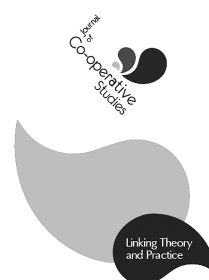


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The Role of Agricultural Co-operatives in Promoting Sustainable Development in Rural Areas: A Systematic Literature Review

Tian Xu, Mary O'Shaughnessy, and Lucas Olmedo

Agricultural co-operatives are an important vehicle for addressing a range of issues in rural areas. However, most of the existing literature only addresses the contributions of agricultural co-operatives to rural development in a single dimension — economic, environmental, or social. Comprehensive and holistic reviews of the literature on the contributions of agricultural co-operatives to rural sustainable development are notably scarce. We respond to this gap using a systematic literature review through which we analyse 43 articles published from 1995 to December 2024. Research in this area is relatively new and rapidly developing, but the trends across regions are uneven. Scholars from developed countries tend to focus on the transformation of agricultural co-operatives and how they can evolve into models for promoting social development, while scholars from developing countries are more concerned with the role of agricultural co-operatives in poverty alleviation and green production. We also found that external public policies are important for the fulfilment of the role of agricultural co-operatives. Additionally, another area that requires further research is the trade-off between economic sustainability, environmental sustainability, and social sustainability in agricultural co-operatives in rural areas, as well as whether these goals are compatible, complementary, or in competition with each other.

Introduction

Agricultural co-operatives are recognised by academics and governments as a relevant actor for the development of rural areas with the potential to create inclusive and sustainable rural development (Neves et al., 2021). Agricultural co-operatives, as important economic organisations in rural areas, are platforms for the activation of rural resources and can effectively contribute to rural development by combining different principles and objectives (Ma et al., 2023). So far, several publications have discussed the impact of agricultural co-operatives in some aspects of sustainable development in rural areas, such as how agricultural co-operatives can improve climate issues (Bro et al., 2019); increase green technology adoption (Liu et al., 2023); and promote gender equality (Doonan, 2020). Despite the growing recognition of the (potential) role of agricultural co-operatives in the development of rural areas, previous studies have mainly focused on the contribution of agricultural co-operatives to the

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development of rural areas in specific dimensions: economic, environmental, or social; however, to the knowledge of the authors, there is not a comprehensive overview of the contribution of agricultural co-operatives to a more holistic sustainable development of rural areas. At the same time, given the diversity of agricultural co-operatives and rural areas, it is difficult to obtain such an overview through individual cases, interviews, or survey research alone. Against this background, we conducted a systematic literature review (SLR) as this is a useful methodology to distil the breadth and diversity of existing research, integrate the main learning from studies, identify current gaps in our knowledge of the subject, and suggest possible avenues for further research (Beckmann et al., 2023).

Our review is structured as follows. The concepts of agricultural co-operatives and sustainable development in rural areas are introduced. The process followed in this SLR is presented and explained. The characteristics of the studies reviewed are presented. The findings from our analysis of the studies reviewed are presented. The potential of agricultural co-operatives in the sustainable development of rural areas is discussed, along with suggestions for future research in this field.

Conceptualising Agricultural Co-operatives

The definition of co-operatives, now universally acknowledged across the globe, is formally encapsulated by the International Co-operative Alliance (ICA). According to ICA, co-operatives are people-centred enterprises jointly owned and democratically controlled by and for their members to realise their common economic, social, and cultural needs and aspirations. As enterprises based on values and principles, they put fairness and equality first, allowing people to create sustainable enterprises that generate long-term jobs and prosperity (ICA, 2015). The seven principles that guide the operation of co-operatives are: 1. Voluntary and open membership; 2. Democratic member control; 3. Economic participation of members; 4. Autonomy and independence; 5. Education, training, and information; 6. Co-operation among co-operatives; 7. Concern for community (ICA, 2015).

Table 1: Overview of agricultural co-operatives in major countries or alliance in 2020

Country	Market Share	Number of Co-operatives	Number of Members
USA	28% to 30%	1,699	1,868,851
EU	40% to 50%	22,000	6 million
Brazil	—	1,253	1 million
China	—	2,250,000	100 million
Australia	—	229	2,4000

