to participate in SSCs?

R3: What are the benefits and complexities of SSCs?

R4: Can SSCs be used in sectors other than food?

In addition to the above, we also asked specific questions about the characteristics of applying SSCs, such as social or gender aspects.

R5: What social goals can be achieved by public procurement that uses SSCs?

R6: Can the public sector use SSCs to foster gender equality in public procurement?

A case study was also prepared to demonstrate the practical application of the study results. It presents a real example of a Hungarian public procurement procedure that complies with the terms and requirements of the prevalent Regulation. According to Hungarian legislation (Government Decree 676/2020 (XII. 28.) on the specific rules applicable to public procurement procedures in the field of public catering), which follows the framework of Regulation No. 1305/2013 (EU, 2013), the mandatory use of Short Supply Chains (SSC) for the procurement of public catering services is set at 60–80 %.

The data used in the case study is publicly available and supplements the interviews for discussing the lessons learned. The procurement subject is a public waste disposal service with a value of HUF 1,314,650,480, carried out in 2022. This case study describes how SSCs can be managed through the public procurement procedure and the execution phase, enabling the identification of recommendations for using SSCs in a public procurement context.

4. Findings

The detailed outcomes of the interviews are discussed in the following section according to the research questions.

R1: What factors identify SSC?

When we asked our interviewees what dimensions they used to qualify for an SSC, the answers were as varied as the participants. For example, four respondents considered that products transacted within internal national borders conformed to the definition of SSCs. At the same time, six said they needed to be local or within a specified proximity, but there was no clear consensus about what this proximity was, and for the rest, distance did not matter as long as the overall chain was short.

Regarding the number of intermediaries, although most respondents agreed that a maximum of one was permissible, some did not tolerate intermediaries between producer and supplier. In contrast, others did not limit the number if value was added, and all parties received fair compensation. Most respondents agreed that intermediaries play a significant role in logistics aggregation, which small-scale producers may struggle with (as it represents an additional burden to production-related responsibilities). At the same time, the former can also help producers sell to the government by collecting products from several producers and bidding as a single entity. In addition, intermediaries are often needed to supply to public schools due to a lack of ample kitchen space, such as sorting and processing facilities for individual orders received.

Similarly, all participants acknowledged the role of information exchange and relationship-building in sustaining SSCs. Storytelling was considered critical for conveying product quality, and several public buyers used it to educate students about food sources and consumption habits. A public buyer pointed out that this close relationship helps suppliers and consumers adapt quickly to demands when needed.

Concerning sustainability, the majority believed SSCs to be economically and socially sustainable due to more equitable welfare distribution, but not inherently green and environmentally friendly, as

buying from SSCs could sometimes mean purchasing products made using outdated technology or chemical fertilizers, which could be more polluting than buying products produced efficiently but further away using a longer supply chain.

Last, even if the terms 'local' and 'short' supply chains seem to be used interchangeably in the SSC literature, local supply chains are, at most, a subset of SSCs. They are the preferred kind, presumably due to similar language, culture, food habits, and thus the ease of communication; however, it is difficult to define what is 'local' concretely. Additionally, as respondents pointed out, EU procurement laws do not allow public buyers to discriminate based on the 'localness' of products. Furthermore, finding all the products a purchaser requires nearby is sometimes impossible due to a lack of favourable production conditions.

To summarise, there is no common understanding of SSCs. However, there is consensus that the number of intermediaries should be as few as possible, and there is a need for active knowledge-sharing.

R2: What motivates producers and consumers to participate in SSCs?

Although enthusiasm about SSCs has existed for some time, all the public buyers first participated in them because of the government's political agenda of buying more local products to stimulate the national economy. A public buyer revealed that they usually only buy from SSCs if prices are competitive since national procurement policies focus on price only; this highlights the importance of political motivation in supporting SSCs. Second, SSC sellers' willingness to sell to the government also motivated buyers to buy from them. Factors ranked highly were better quality products, more value for money, and control over the supply chain process.

