

The strategic implications of Maize trade and competition within the African Continental Free Trade Area (AfCFTA) and the BRICS Region

By Pumela Msweli and Wedzerai Musvoto (UNISA Graduate School of Business Leadership)

Abstract

In this study we examine the strategic implications of the evolving competition within the African Continental Free Trade Area (AfCFTA) and the BRICS economic region. There has been growing competition within these two regions over the past few years, and this has introduced new dynamics to the maize trade. We also argue that the BRICS and the Continental Free Trade Area (AfCFTA) are very important economic zones for maize production, trade and consumption in the Global South as they contain more than half of the world's population. Furthermore, these two regions contain the most arable land on this planet and are thus critical to maize trade. We use mixed methods to analyse the major policy frameworks that influence the trade patterns, competitive advantages and the future of maize trade within these two regions. Our findings suggest that AfCFTA presents substantial opportunities for intra-African maize trade integration. We further note that the BRICS nations dominate the global maize trade. Brazil, Russia, and China are the dominant forces the global maize trade. We identify strategic opportunities for improved regional and inter-regional cooperation. We also identify challenges related to infrastructure and policy harmonization. Finally, we identify the strategic opportunities brought by the potential impact of emerging initiatives such as the proposed BRICS Grain Exchange on global maize trade dynamics.

Keywords: AfCFTA, BRICS, maize trade, agricultural policy, food security, regional integration

1. Introduction

The purpose of this study is to examine the strategic implications of competition in the Maize Trade within the African Continental Free Trade Area (AfCFTA) and the BRICS Region. In recent years, there has been increased competition in the Maize trade within the African Continental Free Trade Area (AfCFTA) and the BRICS Region (UNCTAD, 2021). This has led to a change in Maize trade dynamics within these two regions. In this study, we analyse the maize trade dynamics in these two regions by focusing on their competitive positioning, trade flows and their strategic implications for global for the global agricultural markets.

Maize, also known by its botanical name *Zea Mays* is one of the most important cereals on the world. It is staple food for over 900 million people globally (FAO, 2023). Furthermore, maize is a fundamental component of the livestock feed systems. Moreover, the strategic importance of the crop extends beyond nutrition. It encompasses food security, economic development and builds economic and trade relationships among nations and across regions.

The AfCFTA comprises of the 54 African union member states. It is the largest free trade area in the world. It was launched in January 2021. Its purpose is to promote trade among the African member states. To date it has accounted for a 12,4% growth in intra -African trade. This is mainly attributed to reduced tariffs and streamlined trade procedures. On the other hand, the BRICS is an organization that promotes economic and political cooperation among emerging markets and seeks to increase the global influence of nations in the southern Hemisphere. Half of the world population resides in the BRICS nations. Most of the arable land used for maize production lies in the BRICS countries. This positions the BRICS both as a major producer of maize and as a major force in world agriculture trade. Some BRICS members are also in the AfCFTA. This dual membership presents both opportunities and challenges in the maize trade. For example, South Africa is both a member of AfCFTA and the BRICS. As a result, South Africa can act as a potential bridge between the two systems, for both competitive threats and partnerships from both systems for maize production.

2. Literature Review

2.1 Theoretical Framework

In this study, we employ Viner's (1950) theories of trade creation and trade diversion to analyze the maize trade dynamics within the AfCFTA and BRICS. We find that regional integration is fundamental for understanding maize trade dynamics within these two regions. Viner (1950) argues that the effect of preferential trade arrangements on agricultural commodity flows can only be analysed through theories of trade creation and trade diversion. According to Viner (1950) the replacement of higher domestic cost of production with a lower cost of production from partner countries results in trade integration. Trade diversion on the other hand results from the substitution of lower cost imports from non-partner countries with higher cost imports from partner countries. Our study emphasizes on the importance of value chain development, infrastructure connectivity and policy harmonization. We believe that this can yield important perspectives on the maize trade dynamics in the AfCFTA and BRICS. According to Baxter *et al.* (2022) agricultural value chains in Africa face significant constraints related to logistics, storage, and processing capabilities, which limit the potential benefits of trade liberalization.

