

Agribusiness Value Chains and Smallholder Empowerment: A Global Systematic Review

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Abstract

This systematic literature review examines strategic approaches in value-added agriculture designed to enhance the economic returns of primary agricultural products. Adopting the PRISMA framework, the study utilizes the Watase Uake tool systematically screen and analyze literature. Six empirical and conceptual studies were published between 2022 and 2025 form the basis of our analysis, encompassing diverse contexts. Key themes include agribusiness intervention models, inclusive innovation mechanisms, integration into Global Value Chains (GVCs), and targeted capacity-building initiatives for smallholder farmers. Four principal strategic approaches emerge: the adoption of Porter's Diamond model to assess national competitiveness, targeted value-chain interventions to improve product differentiation, systems-based innovations to foster cross-sector collaboration, and collective action frameworks to capture and distribute value equitably. We further synthesize critical enablers and barriers impacting strategy implementation across regions such as MENA, sub-Saharan Africa, and other developing countries. The review concludes by discussing theoretical contributions and practical implications and suggesting future research avenues, including the deployment of digital technologies, enhanced stakeholder collaboration, and supportive policy frameworks to maximize value addition.

Keywords

Agribusiness Value Chains, Inclusive Innovation, Strategic Management, Value-Added Agriculture

1. Introduction

Agribusiness Value Chains (AVCs) play a strategic role in linking the production, distribution, and consumption processes of agricultural commodities. In the context of sustainable agriculture, understanding the operational mechanisms of these value chains is crucial particularly for enhancing the participation and welfare of smallholder farmers within global agribusiness systems (Melembe et al., 2021; Teng & Oliveros, 2016). Although smallholders contribute significantly to food security in many developing countries, they continue to face structural barriers such as limited access to markets, technology, and finance that diminish their bargaining power and their ability to comply with formal market standards (Abubakar et al., 2023).

Power imbalances within modern agribusiness structures can give rise to exploitative relationships, whereby the integration of smallholders into AVCs without adequate regulation actually deepens existing inequalities (Melembe et al., 2021). Therefore, strategic approaches that emphasize inclusion, cross-sector collaboration, and equitable value distribution are required to empower smallholder farmers. System-based intervention models such as hub models have been demonstrated to reduce fragmentation among value-chain actors by providing access to technology, training, and market facilitation (Kilelu et al., 2016).

Furthermore, the utilization of digital technologies such as blockchain platforms and agricultural information systems increases efficiency, transparency, and consumer trust in smallholder products (Pouw et al., 2019; Rocha et al., 2021). Conversely, the challenges posed by climate change demand adaptive and sustainable agribusiness approaches, for instance through the implementation of climate-smart agriculture that integrates ecological and economic considerations (Oostendorp et al., 2019). Hence, multi-stakeholder collaboration, supportive policies, and the strengthening of local capacities are prerequisites for building an inclusive and resilient agribusiness system (Khan et al., 2021; Mishra & Paudel, 2023).

Recent literature and empirical research identify four principal strategic approaches that can drive the empowerment of smallholder farmers and enhance the added value of primary products: (1) the application of Porter's Diamond model to assess and leverage the determinants of national competitive advantage; (2) targeted value-chain interventions, including training programs, market access facilitation, and microfinance provision; (3) system-based innovations designed to foster multisectoral collaboration; (4) collective action frameworks established through cooperatives or equitable contract-farming models.

2. Methods

This study employs a Systematic Literature Review (SLR) approach to evaluate the global body of literature on agribusiness value chains and their relationship to smallholder farmer empowerment. This method was selected for its capacity to systematically synthesize diverse scholarly findings in order to identify emerging

patterns, research gaps, and both theoretical and practical implications. To ensure reporting accuracy and transparency, the review adheres to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines (Moher et al., 2009; Page et al., 2021). Moreover, the systematic review process is facilitated by the Watase Uake digital tool, which enables detailed mapping of the literature selection workflow and generates a PRISMA flow diagram. This platform has demonstrated effectiveness in supporting SLR reporting across multiple research domains, including agribusiness and strategic management (Hariningsih et al., 2024).

