

Promoting resilient and sustainable food systems: A systematic literature review on short food supply chains

Abstract

Purpose: This review aims to comprehensively analyze the Short Food Supply Chain (SFSC) model, which connects local food producers directly with consumers. By exploring participation factors, sustainable practices, challenges, economic impacts, and social benefits, this study seeks to provide a thorough understanding of SFSCs. Addressing gaps in existing research, the review aims to guide policymakers and practitioners in fostering sustainable, resilient, and inclusive local food systems.

Design/Methodology/Approach: A systematic literature review of 92 research articles was conducted following a well-defined research protocol.

Findings: The review revealed that factors driving the adoption of SFSCs include increasing consumer demand for local and sustainable products, resilience-building in the food system, and environmental concerns. The SFSC supply chain was categorized into four critical stages: food sourcing and production, processing, aggregation, and distribution and review examined the sustainable practices at each stage. However, challenges such as information asymmetry, lack of infrastructure, regulatory barriers, and market dynamics hinder the full potential of SFSCs. Economically, SFSCs contribute to local economic development and empowerment of small-scale producers, while also showing promise in reducing environmental footprints and fostering community engagement.

Research Implications: The study identifies several research avenues to further advance the understanding of SFSCs. Future research should delve into consumer behavior and attitudes towards SFSCs, analyze the full sustainability impacts of SFSCs using integrated assessment methodologies, and extend the study to different regional contexts. Additionally, investigating policy interventions and governance mechanisms that can support the growth and resilience of SFSCs will be crucial for promoting sustainable agricultural practices.

Originality/Value: This review contributes to the existing literature by providing a comprehensive and systematic overview of SFSCs, addressing gaps left by previous review studies. The study's

findings offer valuable insights for policymakers, researchers, and stakeholders seeking to enhance the adoption and support of SFSCs in contemporary food systems.

1. Introduction

The global food system has been undergoing significant transformations in recent years, with an increasing emphasis on sustainability, local sourcing, and direct producer-consumer relationships. At the heart of these changes is the concept of the Short Food Supply Chain (SFSC). SFSCs are networks of connected and interdependent actors mutually and cooperatively working together to control, manage, and improve the flows of information-embedded products, services, resources, and/or information, from farm to fork, seeking a reduction of intermediaries and physical distance between producers and consumers (Bayir et al., 2022). SFSCs provide a dependable substitute for conventional supply chains, as their food reflects the characteristics of “local”, “natural”, “healthy” and “reliable” (Aguiar et al., 2018). These chains involve a limited number of economic operators, committed to cooperation, local economic development, and close geographical and social relations between producers, processors, and consumers (Aouinaït et al., 2022). SFSCs represent a solution that may increase the profitability of small and medium-sized farms or processing companies (Malak-Rawlikowska et al., 2019). The interest in SFSCs has grown significantly in the last decade, notably in respect of their potential role to achieve more sustainable food chains (Michel-Villarreal et al., 2021). They are widely promoted due to the positive impact on social, economic, and environmental sustainability (Parrag et al., 2022). SFSCs are distinct from Long Food Supply Chains (LFSCs) in that they involve a limited number of economic operators, have close geographical and social relations between producers, processors, and consumers, and seek a reduction of intermediaries and physical distance between producers and consumers (Aouinaït et al., 2022). In contrast, LFSCs typically involve a larger number of economic operators and longer physical distances between producers and consumers. SFSCs are also distinct from conventional supply chains as they reflect the characteristics of “local”, “natural”, “healthy” and “reliable” food (Aguiar et al., 2018).

This supply chain involves a direct or limited number of intermediaries, connecting local food producers with consumers, and minimizing the distance between production and consumption (Zhang & Yu, 2021). The importance of SFSCs cannot be overstated. It holds the potential to address several pressing issues in the current food system, including environmental degradation,

food safety concerns, and the marginalization of small-scale farmers. The importance of SFSC lies in their ability to support local economic development by empowering small-scale farmers and producers (Abbate et al., 2023; Hirvonen et al., 2021). It also contributes to food safety by enhancing traceability and transparency (Zhang & Yu, 2021), and has lower environmental impacts due to reduced transportation distances and a focus on sustainable practices (Mangla et al., 2021). Moreover, SFSC fosters community engagement, promotes social equity, and facilitates the adoption of innovative and market-responsive practices (Mangla et al., 2021). Emphasizing direct connections between producers and consumers, these supply chains have the potential to reshape the food industry and create more resilient and inclusive food systems (Ge et al., 2022).

The significant growth in SFSCs initiatives has led to a substantial body of research, primarily focused on exploring the characteristics, and structures of SFSCs (Nouira et al., 2022; Verraes et al., 2015; Liu & Lee, 2019) and challenges faced in SFSC (Dung et al., 2021; O'Hara et al., 2021; Cooper et al., 2021). Additionally, researchers have investigated the potential impact of SFSCs on the economy, environment, and society (Bannor et al., 2023; Wang et al., 2023; Birtalan et al., 2021), as well as consumers' attitudes and behavior towards SFSCs channels (Sadeli et al., 2023; Arcese et al., 2023). At this stage, a literature review on SFSCs is crucial for understanding their role in the transition of rural economies and the challenges of conventional agriculture (Renting et al., 2003). It is instrumental in evaluating the sustainability, circular economy, and environmental impacts of SFSCs (Kiss et al., 2019), as well as identifying research gaps, especially regarding new business drivers in the post-industrial era (Lankauskienė et al., 2022). Existing scholarly reviews on SFSCs have centered their attention on distinct aspects, such as the characterization of SFSCs (Bazzani & Canavari, 2013), the examination of SFSC logistics (Paciarotti & Torregiani, 2021), and an exploration of the coexistence of both long and SFSCs (Thomé et al., 2021), they do not offer a comprehensive overview of SFSCs' including factors affecting SFSC, sustainable practices at each phase of SFSC, challenges and complexities involved, role of different stakeholders involved in SFSC and economic impact, social benefits, and environmental implications of SFSC. These reviews suffer from limitations such as single-perspective approaches, limited thematic coverage, and non-comprehensive use of keywords, consequently a comprehensive understanding of SFSCs, their functioning, and their potential benefits and challenges is still lacking.

Given the growing academic interest and the lack of focused reviews in recent years, there is an urgent need to conduct a comprehensive literature review to gain a holistic understanding of the progress and key areas of interest in SFSCs. This endeavor will help identify research gaps and provide valuable insights for future studies in the field. This review aims to fill this gap by providing a systematic overview of the existing literature on SFSCs considering all gaps in previous review studies. The research questions guiding this review are:

- What factors influence participation in SFSCs, and what are their economic, social, and environmental implications?
- How can sustainable practices enhance the impact of SFSCs, and what challenges and complexities are associated with their implementation?

Answering the research questions raised is of utmost significance for multiple reasons. Firstly, delving into the factors that influence participation in SFSCs and its impact can provide clarity regarding the potential impact of SFSCs on the food system. This knowledge can help policymakers and practitioners make informed decisions about the integration and promotion of SFSC models. Secondly, exploring how sustainable practices can enhance the impact of SFSCs and identifying the associated challenges and complexities is essential in understanding the benefits and obstacles of implementing SFSCs. This understanding can guide policy and practice to ensure successful adoption and implementation. Additionally, by investigating sustainable practices at each phase of SFSCs, the review can shed lights on how these models can contribute to more sustainable and resilient local food systems, while also addressing concerns related to food quality and safety. Furthermore, understanding the economic impact and social benefits of SFSCs can illuminate their potential to promote rural development and support small-scale farmers in developed and developing countries. Lastly, conducting a comprehensive literature review will not only help identify research gaps in the field but also provide a holistic overview of SFSCs, encompassing various aspects such as stakeholder roles, environmental implications, and economic outcomes. Considering the growing interest in SFSCs and the lack of focused reviews, this undertaking becomes urgently necessary to consolidate existing knowledge and inform future studies effectively.

2. Methodology

2.1.First Phase-Literature search

The approach selected for this paper's research methodology involves a literature review. This method aids in identifying trends and gaps in existing scientific literature (Lagorio et al., 2016). It allows for combining and summarizing various studies to gain fresh insights and broadly applicable research outcomes (Friday et al., 2018). Additionally, it supports discussions about potential future research directions (Touboullic and Walker, 2015). To ensure the study's credibility, accuracy, strength, reproducibility, and clarity, a well-defined research protocol was followed, with careful documentation of each step (Kupiainen et al., 2015). The literature review was conducted using the five-phase framework proposed by Denyer and Tranfield (2009) and Wong et al. (2012):

- Formulating research questions
- Finding relevant studies
- Assessing and choosing studies
- Analyzing and combining information
- Presenting and utilizing findings.

The first and pivotal phase of a literature review involves determining the study's scope by pinpointing precise and valid research questions. These questions are vital for guiding the selection of suitable papers, extracting data, and performing subsequent analysis and synthesis. The research questions for this paper are detailed in the previous section. Two electronic databases, Scopus and Web of Science, were used for the study, as they contain pertinent articles related to short supply chain literature. To ensure comprehensiveness, the search terms used encompassed synonyms and broader categories of the investigated topic. For example, "supply chain" OR "food chain" OR "food supply chain" OR "food system" OR "food network" OR "value chain," combined with "agri*" OR "agro*" and "short*" OR "alternative" OR "local" OR "regional." The search was confined to the titles, abstracts, and keywords of the papers. The search and selection process are visually depicted in Figure 2.

During the initial filtering stage, certain rules were used to assess the suitability of articles titles, abstracts, and keywords found in online databases. The criteria included specific subject filters, such as Agricultural Economics Policy, Economics, Operations Research, Management

Science, Business Management and accounting, Economics and Econometric, finance, Decision Sciences, Social science, and Multidisciplinary. Additionally, the language was limited to English, and the document types considered were only articles from high-quality journals. The electronic search process yielded a total of 639 articles from Scopus and 374 from Web of Science.

2.2.Second Phase: Paper Screening

During the second phase of the literature review, known as "paper screening," the authors aimed to identify and retain articles that were pertinent to the research questions and objectives while filtering out irrelevant ones. This process involved reviewing the titles and abstracts of articles obtained from the initial electronic search. The authors began by removing any duplicate articles present in both the Scopus and Web of Science databases. Subsequently, researchers independently examined the titles and abstracts of the remaining articles to ensure objectivity and minimize bias. Based on the information provided in the titles and abstracts, the researcher applied pre-defined inclusion criteria, i.e., (i) article must be studying SFSC phenomenon (ii) it shouldn't be a review article, to decide whether each article met the required standards for relevance. Articles not meeting the inclusion criteria were excluded from further consideration and the author left with a final sample of 220 articles to be considered for third phase.

2.3.Third Phase: Final Inclusion and Exclusion

Moving on to the third phase, this stage involved "full-text reading" of the provisionally included articles identified during the paper screening. The purpose of this phase was to gain a comprehensive understanding of the articles and ensure that no relevant studies were overlooked. Researcher read the entire content of each provisionally included article, carefully examining sections such as introduction, methodology, results, discussion, and conclusion to assess the study's scope, objectives, findings, and relevance to the research questions. During the full-text reading, a more rigorous filtering process, known as "content-level filtering," was applied. The Researcher assessed whether the articles met the inclusion criteria in terms of their content (i.e., studying SFSC as research main variable of interests), methodology (Quantitative), and relevance to the research questions. Based on this detailed evaluation, the researcher finalized the inclusion status of each provisionally included article. Total 92 Articles meeting the inclusion criteria were retained in the literature review, while those failing to meet the criteria were excluded. After completing the full-text reading and finalizing the inclusion decisions, the researcher arrived at a selection of articles

that truly aligned with the research questions and objectives of the literature review. These selected articles constituted the final body of literature that was thoroughly analyzed and synthesized in the study. By conducting the second and third phases with meticulousness, researchers ensured that their literature review was comprehensive, well-informed, and founded on relevant and high-quality studies, contributing significantly to achieving the research objectives. The filtering phases of the literature review are depicted in Figure 1

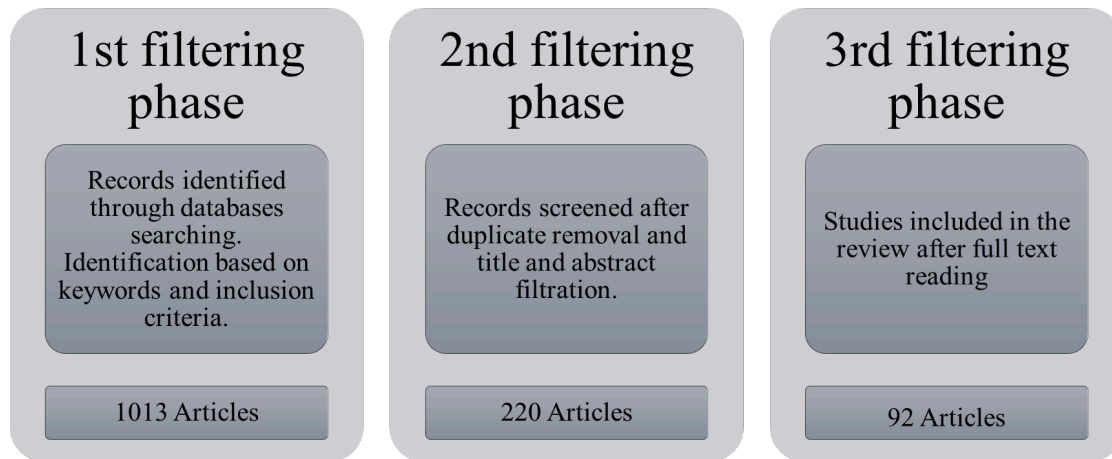


Figure 1: Literature Review filtering phases.