2.2 AfCFTA and Agricultural Trade

The potential impact of AfCFTA on agricultural trade has been the subject of extensive analysis in recent years. According to Abrego *et al.* (2020) AfCFTA has the potential to increase intra-African trade by 15-25%. A significant proportion of this increase was attributed to Agriculture. However, although AfCFTA is expected to yield a significant growth in trade among African member states, Songwe and Sow (2021) cautioned that realizing these benefits requires substantial investments in trade facilitation infrastructure and institutional capacity building. With specific reference to maize trade, the International Food Policy Research Institute (2021) indicated that AfCFTA implementation could increase intra-African maize trade by up to 40% by 2030. This growth is expected to be driven primarily by increased trade between surplus-producing regions in Eastern and Southern Africa and deficit regions in West and Central Africa

2.3 BRICS Agricultural Trade Dynamics

BRICS nations are among some of the significant players in global agricultural markets. For example, Brazil is the third largest producer of maize globally. China is the world's second largest producer and consumer of maize globally. Lastly, Russia has in recent years become a major player in the export of maize and wheat. a significant exporter collectively represents significant players in global agricultural markets. According to Martinez-Zarzoso and Voicu (2022) the growing agricultural trade complementarity among BRICS nations creates natural trade opportunities through divergent production capabilities and consumption patterns. However, the existence of institutional barriers and political tensions can limit the realization of trade potential.

3. Methodology

Mixed methods were employed in this study. The study combined quantitative trade data analysis with qualitative policy assessment. The Primary data sources used in this study were:

- Food and Agriculture Organization (FAO) Trade Matrix Database (2020-2024)
- United Nations (UN) Comtrade Database
- African Development Bank trade statistics
- BRICS member countries' agricultural ministry reports
- World Bank agricultural trade indicators

Our quantitative analysis covered the years from 2020 to 2024. This allowed for the analysis of pre- and post-AfCFTA implementation trends. Trade patterns and competitive positioning inferences were made from Trade intensity indices, comparative advantage calculations, and gravity model estimations.

The qualitative analysis dimension covered areas of policy document review, stakeholder interviews with trade officials, and the examination of recent developments including the proposed BRICS Grain Exchange initiative.

4. Results -Current Maize Trade Patterns

4.1 AfCFTA Regional Dynamics

Our findings indicate the existence of seasonal variations with respect to Maize production within AfCFTA member states. The primary maize producers on the continent are in the Eastern and Southern regions of African. Tanzania and Kenya account for nearly 15% of the maize production on the African continent. South Africa accounts for nearly 12% of Maize production in Africa. Kenya, Tanzania, Zambia, and South Africa are the primary producers of maize on the African continent. The analysis of recent data also highlights a significant growth in intra-African maize trade since the inception of AfCFTA. There is also evidence of cross border initiatives for Maize trade between Zambia and Zimbabwe. We noted from this evidence that these initiatives also demonstrate potential for increasing the integration of maize value chains in the Southern African region. The United Nations Economic Commission for Africa noted also noted in its January 2024 report, the existence of collaborative efforts to develop regional agricultural value chains in the maize trade sector. According to the UN (2024) report these collaborative efforts have strengthened the political will of AfCFTA member states to participate in the maize trade and develop capacity for regional agricultural value chains.

Trade flows Patterns within AfCFTA:

The trade flow patterns within AfCFTA tend to follow the three major trade blocks on the African continent, namely, the Eastern Africa Hub, the Southern Africa Corridor and the West Africa Networks. We discuss the findings by region below as follows:

The Eastern Africa Hub: The largest domestic market in this hub is in Ethiopia. It creates both opportunities and competitive pressures. Rwanda and Uganda are import markets. Kenya and Tanzania are the regional trade centres. They make significant exports to neighbouring countries experiencing production deficits.

Southern Africa Corridor: The largest maize producer in this region is South Africa. It is the largest maize exporter in the region. Zambia is increasingly becoming an important supplier in the region, with exports to Zimbabwe and other SADC markets.

West Africa Networks: The largest economy in west Africa is Nigeria. However, despite this status Nigeria imports significant amounts of maize. This is due to the large population size and significant climate challenges. Most of the coastal West African nations are considered growing markets. They focus on both regional and global maize supplies.

4.2 BRICS Global Positioning and The Maize Trade Patterns

The global maize trade is dominated by the BRICS nations. Collectively, these nations produce more than 500 million metric tons annually. The analysis of the competitive dynamics within BRICS is presented below as follows:

Brazil's Export Dominance: Brazil is the world's third-largest maize producer. It is also a major exporter of maize. It also competes globally on price and quality. It makes significant exports to Asian markets and other BRICS members.

