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Reflections on Regional Integration and Food Security in Developing Sub-Saharan African Countries

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Regional integration holds significant potential for Africa, a vast continent with over 1.2 billion people. This study investigates the complex relationship between regional integration and food security in developing Sub-Saharan African countries. Key agreements include the Economic Commission for Africa, which supports initiatives such as the Economic Community of West African States (ECOWAS), the Common Market for Eastern and Southern Africa (COMESA), the Economic Community of Central African States (ECCAS), and the Southern African Development Community (SADC). Despite the potential of regional integration to address food security

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challenges, significant gaps in understanding and implementation persist. Identify and analyse key areas requiring further research to leverage regional integration for improved food security outcomes fully. The study employs a comprehensive literature review and analysis of empirical evidence to examine several critical gaps. These include the impact of regional trade agreements on smallholder farmers, the effectiveness of cross-border food security initiatives in conflict-prone areas, and challenges in harmonizing food safety standards. Furthermore, it investigates the implementation challenges of regional food reserve systems, the impact of currency fluctuations on food affordability, and the potential of regional value chains to improve food security. The study addresses the role of informal cross-border trade, the impact of regional infrastructure projects, and the alignment of national agricultural policies with regional integration goals. Additionally, we examine the effectiveness of regional mechanisms for addressing transboundary diseases and the impact of labour mobility on agricultural productivity. Findings reveal that while regional integration offers significant potential for enhancing food security, its benefits are not fully realized due to various factors, including policy inconsistencies, infrastructure deficits, and limited institutional capacities. This research contributes to a more nuanced understanding of the regional integration-food security nexus in Sub-Saharan Africa. It provides valuable insights for policymakers, researchers, and practitioners, enabling the development of more effective strategies to leverage regional integration for food security.

Keywords: Agreements; community; division; economics; poverty; reduction; security.

1. INTRODUCTION

Regional integration and food security represent critical and interrelated challenges for developing Sub-Saharan African countries [1], offering both opportunities and complexities in the pursuit of sustainable development and socio-economic stability. As these nations confront a myriad of challenges (SADC, 2019), including climate variability, rapid population growth, resource scarcity, and economic instability, regional integration has emerged as a potentially transformative strategy to address multifaceted food security issues. This approach [2], in theory, promises to facilitate cross-border trade, enhance resource-sharing mechanisms, and foster policy coordination among member states [3]. However, the intricate and often nuanced relationship between regional integration efforts and tangible food security outcomes remains insufficiently understood [4], thereby impeding the full realization of the potential benefits that such integration could yield [3].

This research article aims to critically examine and elucidate the significant gaps in our current understanding of how regional integration impacts food security dynamics in developing Sub-Saharan African countries. Through a comprehensive literature review and analysis of empirical evidence, identifying several key areas that warrant further rigorous investigation. These include, but are not limited to, the multifaceted effects of regional trade agreements on smallholder farmers who form the backbone of agricultural production in many African nations [5]; the efficacy and sustainability of cross-border food security initiatives, particularly in conflict-prone areas where food insecurity is often most acute; and the myriad challenges associated with harmonizing food safety standards across diverse national contexts [6].

Furthermore, the study delves into the complex interplay between climate change and regional food distribution networks, examining adaptive strategies and resilience-building mechanisms [7]. Additionally, this article investigates the impact of currency fluctuations within regional economic blocs on food affordability and accessibility and the potential of regional value chains in improving nutrition outcomes across member states. Exploring the significant yet understudied role of informal cross-border trade in enhancing food security, and assess the impact of regional infrastructure projects on food distribution networks and market access [8]. Moreover, evaluating the effectiveness of regional mechanisms for addressing transboundary plant and animal diseases, and analyze the impact of regional labour mobility on agricultural productivity and food security outcomes [9]. Through identifying and thoroughly analyzing these critical gaps, this research seeks to contribute to a more nuanced and comprehensive understanding of the intricate relationship between regional integration and food security in Sub-Saharan Africa [10]. Findings aim to inform and guide policymakers, researchers, development practitioners, and other stakeholders in developing more effective, evidence-based strategies for leveraging regional integration to enhance food security across the continent. This rigorous academic writing aspires to contribute meaningfully to the existing body of knowledge and ultimately support the creation of more resilient, equitable, and food-secure communities throughout Sub-Saharan Africa. This research not only addresses immediate concerns but also lays the groundwork for future research in this critical area of development economics and policy.