2.4.Data Analysis

The selected articles underwent a detailed full-text review. Information was extracted from each article, including details about the study's objectives, methodology, key findings, and relevant data related to SFSCs. This data included factors driving adoption, sustainable practices, challenges, and economic, social, and environmental impacts. The extracted data were subjected to a rigorous analysis to identify recurring themes, patterns, and trends in the literature. The data analysis involved both qualitative and quantitative approaches. Qualitative analysis involved coding and categorizing the information according to the critical stages of the SFSC supply chain: food sourcing and production, processing, aggregation, and distribution. The analyzed data were synthesized to develop a comprehensive narrative that addressed the research questions. The synthesis highlighted key findings related to factors influencing SFSC adoption, sustainable practices at different supply chain stages, challenges faced, and the economic, social, and environmental impacts of SFSCs.

In addition to the systematic literature review, the authors also conducted a basic bibliometric analysis on a collection of 2328 articles sourced from Scopus using the predetermined keywords. This analysis was facilitated using the CiteSpace software. The bibliometric analysis aimed to provide an overview of the research landscape, identify key research trends, and highlight the most influential studies and authors in the field of SFSCs. By integrating both the systematic literature review and bibliometric analysis, the research offers a comprehensive understanding of the current state of knowledge on SFSCs, including insights into research patterns, gaps, and future directions. This dual approach ensures a robust and multifaceted understanding of the subject matter, providing a valuable resource for researchers, policymakers, and practitioners interested in the field of sustainable food systems.

3. DESCRIPTIVE ANALYSIS

3.1. Top Journals

This systematic review analyzes top journals publishing literature on SFSCs. The British Food Journal leads with 20 papers, followed by the Journal of Cleaner Production with 15 papers. Other notable contributors include Agricultural and Food Economics, International Food and Agribusiness Management Review, and the Journal of Agribusiness in Developing And Emerging Economies, each with 6 or 7 papers. These journals cover various aspects of SFSCs, including sustainability, economics, management, and policy. Understanding SFSCs is crucial for promoting sustainable and localized food systems. Researchers and policymakers can leverage the insights from these journals to enhance the efficiency and resilience of food supply chains while minimizing environmental impact. Figure 2 shows a representation of the top journals publishing research on SFSC.

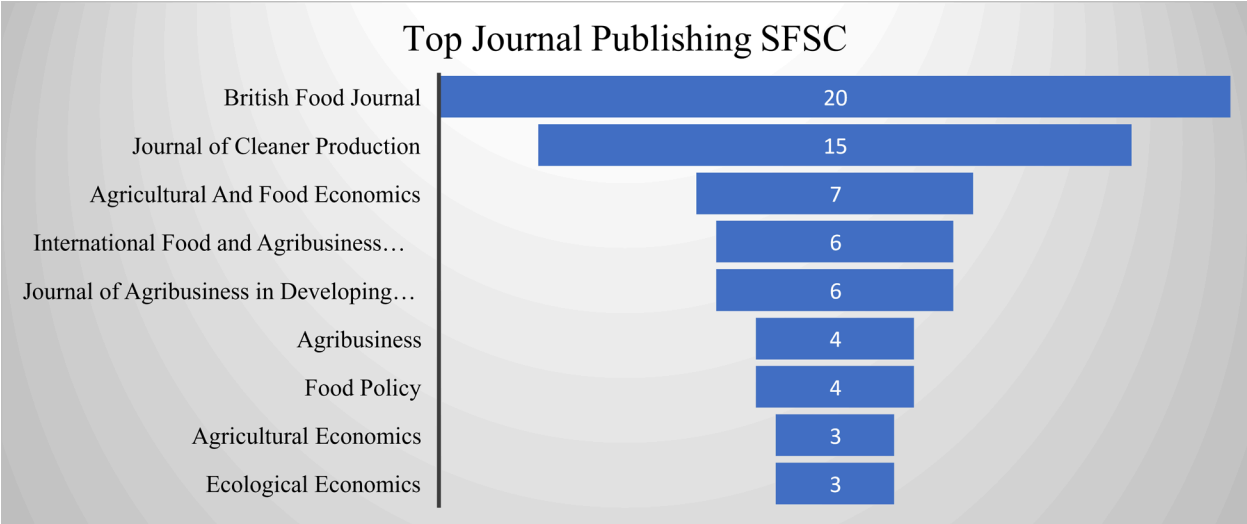


Figure 2: Top journals

3.2.Publication Trend

The trend in SFSC has witnessed a notable rise over the past few years, with a significant increase in publications from 2015 to 2022. Starting with only one publication in 2006, the numbers remained relatively low until 2014. However, from 2015 onwards, there has been a steady surge, peaking in 2021 with 19 publications. This upward trajectory suggests a growing interest in and recognition of the importance of SFSCs. Such chains are known for their ability to offer fresher produce, reduce environmental impact, and support local economies, making them a promising solution for a sustainable food system. Figure 3 illustrates the trend of publications over the years.

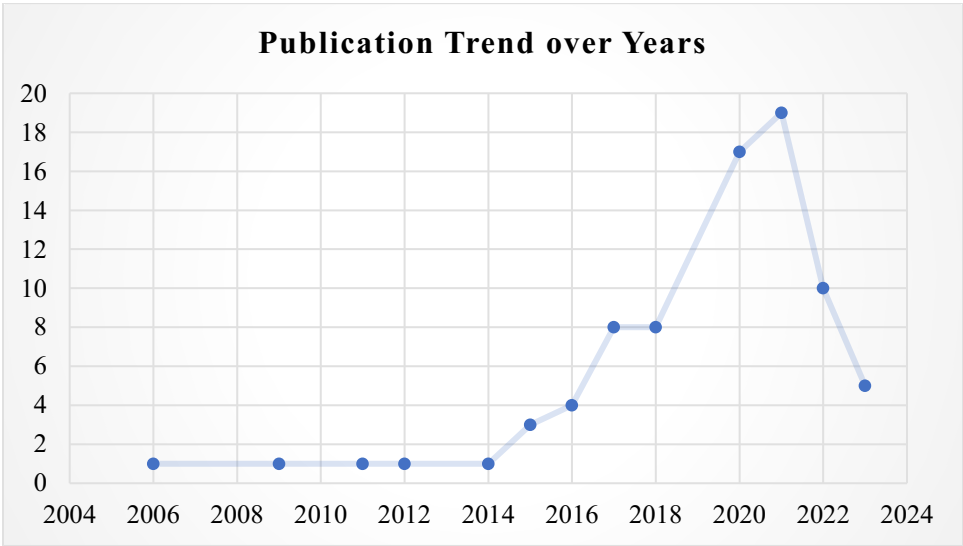


Figure 3: Publication Trend over Years

3.3.Keywords Analyses

The word cloud (figure 4) represents a bibliometric analysis of literature on SFSCs, highlighting their key aspects and interrelationships. Central to the analysis is the term "short food supply chains," indicating its primary focus on direct, transparent food distribution channels. Adjacent concepts like "sustainability" and "sustainable development" underscore the link between SFSCs and environmental, economic, and social sustainability, aiming to create resilient food systems, especially against global challenges like climate change. "Food security" also features prominently, aligning with the global agenda for accessible, available food. Other terms such as "alternative agriculture" and "agroecology" suggest a shift towards ecologically and socially responsible agricultural methods, emphasizing biodiversity. Governance-related terms like "decision making," "governance," and "policy" indicate research into the regulatory frameworks influencing SFSCs, spanning local to global scales. The inclusion of "COVID-19" reflects the pandemic's impact on food supply chains. Additionally, "stakeholder," "human innovation," and "participatory approach" highlight the importance of inclusive, innovative solutions involving various actors in SFSCs. Overall, the word cloud encapsulates the multifaceted, adaptive nature of SFSC discourse, integrating environmental, social, economic, and governance aspects, with a contemporary focus on resilience in the face of global events like the pandemic.



Figure 4: Keyword Analysis

3.4. Top Cited documents

The scholarly panorama of research on SFSC is comprehensively enriched by a spectrum of seminal studies. These range of top highly cited works provided in figure 5, each makes a substantive contribution to the discipline. Foremost, the study by Notarnicola et al. (2017, citation no: 389) is distinguished as the most cited in this domain. It accentuates the criticality of life cycle assessment within sustainable agri-food systems, advocating for the evaluation and enhancement of food-related supply chains to mitigate their environmental footprint. Next, Gossner et al. (2016, citation no: 331), though less explicit about their specific contribution to SFSCs in the provided citation, offer valuable perspectives and insights. Thilsted et al. (2016, citation no: 260) focus on the integral roles of capture fisheries and aquaculture in bolstering nutrition and maintaining healthy diets in the post-2015 era. Their research underscores these sectors' significance in the global food system. Herrero et al. (2017, citation no: 257) present a comprehensive, transdisciplinary analysis of the geography of farming and nutrient production. Their work is aimed at strategizing for healthy diets and ecosystems amidst challenges such as population growth and climate change.

Gerten et al. (2020, citation no: 242) demonstrate the feasibility of sustainably feeding a projected ten billion people within the confines of four terrestrial planetary boundaries. Their study is pivotal for sustainable development and food security. Gardner et al. (2019, citation no: 210) delve into the necessity of transparency and sustainability in global commodity supply chains. They emphasize the importance of clear information flow among stakeholders in these supply chains. Smetana et al. (2019, citation no: 206) undertake a life cycle assessment of the sustainable use of *Hermetia illucens* insect biomass for feed and food. Their research offers insights into biomass utilization and its environmental implications. Berti and Mulligan (2016, citation no: 197) discuss the role of food hubs in enhancing sustainable regional and local food systems. They highlight the competitiveness of small farms and innovation within food supply chains. Mier y Terán Giménez Cacho et al. (2018, citation no: 187), though less explicit about their specific contributions from the provided citation, also make significant contributions to the field. Lastly, Taylor (2017, citation no: 185) examines the concept of climate-smart agriculture. This study discusses its potential

advantages and advocates for sustainable agricultural practices in response to changing climatic conditions. These studies play an indispensable role in deepening our understanding of sustainable food systems and the advancement of sustainable SFSCs.