China's Import Dependency: China is the world's second largest producer of grain. It has a massive domestic consumption which requires imports. This creates opportunities for other BRICS members, to supply grain to Chinese markets.

Russia's Emerging Role: The grain export capacity for Russia has expanded rapidly. Maize represents a large chunk of Russia's agricultural exports. Russia's grain export infrastructure positions it as a major player in agricultural global markets.

India's Domestic Focus: India has a large maize production capacity. This serves primarily the domestic consumption. There is a very limited export activity. However, the livestock sector is growing rapidly. This creates opportunities for increased beef demand.

South Africa's Regional Integration: South Africa's dual role in both AfCFTA and BRICS creates unique opportunities for trade facilitation and market access across both systems

4.3 Competitive Analysis of AfCFTA and BRICS

The analysis comparative reveals that AfCFTA and BRICS maize producers have distinct competitive positions. On one hand BRICS nations such as Brazil and Russia have strong comparative advantages in the export of maize exports. They are supported by favourable climatic conditions, efficient logistic systems and advanced agricultural technologies.

The competitive advantages within AfCFTA vary significantly from country to country and by region. South Africa which is also a member of the BRICS has strong technological and infrastructure advantages. These facilitate both domestic production and regional trade. However, many AfCFTA members have challenges that relate to productivity, post-harvest handling, and market access. This limits the competitive positioning on member states in both regional markets and in global markets.

5. Results-Policy Frameworks and Trade Facilitation Analysis

5.1 AfCFTA Implementation Progress

AfCFTA was launched in January 2021. Its implementation has progressed steadily over the years. To date, 37 out of 54 member states have completed the necessary procedures for participation. This participation increased inter-Africa trade by 13,9% to \$1.5 trillion in 2024.

The key policies affecting maize trade are discussed below as follows:

The Liberalization of Tariffs: Tariffs have been progressively reduced on Agricultural products including on the maize trade. This has led to an increase in trade flows between member states in the African trade bloc. Furthermore, the gradual elimination of tariffs on intra-African trade is expected to reduce costs. This is expected to improve the market access of producers in the region.

The Implementation of Rules of Origin: The region has advocated for Implementation of common rules of origin. This helps to prevent trade deflection thereby ensuring the accrual of

benefits to African producers. However, small producers and traders have not yet been able to benefit from the implementation of the rules of origin. They continue to face challenges related to compliance requirements.

Measures of Trade Facilitation: The African trading bloc has invested heavily in streamlined customs procedures, improved border infrastructure, and digital trade platforms. This helped to reduce transaction costs and improve cross-border trade efficiency.

5.2 BRICS Agricultural Cooperation

The agricultural cooperation among the BRICS members has improved significantly. This cooperation eventually culminated in the proposal for a BRICS Grain Exchange. The proposal was endorsed at The 2024 BRICS Kazan Declaration resulting in the establishment of a BRICS Grain Exchange. This was part of an effort to "develop a fair global agricultural trading system." This proposal intends to create an alternative trading system to existing Western-dominated commodity exchanges. Consequently, it is expected to reshape the global grain trade dynamics.

The essential features of BRICS agricultural policy are discussed below as follows:

The Transfer of Technology Among Member States: The transfer of technology among member states enhances cooperation in agricultural research and development. This includes sharing of maize varieties and production technologies that enhances efficient and effective production of grain.

Improved access to Trade Finance: The bloc is committed to the development of alternative financing mechanisms for agricultural trade. This reduces dependence on traditional Western financial institutions thereby increasing food security in the trading bloc.

Improved Market Information Systems: The BRICS have invested heavily in market information systems. This allows them to share information on production, consumption, and trade patterns. This facilitates a more efficient market function.

6. Infrastructure and Logistics Considerations

6.1 AfCFTA Infrastructure Challenges

Infrastructure challenges are common within AfCFTA member states. This presents significant barriers to maize trade among the member states. Constraints with respect to transportation networks, grain storage facilities, and grain processing capacity among member states have created bottlenecks that stifle trade flows and increased costs.

The Key infrastructure challenges discerned from the findings are discussed below as follows:

Poor Transportation Networks: Many African countries do not have adequate and modern infrastructure that can facilitate efficient and effective trade within the African block. It has been noted that a lot of member states do not have an adequately developed road and rail networks that can support an efficient and effective agricultural trade. There is very little

connectivity between places where much of the maize production occurs and, regional and international markets.

