ReSAKSS
Regional Strategic Analysis and Knowledge Support System
by AKADEMIYA2063

AGRODEP
African Growth & Development Policy
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by AKADEMIYA2063

Africa Agriculture Trade Monitor 2025

Edited by Sunday Odjo, Fousseini Traoré, and Chahir Zaki

AKADEMIYA

INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE
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ABBREVIATIONS AND ACRONYMS

ACF	African Competition Forum
AES	Alliance des États du Sahel
AUC	African Union Commission
AfCFTA	African Continental Free Trade Area
AfDB	African Development Bank
CAADP	Comprehensive Africa Agriculture Development Programme
CAN	Calcium Ammonium Nitrate
CBI	Centre for the Promotion of Imports from Developing Countries
CEMAC	Communauté Économique et Monétaire de l'Afrique Centrale/Economic and Monetary Community of Central Africa
CEN-SAD	Community of Sahel-Saharan States
CEPII	Centre d'Études Prospectives et d'Informations Internationales
CEPR	Centre for Economic Policy Research
CEPS	Centre for European Policy Studies
CILSS	Committee for Drought Control in The Sahel
CIP	Crop Intensification Programme
COMESA	Common Market for Eastern and Southern Africa
CSEs	Consumer Support Estimates
CVM	Countervailing Measures
DAP	Diammonium Phosphate
DRC	Democratic Republic of Congo
DTAs	Deep Trade Agreements
DTIC	Department of Trade, Industry and Competition
EAC	East African Community
ECCAS	Economic Community of Central African States
ECOWAS	Economic Community of West African States
FAO	Food and Agriculture Organization of the United Nations
FBS	Food Balance Sheets
FEVD	Forecast-Error Variance Decomposition
FTAs	Free Trade Agreements
GASC	General Authority for Supply Commodities
GATS	General Agreement on Trade in Services
GATT	General Agreement on Tariffs and Trade
GCA	Global Center on Adaptation
GIEWS	Global Information and Early Warning System
GMM	Generalized Method of Moments
GTI	Guided Trade Initiative

ICBT	Informal Cross-Border Trade
IFDC	International Fertilizer Development Center
IFPRI	International Food Policy Research Institute
IFVI	Integrated Food Vulnerability Index
IGAD	Intergovernmental Authority on Development
HIS	Inverse Hyperbolic Sine
IISD	International Institute for Sustainable Development
IRFs	Impulse Response Functions
LAC	Latin America and the Caribbean
MAP	Monoammonium Phosphate
MFN	Most Favored Nation
MOP	Muriate of Potash
NBER	National Bureau of Economic Research
NRA	Nominal Rate of Assistance to Agriculture
NRP	Nominal Rate of Protection
NTMs	Non-Tariff Measures
OECD	Organisation for Economic Co-Operation and Development
OSBP	One Stop Border Post
PPML	Poisson Pseudo-Maximum Likelihood
PSE	Producer Support Estimate
PTAs	Preferential Trade Agreements
PVAR	Panel Vector Autoregression
RCA	Revealed Comparative Advantage
REC	Regional Economic Community
RoW	Rest of the World
RTA	Regional Trade Agreement
RoO	Rules of Origin
SACU	South African Customs Union
SADC	Southern African Development Community
SDT	Special and Differential Treatment
SMEs	Small and Medium-Sized Enterprises
SPS	Sanitary and Phytosanitary
SSP	Single Superphosphate
STEs	State Trading Enterprises
TBTs	Technical Barriers to Trade
TFTA	Tripartite Free Trade Area
TRIMs	Trade-Related Investment Measures
TRIPS	Trade-Related Aspects of Intellectual Property Rights

TSP	Triple Superphosphate
UMA	Arab Maghreb Union
UNCTAD	United Nations Conference on Trade and Development
UNECA	United Nations Economic Commission for Africa
WACTAF	West African Association for Cross-Border Trade
WAEMU	West African Economic and Monetary Union
WTO	World Trade Organization

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Food security has deteriorated significantly in Africa over the past five years. The prevalence of undernourishment has reached alarming levels, with an increase of 2.8 percentage points from 2019 to 2024, with undernourishment now affecting 20.2 percent of Africa's population, according to the latest SOFI report (FAO et al. 2025). This large increase indicates that 73 million additional people are suffering from moderate or severe food insecurity, with much of the increase occurring between 2019 and 2020. This disappointing food security outcome stems from several factors, including the limited development of domestic agrifood systems, which has been exacerbated by climate change, conflicts and political instability, and major global shocks, most notably geopolitical tensions, trade wars, the Russia-Ukraine conflict, and the economic slowdown following the COVID-19 pandemic. Given the acuteness of the food security problem and, as announced in the 2024 edition of the Africa Agriculture Trade Monitor (AATM), this year's edition focuses on the role and contribution of trade to food security.

Against this background, the 2025 AATM contributes to our understanding of African agricultural trade and its relationship with food security in several important ways. First, using high-quality trade statistics and consistent indicators, it provides a thorough analysis of international and continental trade in agricultural products and a deeper look at one strategic value chain (rice), all from a food security perspective. Second, the report offers an analysis of Africa's fertilizer sector by examining the discrepancies between fertilizer demand and supply trends and trade structures. Third, as regional trade is expected to contribute to food security in all dimensions (availability, accessibility, stability, and utilization), the report analyzes the major regional trade agreements in force in Africa to determine whether they act as building blocks or stumbling blocks to Africa-wide integration.

The report highlights five main findings. First, Africa's domestic food systems remain weak, and growing food demand has led to a heavy reliance on imports, while on the export side, new trading partners—mainly from countries such as China, Saudi Arabia, Brazil, and India—have emerged and are taking on a growing role. Second, Africa's heavy reliance on food imports is particularly concerning for rice, which accounts for one-quarter of the continent's total cereals trade deficit. This trade deficit is likely to persist, as demand for rice is expected to grow significantly over the next decade due to the combined effects of population growth, rising incomes, and urbanization, while production is expected to grow at a slower pace due to lower yields, inefficient practices, and climate change. Third, contrary to a common view, intra-African agricultural trade has grown over the past decade and has shown resilience in the face of global economic shocks such as the COVID-19 pandemic and the war in Ukraine, suggesting that continental integration is serving as a coping strategy in times of global crisis and supply chain disruptions. Fourth, African agricultural systems are characterized by low fertilizer use despite the presence of large producers and exporters such as Morocco and Egypt. Results show a positive correlation between fertilizer consumption and cereal yield, as well as a negative relationship between fertilizer consumption and food insecurity. However, it is important to note that most of the fertilizer consumed is imported. Fifth, the report finds that most African regional economic communities

(RECs) act as building blocks, contributing to the development of continental trade, particularly the African Continental Free Trade Area (AFCFTA). However, to realize the agreement's full potential, policy efforts should focus on reducing barriers between RECs, investing in infrastructure, and supporting regulatory convergence.

AKADEMIYA2063 and the International Food Policy Research Institute (IFPRI) are pleased to present this collaborative report, which provides a comprehensive review of Africa's progress in trade and food security, and new analysis on critical topics for the future of Africa's agrifood sectors and regional integration.

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The 2025 Africa Agriculture Trade Monitor (AATM) investigates critical topics related to Africa's trade in agricultural products. As in previous editions of the report, we developed a database that corrects discrepancies in official trade flow values, as reported by importing and exporting countries; this database serves as the basis for analyzing Africa's international, domestic, and regional trade. Following the 2024 report's examination of the nexus between climate change and the environment, this year's report focuses on food security and its linkage with global and intra-African trade.

Developing agricultural trade at both the international and regional levels is imperative, given the scale of food insecurity on the continent. Chapter 1 explores recent trends in African agricultural trade from a food security perspective. Over the last decade, the prevalence of moderate and severe food insecurity among Africa's total population has increased by 30 percent and 32 percent, respectively, a pattern that can partially be explained by trade developments. At the global level, Africa's share in agricultural trade is still the lowest worldwide, despite its comparative advantage. As a result, its import dependence has increased, especially in cereals, oils, and sugar. Fruit, nuts, and some traditional cash crops represent the majority of exports, especially those from South Africa, Morocco, Côte d'Ivoire, and Egypt. Additionally, Africa still has the world's highest tariff levels, leading to an equally high level of food insecurity. Low diversification among suppliers of imported products also increases the vulnerability of the continent's countries. These results are corroborated by a modified version of the Food Import Vulnerability Index, which considers the concentration of import markets. This index provides a framework for assessing how the structure of agricultural imports affects a country's food vulnerability.

Despite several external shocks, intra-African agricultural trade tripled between 2003 and 2023. Chapter 2 analyzes intraregional African trade, showing that it was dominated by regional markets representing more reliable sources of food amid global supply chain disruptions, such as the COVID-19 pandemic and the Russia-Ukraine conflict. However, Africa remains heavily dependent on food imports from the rest of the world. At the regional level, intra-African trade is unevenly distributed, with Southern Africa dominating exports (cereals, dairy, meat, and processed foods) and North Africa displaying a large surplus (fish, vegetables, and fruits). Central, West, and East Africa remain net importers with persistent deficits. Policies that prioritize regional self-sufficiency should be pursued more actively, particularly within the framework of the African Continental Free Trade Area (AfCFTA). This would entail streamlining customs procedures, reducing intraregional nontariff barriers, and addressing structural production gaps. Together, these measures could strengthen regional trade and significantly enhance food security across African countries.

Rice consumption is likely to increase significantly, though supply will grow at a slower pace. Given the importance of rice as a strategic commodity for food security, this year's AATM features an analysis of the rice value chain. Chapter 3 shows that Africa has consistently been a net importer of rice in recent decades. During the 2019–2023 period, rice accounted for one-quarter of the continent's total trade deficit in cereals, on average. The rice value chain involves millions of small-scale farmers, with women predominant in the labor force. Given its economic and social importance, the sector received various market price support measures and subsidies to producers. Amid increases in population, income, and urbanization, rice consumption will likely rise significantly, though supply will grow at a slower pace. Africa is expected to be the largest rice-importing region by 2035. Policies to increase the supply of

rice should aim to boost resilience and productivity by improving water-use efficiency and developing drought-resistant varieties. To help reduce demand for rice, governments should also prioritize policies that promote the consumption of fruits and vegetables and make healthy diets more affordable.

Enhancing the intra-African trade of fertilizers is a beneficial strategy for responding to external shocks and policy uncertainty. Although Africa is a net exporter of fertilizers, primarily from Morocco and Egypt, the continent still relies heavily on imports, mainly to Benin, Nigeria, and the Central African Republic, and especially for nitrogen and potash. In addition, fertilizer application rates are among the lowest in the world, which helps to explain the region's low crop yields. While fertilizer use affects yields, which in turn influence food availability and food security, changes in food security and agricultural performance also affect fertilizer import and export demand, thereby influencing subsequent levels of fertilizer use. Our findings show that fertilizer consumption and imports are positively correlated with the cereal yields, which are a key product for food security. This is why we also observe a negative correlation between fertilizer consumption and the prevalence of undernourishment.

As a critical determinant of food security, trade must be examined alongside regional and continental trade agreements. Chapter 5 assesses the performance and trade effects of African regional trade agreements, with a particular focus on the AfCFTA. The chapter examines whether existing regional frameworks act as conduits or constraints to deeper trade integration. Overall, integration remains uneven and differs by sector across regions. Regions such as SADC,[1] TFTA,[2] and WAEMU[3] exhibit relatively high and stable intraregional trade levels, particularly in processed agricultural products. However, CEMAC,[4] ECCAS,[5] and AMU[6] remain weakly integrated. This chapter also offers insights into the tariff structure and depth of the regional agreements. Although tariffs within regional economic communities (RECs) are generally low or nonexistent, tariffs between RECs remain high. Many agreements include provisions in areas within the World Trade Organization mandate (WTO-plus) and beyond it (WTO-X), such as services, technical standards, and institutional cooperation, but their enforceability varies widely. WTO-X provisions on agriculture and product standards have the most substantial effects on trade flows, yet their application remains inconsistent across regions. An ex ante simulation using a gravity model shows that most African RECs could act as building blocks for Africa-wide integration (continentalism). To achieve the AfCFTA's full potential, regional disparities and fragmentation should be considered, with a special focus on deepening legal commitments, reducing inter-REC barriers, and investing in infrastructure.

1 Southern African Development Community.
2 Tripartite Free Trade Area.
3 West African Economic and Monetary Union.
4 Economic and Monetary Community of Central Africa.
5 Economic Community of Central African States.
6 Arab Maghreb Union.

The Africa Agriculture Trade Monitor (AATM) is an annual flagship publication of the International Food Policy Research Institute (IFPRI) and AKADEMIYA2063. This eighth edition provides an analysis of recent trends and drivers of Africa's global trade, intra-African trade, fertilizer trade, and food security. The report also examines the benefits of participating in regional trade agreements, as compared to continental or multilateral agreements.

Food security has worsened in Africa since the COVID-19 pandemic: according to the 2025 edition of the *State of Food Security and Nutrition in the World* (FAO et al. 2025), nearly 307 million people—20.2 percent of the population—were undernourished across the continent in 2024, as compared to 234 million people, or 17.4 percent of the population, in 2019. In 2024, the prevalence of moderate or severe food insecurity was 59 percent, rising from 51.1 percent in 2019, while the prevalence of severe food insecurity was 22.2 percent, an increase from 19 percent in 2019. The report predicts that by 2030, nearly 60 percent of all the world's undernourished people will reside in Africa. This alarming trend is driven by the compounding effects of climate change, conflict, economic instability, the war in Ukraine, and the aftereffects of the COVID-19 pandemic. As noted in the preceding edition of this report, trade and trade policies, including tariffs, non-tariff measures, and trade agreements, can affect food security outcomes through their impacts on food availability, accessibility, stability, and utilization (Odjo, Traoré, Zaki, and Hebebrand 2024). This year's AATM report examines how recent trends and patterns in Africa's agricultural trade directly affect food security.

Chapter 1 explores recent trends in African agricultural trade from a food security perspective. Despite the importance of agriculture in Africa's national economies, the continent has been the most affected by food insecurity over the past decade, which motivated the authors' interest in the nexus between Africa's global trade and food security outcomes. The chapter begins with a review of Africa's trade performance, including recent trends, trade composition, and leading exporters and importers, and then analyzes recent developments in trade policies and their linkage with food security. The authors provide an overview of a modified Food Import Vulnerability Index, which includes the concentration of import markets, and discuss related findings, before concluding with policy recommendations.

Chapter 2 explores recent dynamics and patterns in intra-African agricultural trade and discusses their direct implications for domestic food security. It first examines the gap between Africa's regional trade goals and national food security policies, highlighting how governments often use trade restrictions such as export bans and tariffs to protect domestic food supplies, thereby undermining regional agreements and disrupting intra-African trade. The chapter also provides an overview of intra-African trade trends and patterns over the past two decades. The analysis of food and nonfood trade balances between African regions and countries reveals the continent's internal trade asymmetries, demonstrating which regions are net exporters of food and which are net importers. The authors discuss vulnerability and interdependence within the African food system and their policy implications.

Chapter 3 focuses on the rice value chain. Given the importance of rice as a staple food and strategic commodity in many African countries, its analysis from a value chain perspective is crucial for informing policy debates around the sector's development. The chapter provides an overview of activities and actors at different stages of Africa's rice value chain, then examines current and future trends in the rice market, with a focus on production and consumption. The authors explore rice trade patterns and competitiveness, as well as the importance of informal trade flows. The chapter broadly addresses the sector's policy environment, highlighting the importance of price incentives and public expenditures, before offering conclusions and recommendations.

Chapter 4 analyzes the African fertilizer sector. It presents an overview of the continent's fertilizer sector, focusing on production and consumption trends and patterns, and then examines fertilizer trade and policies. A correlation analysis is conducted to investigate the relationships among fertilizer consumption, trade, and food security. The authors discuss the policy implications of the results and conclude with recommendations.

Finally, Chapter 5 extends the regional integration analyses conducted in previous AATM reports to examine the interplay between regionalism, continentalism (Africa-wide integration), and multilateralism in Africa's trade architecture, exploring how different levels of commitment to the regional economic communities (RECs), the African Continental Free Trade Area (AfCFTA) and World Trade Organization (WTO) reinforce or undermine each other in practice. The assessment revolves around three questions that are fundamental to this early stage of AfCFTA implementation: Are existing regional trade agreements (RTAs) building blocks or stumbling blocks for African trade? Will AfCFTA implementation lead to a significant and harmonious expansion of African trade? Does WTO membership reinforce trade between African countries? The chapter begins with a review of existing literature on RTAs and RECs in Africa, outlining their historical development and summarizing the theoretical debates around the benefits and limitations of regionalism. It then provides a detailed description of African RECs' trade and tariff patterns. The authors present the methodology used to assess the trade impacts of African RTAs, the AfCFTA, and WTO membership, and discuss empirical results before concluding the chapter.

Appendix 1 describes the AATM 2025 database, Appendix 2 provides a complete list of agricultural products, defined at the HS six-digit (HS6) level, and Appendix 3 presents the composition of all regional country groups used in the report.

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CHAPTER 1

Africa in Global Agricultural Trade and Food Security: Recent Trends

Nora Aboushady, Pierre Mamboundou, and Chahir Zaki

1. Introduction

Africa's agricultural trade was largely shaped by the colonial division of the continent in the 19th century, when the agriculture of several African regions was transformed into monocrop, export-oriented sectors that catered to the growing European demand for food, luxury products such as chocolate, and manufacturing inputs such as rubber and cotton (Bjornlund et al. 2020; Akyeampong 2017). This shift occurred at the expense of the domestic agricultural diversity and intra-African trade complementarity that had long ensured food security, and continued even after African countries gained their independence. Several African governments pursued agricultural policies similar to those of colonial times and focused on the export of a few crops to generate sufficient revenue to fund their industrialization and development plans. Between 1966 and 1973, for instance, nearly one-half of sub-Saharan African governments depended on the export of a single commodity to secure 50 percent of their export revenues (Bjornlund et al. 2020). This concentration had two negative repercussions on food security: (1) increased vulnerability to fluctuations in global commodity prices; and (2) decreased local and traditional food production, which threatened the availability of food for the growing African population.

Today, several African countries rely heavily on the import of staple foods. Based on data from the AATM database, Africa's cereal imports, for example, represent nearly 30 percent of its total food imports. Nevertheless, cross-country differences should not be neglected. North African countries are among the top African importers of cereals, with Egypt the largest wheat importer in Africa and one of the largest worldwide. Animal and vegetable fats and oils, sugar, and confectionery are also among the top imported food items.

Africa's agricultural trade has long been characterized by a deficit, with agricultural export revenues growing more slowly than the food import bill. Africa hosts the world's fastest growing population, and imports of agricultural goods are increasing rapidly accordingly (Bouët et al. 2019). Furthermore, the occurrence of more severe and more frequent climatic events will require increased food imports (Santeramo and Kang 2022). While the picture varies substantially at the country level, the composition of African agricultural exports has changed only slightly over time. The share of exports of high-unit-value products (such as vegetables and tropical fruits) has increased, but cash crops continue to play a fundamental role in exports. As a result, many African countries risk being vulnerable to global food price shocks, which can have adverse effects on their export revenues and potentially compromise their food security.

Against this backdrop and given the importance of food security in Africa, this chapter explores recent trends in African agricultural trade from a food security perspective. We modify the Food Import Vulnerability Index (FIVI) to correct for the effects of the structure of agricultural imports on a country's food vulnerability following an increase in international food product prices. We do so by considering concentration in the import market—that is, the concentration of imports in a limited number of supplies—to correct for the underestimation of African countries' food vulnerability in the face of exogenous shocks. This is important because, as the host of some of the world's major food importers, Africa's capacity for resilience to international price shocks depends on countries' ability to shift from one importing partner to another.

The chapter is structured as follows: the next section reviews Africa's trade performance, focusing on export and import trends, trade composition, leading African exporters and importers, and top export destinations and import markets. The following section focuses on recent developments in trade policy, including tariffs, non-tariff measures (NTMs), regional trade agreements (RTAs), and initiatives that can impact agricultural trade and, consequently, food security. We then cover the nexus between trade policy and food security, and follow with an overview and discussion of the FIVI findings. The final section presents the main conclusions and policy recommendations.

2. Overview of Africa's Agricultural Trade: Emerging Trends and Patterns

This section provides an overview of Africa's trade performance and composition over the 20-year period from 2003 to 2023. We begin with a broad overview of Africa's total exports and imports of agricultural products, before narrowing the scope of our analysis to regions, top exporting and importing countries, top exported and imported products, and main markets and trade partners. Finally, we shed light on possible shifts in specialization patterns by contrasting comparative advantages in two different subperiods.

Overall trade performance

The evolution of Africa's agricultural trade between 2003 and 2023 reveals a persistent agricultural trade deficit since 2006, with imports consistently exceeding exports (Figure 1.1). Over 20 years, African agricultural exports increased from approximately US$30 billion to $93.3 billion. A steady increase between 2006 and 2011 was followed by stagnation over the period 2011 to 2020, including a slight decrease in 2016. Since 2020, exports have increased from approximately $70 billion to $93.3 billion in 2023. Africa's agricultural import bill witnessed sharper fluctuations over the 20-year period, largely driven by Africa's largest food importers' dependence on global markets and reoccurring global food price shocks. For instance, the upward trend in import value between 2006 and 2008 can be attributed to the global rise in food prices (particularly cereals and oilseeds) that occurred after the depreciation of the US dollar, pushing up the cost of basic food imports for many developing countries whose currency was pegged to the dollar (FAO 2009). Furthermore, droughts in major cereal-exporting countries (for example, Australia, Ukraine, and India) and export restrictions imposed by many countries (including top cereal exporters such as Russia) caused global supply shocks (Ahmed et al. 2013; Headey 2011). Similar shocks occurred in 2010/11 and again in 2022, when Africa's agricultural import bill reached an unprecedented $122.9 billion due to wheat supply chain disruptions following Russia's invasion of Ukraine.

Figure 1.1 Total value of agricultural exports and imports in Africa (US$ billions), 2003–2023

Source: Data from the AATM 2025 database.
Note: See Appendix 1.1 for the definition of agricultural products.

Overall, Africa's exports grew at a lower rate compared to that of imports (Figure A1.1 in the appendix to this chapter). Although changes in exports and imports follow similar patterns, import growth rates reveal stronger fluctuations than export growth rates, which appear more stable. In other words, imports increase and decrease faster than exports in response to global shocks, reflecting Africa's dependence on global market conditions for food security. The relatively more stable demand for Africa's agricultural exports may be explained by the types of commodities exported and the stable incomes of importing countries. The sharpest fluctuations in export and import growth rates occurred during periods of food supply and demand shocks between 2007 and 2011, with smaller fluctuations in subsequent periods, such as the period of global trade slowdown that followed the 2015–2016 sanctions. In 2020, Africa's exports decreased by 0.04 percent due to the global economic slowdown caused by the pandemic, while its imports grew by 0.09 percent.

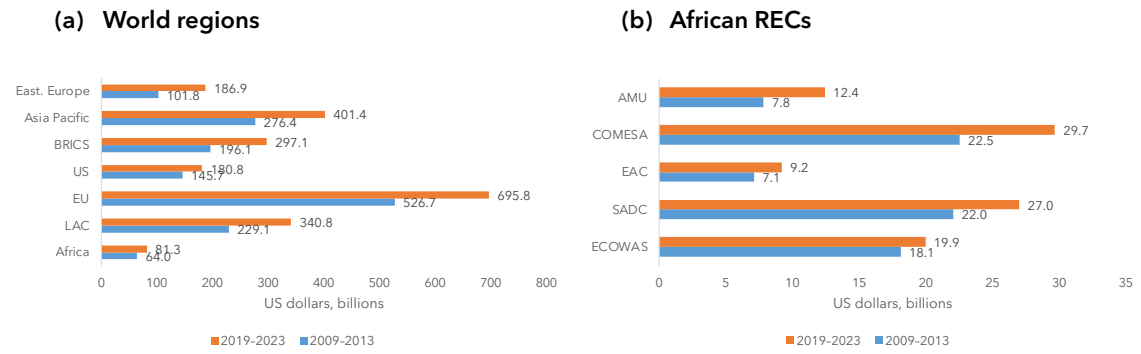
Trade by world region and within Africa

In this section, we compare Africa's agricultural trade with that of other regions of the world, before disaggregating these trade patterns by African region. The objective is to understand the differences in exports and imports and to determine which regions drive Africa's agricultural trade trends.

Africa's exports to other world regions over the periods 2009–2013 and 2019–2023 ranked lowest worldwide (Figure 1.2, panel a). Agricultural exports were consistently lower than those of other regions and did not increase considerably over the two periods. In the first period, agricultural exports averaged $64 billion, growing to only $81.3 billion in the second period—an increase of just 27 percent. The value and growth rate of the continent's exports were modest compared to other developing and emerging regions. For example, agricultural exports from Latin America and the Caribbean increased from $229.1 billion to $340.8 billion, a 48.8 percent increase. In the second period, agricultural exports from the Asia-Pacific region were five times higher than Africa's.

At the regional level (Figure 1.2, panel b), the Common Market for Eastern and Southern Africa (COMESA), the Southern African Development Community (SADC), and the Economic Community of West African States (ECOWAS) are the largest exporting regional economic communities (RECs). This can be explained by the presence of Africa's largest agricultural exporters in each of these RECs, including Egypt and Kenya in COMESA, South Africa in SADC, and Côte d'Ivoire, Ghana, and Nigeria in ECOWAS (see section on leading traders below for a detailed overview of Africa's top exporters).

Figure 1.2 Evolution of exports by world region and REC (US$ billions)



Source: Authors' elaboration using the AATM 2025 database.