Here are some of the Research Gaps in the area of Regional Integration and Food Security in Developing Sub-Saharan African Countries:

Table 1. Research Gaps in the area of Regional Integration and Food Security

Gaps	Solutions
Impact of regional trade agreements on smallholder farmers' livelihoods and food security, particularly in terms of market access and competition with larger producers.	Conduct comprehensive impact assessments of regional trade agreements, focusing on smallholder outcomes. Implement targeted support programs and capacity-building initiatives to help smallholders adapt to and benefit from regional markets.
Effectiveness of cross-border food security initiatives in conflict-prone areas, including challenges in implementation and coordination.	Develop conflict-sensitive food security programs, enhance regional peacekeeping efforts, and establish dedicated cross-border coordination mechanisms for food distribution in volatile areas.
Process and challenges of harmonizing food safety standards across different countries within regional economic communities.	Create a regional food safety authority to oversee standardization efforts. Provide technical assistance and funding for countries to upgrade their food safety infrastructure and practices.
Influence of climate change on regional food distribution networks and the potential for coordinated adaptation strategies.	Develop a regional climate-smart agriculture strategy. Invest in climate-resilient infrastructure and early warning systems. Promote knowledge sharing on adaptive agricultural techniques across countries.
Gender dimensions of regional integration policies and their effects on household food security, especially regarding women's participation in cross-border trade.	Implement gender-responsive regional integration policies. Establish support programs for women traders and farmers, including access to finance and market information. Conduct regular gender impact assessments of regional policies.
Implementation challenges of regional food reserve systems, including governance, financing, and equitable distribution mechanisms.	Establish a well-governed regional food reserve system with clear operational guidelines. Develop innovative financing mechanisms, such as regional bonds, to support the reserve.
Impact of currency fluctuations within regional economic blocs on food affordability and trade patterns.	Strengthen regional monetary cooperation. Consider establishing currency swap arrangements or exploring the feasibility of a common currency for food trade within regional blocs.
Effectiveness of regional early warning systems for food crises and their integration with national-level systems.	Enhance regional capacity for data collection and analysis. Improve information sharing protocols between national and regional levels. Invest in technologies like satellite imaging and AI for more accurate predictions.
Role and potential formalization of informal cross-border trade in enhancing regional food security.	Simplify trade procedures for small-scale traders. Implement programs to gradually formalize informal trade without disrupting livelihoods. Improve border infrastructure to facilitate smoother trade flows.
Potential of regional value chains in improving nutrition outcomes across member countries.	Develop regional nutrition strategies. Incentivize private sector investment in nutritious food production and distribution across borders. Implement regional food fortification programs.
Impact of regional infrastructure projects on food distribution, market access, and overall food security.	Prioritize infrastructure investments that directly support food security, such as cross-border transportation networks and storage facilities. Conduct food security impact assessments for all major regional infrastructure projects.
Challenges in aligning national agricultural policies with regional integration goals and food security objectives.	Establish a regional policy coordination mechanism. Provide technical assistance to countries for aligning national policies with regional objectives. Implement a system of policy coherence reviews.

2. SCOPE OF REGIONAL INTEGRATION

2.1 Regional Integration: A Path to Economic Growth and Food Security

Regional integration involves an agreement among multiple countries to pursue common objectives, such as trade and monetary policies [11,12]. In its simplest form, regional integration unites separate states within a region into a larger entity. The degree of integration depends on the willingness and commitment of independent sovereign states to share their sovereignty. De Melo and Tsikata [13] highlight various challenges to deep integration, particularly in controlling the broader business environment. For developing countries, regional integration can boost incomes by facilitating cross-border trade and improving food security [12]. It supports economic growth by striving to meet trade market objectives and goals. Member countries expect that they will: (a) adhere to and implement agreed-upon policies, and (b) achieve rapid economic growth and improved welfare, including food security. Previous regional integration efforts have focused on reducing trade barriers, enhancing the cross-border movement of people, capital, goods, and labor, lowering the risk of armed conflict through Confidence and Security-Building Measures, and adopting unified regional stances on issues such as the environment, climate change, and migration.