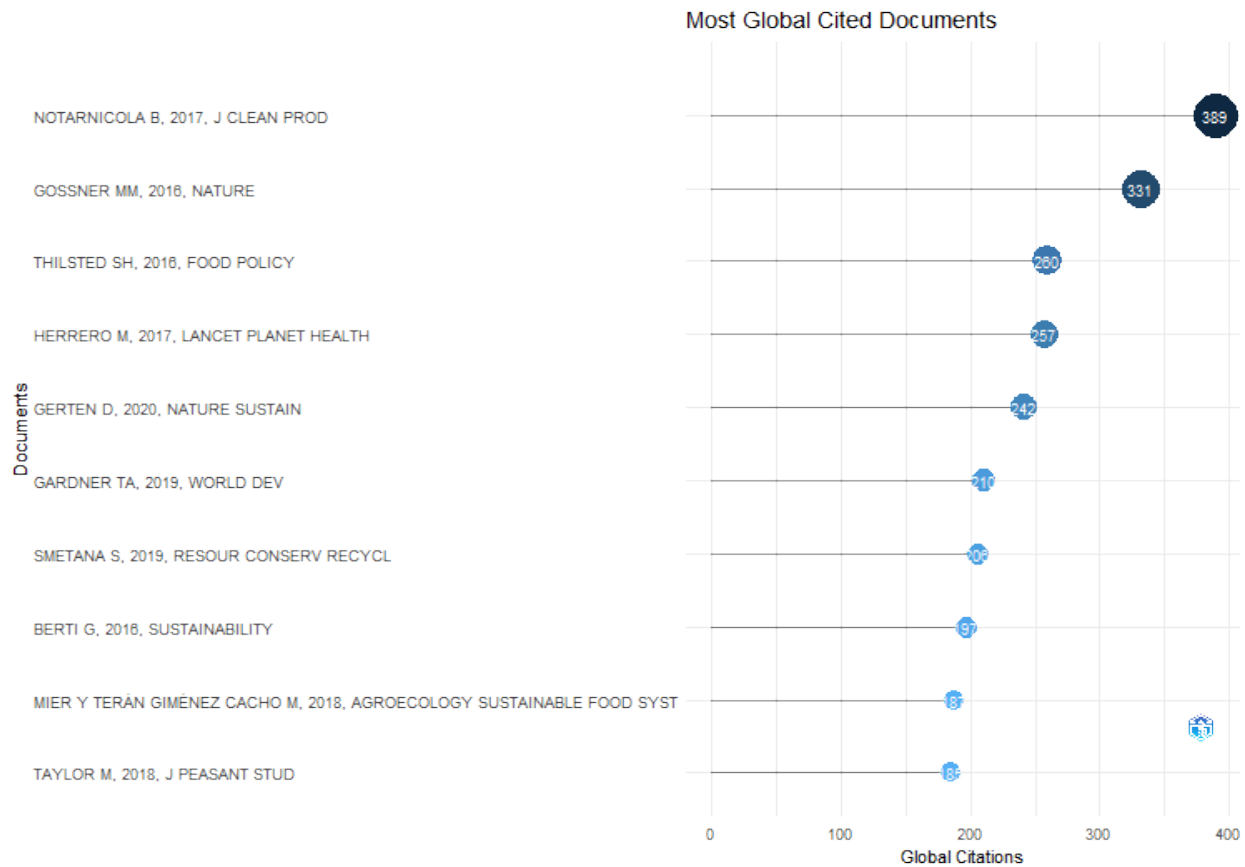


Figure 5: Top Cited Articles

3.5. Most Cited Countries

The bibliometric analysis on SFSC highlights top cited countries (figure 6) contributing to the literature. The United States leads with a total citation count (TC) of 3982, with an average citation rate per article of 13.6. Italy follows closely with a TC of 3602 and a notably higher average citation rate of 19.1, indicating a significant impact per article. The United Kingdom, with a TC of 2290 and an average citation rate of 16.5, also shows strong contributions. Germany's scholarly work, with a TC of 2153, averages 17.6 citations per article, suggesting robust academic engagement. China and Canada, with TCs of 1733 and 1676 and average citation rates of 13.9 and 20.2 respectively, depict substantial participation, with Canada's work receiving a notably high average citation rate, reflecting influential research output. The Netherlands and France contribute

with TCs of 1473 and 1437 and average citation rates of 15.5 and 21.1, respectively, with France's work receiving the highest average citation rate after Italy, indicating a potent academic influence.

Sweden, although having a lower TC of 1182, boasts the highest average citation rate of 35.8, which is significantly higher than any other country listed, suggesting that while Sweden's volume of research may be lower, its academic influence is very significant. Australia and Spain, with TCs of 1075 and 1049 and average citation rates of 14 and 15, round out the list, indicating their solid, albeit smaller, contributions to the field. This analysis indicates not only the volume of research output per country but also the impact each country's research has in the field of SFSC, as reflected by the average citations per article. Sweden's exceptionally high average citation rate suggests that its research is highly valued in academic circles, despite its lower overall output.

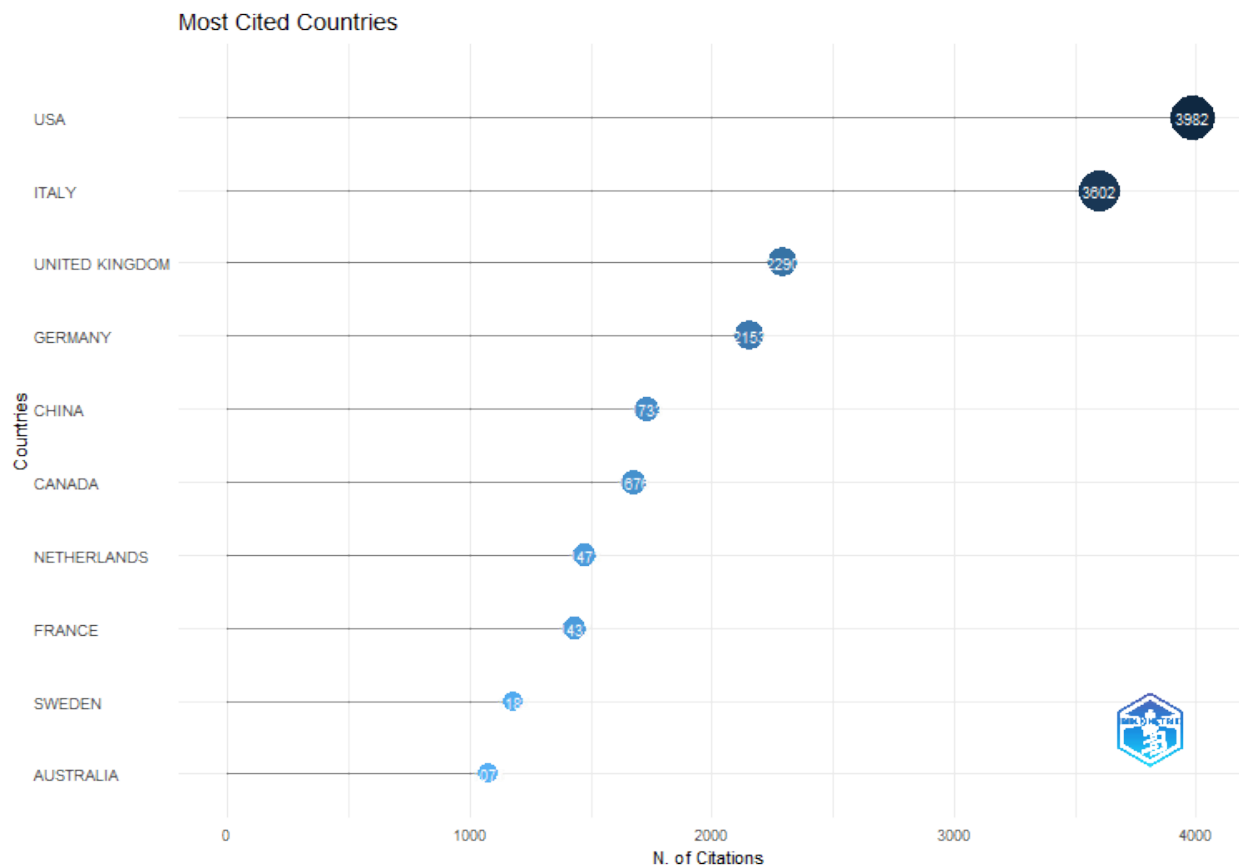


Figure 6: Top Cited Articles

4. Thematic Findings and Discussion

The landscape of SFSCs is complex and multifaceted, encompassing a range of interconnected themes that shape its adoption, practice, stakeholders, challenges, and impacts. This systematic literature review delves into five major thematic findings that provide a comprehensive understanding of the SFSC phenomenon. The first theme explores the factors affecting SFSC adoption, emphasizing the burgeoning demand for local, sustainable, and transparent food systems driven by consumers' preferences and environmental concerns. The second theme delves into the practices within SFSCs, highlighting best practices across stages like food sourcing, processing, aggregation, and distribution, underscoring the importance of sustainability, quality, and collaboration. The third theme revolves around the diverse stakeholders in SFSCs, elucidating the pivotal roles of farmers, aggregators, retailers, government authorities, and consumers in shaping the resilience and success of these systems. The fourth theme addresses the challenges and complexities in SFSCs, including information asymmetry, infrastructure limitations, regulatory barriers, coordination challenges, market dynamics, and certification hurdles. Lastly, the fifth theme focuses on the impacts of SFSCs, spanning economic, environmental, and societal dimensions. SFSCs hold promise for stimulating local economies, reducing environmental footprints, fostering community engagement, and enhancing social sustainability. This review synthesizes critical insights across these themes, offering a holistic perspective on SFSCs' evolution, dynamics, and potential implications for sustainable food systems and societies at large.

4.1. Factors affecting SFSC

SFSCs are influenced by increasing demand for local food due to perceived benefits like improved food quality, environmental friendliness, and support for local communities. Growing consumer preferences for sustainability and transparency, coupled with the need for resilience in managing supply chain challenges, also impact SFSC adoption. Additionally, rising environmental concerns drive consumers towards SFSCs that prioritize local sourcing and reduce ecological footprint. These factors collectively contribute to the expansion of SFSCs, reshaping food supply chain dynamics and promoting a more sustainable and locally oriented food system.

4.1.1. Increasing Demand of Local food

The findings from the studies on SFSCs reveal that increasing demand for local food significantly influences the adoption of SFSCs. Consumers show a strong preference for local and

sustainable products due to their perceived benefits, including improved food quality, environmental friendliness, and support for local communities (Foti & Timpanaro, 2021). As consumers seek closer connections to food sources and greater transparency in the supply chain, they are more inclined to participate in SFSCs, such as farmers' markets and direct purchasing from local producers (Richards et al., 2017). The rise in health awareness and environmental concerns further drives the demand for organic and locally sourced products, incentivizing producers to consider SFSCs as viable alternatives (Benis & Ferrão, 2017). SFSCs offer a means to reduce supply chain complexities and promote sustainable practices (Mastronardi et al., 2019), aligning with the changing preferences of health-conscious and environmentally conscious consumers. Thus, increasing demand for local food plays a pivotal role in driving the widespread adoption of SFSCs, benefiting both producers and consumers alike.

4.1.2. Growing Consumer Preferences

Growing consumer preferences play a significant role in influencing the adoption of SFSCs as consumers increasingly prioritize sustainability, local sourcing, and transparency in their food choices (Jimenez-Guerrero et al., 2018). Ge et al. (2022) suggest that consumers' desire for products with reduced environmental impacts and improved traceability drives the demand for SFSCs while Baldi et al., (2019) suggest that consumers prioritize food safety and healthiness over environmental sustainability, valuing trusted suppliers regardless of proximity. Studies by Garçon (2019) and Foti & Timpanaro (2021) reveal that consumers perceive SFSCs as pathways to support local economies, preserve traditional knowledge, and promote healthier and more sustainable eating habits. The findings of Liang et al. (2022) highlight that consumer preference for proximity and a closer connection to food sources encourages participation in SFSCs. Moreover, Mastronardi et al. (2019) emphasize that consumers' increasing interest in social and environmental dimensions of sustainability creates opportunities for SFSCs to thrive. As consumers continue to seek out products that align with their values and contribute to sustainable practices, the adoption of SFSCs is likely to grow and reshape the dynamics of food supply chains.

4.1.3. Need for Resilience in SFSC

The findings from various studies emphasize the need for resilience in SFSC and how it impacts the adoption of such systems. Ge et al., (2022) point out the importance of coordinating systems to mitigate bottlenecks and protect against disruptions, highlighting the necessity for

resilience in managing supply chain challenges. Additionally, the study by Mastronardi, Marino, Cavallo & Giannelli (2015) identifies SFSCs as important in promoting sustainability at the local level, underscoring the need for resilience in ensuring the continuity of local food systems. Furthermore, Foti & Timpanaro (2021) highlight the role of SFSCs in post-pandemic transformations, stressing the increasing importance of resilience in enhancing food supply security and promoting sustainable consumption patterns. These findings collectively suggest that the adoption of SFSCs is closely linked to their ability to demonstrate resilience in the face of disruptions and uncertainties, making resilience a critical factor in encouraging the adoption and expansion of SFSC.

4.1.4. Environmental Concerns

Increasing environmental concerns have a significant impact on the adoption of SFSCs, as highlighted by several studies. Research by Benis and Ferrão (2017) indicates that environmental factors have the highest potential for reducing environmental impacts in urban food systems. As consumers become more conscious of their ecological footprint, they are drawn towards SFSCs that emphasize local sourcing and reduce transportation distances (Coley et al., 2009). Mastronardi et al. (2019) show that SFSCs prioritize the environmental dimension of sustainability, attracting environmentally conscious consumers who support initiatives promoting healthier and more sustainable eating habits (Foti & Timpanaro, 2021). Furthermore, the study by Zhang and Yu (2021) suggests that consumers' positive perception of local food products, based on attributes like quality, naturalness, and environmental friendliness, encourages their adoption of SFSCs. As concerns about climate change and food system sustainability continue to grow, the demand for environmentally friendly, locally sourced products offered through SFSCs is expected to increase, further influencing adoption rates in the future.