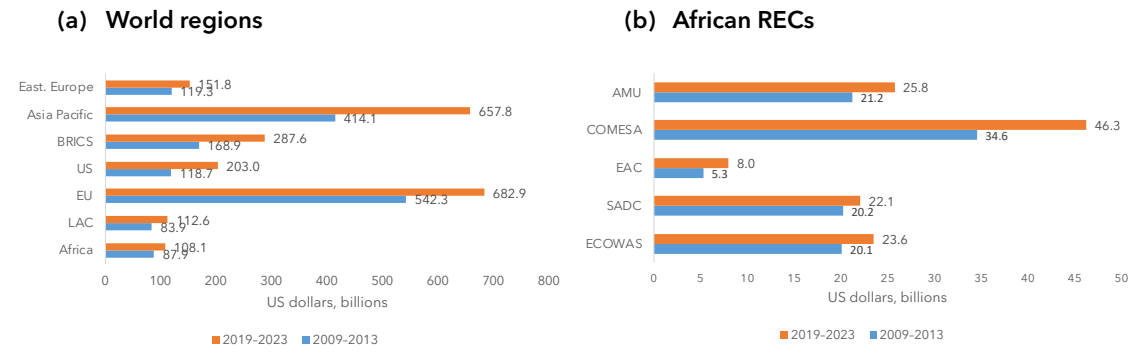
Note: Figures show each region's exports to the rest of the world, including Africa. US = United States. EU = European Union. BRICS = Brazil, India, China, and South Africa. LAC = Latin America and the Caribbean. AMU = Arab Maghreb Union. EAC = East African Community. COMESA = Common Market for Eastern and Southern Africa. SADC = Southern African Development Community. ECOWAS = Economic Community of West African States.

Likewise, Africa's agricultural imports are the lowest worldwide, at $108.1 billion over the 2019–2023 period (Figure 1.3, panel a), only 22.9 percent higher than in 2009–2013. These figures may be underestimated, however, due to substantial informal cross-border trade.[1] Bouët et al. (2020) argue that Africa's intraregional agricultural trade is much larger than official figures suggest. For instance, informal trade has been estimated at more than 50 percent of Rwanda's exports to four of its neighboring countries (Bouët et al. 2019) and more than 14 percent of Uganda's total exports (Bouët et al. 2020). Since Figure 1.3 includes Africa's agricultural trade with other countries, including African ones, the real volumes are likely significantly higher.

Among the RECs, COMESA is the top importer, accounting for $46.3 billion in imports (Figure 1.3b), largely driven by Egypt's wheat imports. The Arab Maghreb Union (AMU) ranks as the second largest importer and, like COMESA, has an agricultural trade deficit. AMU's substantial imports are also driven by the heavy dependence of its North African members on agricultural imports, especially cereals. As illustrated in the next section, Morocco, Algeria, and Libya are among the top agricultural importers in Africa.

1 Informal cross-border trade refers to trade flows between two neighboring countries in which either the trade flow is not registered at the border, or the trader(s) is(are) unregistered (Bouët et al. 2020).

Figure 1.3 Evolution of imports by world region and REC (US$ billions)



Source: Authors' elaboration using the AATM 2025 database.

Note: Figures show each region's imports to the rest of the world, including Africa. US = United States. EU = European Union. BRICS = Brazil, India, China, and South Africa. LAC = Latin America and the Caribbean. AMU = Arab Maghreb Union. EAC = East African Community. COMESA = Common Market for Eastern and Southern Africa. SADC = Southern African Development Community. ECOWAS = Economic Community of West African States.

Africa's relatively poor trade performance compared to other world regions may be explained by a combination of structural and policy factors, including elements from trade policy, infrastructure-related causes, and institutional factors, among others. Table A1.1 in the appendix describes selected structural determinants of trade by region. On average, African countries apply the second-highest tariff rates, after only South Asia. Previous editions of the AATM highlight that Africa applies the highest ad valorem equivalent of agricultural import duties worldwide and that its tariffs are generally higher than the world average (Bouët et al. 2019). High tariffs restrict access to agricultural commodities relevant for food security and reduce access to different food varieties.

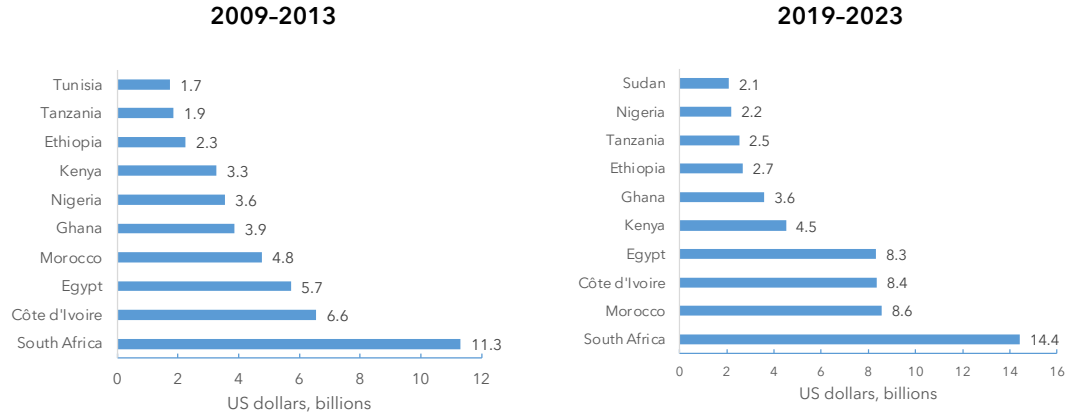
Restrictive trade policy is also associated with reduced agricultural trade performance, as it limits access to agricultural inputs such as seeds and equipment, with adverse effects on agricultural productivity and, consequently, on trade and participation in agricultural value chains. NTMs imposed by African countries present a major obstacle to improving Africa's participation in global trade, especially due to conformity assessment and sanitary and phytosanitary (SPS) standards. In addition, red tape barriers are high. For example, Table A1.1 shows that the time required to clear goods through customs in Africa is relatively high compared to Europe and Central Asia. While time to trade is high at the cross-regional level, agricultural goods require swift, timely processes given their perishability. The efficiency of infrastructure is also critical, yet African countries rank among the lowest regions in terms of infrastructure quality. Finally, institutional quality is an important determinant of trade and value chain engagement, as investments and products can be sensitive to contract enforcement and the rule of law. African countries (whether sub-Saharan or in North Africa) have relatively modest scores in this respect (Table A1.1).

Leading African traders in world markets

This section narrows the focus to the top exporting and importing countries. The composition of the top 10 African exporters changed only slightly between the periods 2000–2013 and 2019–2023 (Figure 1.4 and Figure 1.5), reflecting the relatively unchanged regional patterns in Africa's agricultural exports. South Africa and some North African countries are the continent's top exporters of fruits and vegetables, West Africa dominates cocoa exports, and East Africa dominates tea and coffee exports.

South Africa is Africa's top agricultural exporter for both periods, with exports estimated at US$14.4 billion in the second period, equivalent to over 25 percent of the total exports of the top 10 countries. The top 10 list also includes Côte d'Ivoire, Morocco, Egypt, Kenya, Ghana, and Ethiopia. Among these, South Africa, Egypt, and Morocco participate in fruit and vegetable value chains. South Africa's two leading agricultural exports are citrus and wine. Citrus fruits and grapes are also among Egypt's top agricultural exports, in addition to sugar, sugarcane, and potatoes. Morocco is among the top African exporters of tomatoes. Côte d'Ivoire and Ghana's agricultural exports are concentrated in cocoa beans, cocoa butter, and cocoa powder. Côte d'Ivoire was the top African exporter of cocoa over the past 20 years (Aboushady et al. 2022), while Ethiopia is among the top coffee exporters worldwide and has significant exports of oilseeds, legumes, and beans. Kenya is among the top exporters of tea, which accounts for more than 10 percent of the country's total exports (including nonagricultural exports).[2]

Figure 1.4 Top 10 African exporters of agricultural products (US$ billions)



Source: Authors' elaboration using the AATM 2025 database.

Note: Figures show each country's exports to the rest of the world, including Africa.

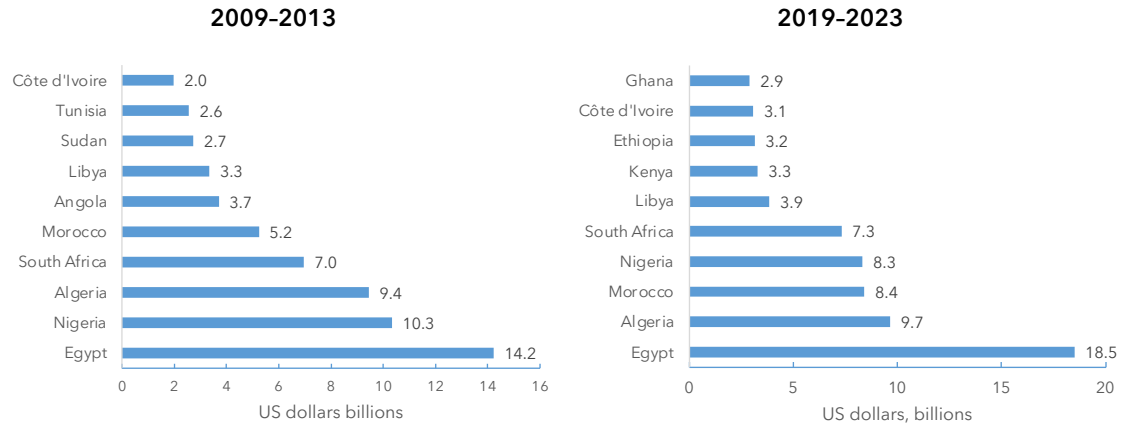
As discussed in the next section, the continent's imports range from relatively low-value commodities such as cereals and oilseeds, the demand for which increases with population growth, to higher-value products such as dairy products, meat, and processed foods, for which demand increases with rising incomes, urbanization, and shifts in consumption patterns.

Similarly, Africa's top 10 importers have not changed much over time (Figure 1.5). These countries are among the largest African economies in terms of both gross domestic product (GDP) and population, which explains why they drive the continent's imports. Egypt remains Africa's top importer of agricultural goods for both periods, with imports totaling $18.5 billion

2 Data were obtained from Kenya's country profile of the Atlas of Economic Complexity (https://atlas.hks.harvard.edu/countries/404/export-basket).

during the second period. Egypt is the continent's largest wheat importer and among the largest wheat importers worldwide. Wheat is a strategic good for Egypt, given the importance of the wheat-based local bread in the daily diet. Cereals—including wheat, corn, barley, and rice—are among the top agricultural imports for all countries depicted. Additionally, oils and sugar are among the top imports, particularly for East African countries such as Ethiopia and Kenya.

Figure 1.5 Top 10 African importers of agricultural products (US$ billions)



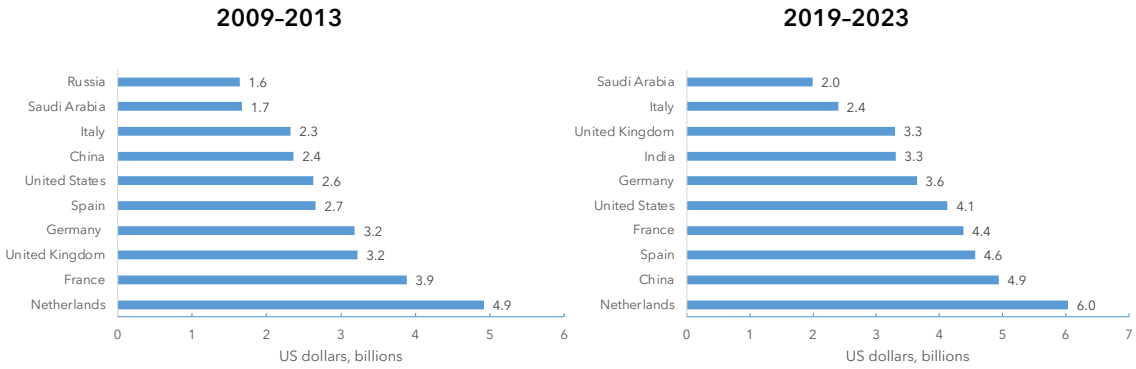
Source: Authors' elaboration using the AATM 2025 database.
Note: Figures show each country's exports to the rest of the world, including Africa.

Leading markets and trade partners

Although Africa's main export destinations have not changed significantly over time, they still reflect the growing importance of developing countries, especially in Asia, as trade partners (Figure 1.6). The Netherlands was Africa's top export destination market during both periods and accounted for $6 billion of imports in the second period. The Netherlands is home to one of the world's largest cocoa-grinding industries (CBI 2021) and is the top export destination for African cocoa. Other major exports to the Netherlands include cut flowers, citrus fruits, and grapes. Africa's exports to other major European trade partners and to the United States include cocoa, coffee, vanilla, spices, and some tropical fruits.

The second period shows a slight increase in the role of Asian markets for African exports, which could signal growing demand for high-value goods. More importantly, this shift may reflect the growing influence of Asian countries as leading investors in Africa's agribusiness sector. During the second period, China moved up from the seventh to the second top export market for African agricultural goods, possibly reflecting the country's growing role as a top agricultural investor in Africa, alongside other countries, including Saudi Arabia (which imports live animals) and India (which imports cashew nuts and coconuts). Other Gulf countries are playing an increasingly significant role in Africa's agribusiness sector, aiming to ensure long-term food security by acquiring land for grain production in Africa and elsewhere (Ahmed et al. 2013; Wright and Cafiero 2011).

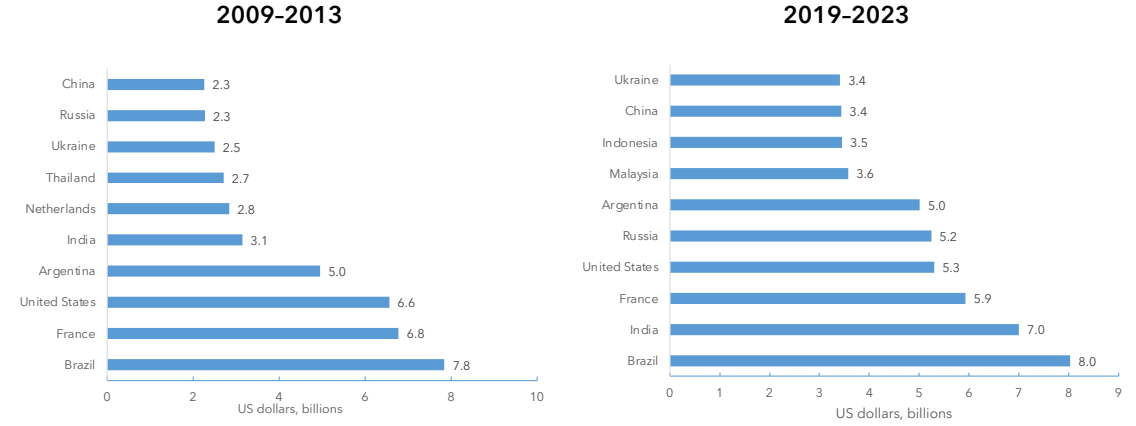
Figure 1.6 Top 10 destinations of agricultural products for African exporters (US$ billions)



Source: Authors' elaboration using the AATM 2025 database.
Note: Figures show each country's imports from Africa.

Africa's agricultural import markets reveal a strong presence of developing and emerging partner countries (Figure 1.7). Brazil was the top partner during both time periods, while India rose from fifth- to second-most important partner during the second period. Agricultural imports from both countries include sugarcane, corn, beef, poultry, and rice. The United States, Russia, Ukraine, and France are also among the continent's top trade partners. Imports from these countries primarily consist of wheat, and, to a lesser extent, corn and other cereals. Meanwhile, imports from Southeast Asian countries, such as Malaysia and Indonesia, are dominated by palm oil.

Figure 1.7 Top 10 origins of agricultural products for African importers (US$ billions)



Source: Authors' elaboration using the AATM 2025 database.
Note: Figures show each country's exports to Africa.

The composition of African trade

This section examines the composition of Africa's agricultural trade and compares it, where relevant, to that of other world regions. Additionally, we examine the trade structure by REC.

Table 1.1 shows the top three agricultural exports for each region and by REC. These include fruit and nuts, cocoa and cocoa preparations, and fish and crustaceans. Fruit and nuts are also among the top exports of the Asia-Pacific region and Latin America and the Caribbean. Africa

is the only region where cocoa and cocoa preparations are among the top three exported agricultural products. As mentioned, Africa's agricultural trade is lower than that of other world regions. For instance, Africa's exports of fruit and nuts total $15.1 billion, well below that of Latin America and the Caribbean ($44.6 billion) and the Asia-Pacific region ($36 billion). Exports of fish and crustaceans, the third top export category in Africa, total $6.4 billion, substantially lower than exports of the same category from the Asia-Pacific region ($38.6 billion). Finally, it is worth noting that cereals, vegetable oils and fats, and oilseeds are among the top exports of the BRICS countries and Eastern Europe, due to Russia and Ukraine's significant roles as major exporters of cereals, oil, and oilseed.

The REC's top exports reflect specialization in specific product categories across Africa. Coffee, tea, mate, and spices top the exports of ECOWAS and EAC, denoting the importance of tea production and export in East African countries. Kenya, for instance, hosts the world's largest tea auction (the Mombasa Tea Auction), where a significant proportion of tea from other EAC member states such as Uganda, Rwanda, Tanzania, and Burundi is imported and blended for re-export. Among COMESA member states, Ethiopia is one of the world's top exporters of unprocessed (dried) coffee beans, and vegetables feature among the top exports of North and East African countries. Vegetable exports account for more than 32 percent of AMU's total agricultural exports. Indeed, Morocco is among the top African vegetable exporters, accounting for over 58 percent of Africa's total exports of unprocessed vegetables and nearly 21 percent of processed vegetables (Aboushady et al. 2024). Similarly, cocoa exports are the top export category for ECOWAS, reflecting West African countries' specialization in these crops. Côte d'Ivoire and Ghana, both ECOWAS members, are among the world's leading exporters of unprocessed and semiprocessed cocoa. Fruit and nuts are the top export category of SADC, reflecting South Africa's status as a leading fruit exporter. Finally, fruit and nuts appear among the top three exported product categories across all RECs. At the country level, South Africa, Morocco, and Egypt are the continent's leading fruit exporters. Vegetables are also among the top exported products for COMESA and AMU, reflecting the important roles of Egypt, South Africa, Morocco, Ethiopia, Uganda, and Rwanda in vegetable production (Aboushady et al. 2024). Egypt, for instance, is the second-largest exporter of unprocessed vegetables in Africa, and the largest exporter of semiprocessed and processed vegetables.

Table 1.1 Top three exported products by world region and REC (US$ billions), 2019–2023

	Top 1	Top 2	Top 3
(a) World Regions			
Africa	Fruit and nuts, edible 15.1	Cocoa and cocoa preparations 10.5	Fish and crustaceans 6.4
Asia-Pacific	Animal or vegetable fats and oils 61.9	Fish and crustaceans 38.6	Fruit and nuts, edible 36.0
BRICS	Oil seeds and oleaginous fruits 51.7	Cereals 35.5	Meat and edible meat offal 25.2
EU	Beverages, spirits, and vinegar 85.0	Dairy produce 65.6	Meat and edible meat offal 60.0
Eastern Europe	Cereals 39.3	Animal or vegetable fats and oils 17.1	Tobacco and manuf. 12.4
LAC	Oil seeds and oleaginous fruits 55.1	Fruit and nuts, edible 44.6	Meat and edible meat offal 33.7
United States	Oil seeds and oleaginous fruits 31.1	Cereals 25.7	Meat and edible meat offal 20.8
(b) African RECs			
COMESA	Coffee, tea, mate, and spices 5.0	Fruit and nuts, edible 3.2	Vegetables and certain roots and tubers; edible 2.8
EAC	Coffee, tea, mate, and spices 2.9	Trees and other plants, live 1.0	Fruit and nuts, edible 0.7
ECOWAS	Cocoa and cocoa preparations 9.0	Fruit and nuts, edible 3.4	Oil seeds and oleaginous fruits 2.1
SADC	Fruit and nuts, edible 6.4	Tobacco and manuf. 2.6	Fish and crustaceans 2.2
AMU	Fish and crustaceans 3.0	Fruit and nuts, edible 2.6	Vegetables and certain roots and tubers; edible 2.1

Source: Authors' elaboration using the AATM 2025 database.
Note: Figures show each region's trade to the rest of the world, including Africa.

Table 1.2 depicts the top three imports by world region and REC. Cereals are Africa's top imported product category, accounting for $31.2 billion, followed by animal and vegetable fats and oils ($12.3 billion) and sugars and sugar confectionery ($8.2 billion). The predominance of cereal imports for Africa reflects its heavy dependence on the global market for cereals and, consequently, its exposure to global food market shocks. Cereals are also among the top imported product categories for Latin America and the Caribbean and the Asia-Pacific region.

Table 1.2 also shows the trade for a selected group of RECs. Our general findings on Africa's dependence on cereal imports apply to all selected RECs, for which cereals are the top imported product category. Animal and vegetable fats and oils also appear among the top imported product categories for all RECs. Other product categories are among the top imports for individual RECs, such as dairy produce for AMU and fish and crustaceans for ECOWAS.

Table 1.2 Top three imported products by world region and REC (US$ billions), 2019–2023

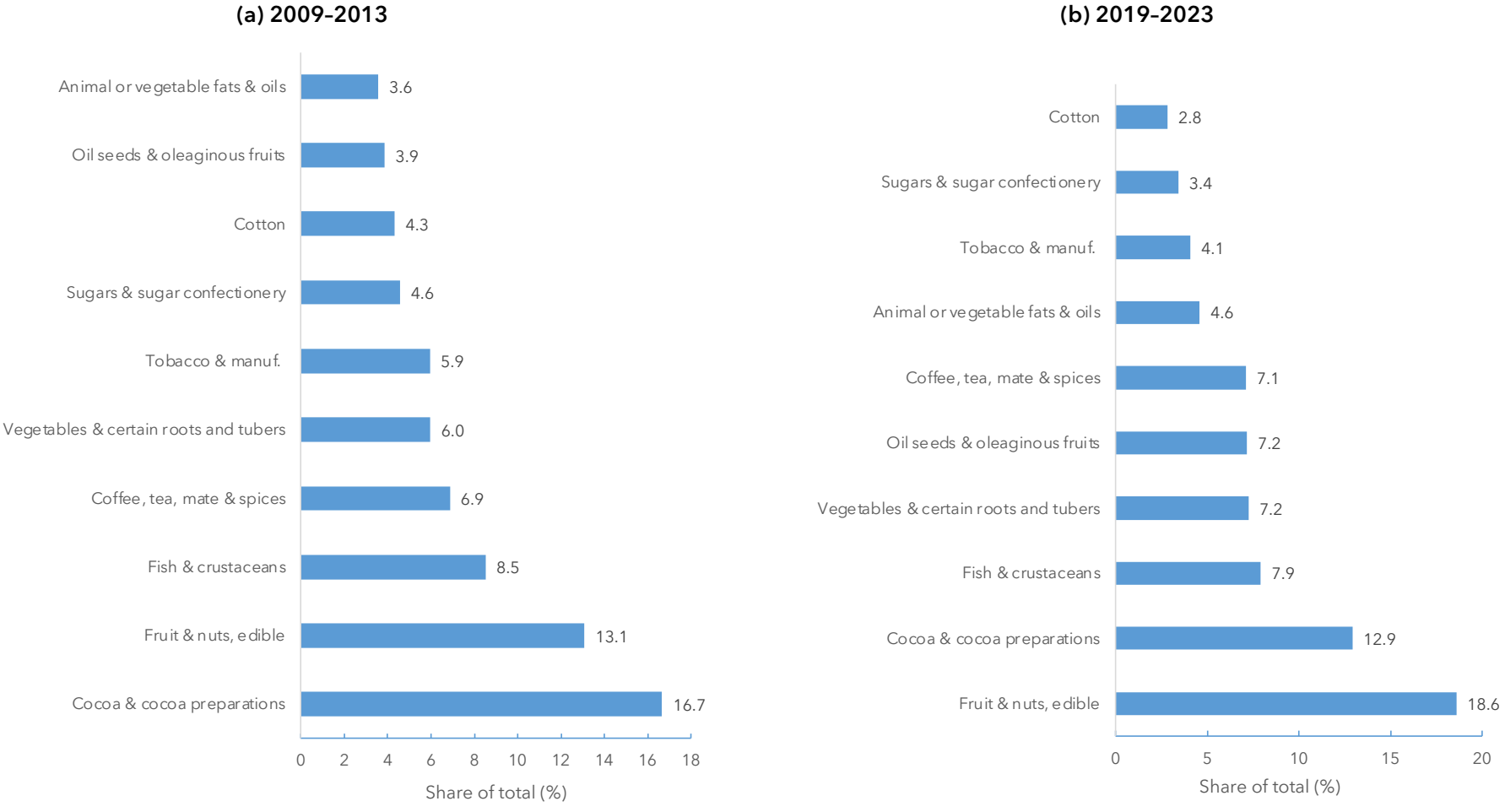
	Top 1	Top 2	Top 3
(a) World Region			
Africa	Cereals 31.2	Animal or vegetable fats and oils 12.3	Sugars and sugar confectionery 8.2
Asia-Pacific	Oil seeds and oleaginous fruits 82.8	Cereals 70.0	Meat and edible meat offal 61.1
BRICS	Oil seeds and oleaginous fruits 60.2	Animal or vegetable fats and oils 33.0	Meat and edible meat offal 30.3
EU	Fruit and nuts, edible 55.8	Beverages, spirits, and vinegar 52.1	Fish and crustaceans 49.4
Eastern Europe	Fruit and nuts, edible 14.1	Beverages, spirits, and vinegar 11.8	Meat and edible meat offal 11.1
LAC	Cereals 19.9	Meat and edible meat offal 10.6	Food industries 9.2
United States	Beverages, spirits, and vinegar 29.5	Fruit and nuts, edible 22.1	Fish and crustaceans 21.4
(b) African REC			
COMESA	Cereals 13.8	Animal or vegetable fats and oils 6.2	Sugars and sugar confectionery 3.6
EAC	Cereals 2.1	Animal or vegetable fats and oils 1.6	Sugars and sugar confectionery 0.9
ECOWAS	Cereals 7.6	Fish and crustaceans 2.3	Animal or vegetable fats and oils 1.8
SADC	Cereals 4.3	Animal or vegetable fats and oils 2.9	Beverages, spirits, and vinegar 1.7
AMU	Cereals 7.6	Animal or vegetable fats and oils 2.4	Dairy produce 2.4

Source: Authors' elaboration using the AATM 2025 database.
Note: Figures show each region's trade to the rest of the world, including Africa.

Figure 1.8 illustrates the composition of Africa's exports over the 2009–2013 and 2019–2023 periods. During the first period, the top 10 agricultural exports constituted 73.5 percent of Africa's total agricultural exports. In the second period, this share increased slightly to 75.8 percent, with cocoa and cocoa preparations and fruit and nuts constituting around 30 percent of total agricultural exports. Other major exports include fish and crustaceans, vegetables, oilseeds, coffee, tea, and spices. The share of cocoa and cocoa preparations decreased from 16.7 percent in the first period to 12.9 percent in the second, when exports of fruit and nuts took over as the major share of total agricultural exports (18.6 percent). Overall, the composition of Africa's major agricultural exports has not changed significantly over time. However, the growing share of fruit and nuts may indicate that Africa is responding to the mounting demand for high-value products. This demand has been increasing since the 1980s but accelerated over the past 15 years due to rising incomes in emerging economies.