Source: Compiled by the authors

Agricultural co-operatives are classified as a typical type of co-operative because the goods and services they provide are within the agricultural sector (Wanyama, 2014). Agricultural co-operatives have a large market share in rural areas of both developed and developing countries (Food and Agriculture Organization of the United Nations [FAO], 2012). As of 2021, agricultural co-operatives in the US reached 1,699 and provided a total of 202,988 job opportunities (US Department of Agriculture, 2022). Agricultural co-operatives generally have a high market share in the agricultural sector of EU countries, with over 83% in the Netherlands, 79% in Finland, 55% in Italy, and 50% in France (European Commission, 2024). Within China, as of May 2020, there were 2.225 million agricultural co-operatives registered in the industrial and commercial sector, making them the largest number of rural economic organisations in rural areas (Ministry of Agriculture and Rural Affairs of China, 2022). Brazil, the largest country in Latin America, had more than 1,500 agricultural co-operatives in 2020, with 1 million co-operative members (Neves et al., 2021). In some African countries such as Ethiopia, Mozambique, and Nigeria, agricultural co-operatives serve as important links connecting small farmers to the market and are thus seen as crucial ways to help small-scale farmers overcome

challenges (Blekking et al., 2021). These figures show that agricultural co-operatives in many countries around the world are large in number and membership, therefore, they are relevant economic organisations that can help effectively to connect farmers to markets, contributing to national agricultural development and the development of rural areas.

Sustainable Development of Rural Areas

According to publicly available data from the World Bank (2025), as of 2023, about 43% of the world's population still live in rural areas. Usually viewed as areas outside the main urban areas or as more remote areas (Beckmann et al., 2023), rural areas are often defined using population density as their main characteristic (Organisation for Economic Co-operation and Development [OECD], 2018), i.e. rural areas have a low population density compared to urban areas. However, some definitions of rural areas also include other aspects such as having less developed infrastructure (Pato & Teixeira, 2016). This ranges from the access to public transport to healthcare and schooling as well as to the quality of roads and other physical infrastructure (Alabdali et al., 2023). Also, some authors have advocated for a more relational approach towards rural areas which is characterised by dynamic processes in which rural and non-rural actors interact with internal (endogenous) and external (exogenous) factors/forces (Jones & Heley, 2016).

Even though the official definition of what constitutes a rural area varies from country to country, rural areas are an important part of many countries' economic, social, and environmental development. Nowadays, many rural areas are facing major challenges, which are usually characterised by a wide gap between urban and rural incomes, loss of village labour, threats to food security, and shortage of natural resources (van Twuijver et al., 2020).

Over the past two decades, sustainable development has become a significant paradigm for policies, development plans, and strategies formulated by international organisations, national governments, and local or regional governmental bodies to address rural development issues. Many documents and strategies of the United Nations (UN), the Food and Agriculture Organisation (FAO), and the Organisation for Economic Co-operation and Development (OECD) have shown that sustainable development in rural areas is an important part of the solution to the problems of rural areas and the achievement of the Sustainable Development Goals (SDGs) (FAO, 2017; OECD, 2018; UN, 2020).

Sustainable development is commonly defined as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Emas, n.d., p. 1). Economic, environmental, and social aspects are the three pillars of sustainable development (UN, 2023). In 2015, the UN 2030 Agenda for Sustainable Development further proposed a more *comprehensive vision than previous initiatives, and this new vision was specifically* embodied in the 17 SDGs (UN, 2023). The concept and paradigm of the three pillars of sustainable development have received widespread attention and recognition (Purvis et al., 2019). These pillars were soon extrapolated to rural areas. People began to advocate the achievement of stable long-term rural economic growth, comprehensive social progress, and a virtuous ecological cycle without compromising the natural resource and environmental base, and emphasised the need to maintain a dynamic balance between these aspects in the development process (FAO, 2024).

The Nexus between Agricultural Co-operatives and Sustainable Development of Rural Areas

At the international level, the International Labour Organisation (ILO) and the UN have clearly pointed out the important role of co-operatives in achieving the SDGs (UN, 2011; Wanyama, 2014). The UN (2023) further confirmed the unique role of co-operatives in promoting the 2030 Agenda for Sustainable Development. Therefore, in the context of rural areas facing severe

challenges and the urgent need to promote sustainable development, it is of great practical significance to explore the role of agricultural co-operatives in achieving long-term, inclusive rural sustainable development.

In 1995, the ICA further revised the co-operative principles to guide the development of the co-operative movement in the twenty-first century, adding for the first time the seventh principle of concern for community, explicitly stating that co-operatives are committed to the sustainable development of their communities (Münkner, 1995). In fact, both in terms of their organisational characteristics and principles, agricultural co-operatives to some extent respect the goals of sustainable development and can be seen as a suitable organisational vehicle for sustainability (Candemir et al., 2021). Agricultural co-operatives are characterised by a people-centred approach, economic democracy, and the empowerment of marginalised groups. This is a key prerequisite for achieving shared responsibility and advancing sustainable development (Gertler, 2001). The economic participation of members and the system of surplus distribution help reduce inequalities in the distribution of earnings, ensuring that the costs and benefits of sustainable development are shared fairly (Birchall, 2004). The autonomy and independence of agricultural co-operatives enable them to formulate and implement sustainability strategies that are tailored to the needs of their members and the specific conditions of their communities (ICA, 2015). Moreover, agricultural co-operatives can integrate various goals, including economic, social, and ecological objectives, while being deeply rooted in their communities (Majee & Hoyt, 2011).