4.2. Practices in SFSC

4.2.1. Food Sourcing & Production

Efficient food sourcing and production, studied for sustainability and local economy in SFSCs, are highlighted by Abbate et al. (2023) to require supplier selection, packaging improvements, and informed consumer appeal for overall success. Several practices have been identified in the studies mentioned above that can contribute to this objective. Promoting sustainable farming practices, encompassing organic farming, regenerative agriculture (Starobin, 2021;), and emphasizing biodiversity, soil health, reduced chemicals, and water conservation, is

crucial within SFSCs to enhance productivity, resilience, and minimize environmental impacts (Dung et al., 2021). Similarly, practice like diversifying crops within SFSCs improves efficiency by mitigating risks, enhancing soil health, and meeting varied consumer demands, thereby reducing vulnerability to price fluctuations and climate-related challenges (Tedesco et al., 2017; Abraham & Pingali).

Further implementing stringent quality control measures at each stage to minimize waste, enhance consumer satisfaction, and ensure product safety and integrity (Ge et al., 2022; Verraes et al., 2015). These measures play a crucial role in safeguarding the reputation of SFSCs and fostering long-term consumer trust in their products. Furthermore, incorporating transparent supply chain practices in SFSC enhances consumer trust and engagement by sharing comprehensive information on product origins, manufacturing methods, and sustainability impacts, thereby fostering a deeper connection between producers and customers (Abbate et al., 2023; O'Hara and Toussaint, 2021). Moreover, studies suggests that promoting aggregation schemes (Cooper et al., (2022)), utilizing collaborative initiatives like FPOs and cooperatives, and embracing alternative food networks (Maier et al., 2020) can enhance market access and efficiency for small-scale farmers by optimizing supply chains and connecting them directly with consumers. Embracing these practices can contribute significantly to the efficiency and success of SFSCs, ultimately supporting local economies, promoting sustainability, and enhancing community well-being.

4.2.2. Processing

The food processing stage of the SFSC plays a critical role in ensuring the sustainability and efficiency of the overall system. Several studies have highlighted the importance of this stage in terms of reducing environmental impacts, ensuring food safety, and promoting healthy eating habits. The food processing stage is vital in addressing SFSCs challenges and ensuring that SFSCs can effectively deliver fresh, safe, and sustainable products to consumers (Abbate et al., 2023; Zhang & Yu, 2021; Ali et al., 2021). Improving the efficiency of the food processing stage in SFSC is critical for enhancing overall sustainability and meeting consumer demands (Medici et al., 2021). Several practices identified in the studies can contribute to this goal. Firstly, adopting minimal processing techniques can help preserve the nutritional value and flavor of food products while reducing energy and resource consumption (Nouira et al., 2022; McAdam et al., 2016). The study on Tuscan Bread PDO demonstrates that a SFSC enhances food quality and nutrition through local

ingredients and direct connections (Galli et al., 2017). This approach aligns with market trends favoring organic and minimally processed products.

Secondly, emphasizing food safety measures in processing facilities is to protect consumers from potential health risks such as foodborne illnesses and chemical contaminations, and maintain the integrity of the supply chain (Ge et al., 2022; Mangla et al., 2021). Implementing rigorous quality control and traceability systems can help prevent contamination and ensure product safety. Thirdly, effective waste management strategies can minimize post-harvest losses and environmental impacts (Dung et al., 2021; Zwart & Wertheim-Heck, 2021). Collaboration among actors in the supply chain can lead to improved handling practices and the utilization of by-products. Additionally, incorporating value addition techniques can enhance the value of food products and open up new market opportunities (Baker & Russell, 2017; Cristiano, 2021). Sustainable packaging is another crucial aspect to address, where eco-friendly and recyclable materials can significantly reduce the carbon footprint of the food processing stage (Benis & Ferrão, 2017; Abbate et al., 2023; Paciarotti & Torregiani, 2018). These practices contribute to the overall sustainability and success of SFSC in meeting the demands of informed consumers.

4.2.3. Aggregation

The aggregation stage of a SFSC is pivotal for enhancing market access, bargaining power, and supply chain efficiency (Cooper et al., 2021; Mastronardi et al., 2019). Best practices in this stage include establishing local food hubs that streamline logistics (Cooper et al., 2021; Nguyen et al., 2020). Collaborative efforts among farmers, producers, retailers, and consumers will strengthen market presence and communication (Ge, Gómez & Peters, 2022; Kulak et al., 2017). Similarly, adhering to quality standards and employing technologies like cold storage will help ensure consistent product quality and availability (Michel-Villarreal et al., 2020; Cooper et al., 2021). Further, building strong relationships among stakeholders fosters participation and collaboration (Nguyen et al., 2020; Dung et al., 2021). Additionally, employing technologies like cold storage and dynamic quota systems can help manage supply and demand fluctuations, ensuring continuous availability of fresh produce (Cooper et al., 2021). Building strong relationships among stakeholders is emphasized as it enhances participation and collaboration in the aggregation stage (Nguyen et al., 2020; Dung et al., 2021). Incorporating technology, such as blockchain, can improve traceability and transparency in the aggregation stage (Mangla et al., 2021). By sharing accurate information about product origins, production processes, and

certifications, blockchain technology instills confidence in consumers and reduces the risk of fraud. Investing in infrastructure and transportation facilities is crucial for efficient aggregation (Zhang & Yu, 2021). Upgrading storage facilities, implementing cold chain solutions, and optimizing transportation routes minimize post-harvest losses and ensure timely delivery of products, particularly for perishable goods. Lastly, promoting consumer awareness about SFSC benefits, environmental impacts, and food quality is crucial for demand (Szegedyné Fricz et al., 2020). Implementing these practices strengthens SFSC efficiency, resilience, and sustainability, benefiting producers and consumers alike.

4.2.4. Distribution

The distribution phase of a SFSC involves moving food products directly from producers to consumers in a limited area, reducing intermediaries and distances traveled, ensuring timely delivery of fresh local goods, preserving quality (Richards et al., 2017), enhancing producers' economic share (Baker & Russell, 2017; Liang et al., 2022), enabling traceability, transparency, and communication for building trust and backing local products (Mastronardi et al., 2015; Foti & Timpanaro, 2021). As efficient distribution is a crucial aspect of SFSCs to ensure timely and sustainable delivery to consumers. Several best practices have been identified based on research. For instance, the implementation of direct-to-consumer channels optimizes distribution by cutting intermediaries, facilitating producer-consumer interaction for feedback-driven adaptations, curtailing costs, and bolstering sustainability (Ge et al., 2022; Abbate et al., 2023;), while collaborating with local retail and restaurants enhances visibility and accessibility of SFSC products (Paciarotti & Torregiani, 2018; Richards et al., 2017). Similarly, Introducing SFSC products to established grocery stores diversifies consumer choices with a blend of local and non-local items, meeting preferences for organic products (Nouira et al., 2022).

Furthermore, efficient logistics are crucial for the distribution of sustainable food systems and can optimize delivery routes, minimize emissions and spoilage (Loiseau et al., 2020; Wang et al., 2022), and enhance supply chain visibility through real-time tracking and data analytics (de Souza, 2020). Additionally, adopting efficient transportation methods, such as online marketing platforms, commodity futures, and warehousing, decreases transaction costs and disperses price risks (Abraham & Pingali, 2021). In SFSC distribution, addressing packaging sustainability through the use of eco-friendly materials, reusable packaging, and consumer education on disposal and recycling practices is essential for reducing environmental impact and catering to

sustainability-conscious consumers (Mastronardi et al., 2019; Mangla et al., 2021; Tedesco et al., 2017). Incorporating technology-driven solutions enhances supply chain coordination and cooperation, benefiting both producers and retailers (Liang et al., 2022). The study by Wiedenroth and Otter (2022) demonstrates that compelling social media marketing can effectively promote new healthy luxury food products. This approach also holds the potential to facilitate shorter food supply chains, enabling farmers to directly sell to consumers. Lastly, directly engaging with consumers at farmers' markets fosters trust in local products, educates about sustainable eating, acknowledges power dynamics, and empowers informed choices, thus promoting shared value and long-term stability (Foti & Timpanaro, 2021; Mastronardi et al., 2015).

4.3. Stakeholders in SFSC and their Role

4.3.1. Farmers

In the realm of SFSCs, farmers hold a pivotal role as critical stakeholders within the supply chain. Extensive SFSC research spotlights the multifaceted significance of farmers. Notably, Dung et al. (2021) and Michel-Villarreal et al. (2020) emphasize farmers' entrepreneurial disposition and their proactive participation in learning within the value chains. This signifies that farmers transcend mere production roles, actively pursuing knowledge enhancement and collaboration. Abraham and Pingali (2021) underscore the impact of farmers' decisions in response to pricing dynamics and resource accessibility on pulse production. This underscores how farmers' choices directly shape SFSC functionality. Moreover, participation in aggregation initiatives boosts returns and product volume for farmers, enhancing SFSC efficacy (Bannor et al., 2023; Cooper et al., 2021). Scholars also scrutinize farmers' influence on production efficiency and technological progress within SFSCs (Zhang et al., 2023; Liang et al., 2022). Farmers' engagement impacts market trends, supply chain coordination, and consumer access to sustainable products. Acknowledging and supporting farmers as central stakeholders is crucial for fostering resilient and sustainable SFSCs, a responsibility held by policymakers and supply chain actors.

4.3.2. Aggregators

Aggregators are vital intermediaries in SFSC, connecting small-scale producers with larger markets. They enhance market access, bargaining power, and economies of scale for farmers (Cooper et al., 2021). By consolidating products, aggregators enable efficient distribution, increasing local goods' availability (Cooper et al., 2021). They promote collaboration, knowledge sharing, and trust within supply chains (Dung et al., 2021; Nguyen et al., 2020). These interactions

reduce costs and ensure smoother operations (Ge et al., 2022). Aggregators play a transformative role in addressing food access disparities, especially in underserved communities, securing nutrient-rich food availability (O'Hara & Toussaint, 2021). They advocate inclusive food systems through policy changes like community ownership (O'Hara & Toussaint, 2021). However, challenges like managing power asymmetries for equitable distribution (Cooper et al., 2021; Maier et al., 2020) do exist. Balancing challenges and strengths can lead to sustainable, resilient, and just SFSCs (Birtalan et al., 2020).

4.3.3. Retailers

Retailers play a vital role as stakeholders in SFSCs, contributing to their growth and sustainability. The studies mentioned above highlight several key aspects of retailers' involvement in SFSCs. Firstly, retailers can actively promote and support local food products within their stores, creating a market for small-scale producers and strengthening local food systems (Richards et al., 2017). By offering local foods alongside other grocery items, retailers can attract consumers who value sustainable and locally sourced products, thereby enhancing the demand for SFSCs (Szegedyné Fricz et al., 2020). Secondly, the adoption of innovative technologies like blockchain can benefit retailers in improving traceability and transparency of the supply chain (Mangla et al., 2021). Implementing blockchain can reduce food fraud, ensure food safety, and enhance consumers' trust in the origin and sustainability of the products they purchase, which are essential elements for SFSCs. Moreover, retailers can influence consumer behavior by effectively communicating sustainability information, such as environmental product declarations, to informed consumers (Wang et al., 2022). Positive consumer perceptions of local food products, driven by attributes like quality and environmental friendliness, can be leveraged by retailers to further promote local foods and SFSCs (Szegedyné Fricz et al., 2020). Retailers' active participation and support are vital for the success and growth of SFSC, and they enhance the demand for locally sourced and sustainable food products, contribute to the development of SFSCs, and promote a more resilient and sustainable agri-food system overall.

4.3.4. Government Authorities

Government authorities play a vital role in the success and sustainability of SFSCs by shaping policies, regulations, and support mechanisms. Their involvement impacts various dimensions of SFSCs. Bannor et al. (2023) highlight government's positive influence on rice value in SFSCs through support for processor expertise, marketing information, and farmer organization

membership. Environmental sustainability is also addressed, as seen in Maier et al.'s (2020) study suggesting government support for eco-friendly practices like "alternative beer chains." Collaboration is facilitated by government encouragement, leading to knowledge exchange and vertical integration (Dung et al. (2021). It is further advocated that government aid through finance, infrastructure, and capacity-building (Chenarides et al., 2021)) and vertical coordination and private transport improved supply chain resilience (Van Hoyweghen et al., (2021). Government involvement fosters value addition, environmental responsibility, and knowledge dissemination, thereby enhancing the robustness and prosperity of SFSCs.