In the current global economic system, regional integration agreements are recognized as crucial for future international development [14]. These agreements have gained new perspectives and significance, driven by the need for nation-states to integrate their economies to promote rapid economic growth, reduce conflict, and foster mutual trust [15]. African countries often see closer economic integration with neighbors as a first step toward opening larger regional markets for trade and investment. This promotes efficiency, productivity growth, and competitiveness by reducing trade and investment costs and risks, alongside border barriers [16]. Bilateral and sub-regional trade agreements are promoted as tools for economic growth, encouraging economic deregulation, securing existing reforms, and promoting further structural adjustments to reduce the likelihood of a return to protectionism. Consequently, Regional Integration Agreements (RIAs) have become highly significant. Many developing countries are parties to at least one, and often several, such agreements, as are most industrialized countries [17]. Over 35% of global trade occurs under these agreements, and while their primary goal is to reduce economic barriers between member countries, their structures can vary. In many cases, lifting trade restrictions or liberalizing economies has increased Gross Domestic Product (GDP), but it has also led to greater global inequality, wealth concentration, and more frequent and severe economic crises [18].

Studies by De Melo and Tsikata [13], and others suggest that developing countries benefit from regional integration through policies like the removal of unnecessary tariffs and uniform customs regulations. This is particularly advantageous for countries that struggle to reach international markets, such as Chad, Lesotho, Namibia, Malawi, and Niger. Dependence on one-on-one trade negotiations with more powerful states often limits the impact on poverty reduction in developing countries. In summary, regional integration can enhance food and nutritional security in developing countries by reducing export tariffs and quotas among member states. These agreements encourage agricultural trade and create favorable markets for agricultural products and other natural resources [19]. For instance, in the event of a crop or animal disease outbreak, member states can collaborate to address the issue using improved technology and agricultural systems. Many African countries produce agricultural products in excess, which can lead to poor pricing within those countries (e.g., maize in Zambia, bananas in Uganda, beef in Botswana). However, excess agricultural produce can achieve better prices in neighboring countries, provided cross-border trade is facilitated.

Africa is home to several key regional economic communities, each playing a vital role in the continent's development and integration. These communities include the Economic Community of West African States (ECOWAS), the Southern African Development Community (SADC), the Common Market for Eastern and Southern Africa (COMESA), and the East African Community (EAC). Each of these organizations contributes significantly to promoting economic cooperation, political stability, and social progress across their respective regions [20].

ECOWAS, for example, focuses on enhancing economic integration and political stability in West Africa, working towards a single market and the free movement of goods, services, and people. SADC aims to promote sustainable economic growth and development in Southern Africa, with a strong emphasis on infrastructure development, industrialization, and trade facilitation [21]. COMESA seeks to improve economic integration among its member states in Eastern and Southern Africa, fostering a competitive and diversified regional economy. Meanwhile, the EAC works towards deeper economic and political union among its East African member states [9], with goals such as establishing a common market, a monetary union, and eventually a political federation.

Together, these regional economic communities are instrumental in driving Africa's overall development, fostering regional cooperation, and positioning the continent as a formidable player on the global stage (refer to Figures below).

The Economic Community of West African States (ECOWAS) is a regional organization that brings together 15 diverse nations in West Africa [22]. Founded in 1975, ECOWAS aims to promote economic integration and political cooperation among its member states. These countries represent a rich tapestry of cultures, languages, and economies that collectively shape the West African landscape. The 15 ECOWAS members are Benin, Burkina Faso, Cabo Verde, Cote d'Ivoire, The Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo (Fig. 1). Each of these nations contributes its unique history and resources to the organization. For instance, Nigeria stands as the most populous country in Africa and the continent's largest economy, while Cabo Verde is an archipelago of volcanic islands off the West African coast [23]. Cote d'Ivoire is renowned for its cocoa and coffee production, while Ghana is known for its gold reserves and historical significance as the first sub-Saharan African country to gain independence. Despite their differences, these countries work together through ECOWAS to address common challenges, foster regional stability, and pursue shared goals of development and prosperity for the people of West Africa.