Literature Screening Methods

A SLR provides a holistic view of the topic under study, allows for a synthesis of relevant literature, and identifies the linkages in the existing research in the field of study. Moreover, a SLR follows a transparent and systematic screening process that reduces bias in the screening process and ensures the rigour and reliability of the literature reviewed. Our study follows a number of different steps (see Figure 1).

The first step was to select the databases required for performing the literature search. The authors tested different databases (Web of Science, Scopus, ScienceDirect, Google Scholar, SpringerLink, Wiley, ABI(ProQuest)). Web of Science (WoS), Scopus, and ScienceDirect, were selected based on the relevance, number, and complementarity of the search results. These three databases cover a wide range of journal publishers such as Emerald, Elsevier, Taylor & Francis, and Wiley, thus ensuring coverage of different research areas such as co-operative studies, rural studies, economics, sociology, and geography, among others.

The selection of search strings is key for the SLR. Our search string includes different search terms related to the “agricultural” aspect of agricultural co-operatives, such as “agri*” or “rural” or “farm*” or “food”. We added different common expressions for “co-operative” to the search string, such as co-operative and cooperative. We also included different synonyms for “agricultural cooperative”, such as “producer organisation” and “producer association”.

Since our study is focused on rural areas, the keywords “rural” or “remote” were added. For sustainable development, we also added the corresponding term “sustainable development” or “SDGs”. Consequently, the search string was the following:

TITLE-ABS-KEY (agri* OR rural OR farm* OR food OR producer) AND (co-operative OR cooperative OR organisation OR association) AND (rural OR remote) AND (sustainable development OR SDGs).

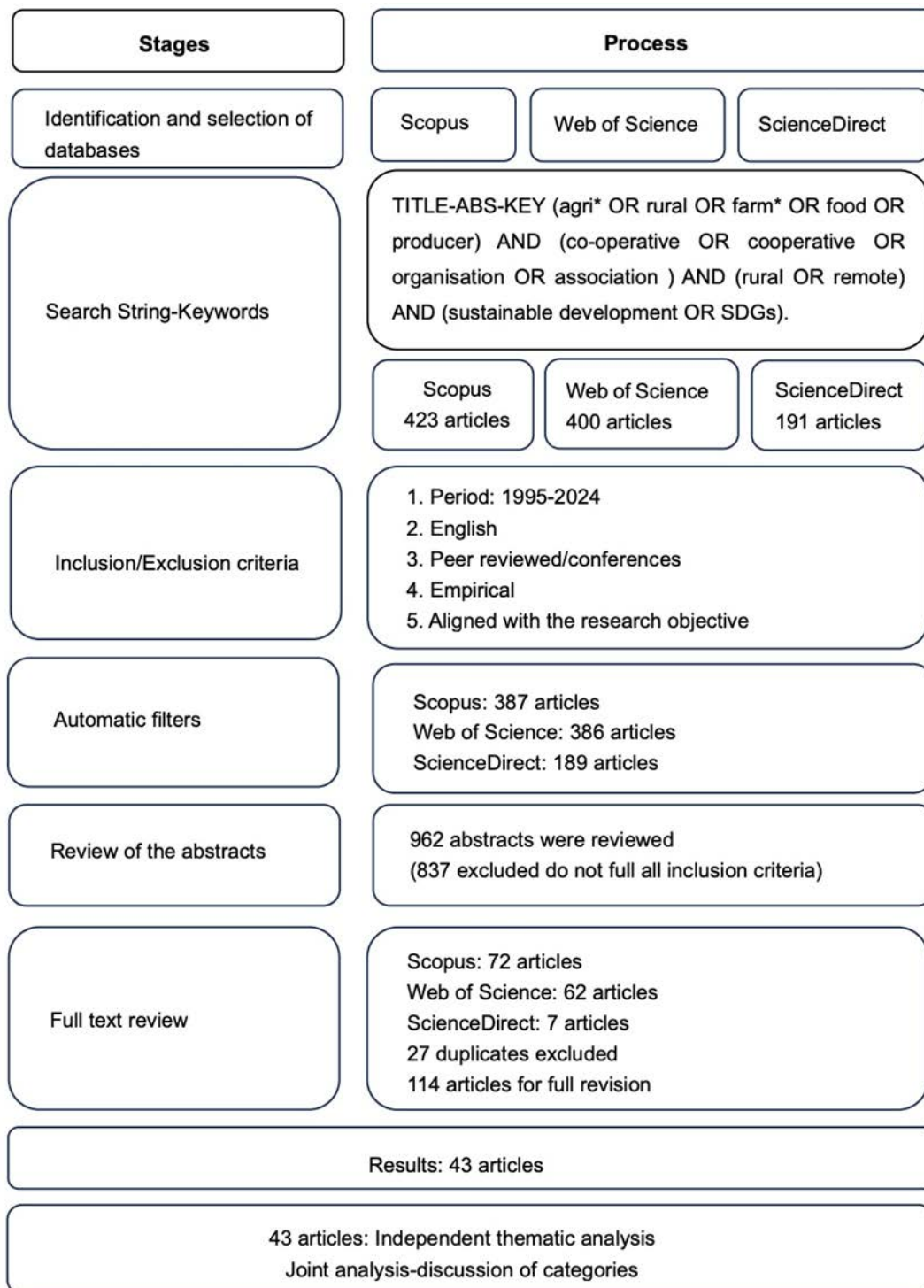
Using this search string, we obtained 423 results from Scopus, 400 results from WoS, and 191 results from ScienceDirect.