Producers are primarily motivated to sell through SSC because of the greater potential profit due to the reduced number of intermediaries and timely payments from public buyers (payments are usually made within 30 days). Moreover, once a contract is concluded, they are guaranteed to sell, giving them more confidence to sell directly. In addition, not having to store products due to their immediate sale reduces storage costs. Multiple respondents also cited a feeling of 'feeding the community' as an important source of motivation.

In terms of buyer attractiveness, although public buyers are attractive customers since they pay on time and have consistent demand, they often require strict compliance, additional administrative work, and certification, and as such, are too big for small-size producers, so the use of intermediaries or collective sales units such as food hubs or producer co-operatives can help.

R3: What are the benefits and complexities of SSCs?

Our interviewees reaffirmed the first and foremost benefit of SSCs discussed in the literature: a more significant share of profit goes to the producer, more adequately rewarding them for their contributions (rather than intermediaries taking their share of profit). This is perceived as making SSCs fairer to everyone involved. Furthermore, since producers undertake multiple activities that would be carried out by additional actors in a conventional supply chain (as one of the respondents suggested, such as raising cattle, milking, and making cheese, as well as sales), there is a greater value added as there are fewer players in the supply chain.

Second, due to direct communication between buyers and sellers, the supply chain is robust, controllable, and resilient to external shocks, assuring buyers of quality and after-sales support when needed, hence reducing the price to the client in terms of overall value for money and long-term relationship building. Third, SSCs support local development by 'representing' local products and producers; the money stays within the locality rather than being transferred to a few beneficiaries, leading to a more equitable distribution of societal benefits and a sense of belongingness. Furthermore, products proximally sourced do not usually require a lot of processing, storage, and packaging, which maintains their nutritional quality and saves on energy (-related costs). Finally, the possibility of selling non-standardized products that are otherwise not accepted for sale in big shops or supermarkets allows producers to

sell more products at a fair price, reducing waste.

Although SSCs are associated with several benefits, some specificities make it challenging to administer and operate them on a large scale, such as for use in public procurement. Products are less standardized, and since sellers typically sell small quantities, quality may vary; public buyers may wish to avoid drawing up multiple contracts and tenders while also bearing the risks of inadequate quality, failed deliveries, or finding replacements quickly. Public buyers must also exert much more effort and cost in the supplier identification and negotiation phases, as they have to organize talks with many potential suppliers, increasing the administrative burden. Bigger suppliers may promise a more stable supply, and replacements can easily be found due to their more extensive networks. An example of the latter is that school kitchen staff cannot handle multiple deliveries several times a day, so buying from big suppliers may be preferred (several products can be collected/delivered at once, reducing the labour involved in sorting deliveries and quality checks). Maintaining consistent quality and providing quality certification is usually difficult for small producers due to the high cost.

Similarly, to be successful, sellers must become multi-dimensional actors with competencies such as producing, selling, transporting, etc. They typically find public procurement processes complex, requiring much documentation and strict supply and delivery rules, while insufficient initial financial and training support is provided. To overcome this, all purchasing respondents agreed to collaborate with producer co-operatives or other structures and accept collective bidding; however, implementing this can be challenging.

SSCs were found to be more resilient to supply chain shocks than larger supply chains during the COVID-19 pandemic. Nevertheless, a respondent stated their concern that even if a large proportion of the population and companies had shifted to using SSCs during this period, they had since typically returned to their usual buying practices due to cost or convenience. Furthermore, there is a need for logistics partners or intermediaries, especially with small-scale production and sales, since the latter can assemble smaller volumes of products, accumulating them in line with demand, increasing convenience for both public and private buyers.

In contrast, some interviewees suggested that publishing tenders in the local language or asking for geographically denominated products could help overcome barriers to participating in public procurement tenders. To meet demands for large quantities of products, a common problem for small-scale producers, public buyers had agreed to break bigger tenders into several mini tenders, although this involved additional effort. Until now, public buyers have only bought a small amount of their budgets through SSCs, as arrangements are not in place for purchasing larger volumes simultaneously.