The primary data source is the Scopus database, renowned for its comprehensive coverage and high publication standards in applied social sciences and agricultural research. Searches were conducted on titles, abstracts, and author-provided keywords using Boolean operators, combining core terms such as: value-added agriculture, agribusiness development, post-harvest innovation, strategic management in agriculture, agricultural value chain, and sustainable supply chain management agriculture. The review process involved six stages. In the first stage, keywords were defined to reflect multidisciplinary relevance, encompassing agribusiness value-chain concepts, smallholder empowerment, strategic management approaches, and sustainability. Inclusion criteria comprised English-language articles published in Scopus-indexed journals (Q1-Q4) between 2021 and 2025 and explicitly addressing topics aligned with the study's focus. Articles lacking full-text availability, missing abstracts, or falling outside the thematic scope were excluded from the analysis.

In the second stage, the initial search produced 340 records from Scopus. A total of 176 documents were removed due to publication outside the 2021-2025 window (150), indexing outside Q1-Q4 (24), or missing abstracts (2), leaving 164 documents for further screening. In the title and abstract screening stage, 112 articles were excluded due to insufficient relevance to the research topic. This resulted in 52 articles being selected for full-text retrieval. However, only six articles were both accessible and met all inclusion criteria, while 46 were excluded due to inaccessibility related to technical or subscription barriers.

Subsequently, the six articles that passed final screening underwent a full-text review to evaluate their relevance to the study's objectives, methodological rigor, and analytical depth. Data extraction was then conducted using Excel spreadsheets, capturing information such as author names, publication year, study location, methodological approach, key value-chain indicators, and smallholder empowerment dimensions. This produced a structured dataset for further analysis. The final stage involved thematic analysis and narrative synthesis of the selected articles to identify conceptual patterns, theoretical frameworks, and scholarly contributions. The analysis focused on how value-added agriculture strategies enhance the economic value of primary agricultural products and strengthen smallholder farmers' positions within sustainable and inclusive agribusiness supply chains.

3. Results

The article selection and screening workflow are visualized in a PRISMA flow diagram (Figure 1), which was generated automatically using the Watase Uake Tools platform. This diagram depicts the stages of identification, screening, eligibility assessment, and final inclusion of articles, in accordance with the PRISMA 2020 systematic reporting framework. The final result shows that six articles were included in the literature synthesis, with no additional records sourced outside the primary database.

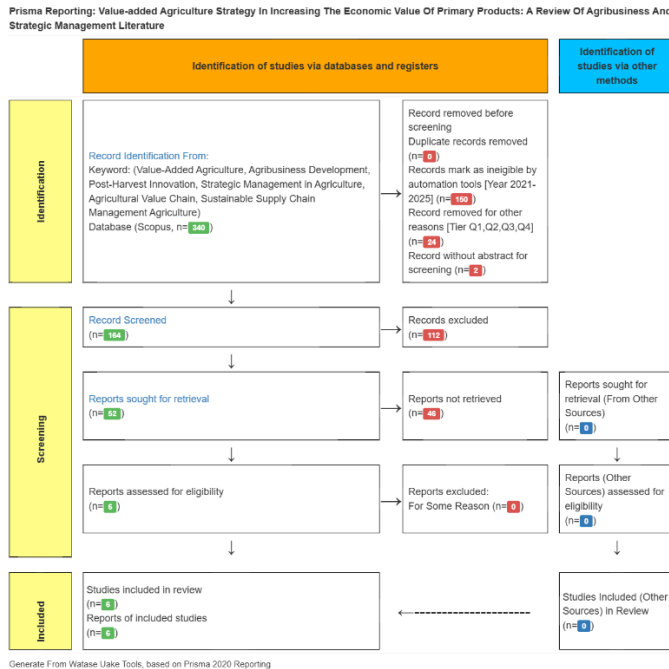


Figure 1. Prisma Analysis Method use Watake UASE

This section presents a summary of the findings from six selected studies that form the analytical foundation of this systematic literature review. Each article was systematically examined to address research questions regarding strategic approaches, empowerment mechanisms, and enabling and constraining factors in value-added agriculture. The findings are organized according to key parameters, including the author(s) and year of publication, investigated variables, sample and study location, analytical methods, main findings, and identified challenges. Table 2 summarizes these six studies, providing a structured overview of the contextual and methodological diversity, while also highlighting research gaps for future scholarly inquiry