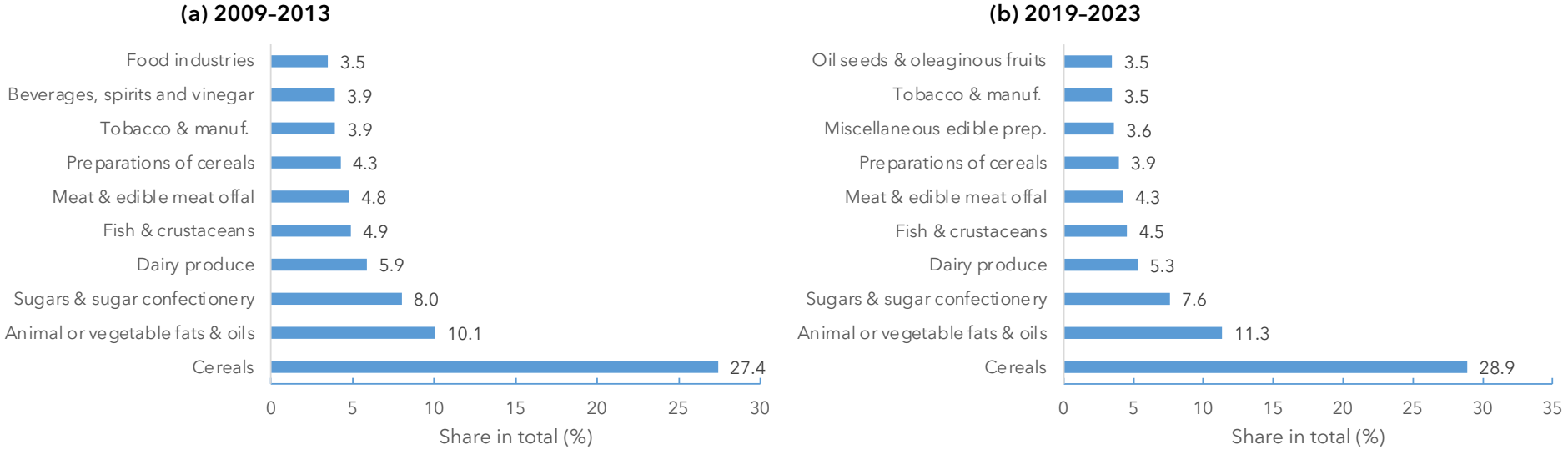
The composition of Africa's agricultural imports illustrates that they are more concentrated than exports (Figure 1.9). Cereals alone accounted for 27.4 percent of Africa's agricultural imports during the first period and 28.9 percent during the second. Animal or vegetable oils and fats accounted for 10.1 percent and 11.3 percent, respectively, in these two periods. Sugars, sugar confectionery, and dairy produce are also among Africa's top imports. The composition and concentration of Africa's agricultural imports have implications for food security: African countries heavily depend on the global market for food staples and are therefore vulnerable to global shocks affecting these commodities. Furthermore, the smaller shares of oils and sugar should not be neglected, given their importance for food security, as we discuss later.

Figure 1.8 Top 10 exports by African countries, share in total (%)



Source: AATM 2025 database.
Note: These figures are calculated using a three-year moving average.

Figure 1.9 Top 10 imports by African countries, share in total (%)



Source: AATM 2025 database.

Note: These figures are calculated using a three-year moving average.

Comparative advantages and specialization patterns

Table 1.3 depicts the top exporters of different product categories in terms of revealed comparative advantage (RCA) from 2019 to 2023. An RCA index[3] score greater than 1 typically indicates a revealed comparative advantage in the corresponding product. However, RCA index scores should be interpreted with caution because they compare the relative importance of a product in a country's exports to that in the exports of the rest of the world. Therefore, less diversified or small economies may have particularly high RCA scores compared to other exporters. This is evident in the case of Somalia's exports of live animals, Guinea-Bissau's exports of fruit and nuts (cashew nuts and coconuts), Chad's exports of lac, gums, and resins, Comoros's exports of spices (cloves and vanilla) and essential oils, and West African countries' exports of cocoa. Several other African countries have high RCA scores: Burundi, for example, exports coffee and tea; Eswatini exports sugarcane and sucrose.[4] African countries do not rank among those with the top RCA scores for cereals, dairy products, meat, or vegetables. Overall, African countries' comparative advantage seems to be concentrated in cash crops such as coffee, cocoa, and tea.

Table 1.3 Revealed comparative advantage: Top three countries globally, RCA index scores, 2019–2023

		Top 1	Top 2	Top 3
01	Animals; live	Somalia 49.4	Botswana 42.2	Qatar 26.3
02	Meat and edible meat offal	Uruguay 4.4	Australia 3.2	Nicaragua 2.9
03	Fish and crustaceans	Norway 12.9	Bahamas 12.3	Maldives 11.8
04	Dairy produce	Bahrain 8.7	Cyprus 7.5	New Zealand 7.4
05	Animal originated products	Qatar 6.1	Iran 4.6	China 4.5
06	Trees and other plants, live	Kenya 17.0	Colombia 14.1	Ethiopia 8.5
07	Vegetables and certain roots and tubers; edible	Turkmenistan 7.6	Kyrgyzstan 6.4	Myanmar 6.2
08	Fruit and nuts, edible	Guinea-Bissau 11.2	Iraq 8.3	Costa Rica 6.7
09	Coffee, tea, mate, and spices	Burundi 27.7	Comoros 27.6	Madagascar 21.1
10	Cereals	Guyana 6.3	Ukraine 5.2	Pakistan 4.9
11	Products of the milling industry	Uzbekistan 11.6	Lesotho 11.5	Kazakhstan 9.6

3 The RCA index is measured using the Balassa index. A country is said to have a revealed comparative advantage in a given product i when its ratio of exports of product i to its total exports of all goods (products) exceeds the same ratio for the world as a whole. Therefore, an RCA index greater than 1 indicates that the country has a comparative advantage in exporting the examined commodity, while an RCA less than 1 indicates a comparative disadvantage.
4 Information on the exports of specific products under the illustrated product categories is extracted from the Atlas of Economic Complexity (https://atlas.hks.harvard.edu/).

Table 1.3 Revealed comparative advantage: Top three countries globally, RCA index scores, 2019–2023 (cont'd)

		Top 1	Top 2	Top 3
12	Oil seeds and oleaginous fruits	Niger 12.5	South Sudan 11.1	Chad 10.9
13	Lac; gums, resins	Chad 37.1	Turkmenistan 31.4	Afghanistan 24.1
14	Vegetable plaiting materials	Sri Lanka 33.3	Turkmenistan 28.2	Nepal 23.5
15	Animal or vegetable fats and oils	Gabon 12.5	Malaysia 9.1	Indonesia 8.4
16	Meat, fish, or crustaceans	Cabo Verde 23.6	Seychelles 16.1	Mauritius 11.9
17	Sugar and sugar confectionery	Eswatini 24.9	Algeria 14.6	Belize 11.1
18	Cocoa and cocoa preparations	Cameroon 26.1	Côte d'Ivoire 25.2	Ghana 23.0
19	Preparations of cereals	Trinidad and Tobago 4.8	Bahrain 4.5	Rep. of Korea 3.2
20	Preparations of vegetables, fruit, and nuts	Lebanon 4.4	Greece 4.0	Israel 3.9
21	Miscellaneous edible preparations	Singapore 9.7	Malta 3.8	Japan 3.8
22	Beverages, spirits, and vinegar	Barbados 9.2	Saint Lucia 7.8	Georgia 7.2
23	Food industries	Bolivia 6.4	Angola 4.8	Argentina 4.6
24	Tobacco and manuf.	Zimbabwe 29.3	Malawi 22.6	Cuba 18.2
29	Organic chemicals	France 8.6	China 5.1	Finland 3.9
33	Essential oils and resinoids	Haiti 122.2	New Caledonia 114.3	Comoros 61.9
35	Albuminoidal substances	New Zealand 4.8	Ireland 4.3	Denmark 3.6
38	Chemical products n.e.c.	France 6.7	Thailand 4.1	China 4.0
41	Raw hides and skins	Libya 31.5	Turkmenistan 28.6	Iraq 25.0
43	Furskins and artificial fur	Finland 195.6	Denmark 23.2	Lithuania 7.2
50	Silk	Rep. of Korea 1841.4	Uzbekistan 73.3	Turkmenistan 21.0

Table 1.3 Revealed comparative advantage: Top three countries globally, RCA index scores, 2019–2023 (cont'd)

		Top 1	Top 2	Top 3
51	Wool, fine or coarse animal hair	Mongolia 310.3	Lesotho 223.8	Australia 20.9
52	Cotton	 95.2	Tajikistan 72.5	Benin 54.1
53	Vegetable textile fibers	Eritrea 69.0	France 14.4	Belarus 10.7

Source: Authors' elaboration using the AATM 2025 database.

Note: African countries are highlighted in yellow. The RCA indicates whether a country has a comparative advantage in the production of a certain product. The RCA index of country i for product k is often measured by the product's share in the country's exports in relation to its share in world trade of the same product. An RCA greater than 1 indicates that the country has a comparative advantage in that product category, while an RCA less than 1 reveals that the country has a comparative disadvantage.

3. Recent Developments in Trade Policy

This section briefly reviews recent developments in African trade policy and sheds light on the nexus between trade policy and food security from a theoretical perspective. We also review the most recent empirical findings on the implications of trade policy for African agricultural trade and for food security. Trade policy measures covered in this section include tariffs, NTMs, and RTAs.

Tariffs

Previous editions of the AATM have highlighted the ways in which restrictive trade policies impede African agricultural trade. On one hand, African exporters face high and escalating tariffs on their exports (Goundan et al. 2022; Goundan and Tadesse 2021). On the other hand, tariffs imposed on the trade of key commodities between RECs are substantially higher than within-REC tariffs. The tariffs implemented and enforced by African countries in 2023 and 2024 include discriminatory (red) measures, which affect foreign trade, and liberalizing (green) measures, which are applied on a nondiscriminatory basis. As Table 1.4 shows, some African countries apply discriminatory measures to product categories that are important for food security, such as fats and oils and sugars. Two RECs, SACU and EAC, increased tariffs and duties on specific product categories, as did Uganda and Sudan. It is worth noting that Sudan increased import duties on a wide range of products. In contrast, some countries, for example, Zimbabwe and Liberia, took liberalizing measures on basic food products, while SACU countries implemented them on selected food products that are not significant for food security.

Table 1.4 Tariff measures implemented and enforced by African countries in 2023 and 2024

Implementing entity	Measure	Evaluation
Botswana, Eswatini, Lesotho, Namibia, South Africa	SACU: Reduced the import duty on canned minced anchovies	Green
Botswana, Eswatini, Lesotho, Namibia, South Africa	SACU: Increased the customs duty on sugar (March 2024)	Red
Botswana, Eswatini, Lesotho, Namibia, South Africa	SACU: Reduced the import duty on certain anchovies for AfCFTA countries	Green
Botswana, Eswatini, Lesotho, Namibia, South Africa	SACU: Gave an import tariff rebate for onion powder	Green
Burundi, Democratic Republic of the Congo (DRC), Kenya, Rwanda, Somalia, South Sudan, Tanzania, Uganda	EAC: Increased import duty on microbial fats and oils	Red
Liberia	Liberia: Suspended import duties on rice	Green
Liberia	Liberia: Government suspended import duties on agrifood products	Green
Republic of the Sudan	Sudan: Increased import duties on 130 products	Red
Uganda	Uganda: Government introduced a 25% import duty on refined sugar	Red
Zimbabwe	Zimbabwe: Exempted internal taxation and import duties on basic goods	Green
Zimbabwe	Zimbabwe: Exempted import tariffs for food products	Green

Source: Authors' elaboration using the Global Trade Alert database.

Note: Red refers to an intervention that almost certainly discriminates against foreign commercial interests. Green refers to an intervention that liberalizes on a nondiscriminatory (that is, most favored nation) basis or improves the transparency of a relevant policy. AfCFTA is the African Continental Free Trade Area.

Nontariff measures

Over the past three decades, the global use of NTMs has risen significantly (Orefice 2017; WTO 2012). NTMs include all policy measures, excluding tariffs and tariff-rate quotas, that can affect international trade, such as SPS measures, technical barriers to trade (TBTs), quotas, and import licensing. NTMs, such as SPS measures, are designed to ensure food safety and protect consumer and plant health. Others, such as TBTs, ensure conformity with technical specifications. The implementation of NTMs can therefore increase trade flows. However, these measures are sometimes used to protect the domestic market. Their implementation often involves high compliance costs that smallholders cannot support. They can also increase trading costs and reduce export profits (Liu et al. 2019). Therefore, the impact of NTMs on trade may be unclear.

African agricultural exporters face substantial NTMs that impede their access to global markets. Some of Africa's most relevant trade partners, including certain European countries, impose the most burdensome NTMs. Bouët and Sall (2021) estimated ad valorem equivalents of 49 percent for SPS measures and 73 percent for TBTs. These measures are imposed on some of Africa's most competitive exports, including cocoa and cocoa preparations, fruits and nuts, vegetables, coffee, and tea. The shift from traditional African exports to higher-unit-value exports (such as fruits and vegetables, poultry, and fish) was accompanied by a rise in NTMs that increase the cost of compliance and act as a trade barrier to African exports (Santeramo

and Lamonaca 2019). African countries impose high NTMs on their agricultural imports as well. At the intra-African level, trade is also impeded by stringent and complex rules of origin.

African countries may be able to increase intra- and extra-African agricultural trade by harmonizing their NTMs with international standards and mutually recognizing NTMs imposed by their African trade partners. However, one of the main challenges to NTM harmonization is the lack of capacity in many African countries, where the SPS system and the general quality of infrastructure remain underdeveloped (Van der Ven 2025).

Table 1.5 illustrates the liberalizing and discriminatory NTM-specific interventions implemented or enforced by African countries in 2023 and 2024. NTMs are grouped under licenses and quotas, price controls, subsidies, and export-related measures. Of the 28 measures summarized in the table, only three are liberalizing. Most discriminatory interventions are import and export bans and discriminatory licensing requirements. Export bans mainly affect cereals and are justified by concerns about domestic food security. However, import bans on the same category of goods could be intended to protect domestic producers from foreign competition.

Table 1.5 Nontariff measures implemented and enforced by African countries in 2023 and 2024

E: Nonautomatic licensing, quotas, etc.		
Botswana: Banned the export and import of corn and sorghum	Red	Import ban
Kenya: Government banned powdered milk imports	Red	Import ban
Kenya: Halted import permits for powdered milk from Brookside Uganda	Red	Import licensing requirement
Kenya: Government imposed import restrictions on wheat and maize and announced a new public purchase program	Red	Import licensing requirement
Mali: Suspended imports of wheat flour and pasta	Red	Import ban
Togo: Government restricted imports of frozen poultry	Red	Import licensing requirement
F: Price-control measures, including additional taxes and charges		
Kenya: Imposed excise duties on several imports	Red	Internal taxation of imports
Zimbabwe: Exempted internal taxation and import duties on basic goods	Green	Internal taxation of imports
G: Finance measures		
Ethiopia: Central bank banned consignment payment for beef exports	Red	Trade payment measure
L: Subsidies (excl. export subsidies)		
Botswana: Botswana Agricultural Marketing Board announced the 2022/23 production contract prices	Red	Price stabilization
Egypt: The General Authority for Supply Commodities (GASC) offered corn for purchase to local poultry producers on the stock exchange	Red	Price stabilization
Ghana: Government increased cocoa producer prices for the 2024/25 crop season	Red	Price stabilization

Table 1.5 Nontariff measures implemented and enforced by African countries in 2023 and 2024 (cont'd)

Kenya: Government imposed import restrictions on wheat and maize and announced a new public purchase program	Red	Price stabilization
Nigeria: Afreximbank approved a US$200 million facility for BUA Industries Limited	Red	State aid, unspecified
South Africa: Setsong Tea Crafters (Pty) Ltd secured ZAR 3.75 billion in state aid from IDC	Red	State aid, unspecified
P: Export-related measures (incl. subsidies)		
Benin: Prohibited exports of soybeans from April 1, 2024	Red	Export ban
Botswana: Banned the export and import of corn and sorghum	Red	Export ban
Burkina Faso: Authorized the export of cereals to Niger	Green	Export licensing requirement
Cameroon: Banned cocoa exports to Nigeria	Red	Export ban
Egypt: Imposed a temporary export ban on sugar	Red	Export ban
Egypt: Government expanded the export ban on raw hides	Red	Export ban
Ghana: Banned the export of grains, including maize, rice, and soya beans	Red	Export ban
Kenya: Revenue Authority published guidelines to benefit from VAT tax exemption on exported coffee and tea	Red	Tax-based export incentive
Morocco: Introduced export licensing requirements for various goods	Red	Export licensing requirement
Tanzania (Zanzibar): Banned food exports to avoid food shortages	Red	Export ban
Tanzania: Government suspended permits for Uganda's rice and maize exporters	Red	Export ban
Zambia: Banned the export of maize	Red	Export ban

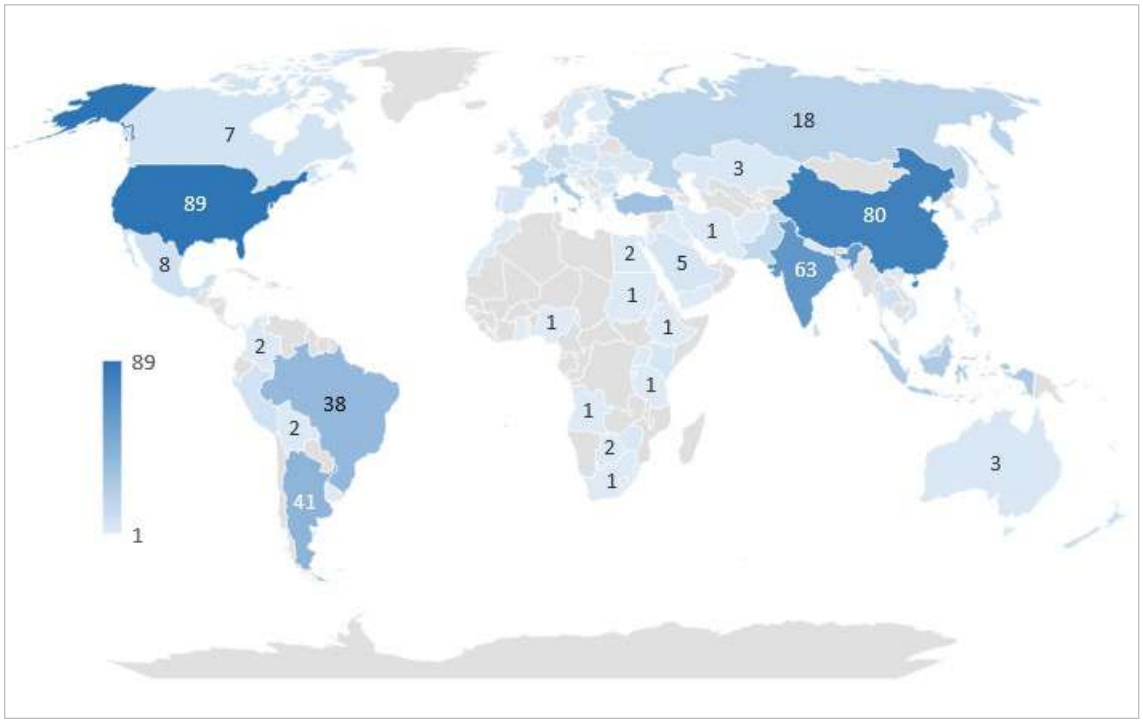
Source: Authors' elaboration using the Global Trade Alert database https://globaltradealert.org/

Note: Red refers to an intervention that almost certainly discriminates against foreign commercial interests. Green refers to an intervention that liberalizes on a nondiscriminatory (that is, most favored nation) basis or improves the transparency of a relevant policy.

Figure 1.10 illustrates the various measures faced by African exporters. Some trade measures are implemented by African countries themselves on the exports of other African countries. Of the measures faced by African countries, 74 percent are discriminatory (red), 25.5 percent are green (liberalizing on a most favored nation basis), and 0.5 percent are amber (an intervention that likely involves discrimination against foreign commercial interests).

The United States imposes the highest number of measures, followed by China, India, Brazil, and Argentina. Two of these countries, China and India, are among Africa's top 10 export destinations. Thus, implementation of restrictive or discriminatory measures is likely to undermine Africa's exports to these markets. Brazil and other South American countries also impose many measures. These countries are among the top agricultural exporters and may impose such measures to protect their domestic agriculture sectors.

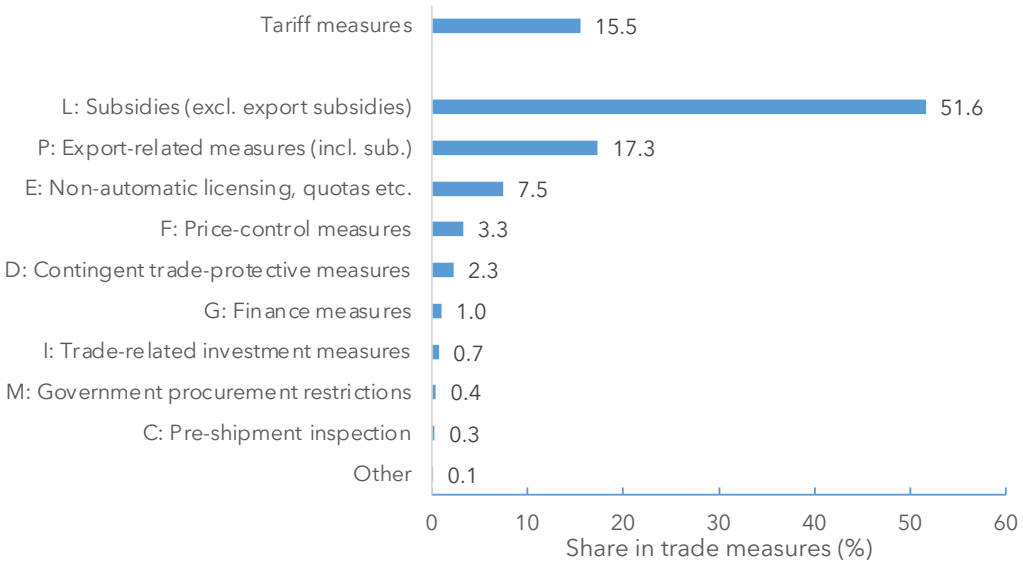
Figure 1.10 Trade measures faced by African countries in 2023 and 2024, by imposing country



Source: Authors' elaboration using the Global Trade Alert database https://globaltradealert.org/

Figure 1.11 summarizes the composition of measures faced by African countries. Over one-half (51.6 percent) are subsidies imposed by partner countries with strong agricultural lobbies (such as the United States) or emerging countries like China and India, and, possibly, Africa's competitors in agricultural exports. Indeed, the producer support estimate—which measures support for farmers as a percentage of their gross farm receipts—was as high as 16.5 percent in China and 10.5 percent in the United States. Consumer support estimates (CSEs)—measured by transfers to consumers as a proportion of agricultural consumption—suggest that India's CSE is as high as 33.4 percent, followed by the United States (21.1 percent) (Aboushady and Zaki 2023). Export-related measures, including export subsidies, constitute 17.3 percent of the measures faced by African countries. Despite the global reduction in tariffs on agricultural trade, tariff measures continue to weigh on Africa's exporters, constituting 15.5 percent of the total measures they must face.

Figure 1.11 Composition of trade measures faced by African countries in 2023 and 2024 (%)



Source: Authors' elaboration using the Global Trade Alert database https://globaltradealert.org/
Note: The categorization of NTMs follows an international classification, with a letter assigned to each NTM chapter to reflect its type. For more details, see UNCTAD (2019).

Regional trade agreements

African countries are party to 45 RTAs, including 7 RTAs that are operational under African RECs. Over time, the inclusion of agriculture in RTAs has increased, yet substantial heterogeneity arises in the scope of coverage of provisions and the degree of their enforcement. In this context, the depth of trade agreements is important for fostering agricultural trade. The inclusion and legal enforcement of trade-related provisions (that is, WTO+ provisions) matter for trade. However, provisions related to areas beyond trade (WTO-X provisions)—such as cooperation in agricultural innovation, environmental policies, and labor market regulations—also matter, even if they are not all directly trade-related.

In general, RTAs involving African countries offer a relatively broad coverage of policy areas, but only a few are fully legally enforced. Intra-African agreements, however, tend to be shallower. Trade agreements under African RECs vary substantially in terms of coverage (that is, *horizontal depth*) and legal enforcement (that is, *vertical depth*).[5] Only three intra-African agreements cover 20 or more provisions: COMESA, EAC, and ECOWAS. Intra-African agreements are also vertically shallower, with less than one-half of the included provisions actually legally enforced (Aboushady and Zaki 2023). The literature generally suggests that RTAs have a positive impact on intra-African agricultural trade within and between RECs (Chawarika et al. 2022; Aboushady and Zaki 2023; Fadeyi et al. 2014; Manu 2020; Olayiwola et al. 2015; Sunge and Ngepah 2020; Tegebu and Seid 2019).

Yet another strand of the literature suggests that Africa's largest RTA, the African Continental Free Trade Area (AfCFTA), is likely to have a limited impact on intra-African agricultural trade. This is primarily due to its shallow nature: trade liberalization under the AfCFTA is currently limited to tariff reduction, while provisions for deeper integration are not yet in place. Additionally, since

5 Horizontal depth is defined as the larger number of provisions that are included in trade agreements, while vertical depth refers to the legal enforceability of such provisions (Hofmann et al. 2017).

intra-RECs tariffs are already low, further liberalization is not expected to have a substantial effect. A recent study by Van der Ven (2025) suggests that the lack of implementation of NTM-related provisions under the AfCFTA will undermine intra-African trade in food. Similarly, MacLeod (2025) estimates that, according to the available tariff schedules, tariff elimination under the AfCFTA is likely to increase intra-African agricultural trade by just 5.4 percent. On the other hand, Beckman et al. (2024) estimate that a reduction in NTMs under the umbrella of the AfCFTA can lead to more intra-African agricultural trade, especially in higher-value agricultural products.