R4: Can SSC be used in sectors other than food?

Although SSCs are predominant in the food sector and most of our respondents were connected to the food and agriculture industries, we asked them to think of other sectors where SSCs could be used. Almost all of them talked about what SSCs could be developed within their own countries (i.e., restricting SSCs in terms of distance to within national boundaries), even those who had not defined distance as a necessary characteristic of SSCs in response to R1. The textile sector was the most common suggestion. Apart from this, industries whose products require less processing and are associated with strong domestic production capacity were identified, like furniture, wooden products, toys and handicrafts, construction, shoes, and cleaning products. Even if the SSC model can be replicated in other industries, as one interviewee cautioned, it is not possible to buy or sell everything through SSCs; sometimes, buying from non-domestic longer-chain suppliers is better value for money.

R5: What social goals can be achieved with public procurement that uses SSCs?

While some public buyers have already started considering factors like geographical proximity, the seasonality of products, traceability, and minimal packaging as criteria for awarding tenders (aiming to

increase spending on SSC gradually), others still considered the stability of supply at the lowest price to be the main criteria, citing issues like being bound by European procurement laws concerning non-discrimination against bigger established suppliers both nationally and internationally.

Overall, views were mixed about achieving social goals with SSC. Most respondents believed that even if the number of intermediaries could be reduced, new employment opportunities would arise as demand for labour increased as SSCs grew. Some interviewees pointed out that finding an adequate workforce in certain regions is difficult, while there is high unemployment in other areas. All respondents (buyers, facilitating organizations, and sellers) agreed that SSCs could benefit society due to the provision of better-quality food, more direct compensation for efforts, and building relationships between different entities. They can also support local economic growth and promote tourism while reviving traditions and cultures due to the greater acceptance of non-uniform, non-standardized products. An interviewee mentioned how traditional crops such as the 'snake pea' had re-appearance in school meals when producers were encouraged to sow it, with purchases guaranteed via public procurement. Such initiatives were important for increasing food sovereignty and educating younger members of the population about varieties of ingredients, thus influencing their food choices.

R6: Can the public sector use SSC to foster gender equality?

Concerning whether SSCs can be used to support gender equality, opinions were divided, mainly based on the affiliation of the interviewees. Most public buyers did not believe SSCs could foster gender equality, clarifying that they could not discriminate between genders and support women-owned businesses solely because of their ownership if they were not competitive enough.

Alternatively, most facilitating organizations and sellers claimed that SSCs could foster gender equality; spending within a territory gives back to the region, from which all genders benefit. Women can still be employed doing administrative tasks in sectors in which work is labour-intensive and male-dominated. This is comparatively straightforward with SSCs due to better relationships and knowledge-sharing among different actors. Vocational training and funding opportunities should be provided to encourage greater participation by women. Also, as SSCs allow for traceability, engaging in and supporting initiatives that empower women's communities is possible.

The gender imbalance in the workforce is typically greater when manual work is involved, as females produce lower output for equal hours due to their lower physical strength. All the respondents agreed that most farms participating in SSCs are family-owned; however, the property titles and representation are usually male-dominated. Although women make up a significant share of the workforce as helpers or supporters, they are not adequately paid for their work because of the assumption that this is their family-related responsibility, allowing them no power of decision-making. Hence, public buyers should ask for gender-balanced employment declarations from sellers as a minimum requirement.

Furthermore, some interviewees pointed out that women generally thrive as sellers in SSCs owing to their better communication and networking abilities, but product quality is still paramount. All respondents agreed that SSCs create a level playing field for male and female producers, providing them with a platform to sell their products without being discriminated against due to their gender. SSC helps support women-owned businesses because, when interacting with buyers, producers can sell their personal stories; however, enough qualified women are required; otherwise, the labour shortage will force buyers to overlook gender-equality issues. Also, public buyers should issue value statements about the need for non-discrimination and gender inclusiveness, focusing on socially responsible procurement. In conclusion, SSCs may help overcome gender inequality by empowering farmers, as a big part of the farming community comprises women-owned businesses. Ultimately, this has a ripple effect: helping small

and medium-sized enterprises via SSC also supports women and other minority groups.