The Common Market for Eastern and Southern Africa (COMESA) is a regional organization comprising several member states committed to economic integration and cooperation. The member states of COMESA are diverse and include: Burundi, Comoros, the Democratic Republic of Congo, Djibouti, Egypt, Eritrea, Eswatini, Ethiopia, Kenya, Libya [24], Madagascar, Malawi, Mauritius, Rwanda, Seychelles, Somalia, Sudan, Tunisia, Uganda, Zambia, and Zimbabwe (Fig. 2). Each of these countries brings unique cultural, economic, and geographical characteristics to the organization, fostering a rich environment for collaboration and mutual development [25]. By working together within COMESA, these nations aim to improve trade, enhance investment opportunities, and strengthen political and economic stability across the region. The shared goals of sustainable development and poverty reduction are central to COMESA's mission, making it a pivotal institution in the advancement of the member states' collective interests on the global stage.

The East African Community (EAC) is a dynamic regional economic community that brings together six partner states: the Republics of Burundi, Kenya, Rwanda, South Sudan, the United Republic of Tanzania, and the Republic of Uganda (Fig. 3). With its headquarters located in Arusha, Tanzania, the EAC plays a crucial role in fostering economic integration, political cooperation, and social development among its member states [26]. The community serves a population of approximately 150 million citizens, working towards collective goals such as the establishment of a common market, a monetary union, and, ultimately, a political federation [27]. Through means of promoting trade, investment, and infrastructure development, the EAC aims to enhance the economic prosperity and quality of life for its citizens. The organization also focuses on harmonizing policies across various sectors, including agriculture, healthcare, education, and environmental conservation, ensuring sustainable growth and development in the region. The EAC's efforts contribute significantly to regional stability and integration, making it a vital entity in the advancement of East Africa's socio-economic landscape [28].

The Southern African Development Community (SADC) is a prominent Regional Economic Community dedicated to fostering economic integration and sustainable development across Southern Africa. Comprising 16 member states—Angola, Botswana, Comoros, the Democratic Republic of Congo, Eswatini, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, the United Republic of Tanzania, Zambia, and Zimbabwe (Fig. 4)—SADC aims to promote regional cooperation and socio-economic growth [19].