Another potential cause of these limited outcomes is the possibility for some items to be exempt from liberalization. Under the AfCFTA Guided Trade Initiative (GTI),[6] for example, 31 of the 54 AfCFTA member countries have to date submitted a list of products targeted for trade. These include a number of agricultural products: tea, coffee, processed meat products, corn starch, sugar, pasta, dried fruit, flour and cornmeal, and mushrooms (among other products). Although some initial assessments suggest that export volumes increased, it has also been reported that the outcome is quite limited due to the lack of accurate information on the schedule of tariff reduction (KAS, ATPC, and UNECA 2024). So far, seven countries (Cameroon, Egypt, Ghana, Kenya, Mauritius, Rwanda, and Tanzania) have commenced with preferential trade. Moreover, 46 AfCFTA member states (including those in EAC, CEMAC, SACU, and ECOWAS) have submitted initial tariff offers on 90 percent of the tariff lines. The remaining 10 percent comprises 3 percent of excluded lines and 7 percent of sensitive products.[7]

Having examined the different patterns of trade flows and trade policies related to agricultural products in Africa, the next section investigates how food security can be affected by trade flows. Specifically, we focus on food imports that are affected by tariff- and non-tariff measures.

4. Overview of Food Security in Africa

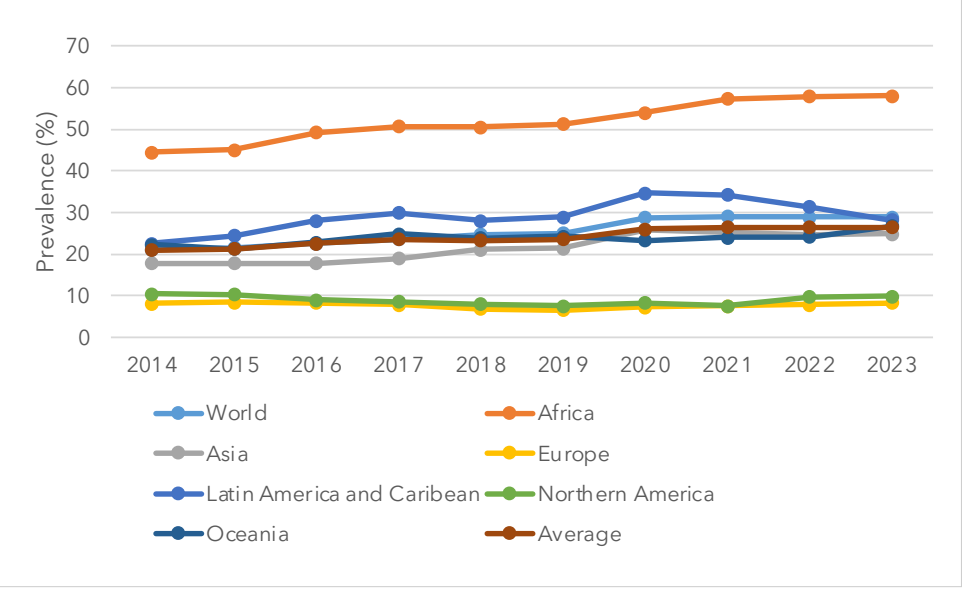
The predominance of agricultural products in African countries' international trade could be an asset in addressing food insecurity. Indeed, beyond any potential forced specialization aimed at capitalizing on the continent's revealed comparative advantages, this importance should increase food availability in deficit regions, stabilize consumer prices, and ensure decent incomes for agricultural households that depend on this activity, thereby promoting and/or preserving food security. However, the data analyzed on food security by region show that this is not the case.

Food security in Africa

Despite the importance of agricultural products in Africa's commodity trade, this continent was the most affected by food insecurity over the past decade. Indeed, the prevalence of moderate and severe food insecurity among the total population is highest in Africa and increased by 30 percent and 32 percent, respectively, between 2014 and 2023.

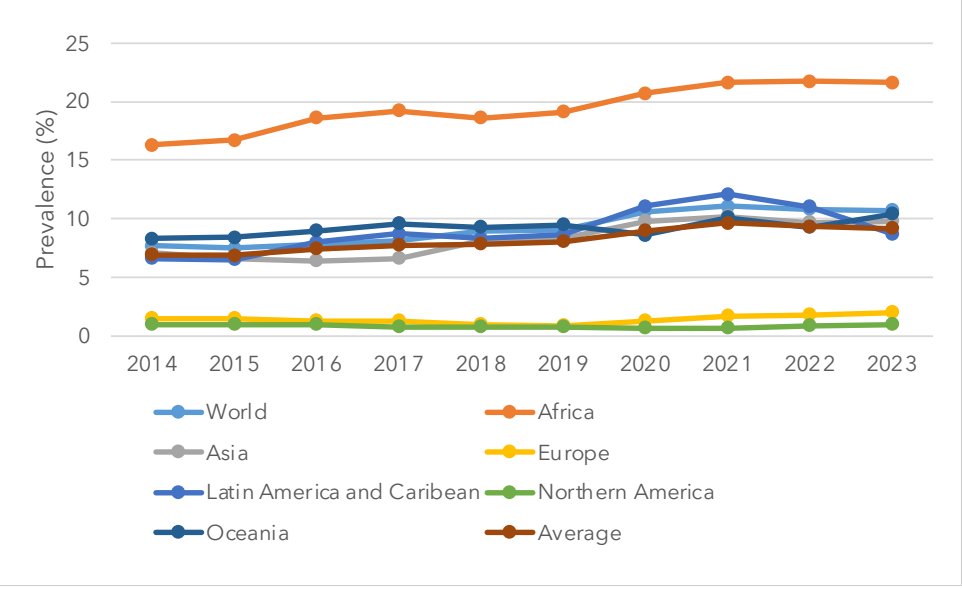
6 The GTI was established in 2022 with the objective of kickstarting trade among interested State-Parties that have met minimum requirements for starting trade under the AfCFTA. The GTI includes tariff offers on a list of products to allow for preferential trade. For more details, see https://au-afcfta.org/guided-trade-initiative/
7 https://tradeunionsinafcfta.org/wp-content/uploads/2023/03/LRS-AfCFTA-Briefing-1st-Edition_English-1.pdf

Figure 1.12 Prevalence of moderate food insecurity in the total population by world region (%), 2014–2023



Source: Authors' calculation from FAOSTAT data (2025).

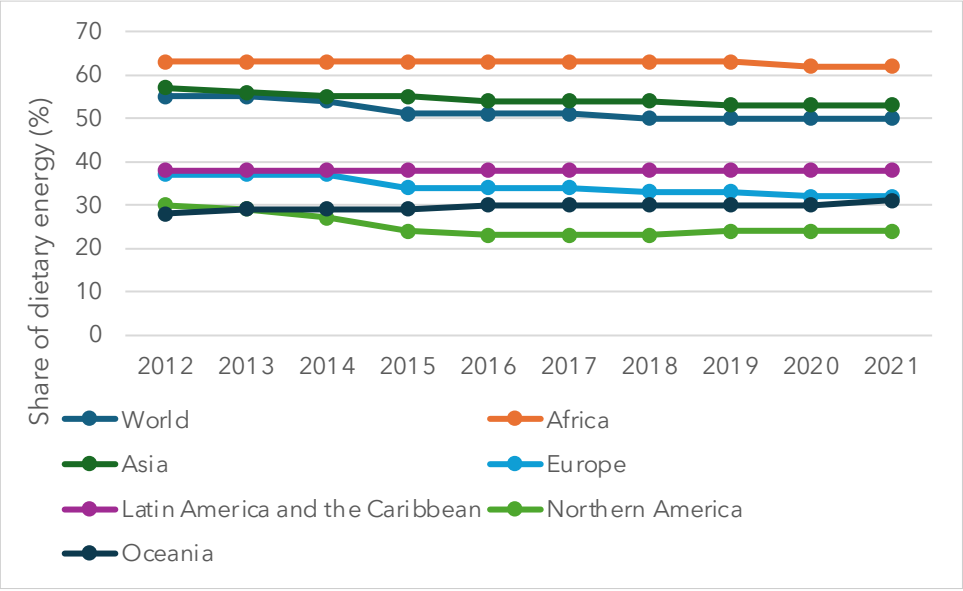
Figure 1.13 Prevalence of severe food insecurity in the total population by world region (%), 2014–2023



Source: Authors' calculation from FAOSTAT data (2025).

The prevalence of moderate food insecurity observed in Africa is 5.7 percentage points higher than the global average, and the prevalence of severe food insecurity is 2.3 percentage points higher. This persistently significant level of food insecurity seems closely linked to: the difficulties of producing enough agricultural products; the inability of intra-African trade to play a stabilizing role between surplus and deficit areas; or even strong demographic growth. Thus, in Africa—where agricultural products (cereals, roots, and tubers) represented on average 63 percent of dietary energy intake over the period 2012–2021 (Figure 1.14)—more than 30 percent of those needs were met by imports from the rest of the world (Figure 1.15).

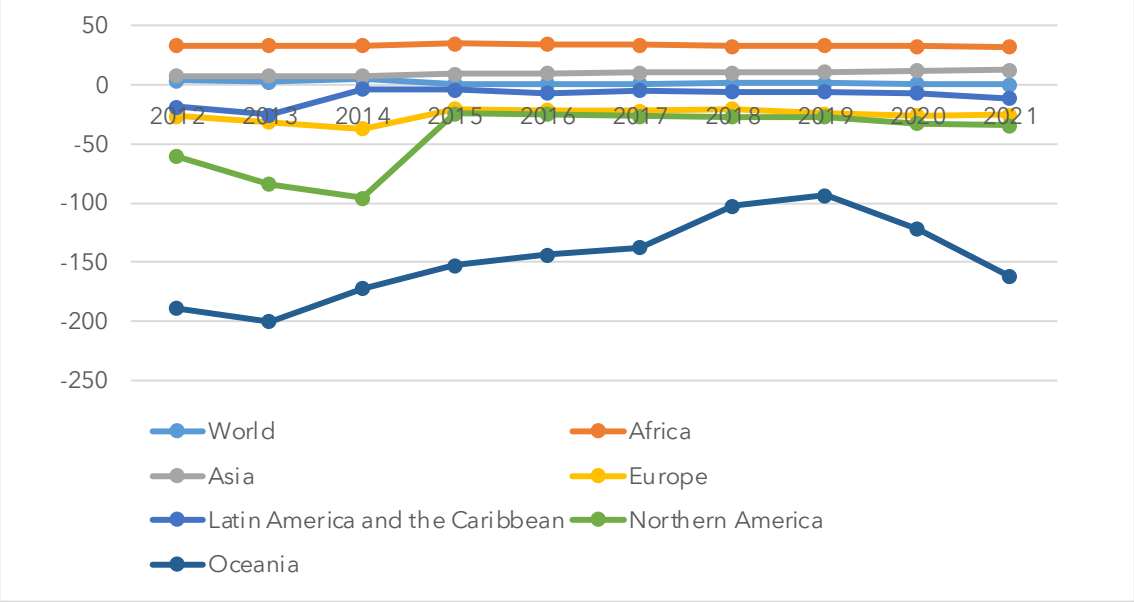
Figure 1.14 Share of dietary energy supply derived from cereals, roots, and tubers by world region (%), 2012–2021



Source: Authors' calculation from FAOSTAT data (2025).

Conversely, in regions such as Latin America and the Caribbean and Asia, these products represent between 38 percent and 54 percent, respectively, of the share of dietary energy, with self-sufficiency in the former and a dependency ratio of less than 10 percent in the latter.

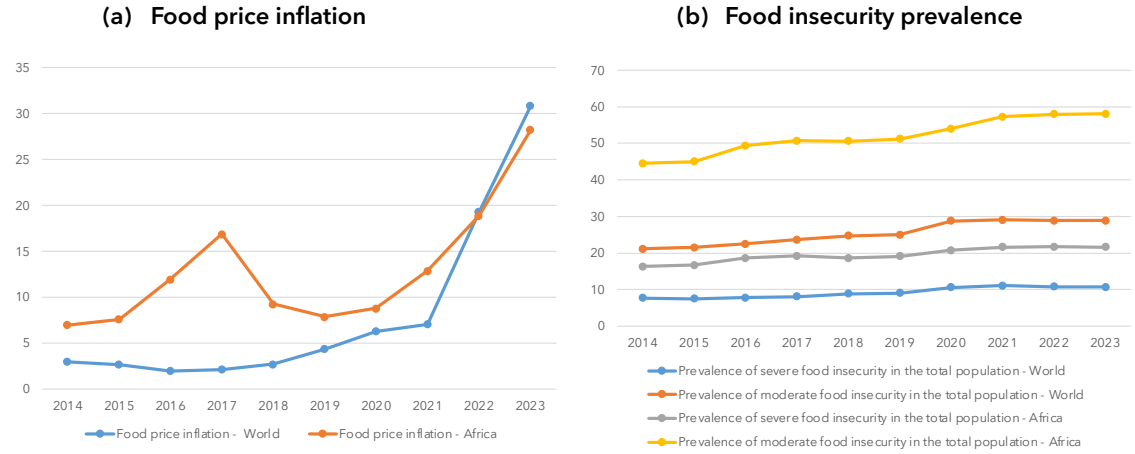
Figure 1.15 Cereal import dependency ratio by world region (%), 2012–2021



Source: Authors' calculation from FAOSTAT data (2025).

Dependence on imports makes Africa more vulnerable to external shocks. This trend has been reinforced by the succession of crises since 2019, with COVID-19 on one hand and the Russia-Ukraine crisis on the other (Becko 2024; van Bergeijk 2022; Nziengui Mamboundou et al. 2024).

Figure 1.16 Food price and food insecurity evolution (%), 2014–2023



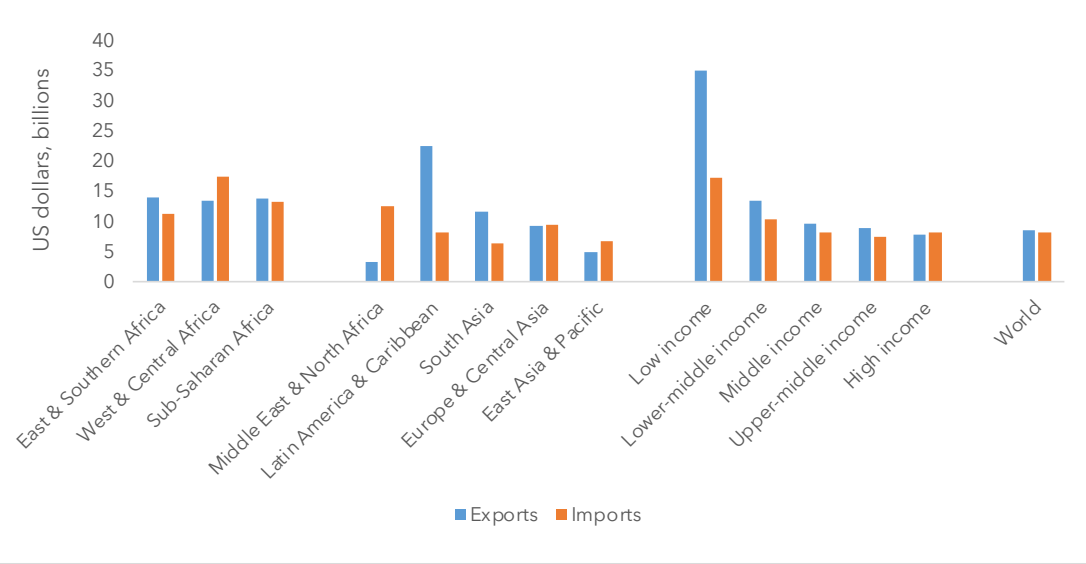
Source: Authors' calculation from FAOSTAT data (2025).

Indeed, price shocks observed on the international agricultural market have led to higher domestic prices, which have contributed to the continued high level of food insecurity on the continent (Figure 1.16). Given the crucial role of trade in the exposure of African countries to food insecurity, it is imperative to take this dimension into account in indices measuring food vulnerability.

Trade, trade policy, and food security

Figure 1.17 shows the share of food trade in total merchandise trade by region and income group. Overall, the share of Africa's trade in food is higher than (1) the global average, (2) that of most developing and emerging regions, and (3) that of most income groups (except low-income countries). It is worth noting that Africa's trade structure is unfavorable compared to other regions or income groups: its share of imports is similar to or higher than that of low- and lower-middle-income countries, while its share of exports is similar to or lower than that of these same income groups. In other words, compared to countries at similar income levels, African countries export less and import more food in relative terms (relative to their total merchandise trade). Food exports account for 13.4–13.9 percent of merchandise trade in the depicted African regions, compared to 35.0 percent in low-income countries and 22.4 percent in Latin America and the Caribbean. The share of imports is lowest in East and Southern Africa (11.2 percent of total merchandise trade), followed by sub-Saharan Africa (13.2 percent), and West and Central Africa (17.4 percent). Imports constitute a larger share of merchandise trade compared to Latin America and the Caribbean (8.2 percent), yet are relatively comparable to low- and lower-middle-income countries.

Figure 1.17 Food exports and imports as a share of merchandise trade (%), by world region and income group



Source: Authors' elaboration using the World Development Indicators online dataset.
Note: Figures are averaged over the period 2009–2023.

As elaborated previously, Africa's agricultural trade reflects a longstanding deficit. With regard to strategic commodities, Africa hosts some of the largest importers in the world, which exposes them to potential global shocks and threatens their food security.

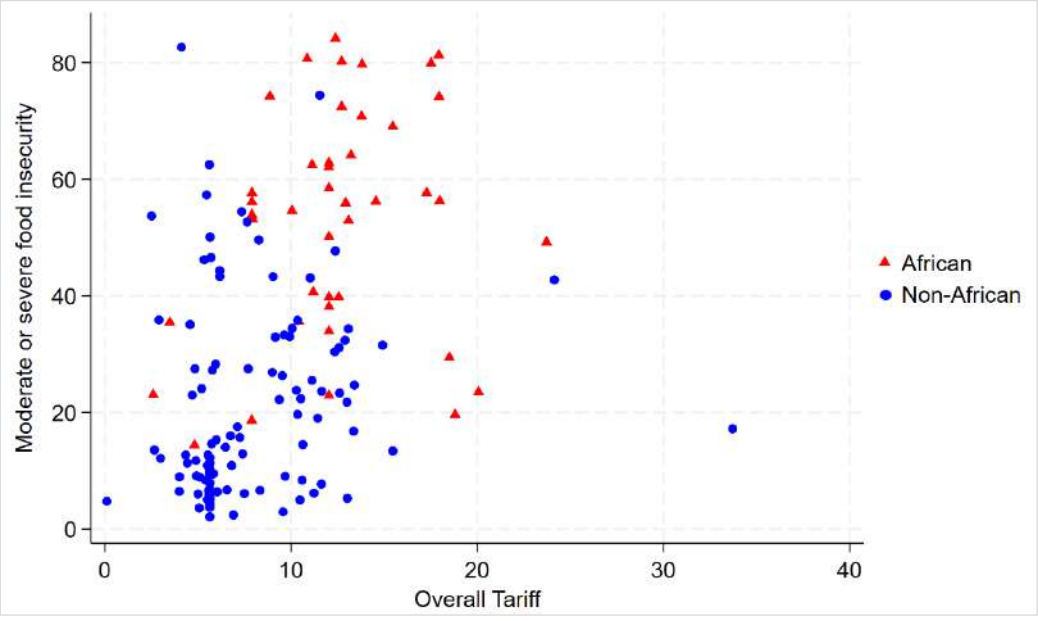
Against this backdrop, a growing body of research is focused on the trade policy–food security nexus in developing countries. On the one hand, restrictive trade policy and efforts to increase the self-sufficiency of staple foods can promote food security and shield developing countries from exposure to global market shocks. On the other hand, agricultural trade liberalization could improve food security by increasing the availability and affordability of food, and by giving consumers more stable access to food as well as increased variety and better food utilization (that is, improved nutrient intake) (Dithmer and Abdulai 2017). Trade liberalization can also increase access to agricultural inputs, such as seeds and equipment, and augment agricultural productivity and farmers' incomes, both of which translate into improved food security.

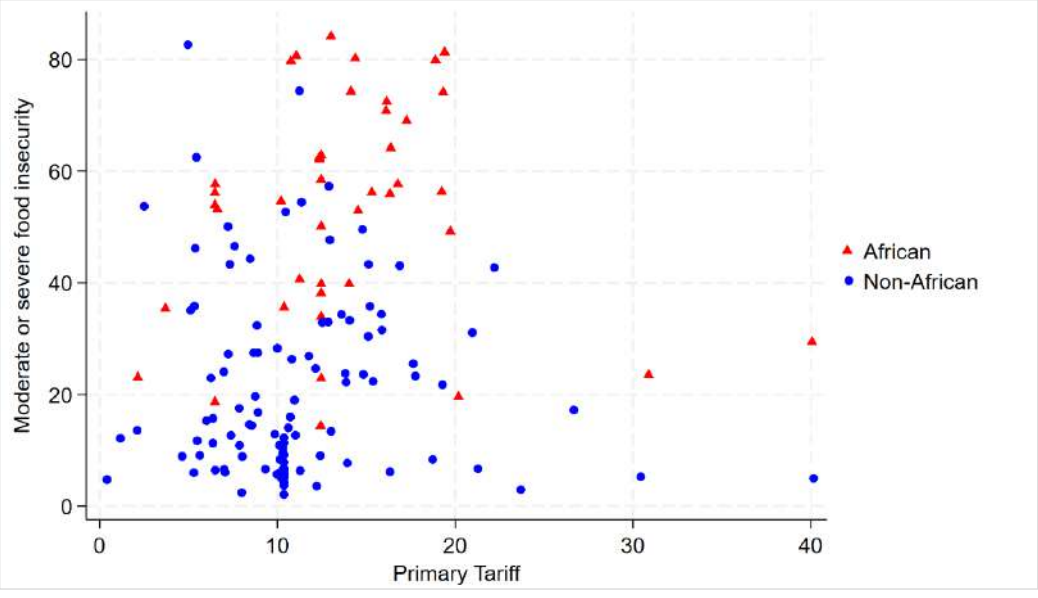
These shifts can threaten food security if domestic production shifts from staple crops to export crops, however. At the same time, increased dependence on imports means greater exposure to global crises, especially for products characterized by a high concentration of global producers/exporters, such as wheat and other cereals (Odjo et al. 2024). The outcome for utilization may also be limited. Recent research suggests that globalization of trade is associated with an unfavorable shift toward more processed, less nutritious, and more concentrated diets (Woertz and Keulertz 2015). Therefore, trade openness must be accompanied by other measures and policies to ensure food security, especially for low-income households.

Restrictive trade policies are thought to reduce the affordability of food. Tariffs on the imports of agricultural products, for example, increase domestic prices through the pass-through effect and reduce the affordability of food. Tariffs can also reduce the imports of inputs, such as seeds and equipment, lowering agricultural productivity and, consequently, food availability, food variety, and food security (Aboushady and Zaki 2023).

Figure 1.18 illustrates the correlation between tariffs (overall and primary) and moderate or severe food insecurity for African and non-African countries. In the case of overall tariffs, lower tariffs tend to be correlated with lower food insecurity in non-African countries. In general, tariffs lower than 10 percent are correlated with moderate or severe food insecurity rates of 20 percent or lower. Most of the African countries depicted in Figure 1.18 impose tariff rates of 10–20 percent, which are correlated with food insecurity rates of 50–80 percent. For primary tariffs, no correlation is observed between low tariffs and low food insecurity across African and non-African countries, suggesting that structural factors related to the domestic agriculture sector, agricultural productivity, climate change, and other factors may matter more.

Figure 1.18 Correlation between tariffs and food insecurity





Source: Authors' elaboration using the World Development Indicators online dataset.

Note: Figures are averaged over the period 2003–2023. Food insecurity is measured as the share in the population that suffers from moderate or severe food insecurity. Tariffs are measured by the most favored nation (simple mean) for all and primary products.

As mentioned, NTMs are more costly than tariffs and can therefore be highly distortive to agricultural trade and food security. While compliance with health or production standards can increase trade and, consequently, food availability and food security, excessive and burdensome use of NTMs to protect domestic production can adversely affect trade and food security outcomes. Different NTMs can, however, generate dissimilar costs for different products. For example, Bonuedi et al. (2020) find that delays from documentary and border compliance have the most adverse effect on food availability and access in Africa. Sanjuan López et al. (2021) estimate the trade costs from NTMs on intra-African agricultural trade to be highest in some rice and sugar products.

RTAs can play a key role in increasing food security, but the depth of trade agreements matters for fostering agricultural trade and food security. At the intra-African level, EAC and COMESA are horizontally and vertically deeper than other RECs. More importantly, both agreements include provisions related to regional cooperation in agriculture and food security (Van der Ven 2025). At the continental level, the AfCFTA contains neither a chapter on agriculture nor an annex explicitly dedicated to food security, but reference to food security is made directly or indirectly in many clauses. The AfCFTA's impact on food security can only be leveraged if the agreement goes beyond shallow liberalization. A deeper agreement, including NTMs and cooperation in the agriculture sector, is necessary to boost intra-African trade and food security. Deeper integration can also promote the development of regional agrifood value chains and reduce Africa's heavy dependence on food imports. Simola et al. (2021) estimate that a liberalization of intra-African trade under the AfCFTA, including NMTs, could generate a 22-percentage point increase in intra-African agricultural trade by 2035 and contribute to increased food security through increased food availability. MacLeod (2025) estimates that the impact of liberalization under the AfCFTA is highest for trade in high-unit-value items like seafood, vegetables, fruits, and dairy. These findings are important from the lens of food security, as greater trade in these food items can improve the utilization dimension.

Finally, regional initiatives such as the Comprehensive Africa Agriculture Development Program (CAADP)—launched by the African Union in 2003 and augmented by specific commitments under the Malabo Declaration in 2014—can play an active role in achieving food security. The CAADP's objectives were to boost agricultural production with the help of several national and regional arrangements by: enhancing farmers' access to domestic, regional, and international markets; promoting agro-industrialization by increasing food processing capacities; carrying out trade policy reforms necessary for better integration under the AfCFTA (including harmonizing standards); building trade-related capacities; and better positioning Africa in the global economy based on comparative advantages in the agriculture sector. In line with these objectives, African countries were charged with developing national agriculture and food security investment programs, while RECs were tasked with creating regional agriculture investment programs (Ancharaz 2025). The Malabo Declaration added more specific commitments, including improving agricultural finance and boosting intra-African agricultural trade, among others. Despite the ambitious initiative, the lack of financial resources has largely undermined the outcome of the Malabo Declaration. Recently, the African Union launched the Kampala CAADP Strategy and Action Plan 2026–2035, aimed at increasing African agrifood output by 45 percent and tripling intra-African trade by the end of this period.[8] This ambitious plan aims to catalyze the implementation of the comprehensive agricultural reform plan under CAADP by strengthening cooperation between African RECs and governments.