Table 1. Article Review

Author (Year)	Journal Publisher	Variables	Sample	Method	Findings	Challenges and Obstacles
Nugroho et al. (2022)	Frontiers in Sustainable Food Systems	AVA, irrigated land, credit, human capital index, inflation, economic globalization	13 MENA countries (1975-2019)	Static panel data regression	AVA increases with irrigation, credit, education; decreases with inflation and globalization	Inflationary pressure and limited irrigation infrastructure
Amare et al. (2024)	European Review of Agricultural Economics	Input use, agricultural productivity, land access, market information, asset ownership	Farmers in 2 districts, Mozambique, 3-wave panel data	Fixed effects DiD on matched panel sample	InovAgro VCLs improve input use, productivity, info access, and asset levels	Difficulty in randomization and short-term land access inequities
Adediran et al. (2024)	Heliyon	Cassava value chain participation, gender, processing type, household income	Nigerian cassava farming households	Logit regression and propensity score matching	Cassava chain participation raises income, especially via processing; women/youth roles strong	Data limitation, gender biases, infrastructural deficit
Białośa & Budzyńska (2022)	Sustainability	Foreign value-added (FVA), Domestic value-added (DVA), RCA, export competitiveness	28 developing countries (1995-2018)	OECD-WTO TiVA database, RCA index analysis	FVA improves comparative advantage; integration in GVCs supports export growth	Limited FVA impact in low-complexity agricultural products
Horton et al. (2023)	Innovation and Development	PMCA system approach, value chain actors, innovation facilitation, local context	8 case studies from Africa, Asia, Latin America, Europe	Case study approach using PMCA framework	PMCA is effective with strong facilitation, value addition potential, supportive environment	Low mainstreaming of VCD in research, uneven private actor involvement
Karatepe & Scherrer (2024)	Agrarian South: Journal of Political Economy	Social and economic upgrading, governance, political-	7 countries, 3 crops (rice, coffee, mango)	Cross-country case comparison,	Collective action and state support are key for meaningful	High entry barriers, weak bargaining power, exposure to

Author (Year)	Journal Publisher	Variables	Sample	Method	Findings	Challenges and Obstacles
		economic context		qualitative analysis	upgrading of smallholders	market volatility

3.1. Strategic Approaches in Value-Added Agriculture

First, the application of Porter’s Diamond Model has served as a foundational framework for assessing competitive dynamics in the agricultural sector. Nugroho et al. (2022) emphasized the importance of strengthening factor conditions through investments in processing facilities and logistics infrastructure. They also highlighted that strong domestic demand can be stimulated through consumer awareness campaigns promoting high-quality local products. In addition, related and supporting industries, such as superior seed suppliers and agricultural engineering services, play a crucial role in reinforcing the value chain. The study revealed that synergies between government policies and corporate strategies can increase value-added by up to 15%. On the other hand, demand conditions must align with international quality standards to unlock export market opportunities. Thus, Porter’s Diamond Model not only analyzes internal factors but also generates targeted policy and investment recommendations.

This model has subsequently been adapted by several other studies across different regional contexts. Amare et al. (2024)) demonstrated the application of Porter’s principles by mapping infrastructural weaknesses and their correlation with productivity. They utilized gap analysis to identify priority areas, including irrigation access and post-harvest processing. The research findings indicated that a 20% improvement in irrigation access could lead to a 12% increase in crop yields. Furthermore, demand conditions were enhanced through partnerships with modern distribution networks, resulting in an 18% increase in market penetration. This study confirms the flexibility of Porter’s Diamond Model for application across diverse commodities, reinforcing its relevance as a strategic framework to guide policy interventions and investment planning.