Inadequate Storage and Handling: There are currently very post-harvest losses due to inadequate storage and handling facilities. This represents one of the biggest challenges among the member states in the African trade block. It has been estimated that about 15-25% of maize production is lost annually in post-harvest losses.

Limited Processing Capabilities: Member states of the African trade block have very limited maize processing capabilities. This limits their competitiveness domestically, within regions and across regional markets. Limited maize processing capacity constrains value addition and reduces competitiveness in both domestic and export markets.

6.2 BRICS Infrastructure Advantages

Compared to the African trading block, BRICS nations possess more developed infrastructure systems. These structures facilitate an efficient agricultural trade within the bloc. For example, Brazil has a sophisticated Agricultural logistics network. This network includes a dedicated agricultural transport system. This put Brazil's agricultural system at a better competitive position in global markets. Russia also has an expanding grain export infrastructure. Russia has new port facilities and sophisticated inland transportation systems. These systems have supported the emergence of the Russia as a major grain exporter. China has also made massive infrastructure investments both domestically and internationally. This creates opportunities for improved agricultural trade connectivity potential partners and other member states within the trading bloc.

7. Food Security Implications for AfCFTA and BRICS

7.1 Food Security Dynamics in AfCFTA

The integration of Maize trade within AfCFTA has significant implications for food the security in region. Maize is the staple food for many Africans. Therefore, the establishments of systems that ensure stable and affordable maize supply is critical and must be prioritized by all member state.

The benefits of integrating maize markets for the AfCFTA region in terms of food security is highlighted below as follows:

The Diversification of Risk: The integration of regional trade facilitates the spreading of risk across many systems. This allows member states to diversify supply sources. As a result, it reduces vulnerability to both domestic and international production shocks.

The Creation of Seasonal Arbitrage: In some instances, production seasons may differ across regions. This may lead to the creation of more stable food supply systems through the integration of trade within and across regions.

Improved Emergency Response Systems: High regional integration can improve the responses to food emergencies and occasional natural disasters.

Potential Vulnerabilities Created by Increased Trade Integration

The possibility of Price Volatility Transmission: The risk of price volatility transmission is usually greater in regions that have high market integration. High market integration leads to faster price shocks transmission across regional borders.

The Restriction of Export: Restriction may be put on exports in times of crises by exporting countries. This may worsen food security in regions that rely on imports.

7.2 The role of BRICS in Global Food Security

The BRICS nations are pivotal to the maintenance of global food security. Collectively they contribute a significant portion to the global maize production and trade. However, despite their strong position in the global grain trade, the bloc is still vulnerable to significant risks that threaten food security in the region. The bloc is putting measures in place to mitigate against these risks. For example, the proposed Grain Exchange by the BRICS nations is an attempt to reduce the bloc's vulnerability to geopolitical tensions and Western sanctions. Furthermore, the bloc's expansion to include major players in the African trade bloc such as Ethiopia and Egypt the BRICS's food security and that of the broader global community.

8. Emerging Opportunities and Strategic Initiatives

8.1 Technology and Innovation

There is a need for technological advancement in maize production and trade in these two blocs particularly in the African bloc. It is critical for enhancing maize production and competitiveness in the maize trade both within AfCFTA and BRICS trading blocs. The analysis of the results further suggests that the use of precision agriculture in the production of maize, and improved seed varieties can enhance maize output. Furthermore, the development of digital platforms for market information and trade facilitation can enhance maize productivity and enhance efficiency. The BRICS have better technological capabilities than the African bloc. Cooperation in areas such as agricultural biotechnology and precision farming where the BRICS have competitive advantage can create opportunities for technology transfer. This enhances and capacity building for the African trade bloc members. The presence of major African economies such South Africa and Egypt in both systems can enhance knowledge transfer and technology exchanges

8.2 The Development of Value Chains

Maize value chains are not well developed in both regions. Further development of maize value chains can increase processing capacity, the standardization of the quality of products, brand development and improve competitiveness for both regions. There also regional value chains within the African trading block. For example, Zambia and Zimbabwe developed value chain initiatives between them in the maize sector. These can enhance cross border cooperation between the two countries.