8 African Union press release, May 2025 (https://au.int/en/pressreleases/20250506/au-launches-caadp-strategy-action-plan-2026-2035-caadp-kampala-declaration).

To better understand how trade can affect food security, the next section develops an index to assess food vulnerability in African countries.

Methodology: The integrated Food Import Vulnerability Index

Vulnerability can be defined as the effects of an increase in the international price of a food commodity on a country's food security; that is, the number of households unable to meet a minimum calorie intake (Minot et al. 2024). The FIVI provides a framework for assessing this vulnerability, which it quantifies by assessing the risk of worsening food insecurity in countries following an increase in the international price of a food commodity.

The initial version of FIVI provides a framework for comparison between countries and comprises three elements:

- The share of calories that the food commodity represents in the national diet,
- The share of national consumption of the commodity that comes from imports, and
- The share of the population that is food insecure.

Mathematically, the index is obtained by a geometric mean of the three main elements:

$$FIVI_{i,c} = 100\left(\frac{C_{i,c}}{\sum_i C_{i,c}}\right)^{\left(\frac{1}{3}\right)}\left(\frac{M_{i,c}}{Q_{i,c}}\right)^{\left(\frac{1}{3}\right)}\left(MFI_c\right)^{\left(\frac{1}{3}\right)}$$

where:

$FIVI_{i,c}$ = food import vulnerability index for commodity i and country c

$C_{i,c}$ = average caloric intake from commodity i in country c

$M_{i,c}$ = quantity of net imports of commodity i in country c

Q_{ic} = quantity of domestic consumption of commodity i in country c

MFI_c = share of the population that is moderately or severely food insecure in country c

Commodity-level FIVI scores show a country's vulnerability to higher world prices. Although this indicator provides a coherent framework for measuring vulnerability, some important trade dimensions are not integrated. For example, the concentration of imports, depending on the level of concentration, can affect a country's capacity to substitute its suppliers. As a result, a country with several partners from which it sources a food commodity is less vulnerable to external shocks and vice versa.

Failure to take this dimension into account could lead the FIVI to under- or overestimate exposure to food insecurity. Therefore, we add this dimension to the index to refine the measurement of food vulnerability. We use the standardized Herfindahl-Hirschmann concentration index by applying it to imports of agricultural products, obtained using the formula:

$$HHI_i = \frac{\sqrt{\sum_{j=1}^{N}\left(\frac{X_{i,j}}{X_i}\right)^2} - \sqrt{\frac{1}{N}}}{1 - \sqrt{\frac{1}{N}}}$$

where:

HHI_i = Concentration index for product i

$X_{i,j}$ = Value of imports of product i from country j

X_i = Total value of imports of product i

N = Total number of import suppliers

The resulting index varies between 0 and 1. The closer it is to 1, the more concentrated the imports of the product in the country in question, implying that the country has less ease in substituting partners in the event of shocks. This, in turn, implies greater vulnerability.

By incorporating this dimension into the initial version of the FIVI, the new index becomes:

$$FIVI_{ic} = 100\left(\frac{C_{i,c}}{\sum_i C_{i,c}}\right)^{\left(\frac{1}{4}\right)}\left(\frac{M_{i,c}}{Q_{i,c}}\right)^{\left(\frac{1}{4}\right)}(MFI_c)^{\left(\frac{1}{4}\right)}(HHI_{i,c})^{\left(\frac{1}{4}\right)}$$

The revised FIVI does have some limitations. One of the most important is that it does not consider internal disruptions (such as a drought or a local agricultural crisis) that also affect import dependence. As such, vulnerability measurement may lack precision.

5. Results

Focusing on 11 agricultural products (wheat, corn, rice, beans, cassava, bananas, plantains, sweet potatoes, potatoes, yams, and sunflower oil), we compare the revised FIVI values to those of the initial version. Integrating the concentration of imports leads to changes in countries' vulnerability ranking (indicated in green in Table 1.6). For example, Mauritania is no longer the most vulnerable in terms of wheat imports, but rather the DRC; Eswatini becomes the most vulnerable in potato imports, replacing Dibouti; and Libya is overtaken by Botswana in vulnerability in banana imports.

Table 1.6 Change in FIVI ranking for selected countries

Commodity	Rank with initial FIVI	Country	Rank with revised FIVI	Country
Wheat	1	Mauritania	1	DRC
	2	Djibouti	2	Djibouti
	3	Somalia	3	Lesotho
Maize	1	Lesotho	1	Lesotho
	2	Botswana	2	Botswana
	3	Eswatini	3	Eswatini
Potatoes	1	Djibouti	1	Eswatini
	2	Eswatini	2	Djibouti
	3	Cabo Verde	3	Namibia
Cassava	1	Rwanda	1	Rwanda
	2	Burundi	2	Burundi
	3	Uganda	3	Uganda
Sweet potatoes	1	Mauritania	1	Mauritania
	2	Botswana	2	Botswana

Table 1.6 Change in FIVI ranking for selected countries (cont'd)

Commodity	Rank with initial FIVI	Country	Rank with revised FIVI	Country
Yams	1	Mali	1	Mali
	2	Gabon	2	Gabon
	3	Niger	3	Niger
Beans	1	Cabo Verde	1	Cabo Verde
	2	São Tomé and Príncipe	2	São Tomé and Príncipe
	3	South Sudan	3	DRC
Sunflower oil	1	Botswana	1	Botswana
	2	Namibia	2	Namibia
	3	Lesotho	3	Lesotho
Bananas	1	Libya	1	Botswana
	2	Botswana	2	Libya
	3	Lesotho	3	Lesotho
Plantains	1	Mauritania	1	Mauritania
	2	Senegal	2	Senegal
	3	Mali	3	Mali
Rice	1	Liberia	1	Liberia
	2	Gambia	2	Somalia
	3	Comoros	3	Comoros

Source: Authors' elaboration.

Beyond these shifts, the changes observed in countries' vulnerability ranking are even more significant, as they clearly illustrate that for countries initially dependent on imports, the lack of diversified import partners increases their vulnerability to exogenous shocks (Table 1.7). Indeed, the global market for agricultural products is not by nature concentrated relative to other markets, such as for fertilizer. As a result, trading partners, although dependent on imports, have more choices in terms of supply. In this context, the increase in their vulnerability does not result from a concentration of the global market for agricultural products, but rather from their choice not to diversify their international sources of supply.

This trend holds broadly for the products and countries considered (except for Mauritania with wheat), confirming the importance of refining the analysis of vulnerability. Indeed, not explicitly considering a country's ability to change suppliers mainly underestimates its level of vulnerability to imports. Furthermore, this trend confirms an Africa-wide structural context in which strong dependence on imports and weak diversification of import partners coexist.

We next conduct a specific analysis of vulnerability by country, considering the level of caloric intake as a discriminating criterion and focusing only on products that contribute at least 5 percent of national caloric intake. The results show that four countries are highly vulnerable (that is, they have an FIVI of 0.40–0.49): Lesotho (0.44), Botswana (0.42), and Eswatini (0.41) with maize, and Liberia (0.49) with rice. In these countries, where 56–81 percent of the population experiences food insecurity, maize and/or rice represent 6–12 percent of caloric needs. Therefore, stabilizing the supply of these two products is essential to combat food insecurity.

Ten countries are in the medium vulnerability category, with FIVIs ranging from 0.30 to 0.39. Eight countries have rice-related vulnerability: Sierra Leone (0.39), Comoros (0.39), Djibouti (0.37), São Tomé and Príncipe (0.35), Benin (0.35), Gambia (0.35), Madagascar (0.34), and Guinea-Bissau (0.33). The other's vulnerability stems from wheat: Djibouti (0.38), São Tomé and Príncipe (0.35), Morocco (0.32), and Mauritania (0.32). For Benin and Gambia, which are re-exporters, the results must be interpreted with caution, as a significant portion of their imports is not used to meet domestic needs. Given the relatively high importance of their caloric intake (between 5 percent and 15 percent), it is important that their supply be stabilized to reduce their populations' exposure to food insecurity.

For cereals such as wheat, maize, and rice, food vulnerability is clearly critical. For example, although wheat represents only 3 percent of caloric intake continentwide, 87 percent of its supply is imported. In addition, the wheat import market is highly concentrated (its concentration index is 0.61). Thus, to reduce the degree of food vulnerability for this cereal—used in the production of several everyday food products—it is essential to either find a substitute less subject to international fluctuations (such as cassava) or to diversify its sources of supply. The situation for maize is similar: it provides 3 percent of caloric intake across the continent, 41 percent of its supply is imported, and its import market has a high concentration index (0.58). In this case, reducing food vulnerability requires increased domestic supply and/or more diversified trading partners. These actions are necessary in the short to medium term, especially for countries for which maize is relatively important for caloric intake, such as Lesotho (10 percent) and Zimbabwe (8 percent), with 57 percent and 71 percent of their populations, respectively, in a situation of food insecurity. Finally, food vulnerability related to rice is similar to that observed for wheat and corn: an average dependence on imports of 68 percent continentwide and a highly concentrated import market (index of 0.56).

These results highlight the importance of different African countries diversifying their trading partners to mitigate the effects of exogenous shocks on the supply of and access to agricultural goods and food products. Without this diversification and/or an increase in domestic supply, dependence on imports, on the one hand, and their concentration, on the other, will continue to expose countries to greater food vulnerability and, consequently, higher food insecurity.

On a continent where barriers to the development of continental, regional, and subregional trade remain significant, thus reinforcing dependence on extracontinental imports, the FIVI results legitimize the need to accelerate Africa's trade integration agenda. Indeed, the continent's high vulnerability in cereals, which originate from world granaries such as Ukraine's, should encourage African countries to reduce barriers to trade in these products. Doing so would reduce food vulnerability linked to extracontinental exogenous shocks, while more fluid trade could stabilize the intracontinental supply of agricultural products.

In conclusion, in Africa, where import dependence for agricultural and food products can be significant, the concentration of those imports plays an important role in assessing food vulnerability. This dimension should be factored into food vulnerability analyses to ensure the most accurate measurements and to help formulate appropriate public policy reforms to address food insecurity.

Table 1.7 Initial and revised FIVI for selected countries

Commodity	Country	Initial FIVI (%)	Initial level of vulnerability	Revised FIVI (%)	Revised level of vulnerability	Observations
Wheat	DRC	0.31	Medium	0.41	High	Increase and change of category
	Djibouti	0.33	Medium	0.38	Medium	Increase
	Botswana	0.27	Low	0.38	Medium	Increase and change of category
Maize	Lesotho	0.34	Medium	0.44	High	
	Botswana	0.31	Medium	0.42	High	
	Eswatini	0.30	Medium	0.41	High	
Potatoes	Djibouti	0.11	Very low	0.18	Low	
	Eswatini	0.11	Very low	0.19	Low	
	Cabo Verde	0.10	Very low	0.15	Very low	Increase
Cassava	Rwanda	0.14	Very low	0.23	Low	Increase and change of category
	Burundi	0.13	Very low	0.21	Low	
	Uganda	0.11	Very low	0.19	Very low	Increase
Sweet potatoes	Mauritania	0.05	Negligible	0.08	Negligible	
	Botswana	0.04	Negligible	0.08	Negligible	Increase
Yams	Mali	0.04	Negligible	0.08	Negligible	
	Gabon	0.03	Negligible	0.07	Negligible	
	Niger	0.03	Negligible	0.06	Negligible	

Table 1.7 Initial and revised FIVI for selected countries (cont'd)

Commodity	Country	Initial FIVI (%)	Initial level of vulnerability	Revised FIVI (%)	Revised level of vulnerability	Observations
Beans	Cabo Verde	0.11	Very low	0.19	Low	Increase and change of category
	São Tomé and Principe	0.10	Very low	0.18	Low	
	South Sudan	0.10	Very low	0.13	Low	
Sunflower oil	Botswana	0.21	Low	0.31	Medium	Increase and change of category
	Namibia	0.21	Low	0.31	Medium	
	Lesotho	0.17	Low	0.27	Low	
Bananas	Libya	0.08	Negligible	0.14	Very low	
	Botswana	0.07	Negligible	0.14	Very low	
	Lesotho	0.06	Negligible	0.12	Very low	
Plantains	Mauritania	0.06	Negligible	0.11	Very low	
	Senegal	0.04	Negligible	0.09	Negligible	Increase
	Mali	0.04	Negligible	0.09	Negligible	
Rice	Liberia	0.40	High	0.49	High	
	Gambia	0.36	Medium	0.40	High	
	Comoros	0.35	Medium	0.39	Medium	

Source: Authors' elaboration.

6. Conclusions and Policy Implications

Analysis of the structure of agricultural trade in Africa reveals that it is the weakest in the world. Since 2006, its trade has been characterized by an ongoing structural deficit due to African countries' dependence on imports of products subject to high price volatility on international markets, such as cereals, oils, and sugar. The leading importing countries are the largest in Africa, including Egypt, Algeria, Nigeria, South Africa, and Morocco. They mainly import cereals such as wheat, corn, and rice, which are used in the preparation of food products consumed almost daily in households (such as bread and rice). The leading exporters are South Africa, Morocco, Côte d'Ivoire, and Egypt, with exports dominated by fruit and nuts, as well as a few traditional cash crops, whose market values fluctuate less rapidly. Over the last decade, emerging economies such as China, Saudi Arabia, Brazil, and India have become important trade partners.

The structure of Africa's international trade is also reflected at the regional level, where trade is dominated by COMESA, SADC, and ECOWAS. These RECs also mainly import cereals. Conversely, clear specializations suggest the existence of comparative advantages in exports. For example, ECOWAS countries specialize in cocoa exports, EAC and COMESA in coffee and tea, and AMU in fruits and vegetables.

The importance of developing agricultural trade at both the international and regional levels is imperative, given the scale of food insecurity on the continent. Over the last decade, the prevalence of moderate and severe food insecurity among Africa's total population increased by 30 percent and 32 percent, respectively. This situation is partially linked to trade policies implemented to date. While we established a correlation between the level of trade protection and the prevalence of food insecurity, Africa remains the continent with the highest tariffs, leading to an equally high level of food insecurity. Moreover, African countries' dependence on imports and their low diversification of suppliers of imported products increase their vulnerability. The results of the revised IFVI indicate that, in the event of an increase in international prices, African countries are vulnerable to both a scarcity of supply, given more expensive goods, and a lack of diversification in imported food suppliers. The revised IFVI reveals a situation common to most regions and countries on the continent: low diversification of suppliers of imported agricultural products. Furthermore, the continent is most vulnerable in cereals, for which we observe a concentration of partners in favor of extracontinental economies. In a context where the obstacles to intra-African trade are greater than those faced by non-African partners, the results suggest that it is necessary to accelerate Africa's trade liberalization agenda. Doing so will reduce the continent's vulnerability to extracontinental exogenous shocks and give more leeway to trade to play a stabilizing role in situations of food insecurity.

African countries must work toward reducing NTM measures and customs tariffs, which constitute the main barriers to intra-African trade. This would increase the food supply of African products, develop local agrifood value chains, and facilitate households' economic access to food. Diversification of preferential trade agreements can reduce the vulnerability linked to the concentration of imports, promoting more potential partners for each product, and increasing resilience to negative shocks affecting various partners. The concurrent increase in national production due to agricultural specialization based on established comparative advantages, on the one hand, and the increase in intra-African trade, on the other, will reduce African countries' exposure to exogenous shocks.

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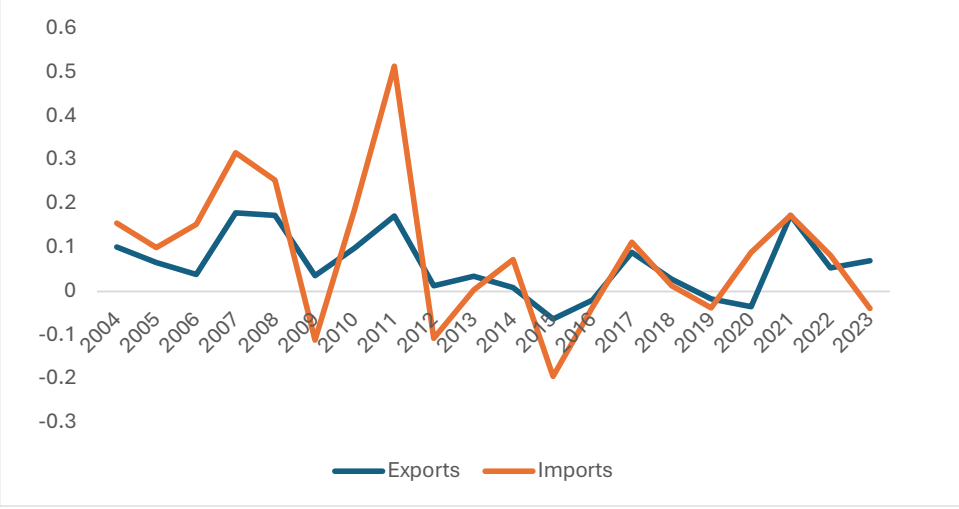
Appendix 1.1

Figure A1.1 Annual growth in African exports and imports (%), 2004–2023



Source: AATM database 2025.

Table A1.1 Structural determinants of trade by region

	Tariff	Time to trade	Infrastructure	Institutions
East Asia & the Pacific	5.08	9.56	3.26	0.27
Europe & Central Asia	3.05	5.34	3.19	0.63
Latin America & the Caribbean	8.51	9.89	2.43	-0.14
Middle East & North Africa	4.64	7.79	2.68	-0.29
North America	9.11	-	3.80	1.25
South Asia	12.39	11.51	2.39	-0.44
Sub-Saharan Africa	11.16	8.31	2.19	-0.72

Source: Authors' elaboration using the World Development Indicators.

Note: (1) Figures indicate the average by region and over the period 2014–2023. (2) "Tariff" is measured by the applied simple mean rate on all products (%). (3) "Time to trade" is measured by the mean of the average time to clear exports and imports through customs (days). (4) "Infrastructure" is measured by the logistics performance index related to the quality of trade and transport-related infrastructure (1=low to 5=high). (5) "Institutions" is measured by the estimate of the rule of law from Worldwide Governance Indicators. The indicator ranges from approximately -2.5 to 2.5.

Table A1.2 List of agricultural products

HS2	HS4/HS6	Description
01		Animals; live
02		Meat and edible meat offal
03		Fish and crustaceans, mollusks, and other aquatic invertebrates
04		Dairy produce; birds' eggs; natural honey; edible products of animal origin, n.e.s.
05		Animal originated products; not elsewhere specified or included
06		Trees and other plants, live; bulbs, roots, and the like; cut flowers and ornamental foliage
07		Vegetables and certain roots and tubers; edible
08		Fruit and nuts, edible; peel of citrus fruit or melons
09		Coffee, tea, mate, and spices
10		Cereals
11		Products of the milling industry: malt, starch, inulin, wheat gluten
12		Oil seeds and oleaginous fruits; miscellaneous grains, seeds, and fruit, industrial or medicinal plants; straw and fodder
13		Lac; gums, resins, and other vegetable saps and extracts
14		Vegetable plaiting materials; vegetable products not elsewhere specified or included
15		Animal or vegetable fats and oils and their cleavage products; prepared animal fats; animal or vegetable waxes
16		Meat, fish, or crustaceans, mollusks, or other aquatic invertebrates; preparations thereof
17		Sugar and sugar confectionery
18		Cocoa and cocoa preparations
19		Preparations of cereals, flour, starch, or milk; pastrycooks' products
20		Preparations of vegetables, fruit, nuts, or other parts of plants
21		Miscellaneous edible preparations
22		Beverages, spirits, and vinegar
23		Food industries, residues and wastes thereof; prepared animal fodder
24		Tobacco and manufactured tobacco substitutes
29	290543	Alcohols; polyhydric, mannitol
29	290544	Alcohols; polyhydric, d-glucitol (sorbitol)
33	3301	Oils; essential (concretes, absolutes); concentrates thereof in fats, fixed oils, waxes or the like (obtained by enfleurage or maceration); aqueous distillates, solutions and terpenic by-products thereof; resinoids; extracted oleoresins
35	3501	Casein, caseinates, and other casein derivatives; casein glues
35	3502	Albumins (including concentrates of two or more whey proteins, containing by weight more than 80% whey proteins, calculated on the dry matter), albuminates, and other albumin derivatives
35	3503	Gelatin (including gelatin in rectangular sheets, whether or not surface-worked or colored) and gelatin derivatives; isinglass; other glues of animal origin, excluding casein glues of heading no. 3501
35	3504	Peptones and their derivatives; other protein substances and their derivatives n.e.c. or included; hide powder, whether or not chromed
35	3505	Dextrins and other modified starches (e.g., pregelatinised or esterified starches); glues based on starches or on dextrins or other modified starches

Table A1.2 List of agricultural products (cont'd)

HS2	HS4/HS6	Description
38	380910	Finishing agents and dye carriers; to accelerate dyeing or fixing of dye-stuffs, other products and preparations, used in textile, paper, leather, etc. industries, with basis of amylaceous substances, n.e.c.
38	3824.60	Sorbitol, other than that of subheading 2905.44
41	4101	Raw hides and skins of bovine (including buffalo) or equine animals (fresh, salted, dried, limed, pickled, otherwise preserved but not tanned, parchment dressed or further prepared), whether or not dehaired or split
41	4102	Raw skins of sheep or lambs (fresh, salted, dried, limed, pickled or otherwise preserved, but not further prepared), whether or not with wool on or split
41	4103	Raw hides and skins n.e.c in headings no. 4101, 4102; fresh, salted, dried, pickled or otherwise preserved, not further prepared, whether or not dehaired or split
43	4301	Raw furskins (including heads, tails, paws, other pieces or cuttings, suitable for furriers' use), excluding raw hides and skins of heading no. 4101, 4102, or 4103
50	5001	Silk-worm cocoons suitable for reeling
50	5002	Raw silk (not thrown)
50	5003	Silk waste (including cocoons unsuitable for reeling, yarn waste, and garnetted stock)
51	5101	Wool, not carded or combed
51	5102	Fine or coarse animal hair, not carded or combed
51	5103	Waste of wool or of fine or coarse animal hair, including yarn waste but excluding garnetted stock
52	5201	Cotton; not carded or combed
52	5202	Cotton waste (including yarn waste and garnetted stock)
52	5203	Cotton, carded or combed
53	5301	Flax, raw or processed but not spun; flax tow and waste (including yarn waste and garnetted stock)
53	5302	True hemp (cannabis sativa L.), raw or processed but not spun; tow and waste of true hemp (including yarn waste and garnetted stock)

Source: Authors' elaboration using the AATM 2025 database.

Note: We adopt an extended definition of the World Trade Organization (WTO) as we add HS 03 fisheries to the WTO definition.

CHAPTER 2

Intra-African Agricultural Trade and Implications for Domestic Food Security

Sunday Odjo, Mouhamadou Hady Diallo, and Sambane Yade

1. Introduction

The 21st century ushered in a renewed sense of optimism regarding Africa's economic prospects. With a rapidly growing population, a burgeoning consumer market, and vast agricultural potential, the continent stands at a pivotal juncture. Central to this narrative of transformation is the agenda for regional integration, championed by the African Union's landmark African Continental Free Trade Area (AfCFTA). While the AfCFTA does not have a standalone protocol dedicated solely to agriculture or food security, these sectors are encompassed within the Protocol on Trade in Goods, which addresses tariff concessions, non-tariff barriers, and rules of origin applicable to agricultural products. Officially operationalized in 2021, the AfCFTA aims to create a single market for goods and services, facilitating the free movement of businesspersons and investments, and ultimately paving the way for a continental customs union.[1] Its primary objective is to significantly boost intra-African trade, which has historically languished at dismally low levels. Compared to Europe and North America, where intraregional trade represents a significant share of overall commerce, Africa's internal level of trade remains markedly lower (UNCTAD 2021).[2] This discrepancy is not merely a trade statistic; it reflects deep-seated structural issues with profound implications for one of the continent's most pressing challenges: food security.

The nexus between intra-African trade and food security is a critical yet complex field of inquiry. On one hand, theoretical models and empirical evidence from other regions suggest that enhanced regional trade can be a powerful engine for improving food security by: increasing food availability through cross-border flows; stabilizing domestic supply in the face of local production shocks; improving dietary diversity; enhancing accessibility via competitive prices; and allowing for a more efficient allocation of resources based on regional comparative advantage (Badiane and Odjo 2016; Kunaka et al. 2025). The African Development Bank (AfDB 2020) argues that opening regional food markets could increase the value of agricultural trade by up to 20 percent by 2040, substituting for US$10 billion in annual food imports from outside the continent and creating much-needed rural employment.

On the other hand, realizing this potential is far from guaranteed. The persistent gap between the *rhetoric* of regional integration and the *reality* of on-the-ground trade flows constitutes the central issue of this chapter. Despite numerous Regional Economic Communities (RECs) and decades of policy initiatives, intra-African trade, particularly in food products, remains hampered by a familiar litany of obstacles: nontariff barriers, poor transport infrastructure, restrictive customs procedures, and weak trade-related institutions (Bouët, Odjo, and Zaki 2020). The structure of this trade is itself a subject of concern. Many African economies remain oriented toward the export of raw commodities to global markets, while simultaneously relying on expensive imports for processed food and staple grains, making them vulnerable to volatile international prices and supply chain disruptions, as starkly revealed by the COVID-19 pandemic and the war in Ukraine (Badiane et al. 2022b; FAO 2023b).

This chapter provides a critical, evidence-based analysis of recent trends and patterns in intra-African trade and their direct implications for food security. The core questions addressed are: to what extent have recent trends in intra-African trade contributed to, or detracted from, enhancing food security across the continent; and what key policy-relevant dynamics determine this outcome? We posit that the relationship is not automatic or uniformly positive, but instead mediated by the nature of trade policies, the composition of trade flows, and domestic systems' capacity to use increased trade to achieve nutritional goals.

1 It should be noted that very little trade has occurred so far under the AfCFTA, particularly in agrifood products.
2 This comparison is based on official statistics, which do not account for informal cross-border trade, though this component of intra-African trade is relatively large.