5. SSC in school catering: A case study

In 2022, Catering Services Ltd. (CS Ltd.) initiated a public procurement procedure for catering services (Public Notices: <https://www.ted.europa.eu> OJ S 135/2022 15/07/2022, OJ S 159/2022 19/08/2022). The procurement aimed to provide catering services for primary schools, colleges, and secondary schools. To target suppliers close to the site, the contracting authority divided the procurement into two parts (lots/districts). The successful tenderer was responsible for purchasing raw materials, preparing meals in their own kitchens based on a central menu, delivering the meals in suitable containers to the serving areas, and regularly removing the waste produced. The framework contract was initially published for two years and renewable for another year based on satisfactory performance.

The procedure was conducted as an open procedure without negotiation, with the awarding criteria including the Short Supply Chain (SSC), for which 4 % of the total score could be awarded. According to Hungarian legislation (Government Decree 676/2020, § 4 (2)), the SSC required in the awarding criterion must be 60 % of the total value of the products procured from 1.1.2022 and 80 % of the total value of the products procured from 1.1.2023. There was one bidder for each of the two parts, with whom the contract was concluded.

The main lessons learned from the interview with the head of the procuring organization, CS Ltd., in the second year of the procurement were as follows: The SSC was chosen primarily because it was a legal requirement. The contracting authority found SSCs to be closely linked to sustainability considerations. However, the service providers faced significant challenges, as the legal requirements were deemed excessive and typically feasible only for smaller contracting authorities and tenderers. The complexity of the product range contributed to the difficulty in meeting the SSC requirements.

The contracting authority's leader observed a high incidence of circumventing behavior by suppliers, who often repackaged products and falsely claimed them as EU-made, disadvantaging local suppliers. This was unacceptable to the contracting authority, however they had to accept the bidder's declaration that the SSC conditions were met. The interviewee suggested that a clearer definition of product origin in the legislation could help address this issue, although it would increase the administrative burden. Nonetheless, the economic incentive effect would be significant. A fair approach to SSC makes sense but requires curbing excessive legal expectations and clarifying the interpretation of origin to protect both contracting authorities and compliant tenderers.

6. Discussion

This paper identified six research questions in the methodological section, which were addressed based on the interviews and the case study.

The first research question addressed the understanding of SSC. We identified that the interpretation of SSCs is far from uniform, but the elements identified in the literature are present in the latter's application. The situation determines which factors—distance, number of actors, and nature of interactions—are considered important by the interviewees. We also indirectly identified that the three factors are interrelated: with fewer actors physically close to each other, it is easier to build rapport and information flow.

The second research question addressed sources of motivation. On the supplier side, many personal sources of motivation were identified (being proud of quality, being beneficial to the community, etc.). This indicates that not only are job opportunities being created through SSCs, but also a sense of social well-being. The motivation for including SSCs in public procurement stems from the EU policy of promoting environmental, social, and economic goals. These two sources of motivation are

consistent to some extent, which is also connected with the next question.

The third question inquired into the benefits and complexities of SSCs. The benefits of SSCs we identified echo those identified in the literature, of which promoting SMEs and achieving environmental and social goals through public procurement are key. The motivation for public procurement activities is clearly political and regulatory. In this context, the challenge of involving SSCs for suppliers is its complexity. SMEs often have insufficient capacity and are unprepared for the extra administration involved in public procurement processes. This requires more open communication and flexibility from both partners.

The fourth question concerned the transferability of results. Most examples of SSCs in the literature and this research are identified with the food sector. In the food sector, the literature indicates consumers' belief in the greater value of short-supply-chain products due to better communication and more information. In public procurement procedures, there is a need to motivate not only the legislators but also the stakeholders of public procurement. The aim should be to ensure that the lowest price is not the sole basis for evaluation, but contracting authorities and tenderers see the benefits of evaluating social aspects as an awarding criterion. One of the key messages of the case study presented is that the application of SSC should consider suppliers' capabilities in addition to the mandatory application of SSC in the tendering process.