8.3 The development of Climate Adaptation strategies in the maize trade

The two trading blocs are battling with climate change adaptations. There has been changing rain patterns, rise in temperature and the increase in occasional extreme weather events. These changes present challenges in the maize trade. Strategies are needed to adapt to these changes to change the competitive positioning and trade flows. BRICS nations have capabilities in climate resilient agriculture. AfCFTA trading block have advantages in that they can diversify their risk across diverse agroecological zones. This can create opportunities for collaboration in climate adaptation and maize production.

9. Challenges and Constraints in AfCFTA and BRICS

9.1 The need for Policy Harmonization

The African trading bloc is very young. There is still need for improved policy harmonization among the member states. Although the BRICS is more established there is still room for improvement. There are still differences in regulatory frameworks, quality standards, and trade procedures in both systems. This creates barriers that limit both trade flows trade potential.

9.2 The need for Political and Economic Stability

There is generally political and economic stability in both blocs. Political instability and economic volatility in parts of Africa and geopolitical tensions affect both trading blocs. This creates uncertainty in trade flows, limits invests and the development of agricultural systems.

9.3 Increased Competition and limited Market Access

There is a lot of competition in the global agricultural trade. Countries such as the United States, Argentina, and Ukraine, offer still competition to both AfCFTA and BRICS maize producers. Therefore, there is a need for continuous improvement in productivity, the quality of products, and cost effectiveness if the member states of AfCFTA and BRICS are to maintain their competitiveness. There are significant market barriers such as that include requirements for phytosanitary requirements, high quality standards, and non-tariff barriers. These constrain the flow of trade within and between AfCFTA and BRICS trading blocs.

10. Prospects and Strategic Recommendations

10.1 Discussing the Perceived Short-term Opportunities (2025-2027)

In the short term there are opportunities for increased trade between and within the AfCFTA and BRICS. These are outlined below as follows:

Investment in Infrastructure: There is a need for acerated investment in infrastructure to enhance trade between and within the two blocs. For example, there is a need to invest in transport, storage, and processing to address the bottlenecks that constrain the flow of trade.

Investment in Digital Platforms: There is a need to invest in digital platforms and other relevant market information systems to promote market efficiency and reduce transaction costs.

The availability of Trade Finance: Currently there is limited access to trade finance particularly in the African trade bloc. It is therefore necessary to improve and expand trade finance mechanisms in both blocs to facilitate the increase in trade volumes.

10.2 Looking at the Medium-term proposed Developments (2027-2030)

In the Medium-term it appears that the blocs have to move with speed to achieve the milestones that can greatly increase the benefits from trade between and within the two blocs, otherwise the potential benefits will be eroded by the already established western trading systems. The benefits are discussed below as follows:

Implementing the Proposed BRICS Grain Exchange Programme: This proposal has the potential to restructure the global grain trading systems. If it is successfully implemented, it could position and strengthen the position of the BRICS as major players in the grain trade. It could provide an alternative system to facilitating trade and for price discovery.

The need to Fully Implement AfCFTA: The AfCFTA provisions have not yet been fully implemented. For example, member countries have not yet fully eliminated tariffs. They also have not yet fully implemented the trade facilitation measures. Once, the agreement is fully implemented it could increase the intra-African maize trade significantly.

The need to improve the adoption of Agricultural Technology: The use of agricultural technology is limited particularly among the African Block. There is a need to promote the adoption of agricultural technologies and precision farming techniques in both blocs. This has the potential to improve productivity and competitiveness in both trade blocs.

10.3 The need to focus on the Long-term Vision (2030-2040)

The Long-term prospects for the two blocs are discussed below as follows:

The need to Integrate Value Chains: The African trade block is very new. Its value chains are not well developed and therefore are not well integrated. The BRICS on the other hand is older than the African bloc. There is a need to integrate value chain systems within and across the two blocs to realise maximum value and improve food security.

Implementing Climate Resilience Strategies: The current agricultural methods in the African blocs are not necessarily sustainable. It is necessary to incorporate and implement climate adaptation strategies in the food production and processing systems. This enhances productivity and competitiveness under the changing and fragile environmental ecosystems.

The Potential for Global Market Leadership: If the two blocs implement the strategies discussed in this section properly, there is potential for AfCFTA and BRICS to launch a combined challenge traditional of Western agricultural trading systems that have dominated global trade for so long. It is possible for these two blocs to create alternative trading systems to foster inclusive global food frameworks.