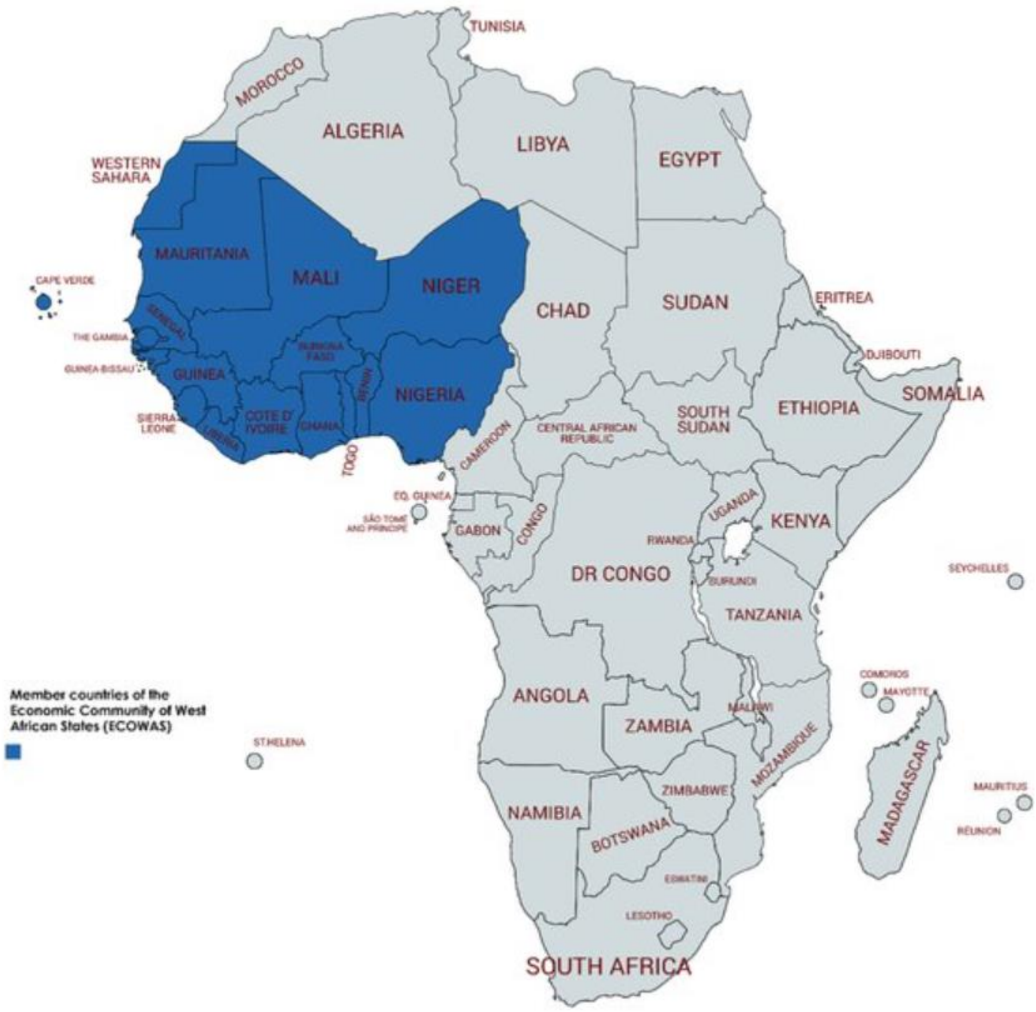

Fig. 1. Map of Africa indicating the 16 member countries of Economic Community of West African States (ECOWAS)

These diverse member states collaborate to enhance trade, investment, and infrastructural development within the region [29]. SADC's objectives include the reduction of poverty, improvement of living standards, and achievement of peace and security. By harmonizing policies and regulatory frameworks, SADC facilitates the free movement of goods, services, and people, thus boosting regional economic integration. The community also focuses on various sectors such as agriculture, energy, transport, and human development, ensuring a comprehensive approach to regional development [30]. SADC's efforts are crucial in addressing common challenges such as climate change, food security, and health issues, thereby ensuring a sustainable and prosperous future for all member countries.

3. BENEFITS OF REGIONAL INTEGRATION

Regional integration helps nations overcome barriers that restrict the movement of people, capital, goods, services, and ideas [31]. These barriers, particularly in developing nations, hinder economic progress due to geographic divisions, inadequate infrastructure, and ineffective policies. By linking markets for goods, services, and factors of production, regional integration allows nations to bypass these costly barriers, facilitating the movement of people, ideas, capital, energy, and goods [32]. It addresses geographic divisions, infrastructure deficiencies, and trade and investment regulations, as well as financial and macroeconomic policies and the provision of shared public goods like natural resources, security, and education. For Africa to thrive, it must prioritize meaningful regional integration more than it has in the past, focusing on economic development over political cohesion [28]. Countries like Botswana and Rwanda have made such decisions, but efforts to advance governance, sound economic policies, and the rule of law often lag.

Fig. 2. COMESA countries

Fig. 3. East African Community countries

Fig. 4. SADC countries

According to Coleman and Rosberg [29], regional integration supports agricultural and industrial production across national borders, enabling economies of scale for investors and creating larger markets and new business opportunities for both small and large companies. It also helps dismantle monopolies and improves cross-border spillovers between landlocked and coastal countries. Additionally, integration can boost regional security, as increased international trade often results in less conflict [32]. For Africa's small and fragmented economies, deeper market integration for goods, infrastructure services, and key production components (people and capital) is crucial both economically and strategically. The African Continental Free Trade Area gained new momentum in 2018 after being ratified by African leaders. With the right mix of ambition and practicality, regional integration has the potential to significantly benefit both Africa and the rest of the world.

In conflict-affected regions like the Central African Republic, Ethiopia, Sudan, Mali, and the Democratic Republic of Congo, heads of state have made efforts to negotiate ceasefires and engage in dialogue with rebels [10]. While some attempts have been successful, others have not. For example, in the Democratic Republic of Congo, national troops have sought aid from the Ugandan government to combat rebels and restore peace in certain areas of the country [30].

4. NON-BENEFITS OF REGIONAL INTEGRATION

4.1 Security and Regional Integration

As countries join Regional Trade Agreements (RTAs), they often experience increased intra-regional commerce and investment, fostering beneficial connections and interdependence. This can enhance trust, make war a less attractive option, and reduce the likelihood of international conflicts [33]. However, RTAs might also lead to industrial concentration in one or a few countries, potentially causing tensions if divergence outpaces convergence. On the positive side, Regional Integration Agreements (RIAs) can enhance intra-regional security by promoting collaboration and establishing systems to address shared concerns. This cooperation can extend to "shared defense" or reciprocal military aid, thereby bolstering international security.