Research question five addresses sustainability concerns. Expectations about the sustainability of SSCs are positive. Several promising impacts were mentioned, ranging from the development of local communities to the biodiversity impacts of food produced. While the literature is ambivalent about whether SSCs have a positive environmental and social impact, we identified strong support in this area during our interviews, with our interviewees overwhelmingly associating positive effects with SSCs.

Research question six addressed gender issues. These are seldom investigated in the SSC context. We find that gender equality, one of the priorities of EU public procurement policy, may be partly supported through SSCs. While women-led enterprises may not get direct support, women are often the driving force behind SSC initiatives, and SSCs can help provide them with opportunities as producers and suppliers.

7. Conclusion

SSCs cannot completely replace conventional supply chains because they are not scalable. However, they are a part of the supply chain spectrum that is becoming increasingly significant and play a role in socially responsible procurement, with the potential to be deployed in sectors other than food. Public institutional involvement can alter the role of SSCs significantly due to their purchasing power and level of demand, thereby fostering gender equality and helping achieve other social goals by focusing on an aggregate value-for-money approach (rather than being solely cost-centric) and eliminating many of the adverse outcomes private buyers face when making purchases from SSCs. A new approach and a more flexible framework will be needed to encourage their use, as SMEs (especially small and micro-enterprises) find it challenging to participate in the traditional framework of public procurement; connecting SSC-related public procurement with other government programs could be helpful.

Traditional supply chains can be explained primarily by classical economic theories (Ketokivi and Mahoney, 2020), efficiency, cost optimization, and economies of scale dominate their design and operation. Short supply chains are more related to sustainability (a combination of social, environmental, and economic objectives). An important research task in this context is to understand the shift in approach that needs to take place in both the economy and policymaking.

Further research is required to understand better how procurement from SSCs can be reconciled with the public procurement framework. While there are alternative public policy tools that can promote

sustainability and assist small and medium-sized enterprises (SMEs), it has been observed that utilizing public procurement is valuable. This approach could enhance stakeholders' social and economic well-being. Future research can contribute to this study by further exploring the existing research questions in detail, expanding the research focus, and identifying diverse respondents who could further contribute to the dialogue on short supply chains and public procurement. The impact of the different crises of recent years on short supply chains and whether they have had an impact beyond the period of closures could also be the subject of future research.

The current findings help identify the main characteristics of SSCs. These outcomes are useful for a greater understanding of the concept of SSCs by both buyers (public as well as private) and public policymakers. Although regulation is in place to facilitate the choice of SSCs in public procurement (EU, 2013), it would be essential to refine the regulations, develop further recommendations and incentives, and showcase good practices.

This study contributes to the fields of sustainable public procurement, short supply chains and understanding alternative supply chain networks in general. By bringing forward a buyer–seller–intermediary perspective, it aimed to summarize the existing concerns and motivations of the participants of short supply chains as well as look into the broader development of this research field by exploring sectors other than food, where this concept can be replicated. The research findings will help promote sustainable public procurement through direct buying, narrowing the buyer–supplier gap as well, and fostering women-owned businesses.

Finally, we would like to acknowledge the limitations of this study. First, due to the researchers' limited language skills, many potential interviewees whose inputs could have further enriched the analysis were omitted. Second, since the conclusions are primarily based on an analysis of the interviews, the current results might not be representative. For a more comprehensive understanding of the subject, conducting further research involving a broader range of SSC actors is advisable.

CRedit authorship contribution statement

Gyöngyi Vörösmarty: Writing – review & editing, Supervision, Methodology, Funding acquisition, Conceptualization. **Dibya Rathi:** Writing – original draft, Visualization, Validation, Resources, Methodology, Investigation, Formal analysis, Data curation. **Tunde Tatrai:** Writing – review & editing, Supervision, Methodology, Funding acquisition, Data curation, Conceptualization.

Declaration of competing interest

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Data availability

The data that has been used is confidential.

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