Inclusion and exclusion criteria were used to screen the literature. The time period started on 1 January 1995, which is the year when the ICA principles were updated to include “sustainable development”, to 1 December 2024. Results were limited to English language and

peer-reviewed published articles and conference papers/proceedings. Studies had to contain empirical data with main findings related to the research aim.

This yielded 387 articles from Scopus, 386 from WoS and 189 articles from ScienceDirect, so the total number of abstracts reviewed and filtered was 962. From the review of the abstracts, 837 articles were excluded because they clearly did not meet the inclusion/exclusion criteria 4 (empirical study) and 5 (aligned with research objective). From the total of 141 articles selected, 27 were also discarded as they were duplicated, finally 114 articles were included for full text review (see Figure 1).

Figure 1: Systematic literature review screening steps



Source: Authors' work

Following a thorough review, 71 articles were not included in the final range of articles for the following reasons: the articles did not contain empirical data; there were no specific findings on agricultural co-operatives, or they did not have agricultural co-operatives as their main focus, or the location did not explicitly take place in a rural area. Hence, 43 articles were finally listed for thematic analysis.

A standardised procedure was followed to graph the data from the 43 selected papers in order to systematically classify and compare the data and information. A template in Excel was created with the following headings: publication title, publication year, author name, research question/objective, sample, place of study, relevant theories, research methodology, and main results. Based on the template, the authors categorised the selected papers into economic dimension, environmental dimension, social dimension, and sustainable development (holistically). Initial categories were generated by carefully reading each paper and marking key content. Similarities within the initial categories were clustered to form candidate categories. The key contents were then further trimmed and coded, and further split, merged, and categorised. After two rounds of collation and correction (Ryan & Bernard, 2003), we produced final categories (see Table 4), details of which are presented in the next section.

Descriptive Findings

This section presents the main descriptive findings from our SLR. The studies reviewed were published in a variety of journals in different fields, with the highest number of relevant articles in interdisciplinary journals such as *Sustainability*, *Environment*, *Development and Sustainability*, and *Journal of Rural Cooperation*, but we also found articles published in specialised journals dealing with co-operative research, agricultural economics, and international development. Several conference papers were also retrieved. While the search included all publications from 1995 to 1 December 2024, nearly 80% of the articles reviewed were published after 2014 (see Table 2). In terms of research locations, except for two transnational cases, the remaining 41 articles are located in Asian countries (21), Europe (11), Africa (6), South America (2), and North America (1). The number of articles based on the UN's (UN Trade & Development, 2025) classification of developing countries is 34, and the number of articles based on developed countries is 6 (see Table 3). Asia, Europe, and Africa are the regions with more interest in this research topic which is also more popularly explored in developing countries than from developed countries.

In terms of the methods used, 22 (51.16%) were quantitative studies, 19 (44.19%) were qualitative and 2 (4.65%) used mixed methods. This indicates that quantitative methods are more popular than qualitative methods for this topic. Quantitative research is usually conducted in the form of questionnaires, and using national, or official government, surveys as materials for data acquisition, which in turn produces some econometric models (e.g. endogenous switching model, propensity score matching) to validate the causal effect of agricultural co-operatives with a particular sustainable development measure in rural areas. Qualitative studies are usually based on case studies, using semi-structured interviews, (participant) observation, and secondary data such as publicly available organisational information and documents to obtain research data for research.