4.3.5. Consumers

Consumer behaviors and purchase decisions within the SFSC are influenced by a variety of factors, as evidenced by the studies presented above. Wang et al. (2022) emphasize consumers' attitudes towards SFSCs, with sustainability, moral economy, and Chinese relationships positively impacting participation, especially economically. Hashem et al. (2018) find local organic box scheme participants driven by altruistic and hedonistic motives, tied to political food system change and convenience. Trust-building mechanisms also affect SFSC consumer behaviors. Ji et al. (2018) show agribusinesses using online and offline social commerce to build trust. Ji et al. (2020) stress personal interactions, online-offline social commerce, and conflict resolution in maintaining consumer trust. Product quality, environmental sustainability, and information-seeking significantly impact purchasing intentions in alternative food networks. Verneau et al. (2019) link environmental, social, and health concerns with intent to reduce palm oil consumption. Cicia et al. (2021) affirm positive environmental attitudes correlating with higher farmers' market buying frequency. Consumers, as SFSC stakeholders, shape dynamics as Willis et al. (2016) finds willingness to pay more for local products, especially when combined with donations, indicating support for local communities. Another study suggested that consumer alignment with SFSC principles increases willingness to pay for locally produced honey, emphasizing quality and sustainability (Kallas et al., 2021). Consumers' preferences and actions thus drive demand for sustainable, local foods, amplifying alternative food networks' growth and societal impact.

4.4. Challenges and Complexities in SFSC

SFSCs face several challenges and complexities that can hinder their implementation and success. For instance, Information asymmetry affects both consumers and producers, leading to uncertainty and reduced confidence in products. A lack of infrastructure limits data collection and

analysis capabilities, impacting productivity. Cumbersome regulatory barriers favoring conventional products hinder efficient SFSC establishment. Lack of coordination results in inefficiencies and supply-demand mismatches. Market dynamics, including fluctuating demand and changing consumer preferences, add complexity to SFSC operations. Moreover, certifications and standards burden small-scale producers with high costs and administrative hurdles. Addressing these challenges requires collective efforts from policymakers and stakeholders to promote supportive policies, enhance communication, streamline regulations, and incentivize sustainable practices. Overcoming these complexities can empower SFSCs to build trust and sustainability in the food system, benefiting local economies and providing high-quality, environmentally friendly food options to consumers. Below is a detailed discussion on these challenges and complexities.

4.4.1. Information Asymmetry

Information asymmetry can pose significant challenges for SFSCs based on the findings from the studies mentioned above. In SFSCs, the direct interaction between producers and consumers creates an opportunity for enhanced information exchange, transparency, and trust. However, several studies have indicated that information asymmetry remains a prevalent issue in SFSCs, affecting both consumers and producers. For consumers, lack of access to complete and accurate information about product attributes, production practices, and safety standards can lead to uncertainty and reduced confidence in the products they purchase (Benis & Ferrão, 2017; Zhang et al., 2023). This can create barriers to consumer adoption of SFSCs, as they may perceive conventional supply chains as more reliable and standardized. Similarly, for producers, inadequate access to market information and consumer preferences can hinder their ability to tailor their products to meet changing demands (Tavella & Hjortso, 2012; Garner & Ayala, 2018). Moreover, information asymmetry can result in challenges related to pricing and fair compensation for producers (Baker & Russell, 2017; Dhaoui et al., 2020). The lack of transparency in price formation and market dynamics may limit the bargaining power of small-scale producers in SFSCs, leading to unfair prices and limited economic viability. Addressing information asymmetry in SFSCs is crucial for building trust and sustainability in these supply chains. It requires initiatives to enhance communication, provide clear and reliable product information to consumers, and promote transparency in pricing and market dynamics. Efforts to reduce information asymmetry can strengthen the relationship between producers and consumers, thereby fostering the growth and resilience of SFSCs in the broader food system.

4.4.2. Lack of Infrastructure

The findings from the studies indicate that a lack of infrastructure can present significant challenges for the implementation and success of SFSCs. Ge et al., (2022) emphasize that the existing infrastructure may not be sufficient to meet the demands of SFSC expansion, particularly in regions where throughput is limited. This bottleneck can lead to inefficiencies, increased operating costs, and disruptions in the supply chain. The studies by Zwart & Wertheim-Heck (2021) and Wiryawan et al., (2020) highlight the importance of accurate data collection, efficient cost management, and forecasting to enhance productivity and sales potential. However, without the necessary infrastructure to support data collection, storage, and analysis, these goals may remain challenging to achieve. Moreover, the studies by Zhang & Yu (2021) and Verraes et al. (2015) indicate that SFSCs heavily depend on transportation and distribution systems, and a lack of proper infrastructure in these areas can hinder the smooth functioning of the supply chain. Therefore, addressing the issue of inadequate infrastructure is crucial for the successful implementation and growth of SFSCs, enabling them to realize their potential in promoting sustainability, local economic development, and improved food access.

4.4.3. Regulatory Barriers

Regulatory barriers pose significant challenges for SFSCs, impacting their development and growth. Several studies highlight the importance of addressing these barriers to promote sustainable and efficient food systems. For instance, Ge et al., (2022) emphasize the need for a coordinated system to mitigate bottlenecks and reduce operating costs in the beef supply chain. However, cumbersome regulations related to transportation, processing, and labeling may hinder the establishment of efficient SFSCs. Additionally, Nourira et al. (2022) suggest that regulations favoring conventional products might create obstacles for SFSCs focused on organic and local varieties of olive oil. The study by O'Hara & Toussaint (2021) underscores that current initiatives to improve food access often overlook persistent policy barriers, hindering the progress of socially and ecologically just food systems. Such regulatory complexities can deter small-scale producers and local food retailers, limiting their ability to participate in SFSCs (Michel-Villarreal et al., 2020). To enable the full potential of SFSCs, policymakers should work towards streamlining regulations, promoting supportive policies, and incentivizing sustainable practices within the food supply chain.

4.4.4. Lack of Coordination

Coordination challenges pose significant obstacles for SFSCs, impacting efficiency and effectiveness. Ge et al. (2022) stress coordinated systems' importance to mitigate bottlenecks, cut costs, and ensure stability in regional beef supply chains as this lack of coordination can disrupt supply-demand balance, leading to inefficiencies and waste. Liang et al. (2022) show SFSC participation reducing cucumber production efficiency due to poor coordination. Consumer satisfaction and trust in SFSCs may suffer due to delays caused by coordination gaps (Foti & Timpanaro, 2021). Nourira et al. (2022) also highlight coordination's role in aligning with market trends. Zwart & Wertheim-Heck (2021) note the balance required between corporate uniformity and flexibility in local food retail, demanding coordination between centralized and decentralized practices. Effective coordination among stakeholders is vital for enhancing SFSC supply chain performance, ensuring smooth product flow.

4.4.5. Market Dynamics

Market dynamics play a significant role in shaping the complexity and challenges faced by SFSCs. Several studies highlight how various factors in the market environment influence SFSCs' functioning and impact their overall effectiveness. For instance, Ge et al., (2022) emphasize the importance of throughput issues and coordination to overcome bottlenecks, but market demand fluctuations and consumer preferences can add complexity to throughput management. Nourira et al. (2022) suggest prioritizing supply chain proximity, but market trends and consumer preferences can vary, making it challenging to align supply chains accordingly. Additionally, Birtalan et al. (2021) indicate that CSA participation positively impacts individuals' health-related behaviors, but market demand fluctuations and competitive pressures can pose challenges to maintaining CSA membership and attracting informed consumers. Furthermore, Foti and Timpanaro (2021) mention that the COVID-19 pandemic has brought renewed focus on local food and sustainability, but market uncertainties and changing consumer behaviors can add complexity to SFSC operations. These market dynamics highlight the need for flexibility and adaptability within SFSCs to address challenges and capitalize on opportunities arising from market fluctuations and evolving consumer demands.

4.4.6. Acquiring Certification and Standards

Certification and standards are crucial for ensuring food safety, quality, and traceability in food systems (Ge et al., 2022; Tichenor et al., 2017). However, in Small-Scale Food Systems

(SFSCs), these can burden small-scale producers due to limited resources and capacity, resulting in higher costs and market entry barriers (Ge et al., 2022; Tichenor et al., 2017). Such compliance with varying certification schemes might not align with the decentralized and diverse nature of SFSCs (Coley et al., 2009). This can hinder the agility and flexibility that SFSCs offer and pose difficulties in maintaining close relationships between producers and consumers (Mastronardi et al., 2019). Mangla et al. (2021) found that applying blockchain for certification in cooperative systems requires accurate data collection and cost management, posing challenges for small-scale farmers with limited resources and technical capabilities (Bannor et al., 2023). Furthermore, Zwart & Wertheim-Heck (2021) emphasized that defining "local" in SFSCs can be challenging due to varying interpretations and regional differences. These complexities in meeting certification and standards can result in additional costs, paperwork, and bureaucratic hurdles, potentially deterring small producers from participating in SFSCs.

4.5. Impacts of SFSC

SFSCs have significant impacts on economic, environmental, and societal sustainability. Economically, SFSCs can foster local economic development, increase income opportunities, and empower retailers through improved market power. Sustainable practices by small-scale producers in SFSCs contribute to agricultural sustainability and product value preservation. However, financial constraints and policy support are challenges that need attention to ensure long-term economic sustainability. Environmentally, SFSCs show promise in reducing environmental footprints by promoting sustainable supplier selection, packaging choices, and improved traceability with blockchain technology. Moreover, implementing circular economy models and short supply chains can minimize environmental impacts in agriculture. Socially, SFSCs foster community engagement and cohesion by connecting consumers directly with local producers, supporting local jobs, and promoting responsible consumption patterns. In the following part, detail of SFSCs impacts is discussed.

4.5.1. Economic Impacts

The economic impact and sustainability of SFSCs have been a subject of interest in recent studies. Several researchers have highlighted the potential economic benefits of SFSCs, such as local economic development, increased income opportunities, and improved market power for retailers (Richards et al., 2017). Abbate et al. (2023) emphasized that agri-food companies focusing on SFSCs can attract informed consumers and contribute to economic growth by promoting local

products. Moreover, small-scale producers in SFSCs were found to implement sustainable practices, conserve natural resources, and contribute to local economies, fostering overall agricultural sustainability (Starobin, 2021). The successful implementation of SFSCs can also enhance the value creation and preservation of products, as demonstrated in the case of extra-virgin olive oil production in Emilia Provinces (Menozzi, 2014).

However, despite the potential economic benefits, challenges remain, such as financial constraints for small-scale producers and the need for policy support (Canavari et al.,). To maximize the economic sustainability of SFSCs, it is crucial to address these challenges, promote consumer awareness, improve infrastructure and logistics, and ensure compliance with food safety regulations (Birtalan et al., 2021; Cristano, 2021). Implementing measures to support local producers and enhance collaboration between stakeholders can further strengthen the economic impact of SFSCs and contribute to sustainable economic development (Liu & Lee, 2019; Paciarotti & Torregiani, 2018). Based on the above discussion, SFSCs have the potential to provide significant economic benefits to local communities, while addressing challenges will ensure their long-term economic sustainability.

4.5.2. Environmental Impacts

SFSCs have shown promising potential in reducing environmental impacts and promoting environmental sustainability in the food system. Studies by Zwart & Wertheim-Heck (2021) and Abbate et al. (2023) suggest that SFSCs contribute to reduced environmental impacts through sustainable supplier selection, packaging choices, and environmental product declarations. Additionally, the use of blockchain in SFSCs, as highlighted by Mangla et al. (2021), improves traceability and transparency, which can lead to decreased food fraud, better animal health and welfare, and reduced environmental footprint. The research by Zhang & Yu (2021) demonstrates that Socially Shared Crops (SSC) participation significantly reduces agrochemical use, benefiting both the environment and the economy. Moreover, Dorr et al. (2021) find that implementing circular economy models and short supply chains in mushroom farms can effectively minimize environmental impacts by improving energy efficiency and reducing resource consumption. Furthermore, CSA initiatives, as discussed by Medici et al. (2021), have the potential to foster environmental conservation and promote sustainable agriculture, which can lead to reduced ecological footprints. Starobin (2021) emphasizes the role of small-scale producers in implementing sustainable practices and prioritizing biodiversity, which contributes to the

preservation of natural resources and enhances overall agricultural sustainability. Utilizing dynamic hybrid forums such as HF 2.0, sustainability in SFSC can be achieved by promoting collaborative solutions, addressing controversies, and enhancing environmentally and socially responsible practices (Amilien et al., 2019).

However, it is crucial to address challenges identified in some studies. Zwart & Wertheim-Heck (2021) note that local food retailing practices are driven primarily by socio-economic considerations, and more attention needs to be given to environmental sustainability objectives. Medici et al. (2021) also highlight the need to address financial constraints and limited consumer awareness to further develop and expand CSA initiatives for increased environmental benefits.