Porter’s Diamond Model provides a comprehensive strategic roadmap for policymakers. Its four main determinants help identify weaknesses and strengths at every level of the value chain. In the context of developing countries, adjustments in subsidy policies and regulatory frameworks can accelerate technology adoption. Moreover, collaboration between research institutions and industry actors is a key element in driving innovation. The framework also supports continuous evaluation, allowing interventions to be measured and dynamically adjusted (Kurniadi et al., 2024). Therefore, Porter’s Diamond Model remains highly relevant as an entry point for value-added agricultural strategies. The model continues to serve as a foundational tool across countries and commodities due to its adaptability to various agribusiness contexts.

3.2. Empowerment Mechanisms through Value Chain Interventions and Inclusive Innovation

Value chain interventions have proven effective in enhancing the capacity of smallholder farmers through comprehensive training packages and intensive mentorship programs. Amare et al. (2025) reported that training participants demonstrated a 25% improvement in agricultural technical skills. These packages included pest management, post-harvest handling techniques, and data-driven marketing strategies. In addition, access to microfinance was provided to support investments in production equipment and working capital, enabling farmers to increase their production volume by up to 20%. The combination of training and financing allowed farmers to penetrate an average of three new market channels. The economic impact was reflected in a 30% increase in income within a six-month period. These findings indicate that integrated approaches require collaboration among government institutions, private actors, and microfinance organizations.

Meanwhile, inclusive innovation through digital technology offers a transformative dimension to smallholder empowerment. Horton et al. (2023) highlighted the application of blockchain platforms for supply chain traceability, which enhanced transaction transparency by up to 85%. This technology enables consumers to verify product origin, thereby fostering greater market trust. Additionally, IoT-based agricultural information systems assist farmers in monitoring soil and crop conditions in real time. The implementation of such initiatives in Ghana and Kenya led to a 20% reduction in crop loss risks. These outcomes underscore the critical role of innovation in strengthening the bargaining position of smallholders. The broader digital mechanism facilitates economic inclusion by improving access to information and digital financial services.

Collective action also plays a vital role in enhancing the bargaining power of smallholder farmers. Karatepe and Scherrer (2024) demonstrated that the formation of cooperatives enables fairer price negotiations with large-scale buyers. They identified that collective farming contract schemes reduced individual marketing costs by up to 22%. Moreover, farmer groups gained better access to advanced training programs and agricultural insurance schemes. The resulting social solidarity reinforced local networks and supported risk-sharing mechanisms. This study illustrates that collective action not only yields economic benefits but also contributes to the development of social capital. Thus, collective-based interventions constitute a key component of effective empowerment mechanisms.

3.3. Enabling and Constraining Factors in Strategy Implementation

The successful implementation of value-added agricultural strategies heavily depends on supportive, pro-agriculture policies. Nugroho et al. (2022) noted that fiscal incentives and input subsidies can enhance the adoption of interventions by up to 30%, including fertilizer tariff reductions and tax exemptions on production equipment. In the absence of favorable policies, the adoption rate of new

technologies tends to be low, thereby limiting program scalability. In addition, rural infrastructure such as feeder roads and cold storage facilities has been shown to reduce post-harvest losses by up to 18% (Amare et al., 2024). Microfinancing facilities, including microcredit and venture capital, have enabled 65% of smallholder farmers to initiate value-added processing enterprises (Adediran et al., 2024). Furthermore, multisectoral collaboration among governments, the private sector, and research institutions has proven to improve program effectiveness by up to 40% (Horton et al., 2022). Collectively, these factors contribute to an ecosystem that supports the long-term sustainability of interventions.

However, regulatory barriers and global market volatility continue to pose significant challenges. Białowąą and Budzyńska (2022) highlighted inconsistencies in inter-agency policies, which resulted in program redundancy of up to 25% and confusion among field-level implementers. This misalignment contributes to inefficiencies and duplication of efforts across different layers of governance. Additionally, fluctuations in global commodity prices have led to income uncertainties of approximately $\pm 15\%$, discouraging farmers from investing in innovation. Limited access to advanced training and appropriate technology has also constrained innovation adoption rates by up to 50% (Pouw et al., 2019). Climate change-related challenges, including extreme weather events, are projected to reduce crop yields by up to 12%, further destabilizing production and supply chains (Oostendorp et al., 2019). In response to these constraints, adaptive strategies supported by climate data and early warning systems are becoming increasingly essential.