As for the theoretical perspectives, most of the studies did not clearly indicate the theories used. However, among those studies that did specify theories, these tended to be from different fields such as social capital, actor network, rational action, collective action, resource dependence, and sustainable development.

Table 2: Descriptive results of SLR

Descriptor	Number of Articles	Percentage (%)
Year of Publication		
1997-2013	6	13.95%
2014-2024	37	86.05%
Place of the Study		
Asia	21	48.84%
Europe	11	25.58%
Africa	6	13.95%
South America (Brazil)	2	4.65%
North America (Canada)	1	2.33%
Several Countries	2	4.65%
Developing Country or Developed Country		
Developing Country	34	79.07%
Developed Country	7	16.28%
Methodology		
Quantitative	22	51.16%
Qualitative	19	44.19%
Mixed	2	4.65%

Source: Authors' work

The Impact of Agricultural Co-operatives on Sustainable Development in Rural Areas

The economic impact

As an economic organisation that realises mutual assistance among farmers, agricultural co-operatives can influence their members' economic performance. Within the literature reviewed, the economic impact for sustainable development has mostly been discussed for developing countries. In this regard, agricultural co-operatives are said to increase the production of agricultural products (Čiburienė, 2015), increase members' incomes (Deng et al., 2022) and reduce the volatility of members' incomes (Ji et al., 2023). These studies highlight the positive role of co-operatives in the economic sustainability of their members. Meanwhile, scholars in developing countries generally agree that agricultural co-operatives have been effective in poverty alleviation practices, although there is still room for improving the sustainability of poverty alleviation (Haque et al., 2009; Shao et al., 2021).

Agricultural co-operatives have brought technological improvements to farmers by providing them with technical training services through unified organisational training that encourages farmers to adopt agricultural technology (Montegut et al., 2024; Song et al., 2014). The structure of the co-operative allows the farmers to use the advantages of collective action to purchase or lease the required input factors of unified services, means of production, and technical equipment at low prices (de los Ríos et al., 2016), thereby reducing the cost to farmers of using agricultural technology (Wang, Xue et al., 2021).

Table 3: Summary of articles according to research categories and places

Category	Sub Category	Place
Economic	Agricultural products/ Members' incomes	Developed country (1) Developing country (4)
	Technological improvement/Unified purchase	Developed country (1) Developing country(3)
	Crop grow	Developed country (1) Developing country(4)
Environmental	Green and safe production/chemical pesticides and fertilisers	Developing country(4)
	Natural resource /Biodiversity	Developing country(6)
	Climate change	Developing country(1)
Social	Gender equality	Developed country (1) Developing country (2)
	Cohesion/Social capital	Developed country (1) Developing country (4)
	Land transfer carriers	Developing country (1)
	Employment opportunities providers	Developed country (1) Developing country (2)
	Protect local culture	Developed country (1)
	Local political decision-making	Developed country (3) Developing country (1)
	Community well-being	Cross-countries (1)
	Agricultural technical support, cultural support, and social support	Cross-countries (1)
Holistic	Gender equality, job creation, income growth and reshaping the region's image	Developed country (1)
	Focus on economic benefits and ignore social benefits	Developing country (1)
	The pursuit of economic benefits leads to environmental pollution	Developing country (1)

Farmers enhance technical efficiency upon joining co-operatives (Lin et al., 2023) and accelerate crop growth rates (Lin et al., 2022; Motamed, 2010; Wang, Xue et al., 2021). The efficiency of technology adoption is influenced by both farm size and regional differences. Regarding farm size, joining a co-operative for technological improvements has a positive and significant impact on the total factor productivity (TFP) of rice for small and medium-sized farms, while no significant improvement was found for large-scale farms (Lin et al., 2022). The efficiency of technology adoption also exhibits regional heterogeneity. In a study on rice productivity in China, it was found that producers in the eastern and central regions gained greater TFP benefits from co-operatives than the western regions (Lin et al., 2022). The authors analysed that the reasons for this difference may be the economic differences between the regions, population loss, and the difficulty of the western region to obtain technology channels.

Agricultural co-operatives are an effective way for farmers to adaptively manage their agri-business/farms, relying on agricultural co-operatives to develop geographical indications products and e-commerce development, which is of great significance to enhance the value of the brand and the development of the primary industry (Wang, He et al., 2021; Xu et al., 2022). Osti (1997) studied two agricultural co-operatives in Italy to explore whether they were strong drivers of rural development. The study showed that these two co-operatives effectively focused on business strategies, but the so-called "territorial strategy" (aimed at the local community) was not implemented (Osti, 1997). This may indicate that the compatibility of agricultural co-operatives in implementing multiple sustainable SDGs needs further consideration.