4.2 Domestic Reforms and Regional Trade Areas (RTAs)

Without RTAs, a government might pursue time-inconsistent welfare-improving policies, such as adjusting tariffs during trade shocks or seizing foreign investments. For RTAs to serve as effective commitment mechanisms, two conditions must be met: the benefits of staying must outweigh those of leaving [30], and the threat of punishment must be credible. High-quality regional integration agreements commit countries to trade policies and can lock them into micro and macroeconomic reforms or democratization if the underlying incentives align with the RTA's implementation. However, the low cost of exit and enforcement challenges can limit RIAs' effectiveness as tools for shared reform commitments.

4.3 Signaling Intentions

Although entering RTAs requires significant political capital and incurs transaction costs, countries may do so to signal their policy direction or economic stability to attract investment [34]. This is particularly important for nations struggling with policy consistency and legitimacy.

4.4 Insurance Against Risks

RTAs can also act as insurance against risks like macroeconomic instability, trade shocks, trade wars, or a resurgence of protectionism [27]. While this insurance argument may not be crucial for agreements among developing countries, it becomes significant in asymmetric terms-of-trade shocks, such as fluctuations in oil prices.

4.5 Case Studies; Regional Integration in Africa

The study “Regional Integration in Africa: Challenges and Prospects" by De Melo and Tsikat [13] provides an insightful analysis of the multifaceted nature of regional integration in Africa. It underscores the historical and political complexities arising from the colonial legacy, which resulted in geographically artificial states with arbitrary borders and significant ethnolinguistic diversity. These factors have contributed to Africa's high conflict rates and substantial trade and communication costs. The study highlights that the Regional Economic Communities (RECs) in Africa, such as ECOWAS, COMESA, and ECCAS, were initially envisioned as building blocks for African unity post-independence, as seen in the Lagos Plan of Action adopted in 1980. These RECs aimed to foster pan-African unity and continental industrialization through free trade among member states and high tariff barriers for non-members. However, the authors point out several challenges that have impeded the success of these integration efforts. A significant barrier has been the reluctance of African leaders to cede national sovereignty to a supranational authority, which is necessary for coordinated economic and political integration. This reluctance, coupled with the continent's vast diversity in terms of resources, geography, and languages, has weakened its commitment to Pan-Africanism and led to a multitude of vague objectives. Moreover, the linear model of integration adopted by many African RECs has largely ignored behind-the-border measures that could reduce trade costs. The failure to implement such measures has limited the potential economic benefits of regional integration, as evidenced by the minimal impact on trade costs despite the formation of these economic blocs.

Hartzenburg [31] examined regional integration in Africa. Despite numerous regional integration arrangements (RIAs), implementation has been poor, and intra-African trade remains low at 10-12% of total trade. Hartzenberg [31] identified key challenges including small, fragmented economies, focus on tariff reduction over non-tariff barriers, weak legal foundations, lack of rules-based implementation, limited private sector involvement, and overlapping RIA memberships. The study argued that the linear market integration model may be inappropriate for Africa, suggesting instead a deeper integration agenda addressing behind-the-border issues like services, investment, and competition policy. Hartzenberg [31] highlighted the new Tripartite Free Trade Area between COMESA, EAC, and SADC as an attempt to address past shortcomings through market integration, infrastructure development, and industrialization. However, the study emphasized that success ultimately depends on member states' genuine commitment to rules-based integration. The study accentuates the complexity of regional integration in Africa and the need for a more nuanced, comprehensive approach.

In the study "Regional Integration and Food Security in Developing Sub-Saharan African Countries" by Kayizzi-Mugerwa, Anyanwu, and Conceição [19], several key findings are highlighted. The authors emphasize that regional integration is crucial for enhancing productivity and improving living standards in Africa. By giving producers access to regional markets and linking them into sophisticated regional value chains, competitiveness can be significantly raised. The study also notes that regional integration can help overcome constraints such as small national economies and high transportation costs. Moreover, integration fosters competition, price convergence, and technological innovation, enabling African countries to better compete globally. Additionally, the presence of many landlocked countries and high transportation costs underscores the urgency for regional integration in Africa. Despite numerous efforts, including the establishment of regional trade blocs and political commitments, progress has been hindered by infrastructure constraints, non-tariff barriers, and slow implementation of agreements.