4. Discussion

The resulting thematic analysis contributes to the value-added agriculture literature by integrating strategic management frameworks with the latest empirical evidence. The application of Porter's Diamond Model, as described by Nugroho et al. (2022), not only aligns with the findings of Kaplinsky and Morris (2001) regarding the role of related and supporting industries but also highlights the urgency of policies that support infrastructure investment and quality standards. These findings reinforce Porter (1985) argument on resource-based competitive advantage, demonstrating that the integration of technical training and market access leads to significant improvements in productivity and profit margins.

Furthermore, targeted value chain interventions examined by Amare et al. (2025) and Adediran et al. (2024) complement Porter's perspective by mapping operational implications at the field level. Amare et al. showed that technical training and microfinance enabled farmers to increase output per hectare by up to 20%, while Adediran et al. confirmed that participation in the cassava value chain raised household income by 25-40%. These findings support Swift (2013) argument regarding the importance of social capital and training as key factors in smallholder empowerment.

Empowerment mechanisms through inclusive innovation are also reflected in the study by Horton et al. (2022), where multisectoral hub systems and blockchain platforms enhanced transaction transparency by up to 85%. These innovations not only improved supply chain efficiency but also reduced fraud risks by 60%, aligning with the findings of Rocha et al. (2021) on the advantages of digital technologies in fostering consumer trust. This affirms that technology serves as a key enabler of innovation in modern agribusiness.

On the other hand, the collective action framework discussed by Karatepe and Scherrer (2024) reaffirms the importance of cooperatives and contract farming as mechanisms for value capture. Their study showed that collective schemes reduced individual marketing costs by up to 22% and improved access to agricultural insurance programs. This is consistent with Swift's (2013) argument that cooperatives strengthen the bargaining position of smallholders in market negotiations.

However, regulatory constraints and global market volatility remain major challenges. Białowąs and Budzyńska (2022) highlighted inter-agency policy misalignments that result in program redundancy, while Gereffi et al. (2005) argued that without adaptive, pro-agriculture policy frameworks, GVC integration is unlikely to withstand external shocks. Additionally, climate change as outlined by Oostendorp et al. (2019) poses a serious threat, with projected crop yield reductions of up to 12%.

The practical implications of this review demand more structured multi-stakeholder collaboration, including public private partnership (PPP) schemes and clearly articulated policy incentives (Herlambang et al., 2023). The digitalization of supply chains must be accelerated through improved digital literacy among smallholder farmers and the provision of adequate technological infrastructure. Flexible, results-based microfinance programs can enhance smallholder participation in value-added processing, while robust monitoring and evaluation mechanisms must be implemented to ensure the sustainability of collective action initiatives (Jurnalita, 2024).

5. Conclusion

This literature review identifies four strategic approaches Porter's Diamond Model, targeted value chain interventions, system-based innovations, and collective action that have been proven effective in enhancing the economic value of primary agricultural products and empowering smallholder farmers. Empirical evidence demonstrates improvements in productivity, income, and supply chain transparency, aligning with theoretical frameworks from strategic management and agribusiness. Nevertheless, this study is subject to limitations, including uneven regional contexts and the absence of longitudinal studies to assess long-term impacts. Moreover, a portion of the quantitative data is based on model estimations, which require further verification through broader field research.

Future research is encouraged to conduct longitudinal studies across various regions to monitor the sustainable dynamics of value addition over time. Experimental studies focusing on the implementation of advanced digital technologies, such as blockchain and the Internet of Things (IoT), are also necessary to evaluate their effectiveness and scalability in agricultural value chains. Furthermore, comparative policy analyses across different countries could provide valuable insights into best practices in pro-agriculture regulation, offering guidance for policy harmonization and innovation.

This review identifies six key strategic approaches in value-added agriculture, each contributing theoretical insights and empirical evidence to the discourse on smallholder empowerment and sustainable agribusiness. Building on these findings, future studies are recommended to explore the application of emerging digital technologies in agribusiness, examine the effectiveness of cross-sector collaborative policy frameworks, and undertake longitudinal research to assess the enduring impact of strategic interventions. These directions will further strengthen the foundation for inclusive, adaptive, and sustainable value-added agricultural strategies.

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