The environmental impact

From an environmental protection perspective, the majority of the literature reviewed comes from developing countries. Agricultural co-operatives can promote green production and safe production in rural areas (Li et al., 2020). A study of 623 rice farmers in Sichuan Province, China, found that the probability of adoption of three technologies (green pest control, manual weeding, and increased inputs of organic fertilisers) increased by 74.49%, 38.79%, and 23.45%, respectively, among farmers who joined co-operatives, as compared to non-member farmers (Li et al., 2021). At the same time, green agricultural practices that avoid or reduce the use of chemical pesticides and fertilisers, in order to protect land and water, are also a way for agricultural co-operatives to contribute to environmental protection (Song et al., 2014). Liu et al. (2023) studied that agricultural co-operatives help reduce fertiliser use primarily because the information services they provide can increase farmers' awareness of green production practices.

Agricultural co-operatives can also protect natural resources such as water and trees and restore biodiversity. Deng et al. (2022) conducted a survey of 4,846 households in China and found that joining agricultural co-operatives can promote farmers to build harmless treatment facilities for livestock manure, thereby protecting groundwater resources. Bro et al. (2019) stated that Nicaraguan agricultural co-operatives can effectively promote water-saving practices among members to protect water resources. However, Chinese scholars (Zhu & Guo, 2015) conducted a survey on agricultural co-operatives in Nanhai, Guangdong Province, and pointed out that the co-operatives were unwilling to invest in long-term productivity and were rather focused on extracting short-term land rents. They rented out the land transferred from migrant farmers to village-level industrial enterprises, which led to low-quality industrialisation in villages and towns, causing serious contamination of local natural resources such as soil, irrigation water, and air.

Agricultural co-operatives can also assist farmers in southern Nigeria in developing innovative regenerative technologies to protect trees on their farms (Adeyemo, 2004). Similarly, Haque et al. (2009) argued that agricultural co-operatives in Brazil have made a significant contribution to the conservation of local mangrove forests by innovating oyster farming techniques and thus avoiding the deforestation of mangrove roots. A case from beekeeping co-operatives in Morocco demonstrates that the high number and concentration of beekeeping co-operatives in the commune of Tazrout, effectively facilitates the role of bees in the pollination process and contributes to the conservation and restoration of floral biodiversity (Alami et al., 2024). Moreover, evidence from the coffee industry in Nicaragua suggests that agricultural co-operatives' willingness to use and invest in renewable resources has helped farmers address the challenges of climate change. This has enabled rural producers to better plan for and cope with extreme weather events (Bro et al., 2019).

The social impact

Agricultural co-operatives can contribute to gender equality in rural areas. Studies from both developed countries like Canada and developing countries like Lebanon show that agricultural co-operatives offer opportunities for female farmers to overcome gender inequality and achieve economic empowerment (Jalkh et al., 2020) and facilitate women's leadership opportunities (Doonan, 2020). However, cases from Morocco argan oil co-operatives show that co-operatives in the country are often run by and for women, yet women sometimes remain in unpaid labour and are unable to benefit from the literacy courses and childcare services promised by agricultural co-operatives. Additionally, some co-operatives are beginning to lose control of the rapid expanding market due to an increase in illegal attacks on women and the entry of new large middlemen (Montanari et al., 2023).

Farmers' decisions to join agricultural co-operatives may be influenced by non-monetary factors. Cases from agricultural co-operatives in Shandong and Guangxi Provinces in China suggest that activities organised by agricultural co-operatives, such as group dances, songs, and

comedy, can foster organisational cohesion and help build friendships among members (Song et al., 2014). Equally, agricultural co-operatives in Iran possess a significant amount of social capital within their governance systems. Social capital acts as a catalyst for collective action and the pursuit of common goals, making it an effective variable for promoting sustainable development in agricultural co-operatives (Mohammadi et al., 2024). Akbari (2023) agrees, demonstrating that Iranian agricultural co-operatives can further enhance their social capital by leveraging their extension training capabilities. Meanwhile, Yu and Nilsson (2019) conducted a study of four agricultural co-operatives in Fujian Province, China and found that social capital can alleviate capital constraints and capital control-related issues within co-operatives, which means that social capital within agricultural co-operatives can be converted into financial capital, so that co-operatives and their members can benefit together.