To unpack these questions, Section 2 first explores the gap between Africa's regional trade goals and national food security policies. It highlights how governments often use trade restrictions, such as export bans and tariffs, to protect domestic food supplies, thereby undermining regional agreements and disrupting intra-African trade. Section 3 provides a granular, data-driven overview of intra-African trade trends and patterns over the past two decades, dissecting the composition of trade flows and identifying which food and agricultural products dominate intraregional commerce and how these patterns have shifted over time. Section 4 analyzes the food and nonfood trade balance between African regions and countries[3] to reveal the continent's internal trade asymmetries—that is, which regions are net exporters of food, and which ones are net importers[4]—to understand the vulnerability and interdependence within the African food system. Section 5 synthesizes the key findings and resultant policy implications.

2. Regional Trade Policies and Domestic Food Security

The intersection between regional trade policies and food security represents one of Africa's most complex and consequential challenges. As African nations grapple with persistent food insecurity, climate volatility, and global supply chain disruptions, governments are increasingly turning to trade policy instruments such as tariffs and nontariff barriers to safeguard domestic food supplies and protect local agriculture sectors (ACF 2025). But their implementation has created a paradoxical situation in which measures intended to enhance domestic food security often undermine regional integration efforts and exacerbate the very food access challenges they seek to address (Food Security Portal 2022).

In response to these dynamics, the AfCFTA and RECs, such as the Economic Community of West African States (ECOWAS), have emerged as critical platforms for addressing trade-food security tensions. Unfortunately, the gap between regional integration aspirations and national food security imperatives has widened significantly, particularly in the aftermath of recent regional and global shocks like the COVID-19 pandemic and the Russia–Ukraine conflict, alongside emerging issues posed by the creation of the Alliance des États du Sahel (AES) (Resnick 2025; Laborde, Mamun, and Parent 2020). This divergence has manifested in an unprecedented wave of agricultural export restrictions across the continent, fundamentally altering intra-African trade patterns and challenging the foundations of regional economic cooperation (Laborde and Mamun 2022). Although access to fertilizer remains highly constrained and many farmers are still exposed to global price and supply shocks, continental responses are emerging as countries such as Morocco[5] and, more recently, Senegal[6] ramp up regional fertilizer production and trade.

African nations have historically relied on tariff harmonization as a tool for promoting economic integration. Yet research indicates significant inconsistencies in the application of tariffs (Yahaya et al. 2024), undermining the potential benefits of harmonization, such as reduced trade costs and enhanced predictability for traders. Often, countries pursue conflicting objectives; for example, while some maintain low tariffs on agricultural inputs, they simultaneously impose domestic subsidies that distort regional trade (Odjo, Traoré, and Zaki 2023). Given Africa's increasing dependence on global food imports (see Chapter 1 in this report), a situation

3 This is based on a grouping of agricultural products into 25 food and nonfood product categories described in Appendix Table A2.1. In addition to products coverage under the WTO definition of "Agriculture," agricultural products in this analysis include fisheries products.

4 African regions are defined according to the United Nations geoscheme, presented in Appendix Table A2.2.

5 https://www.mei.edu/publications/moroccos-new-challenges-gatekeeper-worlds-food-supply-geopolitics-economics-and

6 https://msgbcoilgasandpower.com/news/senegal-leverages-gas-phosphate-resources-develop-fertilizer-industry

worsened by recent global crises, questions arise regarding the overall effectiveness of tariff policies. Tariff protections for domestic production risk elevating consumer food prices without addressing underlying supply chain vulnerabilities (Piñeiro et al. 2025).

In light of recent episodes of food insecurity, governments have made unilateral trade policy adjustments, exemplified by Nigeria's suspension of food import duties alongside export bans, a strategy combining a liberalization measure with a protectionist one (The Exchange 2024; Ohidah 2024). Nonetheless, such measures often disrupt regional trade cohesion and lead to unpredictable regulatory landscapes. While these actions may address immediate concerns, they detract from the long-term goals of enhancing agricultural productivity and bolstering supply chain resilience, perpetuating a cycle of crisis that undermines both trade integration and food security objectives (UNCTAD 2024a).

The ongoing rise in agricultural export restrictions across Africa illustrates this trend, as governments prioritize national food security at the expense of regional cooperation. For instance, Nigeria's ban on unprocessed maize exports and Ghana's prohibition on various key food staples exemplify this protective shift (allAfrica.com 2024; GhanaWeb 2024). These measures have resulted in widespread bans on agricultural products across West Africa, highlighting the growing tendency for countries to adopt protective approaches in response to domestic food supply issues (Le Monde 2024). The rationale often revolves around safeguarding food supplies and controlling inflation. However, they can even exacerbate domestic market volatility (Martin, Mamun, and Minot 2024), revealing the intricate relationship between food security and broader sociopolitical stability (GhanaWeb 2024).

Additionally, the rise in export restrictions has significant implications for agricultural value chains across the continent. For example, Benin's prohibition on raw cashew nut exports aims to stimulate local processing, but adversely impacts regional supply dynamics (Medium 2024). Disruptions in agricultural trade—such as Guinea's six-month suspension of vital grain exports—force neighboring countries to seek more costly alternatives, thereby damaging regional economies (Africanews 2023). This unpredictability in policy decisions discourages private sector investment, which is critical to fostering robust agricultural systems, exacerbating insecurity within regional supply chains.

Beyond explicit export restrictions, regulatory barriers (such as excessive customs procedures and unharmonized sanitary standards) increasingly constrain food trade within regions like ECOWAS (Yahaya et al. 2024). Research shows how these barriers complicate logistics, delay shipments, and inflate food prices, disproportionately affecting vulnerable communities and small-scale traders (Adinnu 2023). The absence of regional coordination on sanitary measures, such as mutual recognition of Sanitary and Phytosanitary measures, compounds the situation, as countries impose varied regulations that hinder market access across borders (UNCTAD 2024b).

Against this backdrop of regulatory fragmentation, the AfCFTA stands as Africa's most ambitious attempt to balance national interests with regional trade integration. However, the increased prevalence of food security-related trade restrictions complicates its implementation and undermines its objectives. The AfCFTA's potential success hinges on the removal of trade barriers that governments now view as essential for addressing food security (UNCTAD 2024b). This stark contrast between regional integration aspirations and national food security complicates coordination efforts among member states.

Regional organizations like ECOWAS face ongoing challenges in managing the tension between national policies and trade integration objectives. Their effectiveness is diminished by the lack of robust dispute resolution mechanisms (UNECA 2025). When confronted with food emergencies, countries often prioritize immediate national needs instead of pursuing long-term strategies to enhance regional food security. In that context, the AfCFTA is a legally binding, time-bound framework: it commits members to phased tariff elimination over 5, 10, or 13 years, backed by a five-year transition period to align national laws. Crucially for food security, it does not prohibit export restrictions but disciplines them: Article 10 allows export duties or bans only if they are applied in a nondiscriminatory manner and notified to the AfCFTA Secretariat 90 days in advance, turning ad hoc export bans into a more transparent, managed instrument rather than an unconstrained national reflex (African Union 2018**)**.

Overall, the intersection of trade policies and food security in Africa presents an intricate and evolving challenge, marked by national imperatives that frequently clash with regional integration goals. The resulting policy landscape presents a paradoxical situation whereby efforts to protect domestic food supplies offset the potential gains from regional cooperation. Addressing this requires not only strategic coordination among African nations but also a reevaluation of existing policy frameworks governing trade and food security in a rapidly changing global context. The following sections provide a granular examination of the evolution, composition, and direction of intra-African trade over the past decade, dissecting the core structural characteristics of this trade.

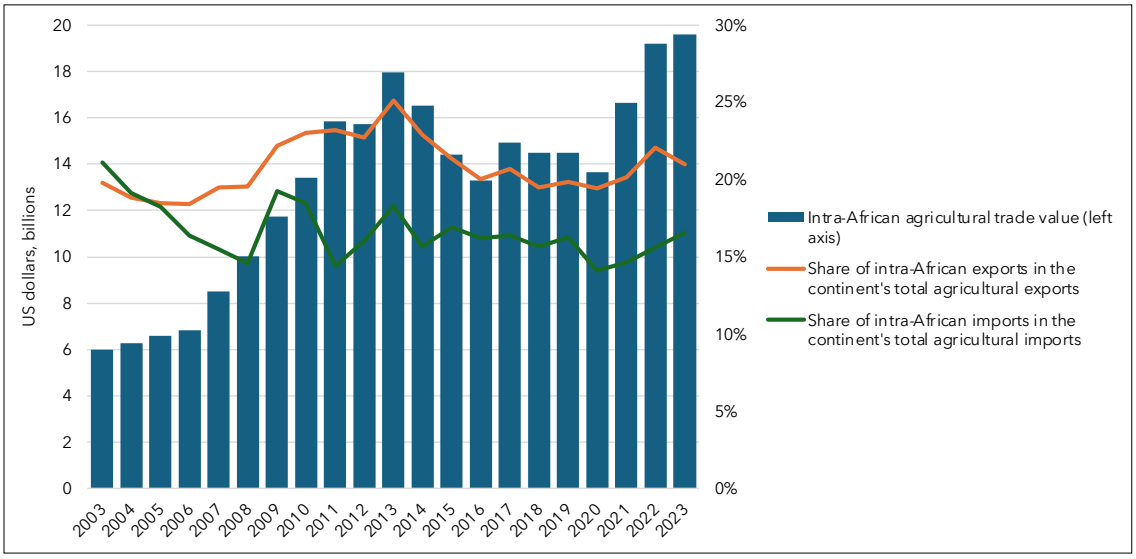
3. Intra-African Trade Trends and Patterns

This section examines the value of agricultural trade between African countries. We consider different levels of trade aggregation (continental, regional, and country), differentiate between food and nonfood products, and explore the stages of processing of intra-African trade products.

Trends in aggregate intracontinental trade

The value of intra-African agricultural trade more than tripled between 2003 and 2023, rising from approximately US$6 billion to nearly US$20 billion (Figure 2.1). It grew significantly in the mid- to late 2000s and early 2010s, peaking at US$18 billion in 2013. After a sharp decline between 2013 and 2016, it stagnated for a few years and began to rise again following the COVID-19 pandemic, reaching a new peak of US$19.6 billion in 2023. This pattern roughly follows the annual Food and Agriculture Organization (FAO) food price index, which declined for several years following a peak in 2011, rose moderately after 2016 and more rapidly from 2020 to 2022, and declined again in 2023 (Cissé, Kurtz, and Odjo 2020; Olivetti et al. 2023; FAO 2025). This parallel evolution suggests that growth in intra-African agricultural trade value is primarily driven by rising prices rather than an expansion of the quantity of goods traded. However, this growth pattern displays remarkable resilience, experiencing only temporary setbacks during global economic disruptions such as the 2008–2009 financial crisis and the 2020 COVID-19 pandemic. The resilience demonstrated during global economic shocks reveals another critical dimension. When international supply chains faltered, regional trade networks provided essential continuity for food availability, with relatively quick recovery following temporary disruptions. This suggests that African countries increasingly recognize regional partners as more reliable food sources during global market volatility. This strategic advantage could serve as a buffer against external shocks if adequately developed.

Figure 2.1 Evolution of intra-African agricultural trade in value and as share of total agricultural trade, 2003–2023



Source: Authors' calculations based on the AATM 2025 database.

The relative importance of agricultural trade within Africa compared to its overall agricultural trade portfolio shows interesting fluctuations. As a percentage of total agricultural exports, intra-African agricultural trade peaked in 2013 at 25 percent, coinciding with a period of accelerating regional integration, infrastructure development, and policy reforms aimed at stimulating private sector growth (UNCTAD 2013). Regional integration efforts were evident in initiatives like the COMESA-EAC-SADC[7] Tripartite Free Trade Area, which sought to align trade policies across 26 African nations (Zarenda 2013). Infrastructure projects such as the North–South Corridor and the LAPSSET Corridor improved connectivity and market access across East and Southern Africa (Sarbo 2013; Wohlmuth 2017). However, the share of intra-African agricultural exports has since moderated to around 21 percent. Similarly, the share of intracontinental sources of agricultural imports declined from the early 2000s' peaks of above 20 percent to 15-17 percent in recent years, perhaps driven by shifting demand patterns and calls for efforts to strengthen domestic food systems. According to Olivetti et al. (2023), intra-African trade has shifted from mainly unprocessed foods to greater imports of highly processed agricultural products, driven by evolving consumer preferences and industrial food system growth. This pattern is part of a broader *nutrition transition* that the authors link to rising burdens of overweight, obesity, and diet-related noncommunicable diseases in African countries. This trend signals deeper structural changes in African supply chains, not just a swap in product types.

Regional trade patterns within Africa

Amounting to US$16.7 billion, intra-African agricultural trade grew an average of 6.7 percent annually between 2019 and 2023 (Table 2.1). Southern Africa emerges as the dominant exporter, accounting for 36.1 percent of total intra-African agricultural exports, and the second largest importer, being the destination of 23 percent of intracontinental imports. The export leadership is largely attributable to South Africa's industrial agricultural base, advanced food processing infrastructure, efficient logistics networks, and long-standing investment in commercial farming (Olivetti et al. 2023). These structural advantages reflect decades of

7 COMESA = Common Market for Eastern and Southern Africa; EAC = East African Community; SADC = Southern African Development Community.

modernization, access to capital and technology, and deep market integration. However, the region's modest intra-African export growth rate of 3.6 percent suggests that its expansion may be constrained not only by market saturation in key SADC markets like Botswana and Mozambique—where demand has plateaued (Department of Agriculture, Land Reform and Rural Development 2024—but also by environmental challenges such as cyclone-related floods and droughts, which have also constrained production volumes and trade capacity (FEWS NET 2023).

Table 2.1 Regional breakdown of intra-African agricultural trade value and growth, 2019–2023 average

	Exports				Imports		
Exporter	Value (million US$)	Share (%)	Annual growth rate (%)	Importer	Value (million US$)	Share (%)	Annual growth rate (%)
North Africa	2.962	17.6	12.7	North Africa	2.491	14.8	12.0
West Africa	2.599	15.7	3.9	West Africa	3.181	19.1	3.7
Central Africa	196	1.1	48.6	Central Africa	1.250	7.4	14.2
East Africa	4.976	29.5	11.5	East Africa	5.935	35.4	10.7
Southern Africa	5.984	36.1	3.6	Southern Africa	3.860	23.3	2.6
Intra-African exports	16.717	100	6.7	Intra-African imports	16.717	100	6.7

Source: Authors' calculations based on the AATM 2025 database.

Note: (1) Appendix Table A2.2 provides the countries composing each region. (2) Average values, shares, and annual growth rates over the period 2019–2023 are presented. 3. Intra-African exports and imports of a region include both intra- and extraregional trade within Africa.

In contrast, East Africa is the second-largest exporter (29.5 percent) and the continent's largest importer (35.4 percent). This apparent paradox is underpinned by several interrelated dynamics. First, the region is the largest and its diverse agroecological zones support a wide variety of crops, enabling export diversification. Second, its strategic location links multiple subregions, facilitating cross-border trade flows. Third, seasonal production cycles create periods of surplus exports postharvest and increased imports during lean seasons. Fourth, reexport activities—whereby imported goods are processed and reexported —blur the lines between import and export roles. Therefore, the region's strong 11.5 percent export growth rate signals a vibrant and expanding agriculture sector, while its 10.7 percent import growth reflects intensifying food demand driven by rapid urbanization and demographic pressures.

North Africa's trade profile is relatively balanced, contributing 17.6 percent of intra-African exports and absorbing 14.8 percent of imports, with exports and imports growing at almost equal rates (12.7 and 12.0 percent, respectively) above the continental average. This equilibrium suggests a degree of internal coherence between production and consumption capacities. In contrast, West Africa contributes 15.7 percent of intracontinental exports and absorbs 19.1 percent of imports. At only 3.9 percent for exports and 3.7 percent for imports, the region's intra-African trade growth rates are significantly below the continental average. West Africa's poorer performance is primarily due to infrastructural deficits that raise transport costs and delay shipments, such as poor road and port connectivity along key corridors like Lagos-Abidjan (Ayodeji 2025), in addition to the proliferation of trade policy barriers discussed earlier. Moreover, underdeveloped value chains restrict diversification beyond raw commodity exports, limiting competitiveness (Odjo, Traoré, and Zaki 2023).

Central Africa contributes the least to intra-African agricultural trade, with only 1.1 percent of total exports but 7.4 percent of imports. Its minimal export base underscores limited productive

capacity, weak market access, and underdeveloped trade infrastructure. Yet the region's remarkable 48.6 percent export growth rate, albeit from a low baseline, signals potential transformation. This surge may reflect post-conflict recovery, improved regional integration, targeted investments in trade corridors, and a gradual transition from subsistence to market-oriented agriculture. Nonetheless, the absolute volume remains insufficient to meaningfully alter its dependency status in the short term.

Leading intra-African trade players

Agricultural products traded in Africa are split into 25 product categories (including 17 food and 8 nonfood categories) to provide a more detailed analysis of intra-African trade performance between 2019 and 2023 (Table 2.2). The most traded product categories (accounting for at least US$1 billion, or approximately 6 percent of total intra-African agricultural trade) are food products, though not all are staples, including oilseeds and vegetable oils, cereals, fish, sugars and sugar confectionery, vegetables, and "other edible products." Oilseeds and vegetable oils (nearly US$2 billion) and cereals (more than US$1.7 billion) recorded not only the two largest intra-African trade values but also the highest trade growth rates among food product categories, at 16.6 percent and 16.4 percent, respectively. South Africa is the leading exporter in both product categories, enjoying 18 percent of intracontinental export markets for oilseeds and vegetable oils and 45 percent of cereals export markets. Ethiopia is the primary importer of oilseeds and vegetable oils, absorbing 13 percent of intracontinental imports, while Zimbabwe is the leading importer of African cereals (15 percent).

Fish trade among African countries, worth US$1.6 billion, slightly decreased on average between 2019 and 2023 (-0.63 percent). With 22 percent of the intracontinental export market, Morocco is the primary exporter of fish to other African countries, while Côte d'Ivoire is the leading importer, accounting for 21 percent of intra-African fish supplies. Growing at 9.7 percent annually, the intra-African trade of sugars and sugar confectionery amounted to US$1.5 billion, with Eswatini contributing the largest exports to other African countries and South Africa the largest imports from other African countries. Intra-African trade of vegetables was worth US$1.1 billion, growing at 16.4 percent, with Ethiopia the leading exporter (28.5 percent of the market) and Somalia the leading importer (20 percent).

Among other food product categories, dairy and eggs, edible fruits and nuts, coffee and tea, food preparations, and beverages are notable by their trade values of US$500 million to US$1 billion and their substantial annual growth rates of 2.8–9.9 percent, except for coffee and tea, which were stable. South Africa, Kenya, Morocco, Egypt, and Botswana are the biggest players in the intracontinental trade of these products.

Tobacco and manufactured tobacco substitutes are the most traded nonfood product categories among African countries, with Zimbabwe the largest exporter (17 percent of the market) and Egypt the primary importer (8 percent). Stable and amounting to US$952 million, intracontinental trade of tobacco products was larger than the trade of edible fruits and nuts and the combined trade of meats and dairy products. The largest growth rates in intra-African agricultural trade were recorded for nonfood products, including animal fibers (57 percent), cotton and other vegetable fibers (36 percent), and live plants and flowers (25 percent), though they were traded at much lower values than major food products.

Worth noting is that the biggest players generally hold less than 50 percent of the intra-African exports or imports of most product categories, except for live farm animals, meats and edible offals, animal fats, juices, beverages, hides and skins, and animal fibers, which are traded at tiny values, together accounting for nearly 12 percent of intra-African agricultural trade. Hence,

other countries participate in the intracontinental trade of the different product categories as exporters, importers, or both. Only the most important actors are mentioned in Table 2.2 for brevity. South Africa is the dominant exporter of 15 product categories and the dominant importer of 6, illustrating the scale and diversity of its participation in intra-African agricultural trade. Egypt and Botswana also participate significantly in intracontinental agricultural trade as top importers of four product categories each. Only 7 of 32 African Least Developed Countries (LDCs)[8] are found among the leading intra-African traders of agricultural products: Sudan as a top exporter; Mozambique and Somalia as top importers; and Ethiopia, Lesotho, Tanzania, and Zimbabwe as top exporters and importers. Table 2.2 demonstrates that a country's economic size and structure, productive capacity, and infrastructural base are crucial factors that determine its scale of engagement in intra-African trade.

Table 2.2 Intra-African agricultural trade performance, by product category, 2019–2023 averages

Product categories	Value (million US$)	Trade share (%)	Annual growth rate (%)	Primary exporter		Primary importer	
				Country name	Exports share (%)	Country name	Imports share (%)
Food products							
Live farm animals	287.2	1.72	1.87	Namibia	37.07	South Africa	55.42
Meats and edible offals	291.0	1.74	-1.63	South Africa	60.95	Lesotho	20.66
Dairy and eggs	558.6	3.34	2.76	South Africa	43.08	Kenya	15.22
Fish	1.579.8	9.45	-0.63	Morocco	22.55	Côte d'Ivoire	20.66
Shellfish	26.5	0.16	-0.58	Namibia	27.96	South Africa	33.25
Animal fats	8.2	0.05	4.37	South Africa	69.98	Mozambique	34.07
Vegetables	1.080.0	6.46	16.4	Ethiopia	28.51	Somalia	19.97
Edible fruits and nuts	859.8	5.14	6.46	South Africa	39.09	Morocco	16.2
Juices	229.1	1.37	0.7	South Africa	60.44	Botswana	16.15
Coffee and tea	725.4	4.34	-0.08	Kenya	41.94	Egypt	33.84
Cocoa and chocolate	210.5	1.26	8.37	South Africa	27.34	South Africa	11.09
Cereals	1.725.2	10.32	16.6	South Africa	45.07	Zimbabwe	15.3
Oilseeds and vegetable oils	1.992.2	11.92	16.41	South Africa	18.24	Ethiopia	12.83
Food preparations	800.6	4.79	8.59	South Africa	37.85	Botswana	8.61
Sugars and sugar confectionery	1.510.0	9.03	9.66	Eswatini	23.16	South Africa	21.46
Beverages	999.8	5.98	9.89	South Africa	55.84	Botswana	16.72
Other edible products	1.175.3	7.03	3.78	South Africa	40.29	Botswana	7.28

8 LDCs are low-income countries with weak human assets, high economic and environmental vulnerability, and structural barriers to sustainable growth. They have exclusive access to certain international support measures, including preferential trade access (duty-free/reduced tariffs), financial and technical cooperation, and support for participation in international forums. https://policy.desa.un.org/least-developed-countries

Table 2.2 Intra-African agricultural trade performance, by product category, 2019–2023 averages (cont'd)

Product categories	Value (million US$)	Trade share (%)	Annual growth rate (%)	Primary exporter		Primary importer	
				Country name	Exports share (%)	Country name	Imports share (%)
Nonfood products							
Live plants, cut flowers, and foliage	41.8	0.25	25.44	South Africa	33.07	South Africa	11.62
Seeds	217.1	1.3	2.9	South Africa	36.25	Tanzania	12.49
Residues and waste	716.3	4.28	7.38	South Africa	35.89	Morocco	11.05
Tobacco and manuf. tobac. substitutes	952.4	5.7	-1.13	Zimbabwe	16.63	Egypt	8.02
Hides and skins	82.4	0.49	58.3	Tanzania	35.14	Nigeria	81.47
Animal fibers	44.1	0.26	56.93	Lesotho	87.29	South Africa	87.56
Cotton and other veg. textile fibers	258.4	1.55	36.38	Sudan	25.66	Egypt	39.02
Other nonfood products	345.4	2.07	11.63	South Africa	28.47	Egypt	23.08
Total, agriculture	16.7172	100	6.72	South Africa	27.99	South Africa	8.21

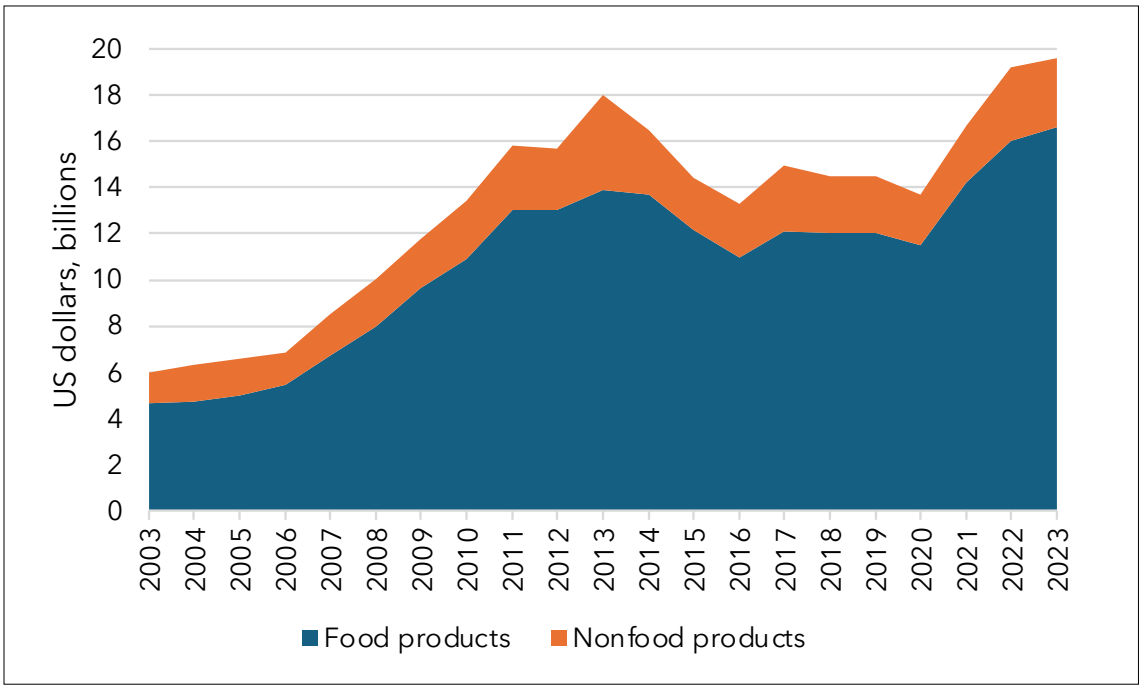
Source: Authors' calculations based on the AATM 2025 database.

Note: Trade values, shares, and annual growth rates are averaged over 2019–2023 from annual figures. The lists of the HS6-digit level products comprising the different product categories are provided in Appendix Table A2.1.