4.5.3. Societal Impacts

SFSCs have significant social impacts and contribute to social sustainability in various ways. Firstly, SFSCs promote community engagement and social cohesion by connecting consumers directly with local producers, fostering a sense of trust, and encouraging a sense of responsibility for one's health and the well-being of the community (Birtalan et al., 2021). Studies have shown that consumers perceive SFSC products as having attributes like quality, naturalness, and environmental friendliness, which creates a connection to specific geographical areas and supports local jobs (Szegedyné Fricz et al., 2020). Furthermore, SFSCs play a crucial role in supporting small-scale producers, especially in regions facing land displacement due to global food market pressures, helping to preserve traditional knowledge and promote overall agricultural sustainability (Starobin, 2021; Lombardi et al., 2019).

Moreover, the social sustainability of SFSCs is intertwined with food safety and quality. Shorter supply chains facilitate better traceability and transparency, which reduces risks related to food safety and fosters trust between consumers and producers (Zhang & Yu, 2021). Consumers participating in Community Supported Agriculture (CSA) initiatives gain awareness of food origins, enhancing their food-management capabilities and fostering a stronger sense of community and responsibility for their health (Birtalan et al., 2021). The direct interaction between consumers and producers in SFSCs also provides opportunities for education and awareness campaigns on sustainable practices and local food culture, promoting positive behavioral changes and supporting responsible consumption patterns (de Souza, 2020). Additionally, SFSCs have a positive impact on local economies and social well-being. By supporting local producers and

reducing the reliance on long-distance transportation, SFSCs contribute to local economic development and job creation, especially in rural areas (Abbate et al., 2023). Research has indicated that SFSCs have the potential to increase local agri-food system efficiency, fostering a stronger connection between production and consumption, which can lead to greater community resilience (Tedesco et al., 2017). Moreover, promoting SFSCs can also address social inequalities by providing opportunities for small-scale and uncertified producers to participate in sustainable agricultural production and access local and niche markets (Starobin, 2021).

However, challenges such as limited consumer awareness and financial constraints may hinder the full realization of social sustainability in SFSCs (Medici et al., 2021). Policymakers should focus on supporting and promoting SFSCs to ensure equitable access and opportunities for all participants, including small-scale producers and marginalized communities.

5. Discussion

The SFSC concept has gained increasing attention in recent years as a promising alternative to conventional food supply chains (Abbate et al., 2023; Starobin, 2021). SFSCs emphasize direct connections between local producers and consumers, fostering transparency, sustainability, and resilience in the food system (Birtalan et al., 2021; Tedesco et al., 2017). As the demand for locally sourced and sustainable food continues to grow (Richards et al., 2017), understanding the factors influencing SFSCs' success, the stages of their supply chain, the challenges they face, and the impacts they generate becomes essential for policymakers, researchers, and stakeholders (Zhang et al., 2023). This theoretical framework (Figure 7), based on a systematic literature review, provides a comprehensive overview of the key elements driving SFSCs' adoption, the critical stages of their supply chain, the obstacles and complexities they encounter, and the economic, environmental, and societal impacts they have. By exploring and addressing these aspects, policymakers and stakeholders can better promote and support SFSCs, contributing to more resilient, environmentally friendly, and socially responsible food systems. This section provided detail discussion of frameworks.

5.1. Development of a Theoretical Framework

The first part of the theoretical framework highlighted the factors influencing SFSCs. The increasing demand for local food and growing consumer preferences for sustainable products have been identified as key drivers for the adoption of SFSCs (Ge et al., 2022; Zhang et al., 2023).

Consumers' awareness of the environmental and social impact of their food choices drives the demand for SFSCs (Birtalan et al., 2021). Moreover, SFSCs are viewed as a means to build resilience in the food system, especially in the face of disruptions like pandemics or climate change (Ge et al., 2022). Environmental concerns, such as reducing carbon footprints and promoting sustainable agriculture, further contribute to the rise of SFSCs (Starobin, 2021). The second part of the theoretical framework outlines the key components of SFSCs in the food supply chain. Sustainable farming practices, diversification of crops, quality control, and transparency in production methods are critical factors in food sourcing and production in SFSCs (Starobin, 2021; Zhang et al., 2023). In the processing stage, minimal processing, food safety, waste management, value addition, and sustainable packaging play significant roles in SFSC operations (Ge, Gómez, & Peters, 2022; Mangla et al., 2021). Aggregation involves the establishment of local food hubs, collaboration between stakeholders, standardization, and quality control measures to streamline the flow of products in SFSCs (Zhang et al., 2023). Lastly, the distribution phase includes direct-to-consumer channels, local retail and restaurant partnerships, efficient logistics, and sustainable packaging options, which help bridge the gap between producers and consumers (Abbate et al., 2023).

The third part of theoretical framework addresses the challenges and complexities identified in the systematic literature review. Information asymmetry, lack of infrastructure, regulatory barriers, coordination issues, market dynamics, and certification and standards burdens have been identified as challenges for SFSCs (Ge et al., 2022; Zhang et al., 2023). Information asymmetry affects both consumers and producers, leading to uncertainty and reduced confidence in products (Benis & Ferrão, 2017; Zhang et al., 2023). The lack of infrastructure hinders data collection and analysis capabilities, impacting productivity in SFSCs (Ge et al., 2022). Cumbersome regulatory barriers favoring conventional products create obstacles for efficient SFSC establishment (Nouira et al., 2022). Lack of coordination results in inefficiencies and supply-demand mismatches (Ge et al., 2022), while market dynamics, including fluctuating demand and changing consumer preferences, add complexity to SFSC operations (Foti & Timpanaro, 2021). Additionally, certifications and standards burden small-scale producers with high costs and administrative hurdles (Ge et al., 2022; Tichenor et al., 2017).

The fourth part of framework discusses the roles of various stakeholders in SFSCs are multifaceted and interdependent. Farmers, as identified by Dung et al. (2021) and Michel-

Villarreal et al. (2020), are crucial in production and market engagement, often adopting entrepreneurial approaches and engaging in knowledge enhancement. Aggregators play a pivotal role in bridging producers with markets, enhancing market access and economies of scale (Cooper et al., 2021). Retailers, highlighted in studies by Richards et al. (2017) and Szegedyné Fricz et al. (2020), provide consumer access to local foods and can influence consumer preferences towards sustainable products. Government authorities, as discussed by Bannor et al. (2023) and Maier et al. (2020), are responsible for policy and regulation that shape the SFSC landscape. Finally, consumers, whose preferences are significantly influenced by sustainability and ethical considerations as shown in studies by Wang et al. (2022) and Hashem et al. (2018), play a key role in driving the dynamics of SFSCs.

The last part of theoretical framework highlights the impacts of SFSCs on economic, environmental, and societal sustainability. Economically, SFSCs contribute to local economic development, increase income opportunities, and empower retailers through improved market power (Richards et al., 2017). Environmentally, SFSCs show promise in reducing environmental footprints by promoting sustainable supplier selection, packaging choices, and improved traceability with blockchain technology (Zwart & Wertheim-Heck, 2021; Mangla et al., 2021). Societally, SFSCs foster community engagement and cohesion by connecting consumers directly with local producers, supporting local jobs, and promoting responsible consumption patterns (Birtalan et al., 2021).

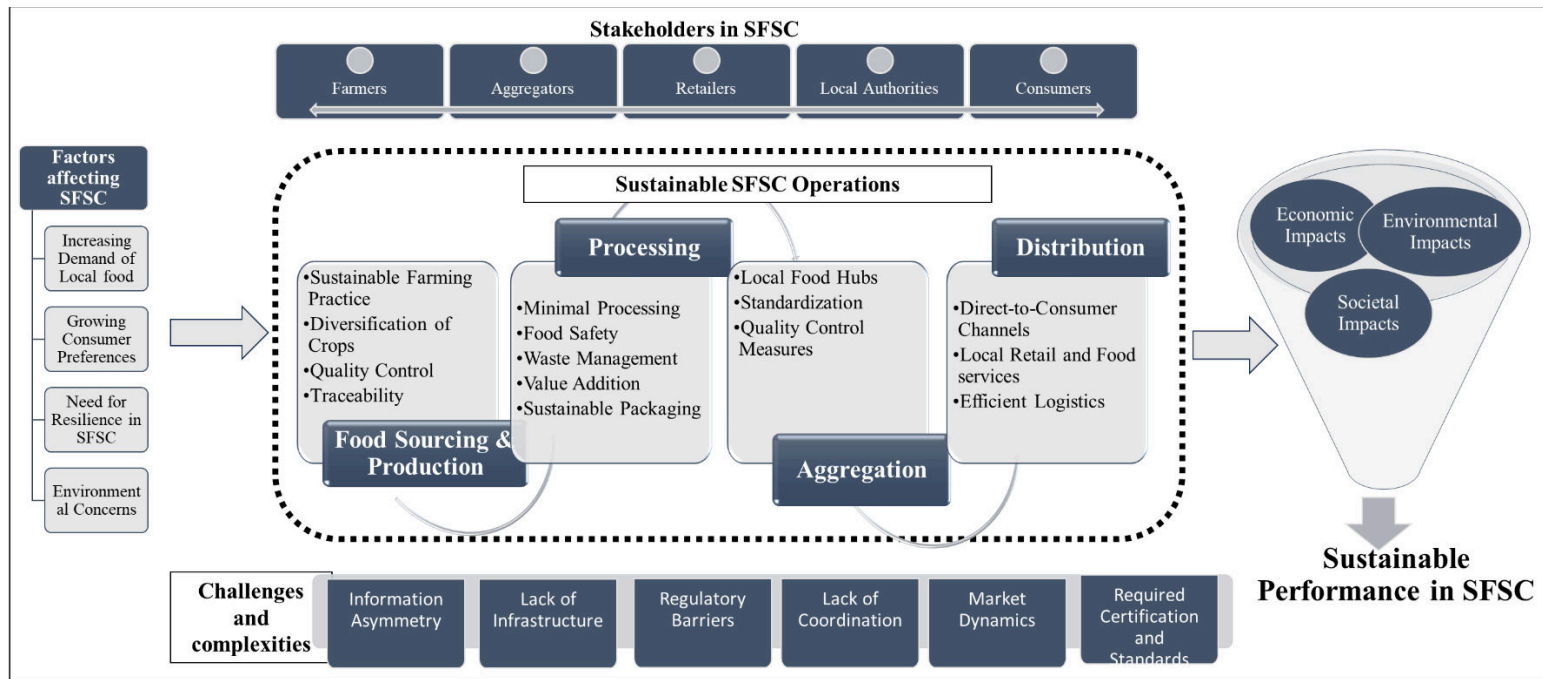


Figure 7: Integrated Model of Sustainable SFSC

5.2. Future Research Avenues in Short Food Supply Chains

5.2.1. Technological Innovations and Digitalization: Blockchain technology's potential in SFSCs is notable for improving transparency and traceability. However, overcoming adoption barriers, as Kamilaris et al. (2019) point out, remains a challenge. The role of technology, especially in perishable food supply chains, also needs further exploration to identify essential technological implementations, a topic explored by Haji et al. (2020). Additionally, the impact of digitalization, including digitization and intelligent management for agricultural supply chain security, merits attention, as Jin & Xie (2023) suggest. Moreover, the Internet of Things (IoT) has been proposed by Jagtap & Rahimifard (2019) as a way to enhance resource efficiency, warranting further investigation.

5.2.2. Sustainability and Environmental Considerations: Future research should assess the sustainability of SFSCs in economic, environmental, and social terms, comparing them to mass food delivery systems to understand their overall impact, as Malak-Rawlikowska et al. (2019) and Lankauskienė et al. (2022) have discussed. Additionally, integrating renewable energy, particularly in sustainable marine fisheries and its implications for food supply chain resilience, as highlighted by Liu (2022), is crucial.

5.2.3. Consumer Behavior and Market Dynamics: Understanding the factors influencing consumer behavior in SFSCs is essential. Future research should employ anthropological approaches to study cultural factors, social norms, and consumer perceptions, as Kini et al. (2020) suggest. The impact of communication strategies on consumers' food choices, as highlighted by Verneau et al. (2019), and the influence of external factors such as pricing, competition, and government policies on consumer behavior, as indicated by Sadeli et al. (2023), also need exploration. Furthermore, the impact of the COVID-19 pandemic on food supply chains and potential remedies to address market vulnerabilities, as Kamble & Mor (2021) discuss, is an emerging research area.

5.2.4. Comprehensive Impact Assessment: Understanding the factors influencing consumer behavior in SFSCs is essential. Future research should employ anthropological approaches to study cultural factors, social norms, and consumer perceptions, as Kini et al. (2020) suggest. The impact of communication strategies on consumers' food choices, as highlighted by Verneau et al. (2019), and the influence of external factors such as pricing, competition, and government policies on consumer behavior, as indicated by Sadeli et al. (2023), also need exploration. Furthermore, the

impact of the COVID-19 pandemic on food supply chains and potential remedies to address market vulnerabilities, as Kamble & Mor (2021) discuss, is an emerging research area.