Table 4: Summary of articles according to research categories and authors

Category	Sub Category	Reference
Economic	Agricultural products/ Members' incomes	Čiburienė (2015); Deng et al. (2022); Ji et al. (2023); Kulikov & Minakov (2019); Moon & Lee (2020); Yakimova et al. (2019)
	Technological improvement/Unified purchase	de los Ríos et al. (2016); Haque et al. (2009); Shao et al. (2021); Wang, Xue et al. (2021)
	Crop grow	Lin et al. (2022); Lin et al. (2023); Motamed (2010); Osti (1997); Wang, Xue et al. (2021); Xu et al. (2022)
Environmental	Green and safe production/chemical pesticides and fertilisers	Brown (2001); Li et al. (2020); Liu et al. (2023); Song et al. (2014)
	Natural resource /Biodiversity	Adeyemo (2004); Alami et al. (2024); Bro et al. (2019); Deng et al. (2022); Haque et al. (2009); Zhu & Guo, (2015)
	Climate change	Bro et al. (2019)
Social	Gender equality	Doonan (2020); Jalkh et al. (2020); Montanari et al. (2023)
	Cohesion/Social capital	Akbari et al. (2023); Mohammadi et al. (2024); Song et al. (2014); Yu & Nilsson (2019)
	Land transfer carriers	Ren et al. (2017)
	Employment opportunities providers	Crețu et al. (2023); Lipatova et al. (2021); Mohammadi et al. (2024)
	Protect local culture	Doonan (2020)
	Local political decision-making	Crețu et al. (2023); de los Ríos et al. (2016); Montegut et al. (2024); Yüksel (2023)
	Community well-being	Liang et al. (2022)
Holistic	Agricultural technical support, cultural support and social support	de Freitas (2024)
	Gender equality, job creation, income growth, and reshaping the region's image	Doonan (2020)
	Focus on economic benefits and ignore social benefits	Osti (1997)
	The pursuit of economic benefits leads to environmental pollution	Zhu & Guo (2015)

From the perspective of promoting social development, agricultural co-operatives can act as social players in different aspects, such as land transfer carriers (Ren et al., 2017), employment opportunities providers (Lipatova et al., 2021; Mohammadi et al., 2024), facilitators of local communities to mitigate population loss (Montegut et al., 2024), and protectors of rural community culture (Doonan, 2020). Ren et al. (2017) emphasise the benefits of Chinese agricultural co-operatives in promoting land transfer, which can transfer land from migrant

farmers and re-centralise the fragmented land use rights. This system makes it possible to develop rural land for modern agricultural production on a large scale, which also helps regional planning. A case from Spain shows that agricultural co-operatives can promote social innovation and transformation by undertaking social innovation projects that involve knowledge transfer and public awareness raising (Parrilla-González & Ortega-Alonso, 2021), helping to mitigate population loss in communities (Montegut et al., 2024). Agricultural co-operatives in northeastern Quebec, Canada, have attempted to establish connections between food, culture, and place by creating local berry brands and publishing online videos of berry production and beautiful local scenery to promote and protect local culture (Doonan, 2020).

From the review of the literature, it can be suggested that agricultural co-operatives are effective, transparent, participatory and representative institutions at the local level (Montegut et al., 2024). Meanwhile, they are also encouraged to participate in local political decision-making processes (de los Ríos et al., 2016) and maintain strong connections with the agricultural sector, relevant market partners, and the regions where they operate (Crețu et al., 2023).

The relevance of context

We found that the rural context has a very strong influence on the activities carried out by agricultural co-operatives. When the surrounding environment of agricultural co-operatives has location advantages, such as scenic beauty (Doonan, 2020), easy access to markets (Yakimova et al., 2019), and not being in a remote area (Moon & Lee, 2020), they can better promote the use of local resources for sustainable development (Perez-Gonzalez & Valience-Palma, 2021). A comparison of cases from China and the UK found that different national cultures may also have an impact on agricultural co-operative governance, which will have an impact on whether agricultural co-operatives are able to increase the level of well-being in rural communities (Liang et al., 2022). However, the rural context sometimes provides disadvantages, for example, the diversity of village origins, languages, and aspirations in the environment leads to farmers' distrust in establishing and running agricultural co-operatives, which can seriously affect members' motivation to produce, leading to difficulties in meeting the market demands for increased production (Brunton & Early, 2008).

Assistance from the local environment and appropriate policy support are crucial for the survival and functioning of agricultural co-operatives. Local environment assistance mostly comes from non-governmental or governmental organisations, which is generally divided into two forms. The first one is in the form of grants and subsidies (Yüksel, 2023) and the second one is usually in the form of appropriate equipment and capacity building (Jalkh, 2020; Kulikov & Minakov, 2019). However, sometimes these forms of assistance, especially in the form of finance, are considered unsustainable long-term (Brown, 2001; Moon & Lee, 2020). Policy support from local governments is also essential, as multiple governments have demonstrated that appropriate legislation and policy backing can greatly leverage the role of agricultural co-operatives in the sustainable development of rural areas (Crețu et al., 2023; Yakimova et al., 2019). In a comparative country case study, agricultural co-operatives in Brazil and Portugal with legislative support and a sound institutional environment are better able to promote sustainable, inclusive, and resilient food systems in local communities than those in Guinea-Bissau and Sao Tome and Principe (de Freitas, 2024). Some strong interference from government organisations may lead to confusion between political and economic rights of agricultural co-operatives, which can result in members' economic, democratic decision-making rights, as well as land use rights, being compromised (Ren et al., 2017).