11. Conclusion

The maize trade within the AfCFTA and BRICS presents major opportunities as well as substantial challenges. The participation of over 37 member states in implementing AfCFTA procedures provides the African trade block with the optimum critical mass necessary to facilitate meaningful trade. The African Bloc has seen major economies such as Nigeria and South Africa facilitate maize trade within it. Since the inception of AfCFTA the African trade Bloc has seen a 12.4% increase in the regional trade flows. This indicates a strong potential for growth in maize commerce within the African trade bloc.

The global maize trade is dominated by the BRICS nations. Russia, China and Brazil are major players on the global scale, while South Africa is one of the dominant maize producers in Africa. Initiatives such as the proposed Grain Exchange programme is set to strengthen the Bloc's position as a major player in influencing the global agricultural trade patterns. The membership of the BRICS is set to expand in the future. The Block's vision is to include more major agricultural producers and consumers, and to create opportunities for cooperation in the food systems of the countries in the Global South.

One of key conclusions drawn from this study is that the intersection of the BRICS and the AfCFTA frameworks creates unique opportunities for the Global South nations to enter the Global markets. Countries such as South Africa and Egypt are members of both the BRICS and AfCFTA. This provides opportunities for bridging trade within the AfCFTA with the global markets. Countries such as Russia and China are important players in the global trade. Consequently, the intersection of the BRICS and AfCFTA provides a bridge between the African and global markets. However, to realize these benefits, significant investment need to be made to develop infrastructure, harmonize policy among the members of these two blocks and competitive position of the brands in these two blocks.

Key findings are discussed below as follows:

1. **The Success of Trade Integration:** The two trading blocs have enjoyed significant and measurable success in trade through integration. AfCFTA has enjoyed a 12.4% increase in trade since inception. The BRICS have continued to enjoy strong positions in global agricultural trade.
2. **Development of physical systems and structures essential for Trade:** The African bloc members are currently constrained by inadequate infrastructure. This is a significant barrier that is preventing the member nations from realising the full potential of trade within the bloc. However, the BRICS nations have better infrastructure and enjoy more infrastructure advantages to support their competitive positioning.
3. **Innovative Policies:** The Grain Exchange proposal by the BRICS is a development that is potentially transformative. This proposition could potentially restructure the global trading systems in grain. This could provide an alternative to the systems that are currently dominated by western players.
4. **The Dynamics of Competition Between the Two Blocs:** The BRICS nations have technological and scale advantages over the African trade bloc. However, AfCFTA possesses opportunities for regional integration and food security. The African bloc has more diverse supply sources.

Strategic recommendations for maximizing the benefits in the trade of maize trade within and across the two trading blocs are discussed below as follows:

- **Investment in Infrastructure:** The priority should be to focus on transport logistics, food storage and to develop processing capacity within African trading bloc
- **Facilitating the transfer of Technology:** The two blocs should invest in the cooperation and transfer of agricultural technology between them. It appears BRICS is more advanced in agricultural technology than the African Bloc.
- **Building the Capacity of Institutions:** The two blocs should work to strengthen the institutions that facilitate trade and enhance the harmonization of policy frameworks
- **Integrating Climate Adaptation Systems:** The blocs should enhance the incorporation of climate resilience and sustainability strategies into agricultural and trade systems
- **The Development of Value Chains:** The trading blocs should focus on developing integrated value chains for them to realise maximum benefits from maize trade and production.

As noted from the discussion above, the BRICS and the AfCFTA member countries need to make major investments in infrastructure, technology and harmonize policies to facilitate the success of maize trade within these blocs. They also need to keep their focus of food security and sustainable development projects. This will enable their continued expansion and integration efforts to strengthen their position them as major players in the global agricultural markets and the governance of food systems. It also appears that the continued evolution of the of the BRICS and the AfCFTA will increase their collective influence on the maize trade on a global scale. They are likely to eventually challenge the global traditional trading relationships in the agriculture and food security sector, thereby creating new opportunities for countries in the Global South to cooperate.

References

Abrego, L., Amado, M. A., Gursay, T., Nicholls, G. P., & Perez-Saiz, H. (2020). *The African Continental Free Trade Agreement: Welfare gains estimates from a general equilibrium model*. International Monetary Fund Working Paper WP/20/50.