5.2.5. Exploring Policy Interventions and Governance in SFSC: Future research should focus on the role of policy interventions and support mechanisms in enhancing SFSCs' growth and resilience (Loiseau et al., 2020). It is essential to understand the impact of regulations, incentives, and market structures on the development of local food systems to create a more conducive environment for such initiatives. Further investigation should also explore the governance aspect of sustainability within supply chain and assess the potential for policy interventions to bolster the development and expansion of SFSCs (Mastronardi et al., 2019).

5.2.6. Extending Research to Diverse Contexts: Future research should explore short food supply chains in diverse geographical contexts to enhance the generalizability of findings. Studies should assess the applicability and functioning of SFSCs in different regions and under varying conditions, as Casalegno et al. (2020) and Lombardi et al. (2019) suggest. Understanding how local food supply chains respond to constitutional changes or external events, such as Brexit, as Hendry et al. (2019) discuss, is also important.

5.2.7. Resilience and Dynamic Supply Chain Models: Developing dynamic models to enhance the resilience of short food supply chains is a priority. Addressing information asymmetry by leveraging technology and implementing transparent labeling systems, as Zhang & Yu (2021) recommend, is important. Additionally, understanding the surge in online sales, as Guo et al. (2022) mention, and conducting comparative studies with other sustainable agricultural models, as suggested by Medici et al. (2021), can offer valuable insights.

5.2.8. Policy Interventions and Governance: The role of policy interventions and support mechanisms in enhancing the growth and resilience of SFSC is a critical area for future research. Investigating the impact of regulations, incentives, and market structures on the development of local food systems, as Loiseau et al. (2020) and Mastronardi et al. (2019) propose, is essential for creating a more conducive environment for such initiatives.

5.2.9. Methodological Improvements: Improving data collection and methodology through mixed-method approaches, advanced survey techniques, remote sensing technologies, and on-site observations is recommended for gaining deeper insights into SFSC practices. Van Hoyweghen et

al. (2021) and Ilbery et al. (2006) emphasize the need for larger-scale surveys with primary data to obtain more accurate and representative insights. Emphasizing quantitative data collection and validation, and exploring SFSCs in various contexts and regions, as Birtalan et al. (2020) and Zoll et al. (2018) suggest, will advance our understanding of these practices.

References

- Abate-Kassa, G. *et al.* (2011) “Market access for local food through the conventional food supply chain,” *International Food and Agribusiness Management Review*, pp. 63–82. doi: 10.22004/AG.ECON.100876.
- Abbate, S. *et al.* (2023) “Coming out the egg: Assessing the benefits of circular economy strategies in agri-food industry,” *Journal of Cleaner Production*, 385(135665), p. 135665. doi: 10.1016/j.jclepro.2022.135665.
- Abraham, M. and Pingali, P. (2021) “Shortage of pulses in India: understanding how markets incentivize supply response,” *Journal of Agribusiness in Developing and Emerging Economies*, 11(4), pp. 411–434. doi: 10.1108/jadee-11-2017-0128.
- Ali, A. *et al.* (2021) “Economic and environmental consequences’ of postharvest loss across food supply Chain in the developing countries,” *Journal of Cleaner Production*, 323(129146), p. 129146. doi: 10.1016/j.jclepro.2021.129146.
- Amilien, V., Tocco, B. and Strandbakken, P. (2019) “At the heart of controversies: Hybrid forums as an experimental multi-actor tool to enhance sustainable practices in localized agro-food systems,” *British Food Journal (Croydon, England)*, 121(12), pp. 3151–3167. doi: 10.1108/bfj-10-2018-0717.
- Arcese, G. *et al.* (2023) “The role of traditional aspects, health consciousness and environmental concerns in Italian agri-food consumption during Covid-19,” *British Food Journal (Croydon, England)*. doi: 10.1108/bfj-10-2022-0841.
- Baker, B. P. and Russell, J. A. (2017) “Capturing a value-added niche market: Articulation of local organic grain,” *American Journal of Agricultural Economics*, 99(2), pp. 532–545. doi: 10.1093/ajae/aaw100.
- Baldi, L. *et al.* (2019) “How alternative food networks work in a metropolitan area? An analysis of Solidarity Purchase Groups in Northern Italy,” *Agricultural and Food Economics*, 7(1). doi: 10.1186/s40100-019-0139-3.
- Bannor, R. K. *et al.* (2023) “Short supply chain choice and impact amongst rice processors in rural Ghana,” *Journal of Agribusiness in Developing and Emerging Economies*. doi: 10.1108/jadee-03-2023-0049.

- Bazzani *et al.* (2013) “Alternative Agri-Food Networks and Short Food Supply Chains: a review of the literature,” *Economia Agro-alimentare: XV*, 2, 2013, pp. 11–34. doi: 10.3280/ECAG2013-002002.
- Benis, K. and Ferrão, P. (2017) “Potential mitigation of the environmental impacts of food systems through urban and peri-urban agriculture (UPA) – a life cycle assessment approach,” *Journal of Cleaner Production*, 140, pp. 784–795. doi: 10.1016/j.jclepro.2016.05.176.
- Benis, K., Reinhart, C. and Ferrão, P. (2017) “Development of a simulation-based decision support workflow for the implementation of Building-Integrated Agriculture (BIA) in urban contexts,” *Journal of Cleaner Production*, 147, pp. 589–602. doi: 10.1016/j.jclepro.2017.01.130.
- Birtalan, I. L. *et al.* (2020) “Community supported agriculture membership: The benefits of spousal involvement,” *International Journal of Consumer Studies*, 44(2), pp. 172–180. doi: 10.1111/ijcs.12555.
- Birtalan, I. L. *et al.* (2021) “Local food communities: exploring health-related adaptivity and self-management practices,” *British Food Journal (Croydon, England)*, 123(8), pp. 2728–2742. doi: 10.1108/bfj-12-2020-1176.
- Brulard, N. *et al.* (2019) “An integrated sizing and planning problem in designing diverse vegetable farming systems,” *International Journal of Production Research*, 57(4), pp. 1018–1036. doi: 10.1080/00207543.2018.1498985.
- Casalegno, C. *et al.* (2019) “From transactions to cooperation: Developing supply chain of ancient grains between relationships and joint interests,” *British Food Journal (Croydon, England)*, 122(5), pp. 1381–1396. doi: 10.1108/bfj-05-2019-0383.
- Cembalo, L. *et al.* (2015) “‘rationally local’: Consumer participation in alternative food chains: Consumer participation in alternative food chains,” *Agribusiness (New York)*, 31(3), pp. 330–352. doi: 10.1002/agr.21419.
- Charatsari, C. *et al.* (2018) “Antecedents of farmers’ willingness to participate in short food supply chains,” *British Food Journal (Croydon, England)*, 120(10), pp. 2317–2333. doi: 10.1108/bfj-09-2017-0537.
- Chenarides, L. *et al.* (2021) “Who practices urban agriculture? An empirical analysis of participation before and during the COVID-19 pandemic,” *Agribusiness (New York)*, 37(1), pp. 142–159. doi: 10.1002/agr.21675.
- Cicatiello, C. (2020) “Alternative food shoppers and the ‘quantity dilemma’: a study on the determinants of their purchases at alternative markets,” *Agricultural and Food Economics*, 8(1). doi: 10.1186/s40100-020-00160-6.
- Coley, D., Howard, M. and Winter, M. (2009) “Local food, food miles and carbon emissions: A comparison of farm shop and mass distribution approaches,” *Food Policy*, 34(2), pp. 150–155. doi: 10.1016/j.foodpol.2008.11.001.

Cooper, G. S. *et al.* (2021) “Can fruit and vegetable aggregation systems better balance improved producer livelihoods with more equitable distribution?,” *World Development*, 148(105678), p. 105678. doi: 10.1016/j.worlddev.2021.105678.

Cooper, G. S. *et al.* (2022) “The challenges of aligning aggregation schemes with equitable fruit and vegetable delivery: lessons from Bihar, India,” *Journal of Agribusiness in Developing and Emerging Economies*, 12(2), pp. 223–246. doi: 10.1108/jadee-11-2020-0275.

Corsi, A., Novelli, S. and Pettenati, G. (2018) “Producer and farm characteristics, type of product, location: Determinants of on-farm and off-farm direct sales by farmers,” *Agribusiness (New York)*, 34(3), pp. 631–649. doi: 10.1002/agr.21548.

Cristiano, S. (2021) “Organic vegetables from community-supported agriculture in Italy: Emergy assessment and potential for sustainable, just, and resilient urban-rural local food production,” *Journal of Cleaner Production*, 292(126015), p. 126015. doi: 10.1016/j.jclepro.2021.126015.

Dhaoui, O. *et al.* (2020) “Consumers’ attitude towards alternative distribution channels of fresh fruits and vegetables in Crete,” *British Food Journal (Croydon, England)*, 122(9), pp. 2823–2840. doi: 10.1108/bfj-05-2019-0342.

Denyer, D. and Tranfield, D. (2009) “Producing a systematic review,” in Buchanan, D. A. (ed.) *The Sage handbook of organizational research methods*, (pp, pp. 671–689).

Dorr, E. *et al.* (2021) “Life cycle assessment of a circular, urban mushroom farm,” *Journal of Cleaner Production*, 288(125668), p. 125668. doi: 10.1016/j.jclepro.2020.125668.

Dung, T. Q. *et al.* (2021) “Entrepreneurial orientation and vertical knowledge acquisition by smallholder agricultural firms in transitional economies: The role of interfirm collaboration in value-chains,” *Journal of Business Research*, 137, pp. 327–335. doi: 10.1016/j.jbusres.2021.08.054.

Foti, V. T. and Timpanaro, G. (2021) “Relationships, sustainability and agri-food purchasing behaviour in farmer markets in Italy,” *British Food Journal (Croydon, England)*, 123(13), pp. 428–453. doi: 10.1108/bfj-04-2021-0358.

Galli, F. *et al.* (2017) “Shaping food systems towards improved nutrition: a case study on Tuscan Bread Protected Designation of Origin,” *International Food and Agribusiness Management Review*, 20(4), pp. 533–552. doi: 10.22434/ifamr2015.0174.

Garçon, L. (2019) “Bringing terroir back to the roots? A methodological proposal for studying local food products,” *British Food Journal (Croydon, England)*, 121(12), pp. 3089–3101. doi: 10.1108/bfj-04-2019-0243.

- Garner, B. and Ayala, C. (2018) “Consumer supply-chain demands and challenges at farmers’ markets,” *British Food Journal (Croydon, England)*, 120(12), pp. 2734–2747. doi: 10.1108/bfj-03-2018-0154.
- Ge, H., Gómez, M. and Peters, C. (2022) “Modeling and optimizing the beef supply chain in the Northeastern U.S.,” *Agricultural Economics (Amsterdam, Netherlands)*, 53(5), pp. 702–718. doi: 10.1111/agec.12708.
- Gillman, A., Campbell, D. C. and Spang, E. S. (2019) “Does on-farm food loss prevent waste? Insights from California produce growers,” *Resources, Conservation, and Recycling*, 150(104408), p. 104408. doi: 10.1016/j.resconrec.2019.104408.
- Giordano, A., Luise, V. and Arvidsson, A. (2018) “The coming community. The politics of alternative food networks in Southern Italy,” *Journal of Marketing Management*, 34(7–8), pp. 620–638. doi: 10.1080/0267257x.2018.1480519.
- Guo, J. *et al.* (2022) “Has COVID-19 accelerated the E-commerce of agricultural products? Evidence from sales data of E-stores in China,” *Food Policy*, 112(102377), p. 102377. doi: 10.1016/j.foodpol.2022.102377.
- Hashem, S. *et al.* (2018) “Motives for buying local, organic food through English box schemes,” *British Food Journal (Croydon, England)*, 120(7), pp. 1600–1614. doi: 10.1108/bfj-08-2017-0426.
- Hendry, L. C. *et al.* (2019) “Local food supply chain resilience to constitutional change: the Brexit effect,” *International Journal of Operations & Production Management*, 39(3), pp. 429–453. doi: 10.1108/ijopm-03-2018-0184.
- Hirvonen, K. *et al.* (2021) “Food prices and marketing margins during the COVID-19 pandemic: Evidence from vegetable value chains in Ethiopia,” *Agricultural Economics (Amsterdam, Netherlands)*, 52(3), pp. 407–421. doi: 10.1111/agec.12626.
- Hu, Y. *et al.* (2019) “Carbon footprint and economic efficiency of urban agriculture in Beijing—a comparative case study of conventional and home-delivery agriculture,” *Journal of Cleaner Production*, 234, pp. 615–625. doi: 10.1016/j.jclepro.2019.06.122.
- Ilbery, B. *et al.* (2006) “Mapping local foods: evidence from two English regions,” *British Food Journal (Croydon, England)*, 108(3), pp. 213–225. doi: 10.1108/00070700610651034.
- Ilbery, B., Kirwan, J. and Maye, D. (2016) “Explaining regional and local differences in organic farming in England and Wales: A comparison of south west Wales and south east England,” *Regional Studies*, 50(1), pp. 110–123. doi: 10.1080/00343404.2014.895805.
- Ji, C., Chen, Q. and Zhuo, N. (2020) “Enhancing consumer trust in short food supply chains: The case evidence from three agricultural e-commerce companies in China,” *Journal of Agribusiness in Developing and Emerging Economies*, 10(1), pp. 103–116. doi: 10.1108/jadee-12-2018-0180.