Food in intra- and extra-African trade

Building directly on the growth patterns observed in Figure 2.1, the compositional analysis of intra-African agricultural trade reveals why this commerce matters so profoundly for food access. Food products consistently occupy approximately three-quarters to four-fifths of total intra-African agricultural trade across the entire two-decade period (Figure 2.2). This pattern sharply contrasts with Africa's trade with global markets, which is more focused on export-oriented cash crops. On one hand, this pragmatic division reflects adaptation to limited overall productive capacity and the urgency of feeding rapidly growing populations with finite resources. On the other hand, this distinction reflects the functional role of regional trade within Africa's food system: it is primarily geared toward satisfying domestic consumption and addressing immediate food security needs. In fact, intra-African trade flows are more localized and responsive to nutritional demands, whereas extra-African exports tend to prioritize commodities like cocoa, coffee, and cotton destined for international markets (Odjo and Zaki 2020; DTIC 2023).

Figure 2.2 Breakdown of intra-African agricultural trade into food and nonfood products, 2003–2023

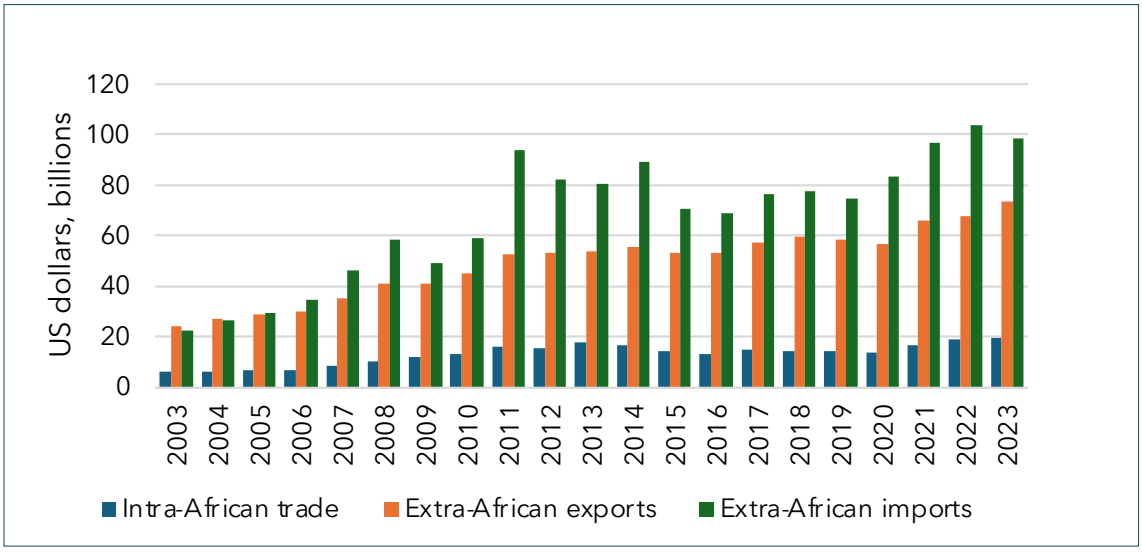


Source: Authors' calculations based on the AATM 2025 database.
Notes: The grouping of agricultural products into food and nonfood products is provided in Appendix Table A2.2.

The stability of this food-dominated pattern across economic cycles (including the 2008 financial crisis and the 2020 pandemic) indicates that the fundamental structure of intra-African agricultural trade is driven by persistent factors rather than short-term market fluctuations. These factors include complementary agroecological production zones where surplus harvests in one region naturally supply deficit areas in neighboring countries. Also, shared dietary preferences rooted in cultural and geographic proximity promote demand for similar staple foods across neighboring countries, reinforcing trade linkages (Olivetti et al. 2023). Moreover, food security imperatives prioritize the reliable circulation of staple foods to ensure access, often overriding profit-maximizing export strategies (Torero 2021). Porous borders, costly and complex trade formalities, and cross-border ethnic networks contribute to informal cross-border trade, primarily operated by women traders who move predominantly food products through informal trade routes to avoid harassment and violence, and to circumvent regulations like export bans or import quotas (Bouët, Cissé, and Traoré 2020).

The comparison between intra-African and extra-African agricultural trade flows reveals a particular aspect of Africa's demand landscape (Figure 2.3). While intra-African agricultural trade exhibited steady growth until the mid-2010s and rebounded to nearly US$20 billion by 2023, Africa's agricultural exports beyond the continent consistently outpaced intra-African trade, rising from US$24 billion in 2003 to over US$74 billion in 2023. Moreover, Africa's agricultural imports from outside the continent increased significantly, soaring from US$22 billion in 2003 to nearly US$99 billion in 2023, five times the value of intra-African trade. This stark reality indicates that despite the continent's vast agricultural potential, it remains heavily dependent on external markets. Consequently, the considerable import bill represents a significant opportunity that could be redirected to stimulate intra-African production and trade, creating a multiplier effect throughout African economies.

Figure 2.3 Trends in intra- versus extra-African agricultural trade, 2003–2023

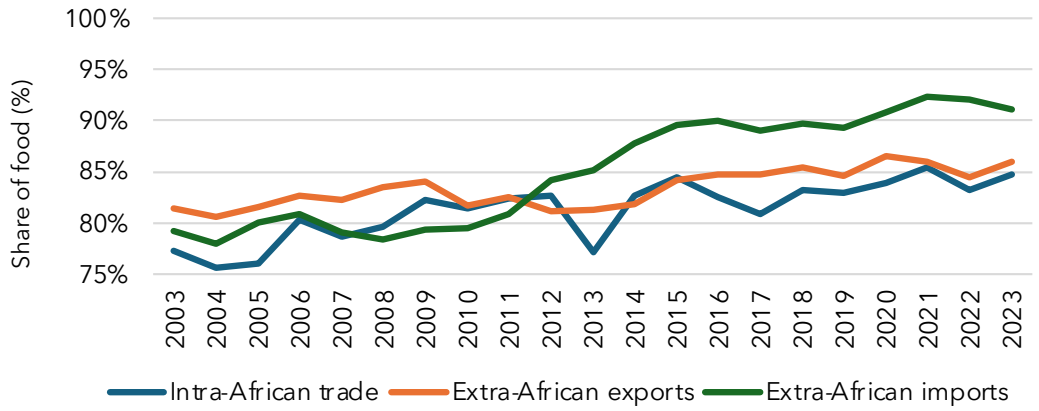


Source: Authors' calculations based on the AATM 2025 database.

This persistent trade imbalance is deeply entrenched in colonial legacies that shaped economic structures primarily for extraction rather than transformation. Colonial powers fundamentally reorganized African economies to serve as suppliers of raw materials to European industries, simultaneously discouraging local manufacturing and regional trade. Such arrangements established enduring dependencies that continue to influence trade relationships today, often resulting in asymmetric trade flows (Courade 2022). This historical path dependency—combined with structural constraints and global market dynamics—clearly explains the massive imbalance in Africa's trade and production systems.

In addition, food products consistently dominated Africa's agricultural trade across all channels between 2003 and 2023, yet their relative shares evolved in ways that signal deepening structural dependencies. Specifically, intra-African agricultural trade maintained a high and rising food share (Figure 2.4), increasing from 77 percent in 2003 to 85 percent in 2023, with a notable spike between 2019 and 2023 (84 percent) compared to the period 2009–2013 (81 percent). This upward trend confirms previous findings that African countries tend to focus on essential food security commodities when trading with one another, thereby recognizing regional networks as vital sources of staple foods. However, the share of food products in extra-African exports has always been larger. It increased on average from 81 percent to 86 percent between the two periods, underscoring Africa's ongoing role as a global supplier of food commodities, along with traditional cash crops. But the most striking and concerning trend arose in extra-African imports (see Chapter 1). While food share used to be smaller in extra-African imports than in extra-African exports and even in intra-African trade (between 2008 and 2011), it has since grown, surging from 79 percent in 2003 to 91 percent in 2023.

Figure 2.4 Trends in food shares of intra- versus extra-African trade, 2003–2023



Source: Authors' calculations based on the AATM 2025 database.

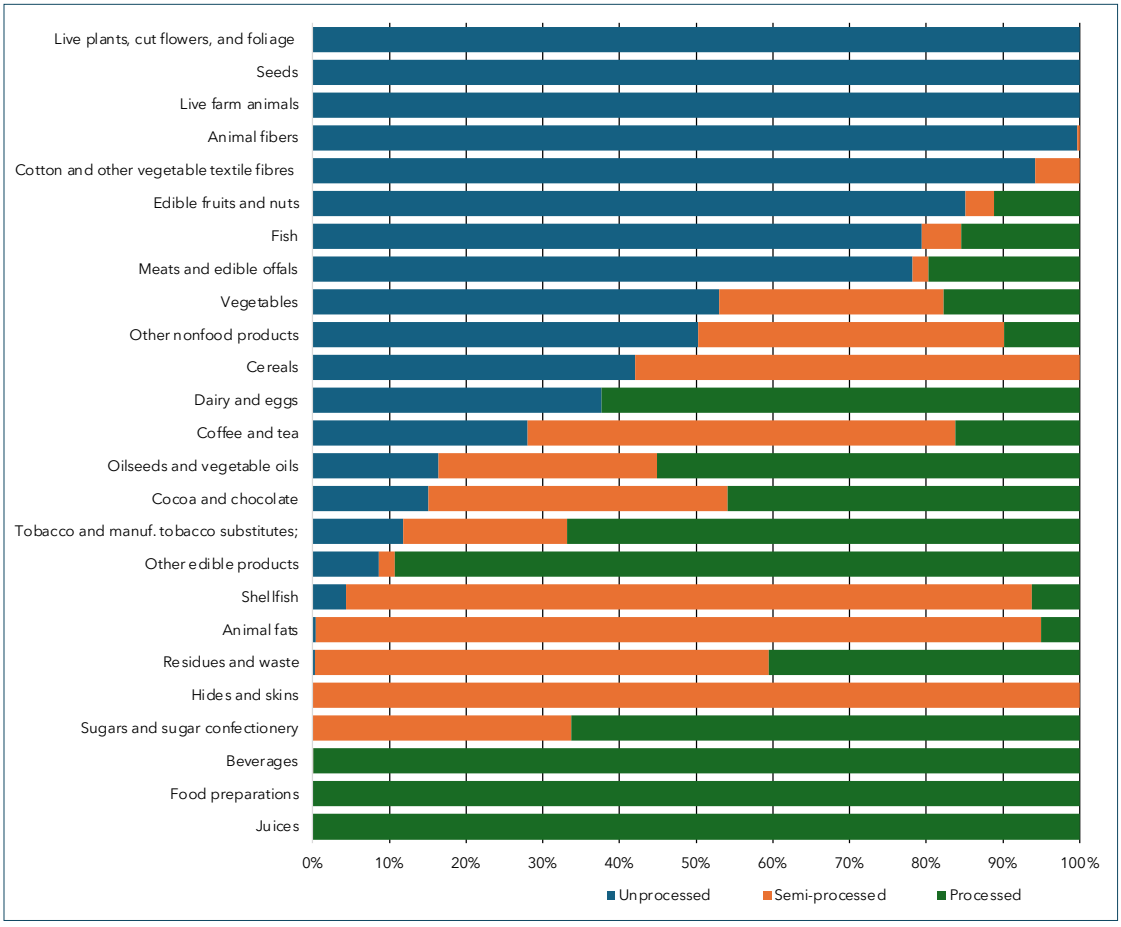
The stark imbalance between the high reliance on food imports (exceeding US$90 billion annually) and the modest level of intra-African trade (US$20 billion) draws attention to the urgent need to strengthen regional production and trade systems to mitigate vulnerability and enhance self-sufficiency. Additionally, the rising food share across all trade channels signifies both the central role of food in Africa's trade landscape and the strategic importance of regional cooperation, which is essential to address structural dependencies and build resilient food systems capable of withstanding external shocks.

Processing stages across product categories

The bulk of agricultural products entering trade among African countries have undergone some processing (Bouët, Odjo, and Zaki 2020; Odjo, Traoré, and Zaki 2023). Between 2019 and 2023, processed (44 percent) and semi-processed (23 percent) products made up 67 percent of the value of intra-African agricultural trade, while raw products comprised 33 percent. The share of processing rose from 62 percent in 2003 to 68 percent in 2023, an expansion with multiple benefits: greater value retention within the continent, enhanced employment generation in food processing sectors; improved food safety and quality through standardized industrial practices; and product availability extended beyond traditional harvest seasons (Badiane et al. 2022a).

Figure 2.5 illustrates the levels of processing of product categories traded among African countries. The most highly processed categories are generally nonstaple food products, appearing at the bottom of the vertical axis, from fruit juices to coffee and tea. Processed and semi-processed products account for more than 70 percent of intra-African trade in each of these categories. Conversely, the least processed categories are generally nonfood products, seen at the top of the vertical axis, from cotton to live plants. Less than 20 percent of their trade value consists of processed or semi-processed products. Staple food categories that anchor African diets and food security are found in between, with more than 20 percent of processed or semi-processed products, and significant shares of unprocessed products traded among African countries.

Figure 2.5 Breakdown of intra-African trade value by product processing stage, 2019–2023



Source: Authors' calculations based on the AATM 2025 database.

For instance, cereals constitute the dominant energy source in African diets (FAO 1997). Notably, over 40 percent of intra-African trade in cereals occurs in completely unprocessed form, slightly less than 60 percent as semi-processed products, and almost none as fully processed cereals. This distribution indicates that grains primarily move between countries as whole kernels or basic flour, reflecting minimal transformation into consumer-ready products that could enhance convenience, nutritional value through fortification, and market value (FWGA 2023).

Similarly, fish products—which serve as a critical protein source for food security, particularly in coastal and lakeside regions—show an even more pronounced concentration in unprocessed form. Approximately 80 percent of fish trade occurs in raw form, while only 15 percent reaches processed status. This overwhelming dominance suggests that most regional fish commerce involves fresh, frozen, or minimally preserved products rather than value-added items, such as canned fish, fish meal, smoked products, or fish-based convenience foods.

Meat and edible offals reveal a comparable pattern, with over 70 percent traded in unprocessed form and merely 20 percent as processed products. This indicates that regional meat trade is primarily composed of live animals or fresh/frozen carcasses, rather than processed items like sausages, cured meats, canned goods, or ready-to-cook preparations.

Dairy and eggs demonstrate a somewhat more balanced processing pattern, with approximately 40 percent traded unprocessed, over 60 percent processed, and none semi-processed. These products move directly from raw to processed form. Similarly, over 50 percent of vegetables, including roots and tubers, are traded unprocessed, 30 percent are semi-processed, and only 20 percent are fully processed. Thus, most vegetable trade involves fresh produce, with limited transformation into canned goods, frozen vegetables, dried products, or other processed preparations.

These patterns can be attributed to multiple interconnected constraints. Notably, Africa's large share of unprocessed agricultural trade is driven by poor infrastructure, inadequate cold chains, limited rural electrification, and a lack of capital for processing. Inadequate cold chains fail to maintain the required temperature ranges for temperature-sensitive products, leading to food loss, spoilage, and health risks. Collectively, these factors raise trade costs and force the immediate sale of fresh goods (Hodder and Migwalla 2023).

For the AfCFTA, the implication is that full implementation of the annexes to the Protocol on Trade in Goods (on tariffs, rules of origin, trade facilitation, nontariff barriers, transit, and trade remedies) will only translate into deeper intra-African agrifood trade if paired with investments that tackle these structural bottlenecks at and behind the border. In practice, this means (1) aligning REC and national trade-facilitation agendas with AfCFTA provisions (harmonized customs procedures, risk-based inspections, electronic certification, and nontariff barrier reporting), (2) accelerating digitalization of border and logistics systems, while (3) using the Protocol on Trade in Services and emerging digital-trade rules to open and regulate key backbone services such as transport, logistics, cold chain management, finance, and digital platforms.

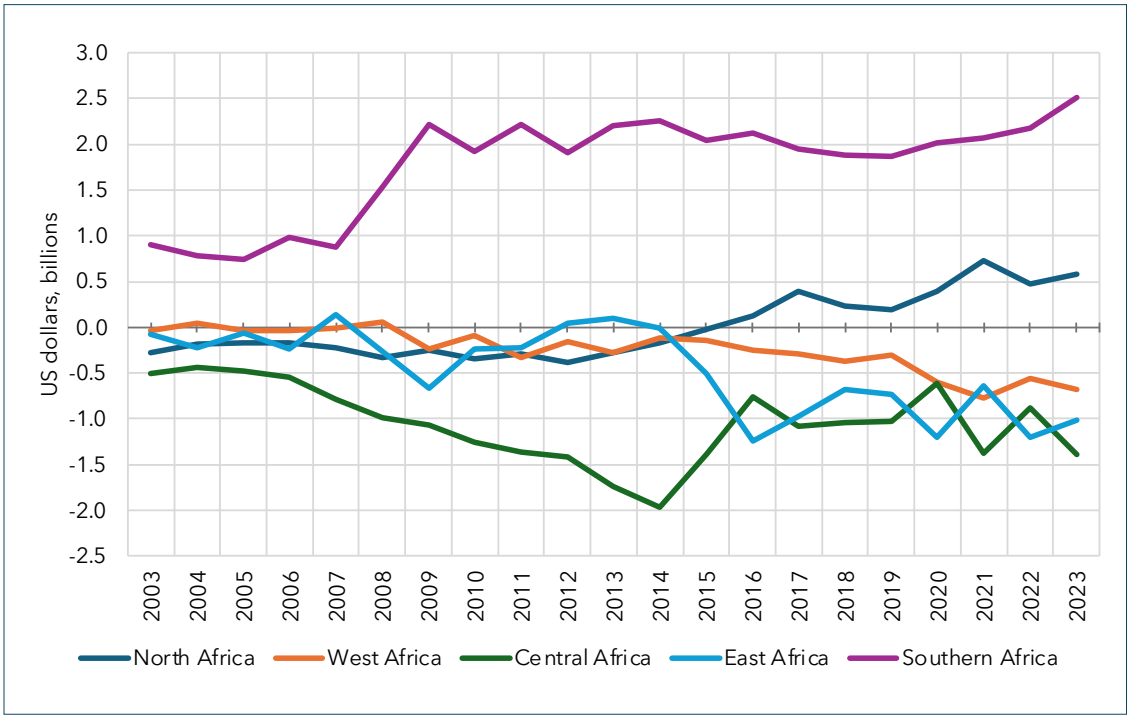
4. Food and Nonfood Trade Balance between African Regions and Countries

Understanding the dynamics of intra-African trade in agricultural products is essential for evaluating the continent's progress toward regional integration and food system resilience. This section provides a comparative overview of net agricultural trade performance across African regions and countries from 2003 to 2023.

Intracontinental trade balances

Examining net intra-African agricultural export value by region between 2003 and 2023 reveals notable disparities in regional trade performance (Figure 2.6). Southern Africa consistently maintained a strong positive trade balance, with net exports increasing steadily over time and culminating at US$2.5 billion in 2023. North Africa demonstrated a marked transition from trade deficits in the early 2000s to surpluses from 2016 onward, reaching US$577 million in 2023. In contrast, between 2019 and 2023, Central Africa, West Africa, and East Africa ran intra-African agricultural trade deficits averaging US$1,054 million, US$581 million, and US$959 million, respectively. These regional aggregates are heavily influenced by the commercial performance of a few dominant regional players, as analyzed below.

Figure 2.6 Net intra-African agricultural exports value by region, 2003–2023



Source: Authors' calculations based on the AATM 2025 database.

Southern Africa's trade surplus mostly consisted of food products (Table 2.3). Between 2019 and 2023, its overall surplus of US$2.12 billion comprised US$1.97 billion of food products and only US$0.15 billion of nonfood products. While the region's agricultural trade surplus grew 4.5 percent annually over that period, its food trade surplus expanded faster (5.2 percent), and its nonfood trade surplus declined by 4.7 percent.

Table 2.3 Net intra-African export value and growth by region and product category, 2019–2023 average

	Food products		Nonfood products		All agricultural products	
	Value (million US$)	Growth rate (%)	Value (million US$)	Growth rate (%)	Value (million US$)	Growth rate (%)
North Africa	687	12.2	-216	-1.8	471	29.6
West Africa	-563	10.8	-19	-94.0	-582	17.8
Central Africa	-917	24.1	-138	21.9	-1054	17.4
East Africa	-1177	16.4	218	35.9	-959	16.2
Southern Africa	1.969	5.2	155	-4.7	2.124	4.5

Source: Authors' calculations based on the AATM 2025 database.

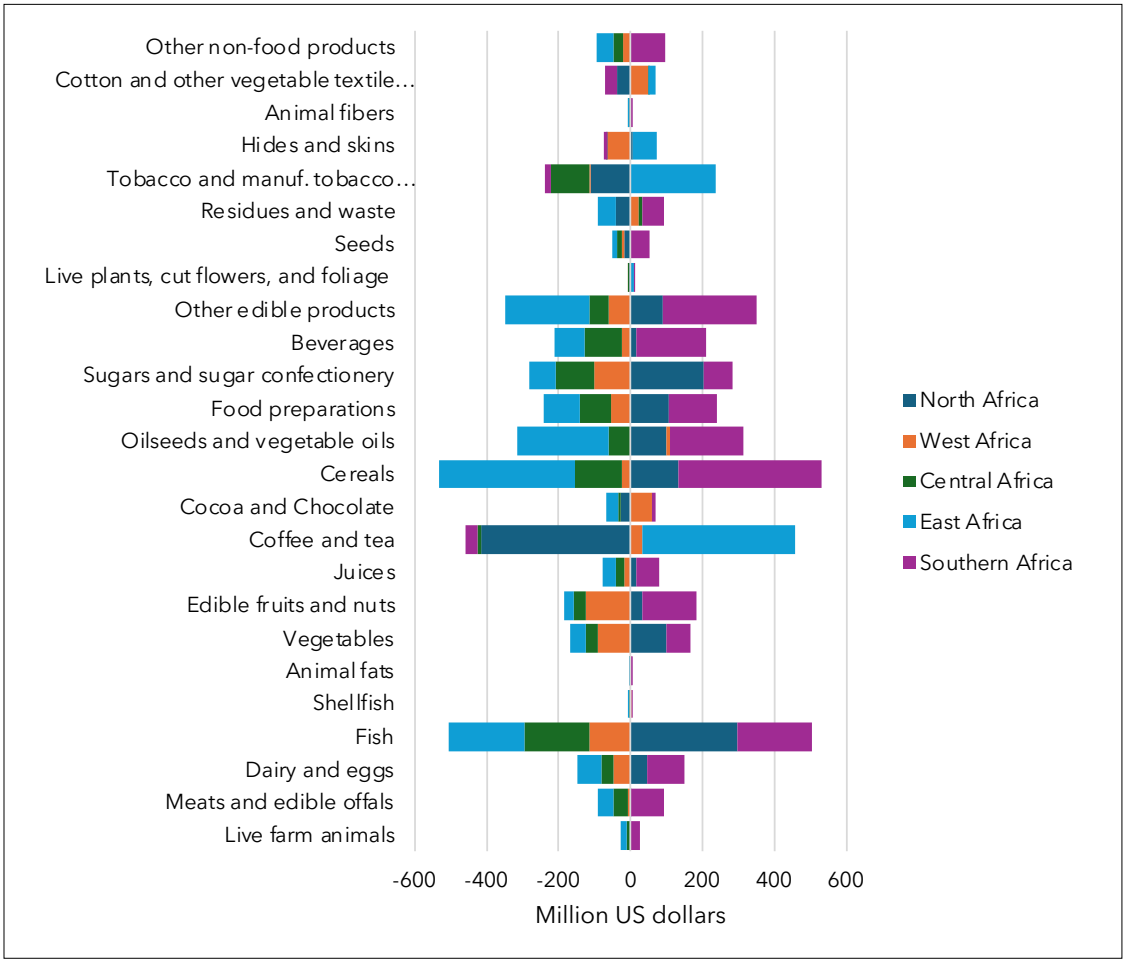
Similarly, North Africa's intra-African trade surplus primarily consisted of food products. The region's relatively modest agricultural trade surplus of US$471 million comprised a US$687 million food trade surplus and a US$216 million nonfood trade deficit. As well, the region's strong agricultural trade surplus growth of 30 percent was primarily driven by a food trade surplus growth of 12 percent against a nonfood trade deficit decline of 1.8 percent.

Consequently, West, Central, and East Africa's agricultural trade deficits primarily consisted of food trade deficits (Table 2.2). Between 2019 and 2023, East Africa experienced the highest food trade deficit with other African regions, at US$1.18 billion compared to US$917 million in Central Africa and US$563 million in West Africa. More concerning is that the food trade deficit in these three regions expanded at double-digit growth rates in recent years: 11 percent in West Africa, 24 percent in Central Africa, and 16 percent in East Africa.

Overall, in net intra-African trade terms, food moves from Southern Africa and more modestly from North Africa to West, Central, and East Africa. The direction of net trade between African regions is investigated for product categories next.

Figure 2.7 presents the net intra-African trade position of each region by product category. The bars on the right side of the vertical axis indicate net export values, while those to the left denote net import values. The figure provides insights into which countries would benefit more from an expansion of intracontinental trade in terms of food security.

Figure 2.7 Net intra-African export value by region and product category, 2019–2023 average



Source: Authors' calculations based on the AATM 2025 database.

Southern Africa's position as the dominant net seller of agricultural products in intracontinental markets is clear (Figure 2.7). The region's net export supplies met or contributed to meeting other regions' net import demands for 21 of the 25 product categories under analysis. For instance, Southern Africa's net exports of live farm animals supplied all of the net imports by East Africa (US$16 million), Central Africa (US$8.5 million), West Africa (US$1.3 million), and

North Africa (US$1.2 million). Similarly, the region's net exports supplied all net imports of seeds and other nonfood products by the other four regions.

In contrast, net import demand for 11 product categories was met by Southern Africa and North Africa together, underscoring the importance of the latter as the second largest net seller in intra-African markets. For instance, net import gaps for cereals by East Africa (US$376 million), Central Africa (US$132 million), and West Africa (US$24 million) were matched by net export supplies from Southern Africa (US$400 million) and North Africa (US$132 million). Southern Africa and North Africa were the largest net sellers in intra-African cereals markets, while East and Central Africa were the largest net buyers, reflecting persistent production imbalances across regions. It is worth noting that the other 10 product categories were also foodstuffs, including animal products (meats and edible offals, dairy and eggs, and fish), unprocessed crops (vegetables, and edible fruits and nuts), processed products (juices, food preparations, sugars and sugar confectionery, and beverages), and other edible products.