Qobo's [17] paper examines the challenges of regional integration in Africa and prospects for establishing a "United States of Africa". Qobo argues that past integration efforts have largely failed due to misplaced priorities and leaders' unwillingness to cede sovereignty. He contends that successful integration requires bold domestic economic reforms and political liberalization as prerequisites. Rather than pursuing grand visions, Africa needs to focus on pragmatic, gradual steps towards integration. Qobo emphasizes that integration should be outward-oriented toward global engagement, not inward-looking. He highlights the importance of normative convergence on democracy and human rights among member states. The paper suggests prioritizing developmental coordination and infrastructure over rapid trade integration. Qobo proposes that external "agents of restraint" like aid providers can help ensure reform implementation. He sees potential in rationalizing overlapping regional economic communities to accelerate integration. The author advocates for a "developmental regionalism" focused on collective betterment beyond just trade expansion. Finally, Qobo suggests that project-based cooperation on regional public goods may be more effective than sweeping region-wide schemes. The paper argues that Africa must overcome domestic governance and economic challenges to achieve meaningful regional integration.

Tanyanyiwa et al., 2014 explored the challenges and opportunities for regional integration in Africa, focusing on the Southern African Development Community (SADC). They highlighted the persistent efforts by African countries to achieve regional integration as a strategy for economic development, poverty alleviation, and improved living standards. Despite the formation of various Regional Economic Communities (RECs) and the aspiration to create a Continental Free Trade Area (CFTA) by 2017, the authors found that these initiatives have not fully realized their intended objectives. Key impediments include inadequate infrastructure, political instability, and the lack of effective policy implementation. The study emphasized the potential benefits of regional integration, such as increased trade, investment, and economic cooperation, which are critical for addressing the challenges of small markets and landlocked geographies in Africa.

Geda and Seid's [35] study, "The Potential for Internal Trade and Regional Integration in Africa," published in the Journal of African Trade, examines the significant potential for intra-Africa trade. Utilizing various empirical models, the study identifies the main challenges impeding this potential, such as weak infrastructure, low productivity, and inadequate trade facilitation, which collectively result in acute export supply constraints. Despite these barriers, the study highlights the critical role of innovative policies that extend beyond mere trade liberalization. These policies should focus on enhancing regional and domestic infrastructures, harmonizing macroeconomic policies, and improving trade-enabling institutions. Furthermore, the study emphasizes the need for a regionally focused diversification plan, leveraging existing regional economic communities (RECs) as vehicles for promoting intra-Africa trade and advancing regional integration. The authors argue that addressing these constraints is essential for realizing the potential for trade and fostering economic development across Africa [36,37].

5. CONCLUSION

This study explores the relationship between regional integration and food security in developing Sub-Saharan African countries. Regional integration is identified as a critical strategy for overcoming economic and social challenges by reducing barriers to trade, investment, and movement of people and goods. Establishing Regional Trade Agreements (RTAs) and Regional Integration Agreements (RIAs) has been shown to improve agricultural productivity and food security across the region. Beyond economic growth, regional integration fosters cooperation and mutual dependence among member states, reducing conflict likelihood and enhancing regional security. It also promotes better governance practices and sound economic policies essential for sustainable development. However, success depends heavily on member states' commitment to agreed policies and effective implementation.

Based on the study's findings, several recommendations are proposed:

1. Member states should demonstrate strong commitment to regional integration by adhering to agreed policies and ensuring effective implementation.
2. Investment in transportation, energy, and ICT infrastructure is crucial to facilitate the movement of goods, services, and people, enhancing market access and reducing transaction costs.
3. Prioritize agricultural sector development through modern farming techniques, improved access to inputs, and investment in research and development.
4. Reduce trade barriers and harmonize policies to promote intra-regional trade and attract foreign investment.
5. Design policies to ensure equitable distribution of economic benefits, addressing the needs of vulnerable populations like smallholder farmers and rural communities.
6. Enhance regional security through cooperation and mutual defense agreements.
7. Invest in technology and innovation to drive economic growth and agricultural productivity.
8. Strengthen partnerships among member states, development partners, and the private sector to enhance the effectiveness of regional integration initiatives.

In conclusion, regional integration presents a significant opportunity for Sub-Saharan African countries to achieve food security and sustainable economic growth. Addressing these challenges and implementing these recommendations can help member states harness the full potential of regional integration to promote development and improve their populations' well-being.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of manuscripts.

COMPETING INTERESTS

The authors have declared that no competing interests exist.

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