Observations and Conclusions

This SLR focuses on the link between agricultural co-operatives and sustainable rural development. Through the systematic review of 43 studies, we show that this link has attracted attention quite recently as more than 80% of the studies reviewed were conducted in the last decade (2014-2024). The review also shows how the contributions of agriculture co-operatives

to sustainable development have been mainly studied in developing countries, and especially in Asian countries which account for almost half.

Our literature review shows that there are differences in the focus of scholars in developing and developed countries. In developing countries, scholars rather focus on studying the role of agricultural co-operatives in bringing economic benefits to their members, eradicating poverty, as well as providing opportunities for green production and technology adoption. In developed countries, scholars have rather focused on the transformation of agricultural co-operatives to play a greater role in the food supply chain, and on exploring whether they can be a model of organisation for social development and an important actor for mobilising local resources.

The internal characteristics of agricultural co-operatives have some linkages with sustainable development in rural areas, and it is worth noting that member heterogeneity may lead to organisational inefficiencies and reduced trust among members. Meanwhile, some co-operatives seem to focus on short-term benefits rather than long-term productivity. These aforementioned characteristics will constrain the functioning of co-operatives in promoting sustainable rural development. Additionally, the reviewed literature shows that agricultural co-operatives, when efficient, transparent, participatory, and representative local institutions, can not only promote economic growth but also enhance community cohesion through close links with the agricultural sector, markets, and regions (Montegut et al., 2024). Their ability to participate in local decision-making also shows that they can effectively act as community participants and become an important force in achieving sustainable development goals (Zeuli et al., 2004).

Agricultural co-operatives need to rely on the support of the local context, which usually comes in the form of available appropriate equipment, capacity building, and direct policy subsidies. In addition, the strong influence of various local political systems, the rapid development of the markets, and the remote geographical location of the communities may lead to problems such as damage to the democratic decision-making power of co-operative members, the competition between co-operatives and large middlemen for market control, and the corresponding services not being delivered, which restricts the role of agricultural co-operatives. Thus, we can observe that the “rural” and local context plays a crucial driving and/or constraining role in the contribution of agricultural co-operatives to the sustainable development of their localities and regions. This leads us to reflect that, given the regional heterogeneity, in order to better understand the role played by agricultural co-operatives in rural sustainable development, it may need to be conducted with an understanding of the circumstances under which such development takes place. This can improve our understanding of the role that agricultural co-operatives can play in the sustainable development of (specific) rural areas.

Our analysis also shows how agricultural co-operatives develop or enhance a variety of solutions and incentives, such as providing better technical extension services, developing specific training or equipment, or providing public support, so that agricultural co-operatives play an important role in promoting farmers’ economic sustainability, adopting environmental practices, and obtaining social benefits.

Compared with the studies that explore the single dimensions (economic, environmental, or social) of agricultural co-operatives in the sustainable development of rural areas, there seems to be relatively little literature that explores the holistic contribution of agricultural co-operatives to the sustainable development of rural areas. This relative scarcity of research means a limitation to our study, which may restrict more in-depth analysis and exploration of this phenomenon. However, this also highlights the necessity and novelty of our study. Despite this, we still find that a few articles show how agricultural co-operatives can be seen as the vehicle for integrating economic, environmental, and social benefits. For example, agricultural co-operatives provide farmers with cultural and social support while providing technical support. And they can not only create local employment opportunities, promote gender equality, but also reshape the local landscape (Doonan, 2020).

Finally, however, in the actual operation of agricultural co-operatives, these three dimensions — economic, environmental, and social — do not always show a positive correlation. For example, some co-operatives focused solely on economic benefits without bringing any positive social outcomes (Osti, 1997), and the pursuit of economic gains led to severe pollution of natural resources such as soil and water (Zhu & Guo, 2015). Sustainable development in rural areas is a systematic project that takes into account economic development, environmental protection, and social development (UN, 2023). Therefore, another issue that requires further research is the trade-off between economic, environmental, and social sustainability in agricultural co-operatives in rural areas, and whether these goals are compatible, complementary “by-products,” or in competition with each other.

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