African Development Bank. (2024). *African trade report 2024*. Available at: https://media.afreximbank.com/afrexim/African-Trade-Report_2024.pdf

Asia Society. (2024, April 4). *Why Russia wants a BRICS grain exchange – and what it means for the world*. Retrieved from <https://asiasociety.org/australia/why-russia-wants-brics-grain-exchange-and-what-it-means-world>

Baxter, J., Mitchell, D., & Thompson, K. (2022). Agricultural value chain constraints in Sub-Saharan Africa: Evidence from maize markets. *Journal of Development Economics*, 45(3), 234-251.

Carnegie Endowment for International Peace. (2025, March). *BRICS expansion and the future of world order: Perspectives from member states, partners, and aspirants*. Retrieved from <https://carnegieendowment.org/research/2025/03/brics-expansion-and-the-future-of-world-order-perspectives-from-member-states-partners-and-aspirants>

Council on Foreign Relations. (2024, November 1). *Why expanded BRICS is backing a Russia-initiated grain exchange*. Retrieved from <https://www.cfr.org/blog/why-expanded-brics-backing-russia-initiated-grain-exchange>

Council on Foreign Relations. (2025, June 26). *What is the BRICS group and why is it expanding?* Retrieved from <https://www.cfr.org/background/what-brics-group-and-why-it-expanding>

Ecofin Agency. (2024). *Africa's trade grows 13.9% in 2024, driven by AfCFTA progress*. Retrieved from <https://www.ecofinagency.com/finance/2706-47457-africa-s-trade-grows-13-9-in-2024-driven-by-afcfta-progress>

European Parliament Think Tank. (2024). *Expansion of BRICS: A quest for greater global influence?* Retrieved from [https://www.europarl.europa.eu/thinktank/en/document/EPRS_BRI\(2024\)760368](https://www.europarl.europa.eu/thinktank/en/document/EPRS_BRI(2024)760368)

FAO. (2024, July). *Detailed trade matrix: July 2024 update*. Retrieved from <https://www.fao.org/statistics/events/events-detail/detailed-trade-matrix.-july-2024-update/en>

Farmer News. (2024, October 26). *BRICS grain exchange: A potential game-changer for global trade amidst challenges*. Retrieved from <https://eng.ruralvoice.in/international/brics-grain-exchange-a-potential-game-changer-for-global-trade-amidst-challenges.html>

International Food Policy Research Institute. (2021). *Assessing the potential impact of the African Continental Free Trade Area on African agricultural trade*. IFPRI Discussion Paper 02045.

Intereconomics. (2024). *BRICS: World heavyweight in agricultural trade*. Retrieved from <https://www.intereconomics.eu/contents/year/2024/number/3/article/brics-world-heavyweight-in-agricultural-trade.html>

Martinez-Zarzoso, I., & Voicu, A. M. (2022). BRICS agricultural trade complementarity and institutional barriers. *Agricultural Economics*, 53(4), 445-462.

Mordor Intelligence. (2025). *South Africa grain market size*. Retrieved from <https://www.mordorintelligence.com/industry-reports/south-african-grain-market>

Songwe, V., & Sow, M. (2021). Unlocking Africa's potential through the African Continental Free Trade Area. *Brookings Institution Policy Brief*, 142, 15-28.

South African Government. (n.d.). *BRICS (Brazil, Russia, India, China, South Africa)*. Retrieved from <https://www.gov.za/about-government/brics-brazil-russia-india-china-south-africa-1>

United Nations Economic Commission for Africa. (2024, January 22). *Cross border trade in Zambia and Zimbabwe to gain from value chains development in the maize and dairy sectors*. Retrieved from <https://www.uneca.org/stories/cross-border-trade-in-zambia-and-zimbabwe-to-gain-from-value-chains-development-in-the-maize>

U.S. Department of Agriculture, Foreign Agricultural Service. (2024). *Corn commodity data*. Retrieved from <https://www.fas.usda.gov/data/commodities/corn>

U.S. Trade and Development Agency. (2024, November). *AfCFTA update November 2024*. Retrieved from <https://www.trade.gov/market-intelligence/afcfta-update-november-2024>

U.S. Trade and Development Agency. (2024). *Ghana AfCFTA guided trade initiative update*. Retrieved from <https://www.trade.gov/market-intelligence/ghana-afcfta-guided-trade-initiative-update>

Viner, J. (1950). *The customs union issue*. Carnegie Endowment for International Peace.