- Jiménez-Guerrero, J. F. *et al.* (2018) “Considering the consumer in the design of a supply chain of perishables,” *International Food and Agribusiness Management Review*, 21(4), pp. 525–542. doi: 10.22434/ifamr2017.0019.
- Kallas, Z. *et al.* (2021) “The development of short food supply chain for locally produced honey: Understanding consumers’ opinions and willingness to pay in Argentina,” *British Food Journal (Croydon, England)*, 123(5), pp. 1664–1680. doi: 10.1108/bfj-01-2019-0070.
- Kini, J., Pouw, N. and Gupta, J. (2020) “Organic vegetables demand in urban area using a count outcome model: case study of Burkina Faso,” *Agricultural and Food Economics*, 8(1). doi: 10.1186/s40100-020-00166-0.
- Kulak, M. *et al.* (2016) “Eco-efficiency improvement by using integrative design and life cycle assessment. The case study of alternative bread supply chains in France,” *Journal of Cleaner Production*, 112, pp. 2452–2461. doi: 10.1016/j.jclepro.2015.11.002.
- Lagorio, A., Pinto, R. and Golini, R. (2016) “Research in urban logistics: a systematic literature review,” *International Journal of Physical Distribution & Logistics Management*, 46(10), pp. 908–931. doi: 10.1108/ijpdlm-01-2016-0008.
- Liang, P. *et al.* (2022) “Assessing the coordinated revenue-sharing contract of China’s farmer-supermarket direct-purchase model,” *International Food and Agribusiness Management Review*, 25(2), pp. 229–243. doi: 10.22434/ifamr2020.0196.
- Liu, C.-Y. and Lee, C.-Y. (2019) “Multiple supply chain adoption under uncertainty,” *International Journal of Physical Distribution & Logistics Management*, 49(3), pp. 305–326. doi: 10.1108/ijpdlm-10-2017-0312.
- Loiseau, E. *et al.* (2020) “To what extent are short food supply chains (SFSCs) environmentally friendly? Application to French apple distribution using Life Cycle Assessment,” *Journal of Cleaner Production*, 276(124166), p. 124166. doi: 10.1016/j.jclepro.2020.124166.
- Lombardi, G. V. *et al.* (2019) “Agricultural landscape modification and land food footprint from 1970 to 2010: A case study of Sardinia, Italy,” *Journal of Cleaner Production*, 239(118097), p. 118097. doi: 10.1016/j.jclepro.2019.118097.
- Maier, P., Klein, O. and Schumacher, K. P. (2020) “Ecological benefits through alternative food networks? Prospects of regional barley-malt-beer value chains in Bavaria, Germany,” *Journal of Cleaner Production*, 265(121848), p. 121848. doi: 10.1016/j.jclepro.2020.121848.
- Mangla, S. K. *et al.* (2021) “Using system dynamics to analyze the societal impacts of blockchain technology in milk supply chains,” *Transportation Research Part E: Logistics and Transportation Review*, 149(102289), p. 102289. doi: 10.1016/j.tre.2021.102289.
- Mastronardi, L. *et al.* (2015) “Exploring the role of farmers in Short Food Supply Chains: The case of Italy,” *International Food and Agribusiness Management Review*, 18(1030-2016-83060) 109–130. doi: 10.22004/AG.ECON.204139.

Mastronardi, L. *et al.* (2019) “Analyzing Alternative Food Networks sustainability in Italy: a proposal for an assessment framework,” *Agricultural and Food Economics*, 7(1). doi: 10.1186/s40100-019-0142-8.

McAdam, M. *et al.* (2016) “Regional horizontal networks within the SME agri-food sector: An innovation and social network perspective,” *Regional Studies*, 50(8), pp. 1316–1329. doi: 10.1080/00343404.2015.1007935.

Medici, M., Canavari, M. and Castellini, A. (2021) “Exploring the economic, social, and environmental dimensions of community-supported agriculture in Italy,” *Journal of Cleaner Production*, 316(128233), p. 128233. doi: 10.1016/j.jclepro.2021.128233.

Menozzi, D. (2014) “Extra-virgin olive oil production sustainability in northern Italy: a preliminary study,” *British Food Journal (Croydon, England)*, 116(12), pp. 1942–1959. doi: 10.1108/bfj-06-2013-0141.

Michel-Villarreal, R., Vilalta-Perdomo, E. L. and Hingley, M. (2020) “Exploring producers’ motivations and challenges within a farmers’ market,” *British Food Journal (Croydon, England)*, 122(7), pp. 2089–2103. doi: 10.1108/bfj-09-2019-0731.

Nguyen, D. D., Le, T. M. and Kingsbury, A. J. (2020) “Farmer participation in the lychee value chain in Bac Giang province, Vietnam,” *Journal of Agribusiness in Developing And Emerging Economies*, 10(2), pp. 203–216. doi: 10.1108/jadee-05-2019-0076.

Nouira, I. *et al.* (2022) “Olive oil supply chain design with organic and conventional market segments and consumers’ preference to local products,” *International Journal of Production Economics*, 247(108456), p. 108456. doi: 10.1016/j.ijpe.2022.108456.

O’Hara, S. and Toussaint, E. C. (2021) “Food access in crisis: Food security and COVID-19,” *Ecological Economics: The Journal of The International Society for Ecological Economics*, 180(106859), p. 106859. doi: 10.1016/j.ecolecon.2020.106859.

Paciarotti, C., & Torregiani, F. (2018). Short food supply chain between micro/small farms and restaurants: An exploratory study in the Marche region. *British Food Journal*, 120(8), 1722–1734.

Paciarotti, C. and Torregiani, F. (2021) “The logistics of the short food supply chain: A literature review,” *Sustainable Production and Consumption*, 26, pp. 428–442. doi: 10.1016/j.spc.2020.10.002.

Richards, T. J. *et al.* (2017) “Retail intermediation and local foods,” *American Journal of Agricultural Economics*, 99(3), pp. 637–659. doi: 10.1093/ajae/aaw115.

Sadeli, A. H. *et al.* (2023) “Consumers’ purchase behavior in short food supply chains using social commerce in Indonesia,” *Journal of Cleaner Production*, 386(135812), p. 135812. doi: 10.1016/j.jclepro.2022.135812.

Starobin, S. M. (2021) “Credibility beyond compliance: Uncertified smallholders in sustainable food systems,” *Ecological Economics: the Journal of the International Society for Ecological Economics*, 180(106767), p. 106767. doi: 10.1016/j.ecolecon.2020.106767.

Szegedyné Fricz, Á. *et al.* (2020) “Consumer perception of local food products in Hungary,” *British Food Journal (Croydon, England)*, 122(9), pp. 2965–2979. doi: 10.1108/bfj-07-2019-0528.

Tasca, A. L., Nessi, S. and Rigamonti, L. (2017) “Environmental sustainability of agri-food supply chains: An LCA comparison between two alternative forms of production and distribution of endive in northern Italy,” *Journal of Cleaner Production*, 140, pp. 725–741. doi: 10.1016/j.jclepro.2016.06.170.

Touboulic, A. and Walker, H. (2015) “Theories in sustainable supply chain management: a structured literature review,” *International Journal of Physical Distribution & Logistics Management*, 45(1/2), pp. 16–42. doi: 10.1108/ijpdlm-05-2013-0106.

Tavella, E. *et al.* (2012) “Enhancing the design and management of a local organic food supply chain with Soft Systems Methodology,” *International Food and Agribusiness Management Review*. Unknown, pp. 47–68. doi: 10.22004/AG.ECON.127290.

Tedesco, C. *et al.* (2017) “Potential for recoupling production and consumption in peri-urban territories: The case-study of the Saclay plateau near Paris, France,” *Food Policy*, 69, pp. 35–45. doi: 10.1016/j.foodpol.2017.03.006.

Thomé, K. M. *et al.* (2021) “Food Supply Chains and Short Food Supply Chains: Coexistence conceptual framework,” *Journal of Cleaner Production*, 278(123207), p. 123207. doi: 10.1016/j.jclepro.2020.123207.

Tichenor, N. E. *et al.* (2017) “Life cycle environmental consequences of grass-fed and dairy beef production systems in the Northeastern United States,” *Journal of Cleaner Production*, 142, pp. 1619–1628. doi: 10.1016/j.jclepro.2016.11.138.

Van Hoyweghen, K. *et al.* (2021) “Resilience of global and local value chains to the Covid-19 pandemic: Survey evidence from vegetable value chains in Senegal,” *Agricultural Economics (Amsterdam, Netherlands)*, 52(3), pp. 423–440. doi: 10.1111/agec.12627.

Verneau, F. *et al.* (2019) “Consumers’ concern towards palm oil consumption: An empirical study on attitudes and intention in Italy,” *British Food Journal (Croydon, England)*, 121(9), pp. 1982–1997. doi: 10.1108/bfj-10-2018-0659.

Verraes, C. *et al.* (2015) “Microbiological safety and quality aspects of the short supply chain: SWOT analysis of the Belgian case study,” *British Food Journal (Croydon, England)*, 117(9), pp. 2250–2264. doi: 10.1108/bfj-04-2015-0122.

Vroegindewey, R. *et al.* (2021) “Consumer and retailer preferences for local ingredients in processed foods: Evidence from a stacked choice experiment in an African urban dairy market,” *Food Policy*, 103(102106), p. 102106. doi: 10.1016/j.foodpol.2021.102106.

Wang, L., Rabinovich, E. and Richards, T. J. (2022) “Scalability in platforms for local groceries: An examination of indirect network economies,” *Production and Operations Management*, 31(1), pp. 318–340. doi: 10.1111/poms.13536.

Wang, M. *et al.* (2022) “Sustainability concerns on consumers’ attitude towards short food supply chains: an empirical investigation,” *Operations Management Research*, 15(1–2), pp. 76–92. doi: 10.1007/s12063-021-00188-x.

Watson, D. J. (2020) “Working the fields: The organization of labour in community supported agriculture,” *Organization (London, England)*, 27(2), pp. 291–313. doi: 10.1177/1350508419888898.

Wiedenroth, C. F. and Otter, V. (2022) “Can new healthy luxury food products accelerate short food supply chain formation via social media marketing in high-income countries?,” *Agricultural and Food Economics*, 10(1), p. 31. doi: 10.1186/s40100-022-00238-3.

Willis, D. B., Carpio, C. E. and Boys, K. A. (2016) “Supporting local food system development through food price premium donations: A policy proposal,” *Journal of Agricultural and Applied Economics*, 48(2), pp. 192–217. doi: 10.1017/aae.2016.10.

Wiryawan, F. S., Marimin and Djatna, T. (2020) “Value chain and sustainability analysis of fresh-cut vegetable: A case study at SSS Co,” *Journal of Cleaner Production*, 260(121039), p. 121039. doi: 10.1016/j.jclepro.2020.121039.

Zhang, X. *et al.* (2023) “Short supply chain, technical efficiency, and technological change: Insights from cucumber production,” *Agribusiness (New York)*, 39(2), pp. 371–386. doi: 10.1002/agr.21789.

Zhang, X. and Yu, X. (2021) “Short supply chain participation, and agrochemicals’ use intensity and efficiency: evidence from vegetable farms in China,” *China Agricultural Economic review*, 13(4), pp. 721–735. doi: 10.1108/caer-05-2020-0108.

Zoll, F. *et al.* (2018) “Individual choice or collective action? Exploring consumer motives for participating in alternative food networks,” *International Journal of Consumer Studies*, 42(1), pp. 101–110. doi: 10.1111/ijcs.12405.

Zwart, T. A. and Wertheim-Heck, S. C. O. (2021) “Retailing local food through supermarkets: Cases from Belgium and the Netherlands,” *Journal of Cleaner Production*, 300(126948), p. 126948. doi: 10.1016/j.jclepro.2021.126948.