North Africa was the leading net exporter of fish within Africa, benefiting from a strong fishing industry and sectoral investments. By contrast, East and Central Africa consistently recorded a trade deficit for fish.

North Africa's net vegetable exports reflect investments in irrigated and intensive agriculture, combined with favorable climate conditions. Similarly, North and Southern Africa's dominance in trade in edible fruits and nuts was due to their better orchard capacities and more integrated supply chains. The pattern of net trade in juices also reflects regional conditions and capabilities: North and Southern Africa achieved trade surpluses, whereas Central and East Africa recorded the largest net imports, illustrating disparities in both agricultural processing and local production structures. In general, the net importer position of Central, West, and East Africa in intra-African markets of processed food products reveals significant gaps in agro-industrial capacity and supply chain integration.

West Africa is remarkable with its net exports in eight product categories, including five food product categories (shellfish, animal fats, coffee and tea, cocoa and chocolate, and oilseeds and vegetable oils). For instance, in addition to Southern Africa's net exports, West Africa contributed to the supply of the net imports of shellfish, animal fats, and cocoa and chocolate demanded by the other three regions. The region stands out as the continent's dominant net exporter of cocoa and chocolate, a reflection of its global leadership and specialized production infrastructure in cocoa cultivation. By contrast, East Africa and North Africa are the largest net importers of this product, as local processing and consumption needs outpace their own cocoa production capacity. Similarly, West Africa complemented net exports of oilseeds and vegetable oils from Southern Africa and North Africa to meet the net imports of Central and East Africa.

East Africa also contributed to meet net imports of other regions in coffee and tea and four nonfood product categories (live plants, cut flowers, and foliage; tobacco and manufactured tobacco substitutes; hides and skins; and cotton and other vegetable textile fibers). The region's large net exports of coffee and tea (US$426 million)—combined with that of West Africa (US$32 million)—supplied all of the net import demand of North Africa (US$417 million), Southern Africa (US$32 million), and Central Africa (US$9 million). Tobacco and manufactured tobacco substitutes are East Africa's second highest net export (US$237 million), supplying all of the net import demand of North Africa (US$113 million), Central Africa (US$104 million), Southern Africa (US$17 million), and West Africa (US$3 million).

Apart from tiny net exports of residues and waste (US$10 million) and cotton and other vegetable textile fibers (US$0.5 million), Central Africa participates in intracontinental markets of agricultural products as a net importer.

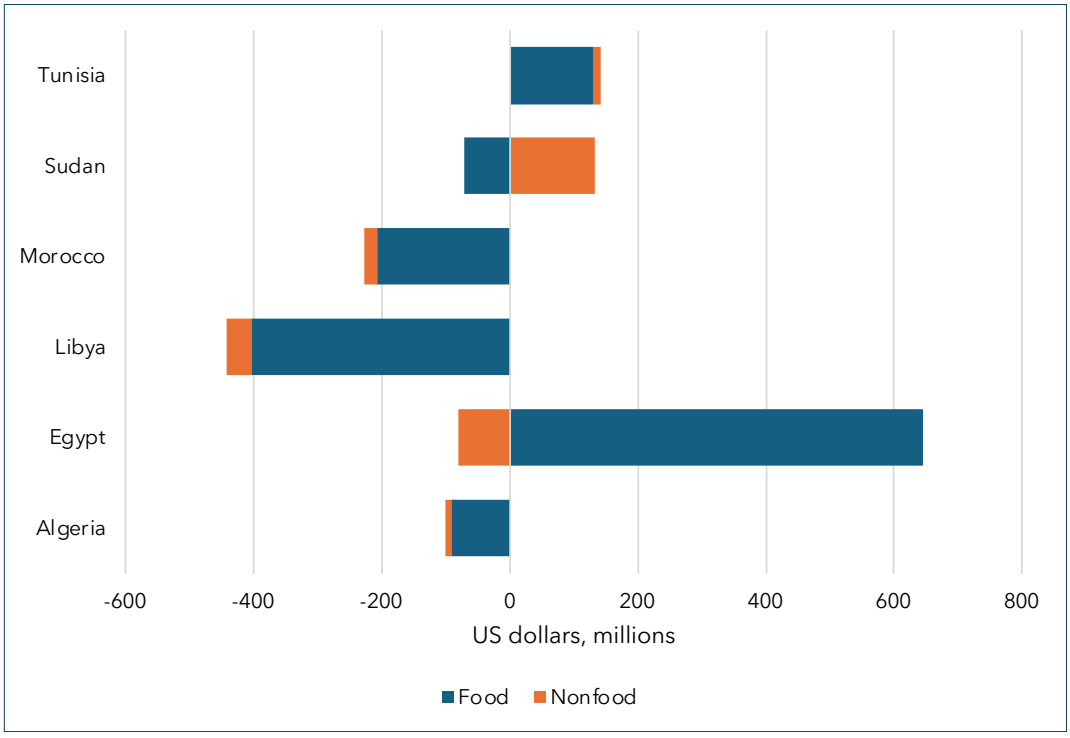
In sum, the preceding analysis reveals clear regional patterns. Southern Africa is the principal net exporter of cereals, oilseeds, and vegetable oils, edible fruits and nuts, dairy, meat, and processed foods, meeting most of the net food trade deficits in intra-African markets. North Africa is the largest net exporter of fish, sugars and sugar confectionery, and vegetables, and the largest net importer of coffee, tea, and tobacco and manufactured tobacco substitutes. West Africa dominates net exports of cotton and other vegetable textile fibers (a nonfood product), cocoa and chocolate (a nonstaple food), and shellfish, as well as net imports of edible fruits and nuts, vegetables, and hides and skins. In contrast, Central and East Africa are consistently net importers across most staple and processed food groups. This distribution highlights the importance of strengthening regional trade policies and supply chains to ensure food availability and resilience across the continent.

Intraregional trade balances

Figures 2.8–2.12 present the net trade positions of African countries in their regional markets for food and nonfood products from 2019 to 2023.

Egypt and Tunisia are net exporters of food, with food trade surpluses amounting to US$645 million and US$130 million, respectively (Figure 2.8), establishing Egypt's critical role as a regional supplier of food, primarily vegetables and cereals. Tunisia's net intraregional exports are in edible fruits and nuts, and oilseeds and vegetable oils. Sudan is remarkable with net exports of nonfood products, mostly cotton and other vegetable textile fibers. Conversely, Libya, Algeria, and Morocco are net importers of food products, illustrating their underlying limitations in local agrifood production (OECD and FAO 2023). Despite its net food trade deficit, Morocco has a net trade surplus of fish in the intraregional market (US$24 million).

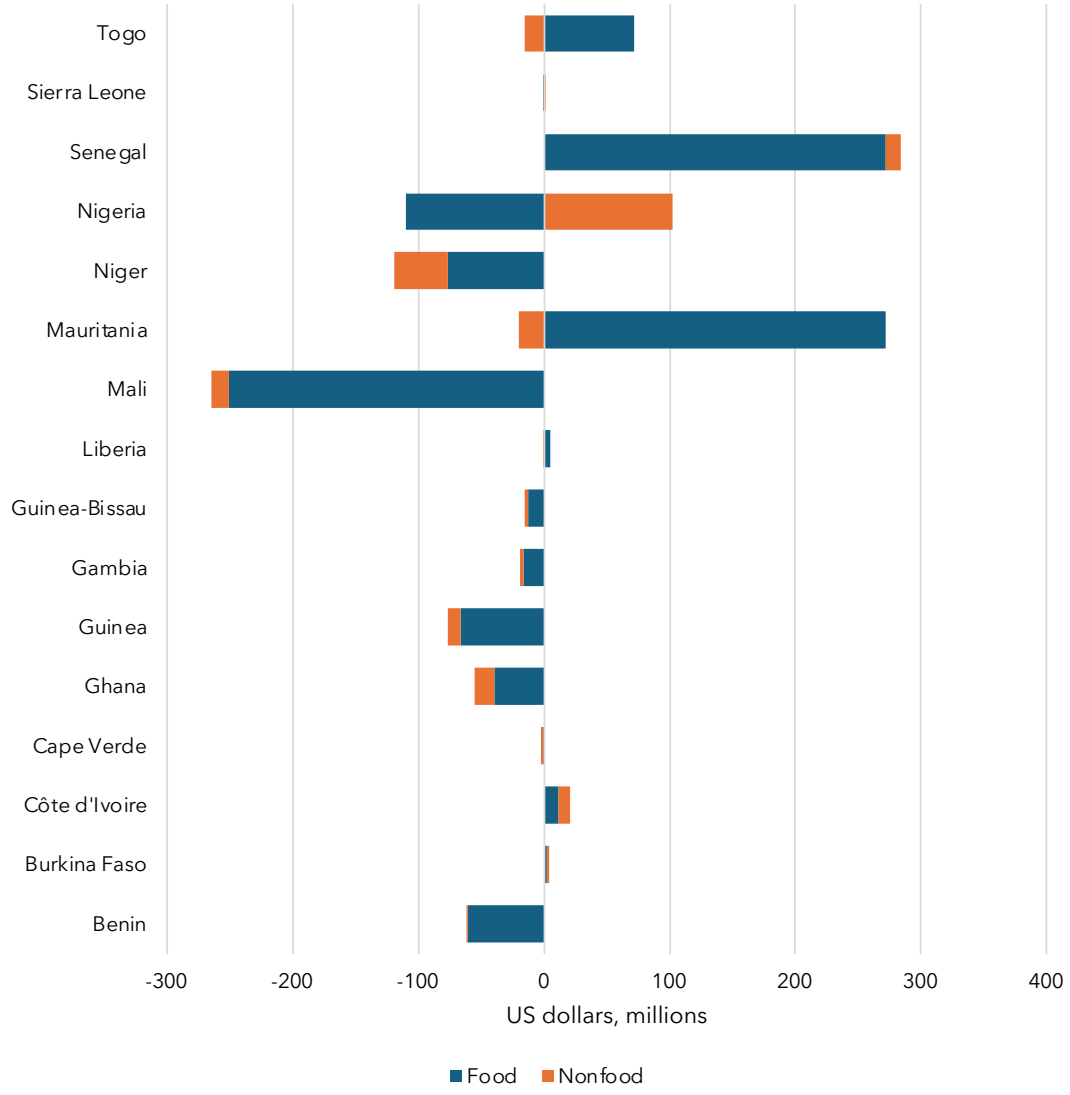
Figure 2.8 Net intraregional export values, North African countries, 2019–2023 average



Source: Authors' calculations based on the AATM 2025 database.

Mauritania and Senegal emerge as leading net food exporters within West Africa (Figure 2.9). Their substantial positive balances in intraregional fish trade indicate an ability to produce surpluses above domestic needs, supporting food security and trade integration in the region. Togo also demonstrates notable net food exports, primarily in oilseeds and vegetable oils, indicating expanding agricultural output and its rising significance in West African trade dynamics (Bini 2018). Several countries—including Mali, Nigeria, Niger, and Guinea—faced the largest deficit during the period 2019–2023. Liberia and Benin similarly display substantial net food trade deficits, with a particularly pronounced deficit for Liberia. These negative balances represent persistent food supply constraints stemming from factors such as limited agricultural productivity, rapid population growth, and trade or market barriers (Zhou and Staatz 2016; Bini 2018). Nigeria is the leading net exporter of nonfood products, particularly tobacco, and Niger the largest net importer.

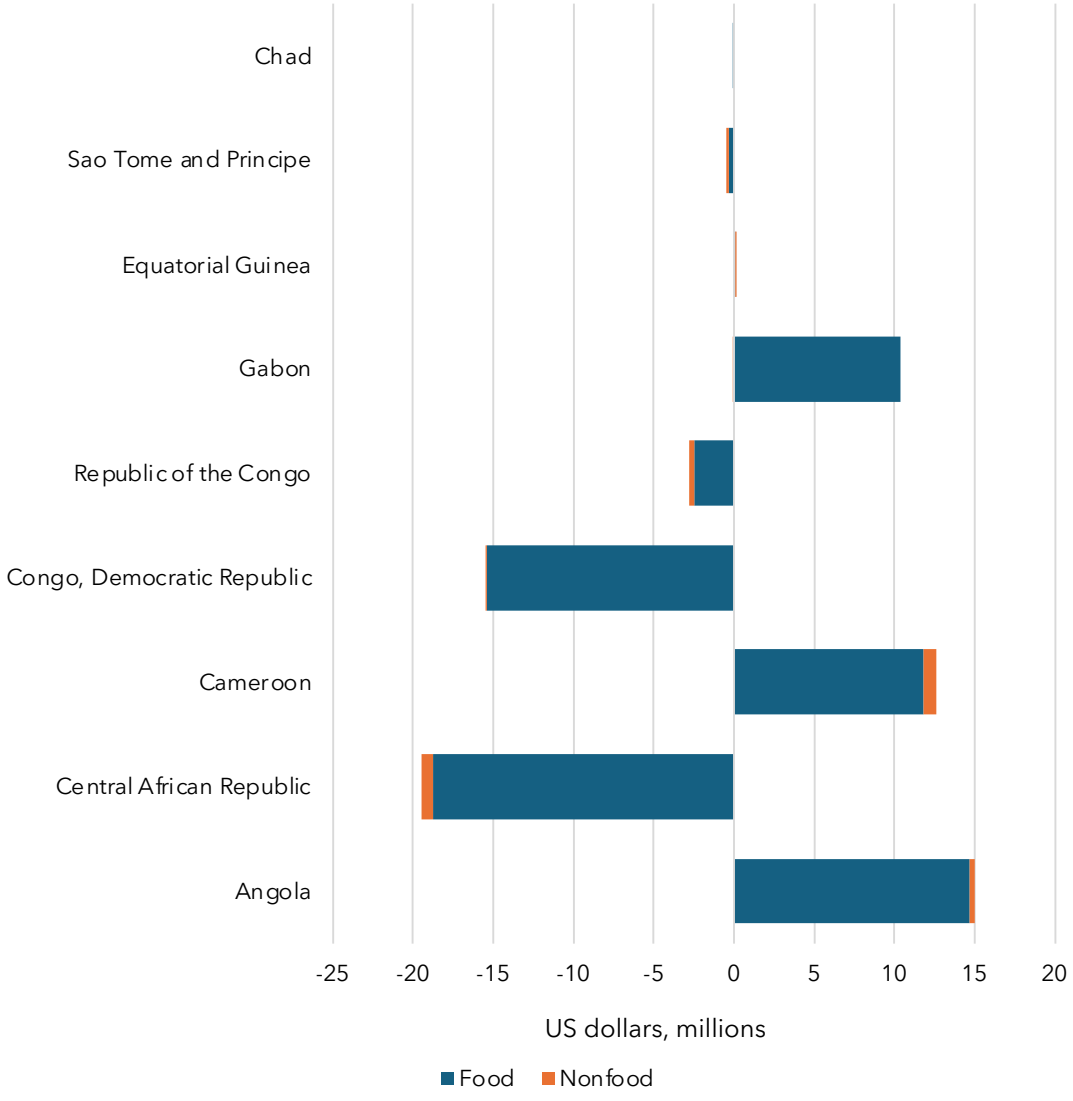
Figure 2.9 Net intraregional export values, West African countries, 2019–2023 average



Source: Authors' calculations based on the AATM 2025 database.

Angola, Cameroon, and Gabon are Central Africa's leading net food exporters (Figure 2.10). Angola's trade surplus is due to a combination of export-oriented agricultural and fishery production and relative competitiveness in regional markets (Rabo Partnerships 2023; Bouët and Odjo 2019). Cameroon's net food surplus arises from diversified production and a more integrated role in regional trade (World Bank Group 2018). In contrast, the Central African Republic (CAR) and the Democratic Republic of the Congo (DRC) are significant net food importers, given structural supply gaps and obstacles that limit their ability to meet domestic demand through local output (Walkenhorst 2006; FAO 2023a). Chad, Equatorial Guinea, São Tomé and Príncipe, and the Republic of the Congo report near-balanced or marginal food trade positions, reflecting the small scale and volatility of intraregional trade. Nonfood trade is minimal across most Central African countries, with only Cameroon and Angola registering nonfood net exports.

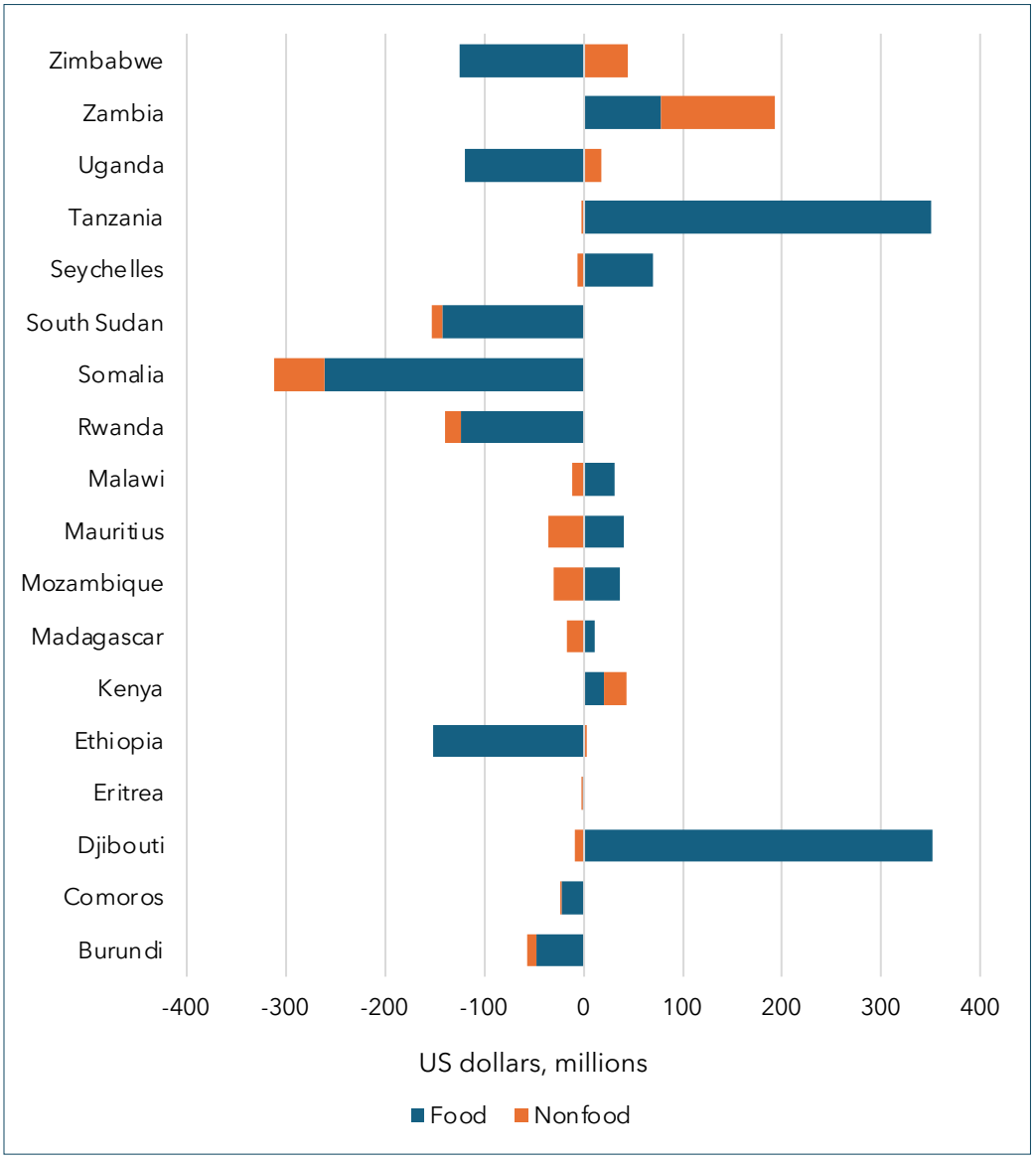
Figure 2.10 Net intraregional export values, Central African countries, 2019–2023 average



Source: Authors' calculations based on the AATM 2025 database.

Tanzania stands out as East Africa's dominant net exporter of food, with a substantial surplus nearing US$400 million, including primarily net exports of cereals (US$258 million) (Figure 2.11). This reflects Tanzania's leading role in supplying regional agricultural markets and demonstrates the effectiveness of its agrifood sector in intraregional trade integration. Djibouti and Zambia also display significant positive food balances, driven by the former's strategic position as a trade hub and the latter's diversified agricultural output. Djibouti's largest net intraregional exports are of oilseeds and vegetable oils (US$242 million), while Zambia's are of sugar (US$39 million). Somalia exhibits the largest net food trade deficit. Uganda, Zimbabwe, Rwanda, and Ethiopia also post pronounced food trade deficits, highlighting persistent local supply constraints or vulnerability to external shocks. A cluster of countries—Malawi, Mauritius, Mozambique, Madagascar, Kenya, Eritrea, Comoros, and Burundi—register marginal surpluses or deficits, indicating either limited trade scale or balanced supply-demand dynamics.

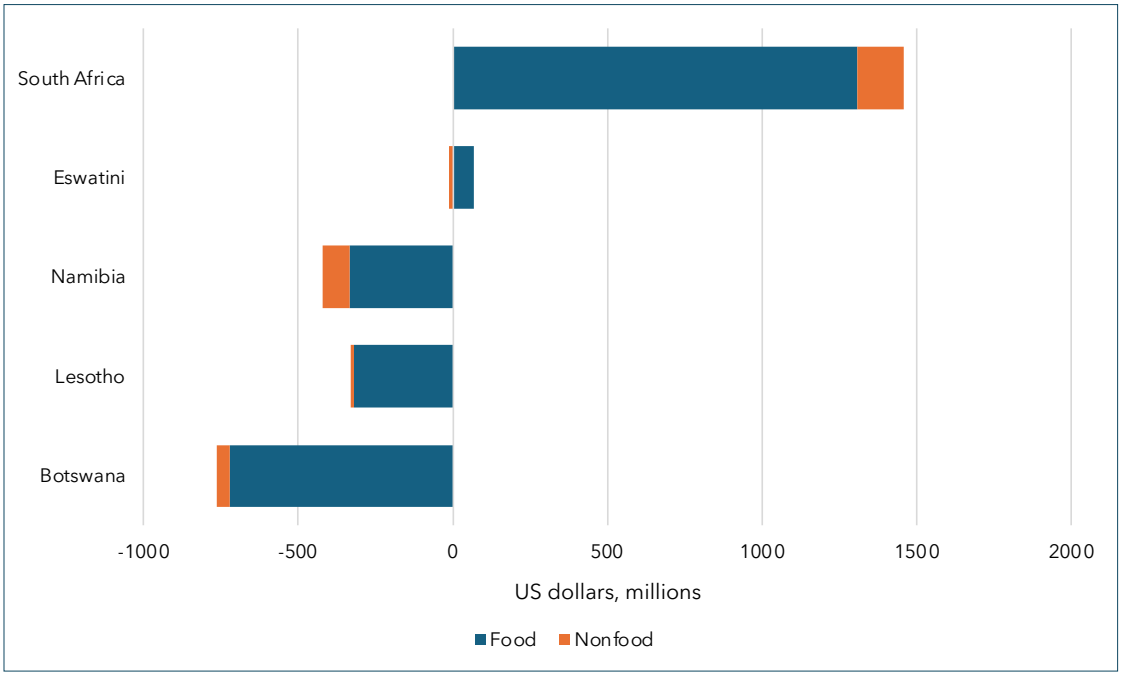
Figure 2.11 Net intraregional export values, East African countries, 2019–2023 average



Source: Authors' calculations based on the AATM 2025 database.

South Africa is by far the leading net exporter of both food and nonfood products, with an intraregional export surplus that dwarfs every other Southern African country (Figure 2.12). Its vast positive balance signals a diversified, high-capacity agrifood and industrial sector supplying a broad range of goods to the region. South Africa's agricultural exports form the backbone of Southern Africa's trade integration, playing a stabilizing role in continental food security and market supply. Its largest net intraregional exports consist of cereals (US$360 million) and beverages (US$295 million). In sharp contrast, Botswana registers a substantial food trade deficit, with the largest net food imports in the region (US$722 million), including primarily beverages (US$166 million). Namibia and Lesotho also post food trade deficits. Nonfood trade is a small but sometimes positive component for countries like South Africa.

Figure 2.12 Net intraregional export values, Southern African countries, 2019–2023 average



Source: Authors' calculations based on the AATM 2025 database.

5. Conclusion

Intra-African agricultural trade experienced significant growth from 2003 to 2023, with trade values increasing more than threefold. This growth has been resilient to global economic shocks such as the 2008 financial, food, and energy crisis and the COVID-19 pandemic. The latter shows the strategic role of regional markets as reliable sources of food during times of global supply chain disruptions. Despite this growth in absolute terms, the share of intra-African agricultural trade in Africa's overall agricultural trade portfolio fluctuated, peaking around 2013 due to regional integration efforts but later declining.

The composition of intra-African agricultural trade is heavily dominated by food products, which consistently account for about three-quarters to four-fifths of trade over the two decades. This food dominance reflects the trade network's crucial role in addressing food security within the continent, contrasting with Africa's global trade, which is more focused on export crops for international markets. The stable food-centric trade pattern reveals complementary agroecological zones, shared dietary preferences, and food security imperatives as key drivers.

One of the most concerning findings is the stark imbalance between intra-African agricultural trade and Africa's global trade, with extracontinental imports reaching nearly five times the value of intra-African trade by 2023. Heavy dependence on food imports exposes the continent to vulnerabilities and reflects long-standing colonial legacies that reoriented African economies toward raw material exports rather than self-sufficient regional food systems. It also calls for urgent strengthening of regional production and trade systems to enhance food security and economic resilience.

Notable progress is evident in the significant increase in the share of processed agricultural products in intra-African trade, reflecting policy efforts to promote value addition and agro-industrialization. Nevertheless, a large share of trade in staple foods such as cereals, fish, and meat remains in unprocessed or semi-processed forms.

Intra-African agricultural trade reveals significant regional imbalances, with Southern Africa consistently maintaining the strongest position as a net exporter, achieving approximately US$2.5 billion in net exports by 2023. North Africa's transition from having a net agricultural trade deficit in the early 2010s to a regional surplus of about US$577 million by 2023 reflects the tangible impact of targeted policy reforms, infrastructure modernization, and investment in agricultural productivity. Notably, Egypt, Morocco, and Sudan implemented large-scale programs that improved irrigation efficiency, land use, and value chain integration. Egypt's Sustainable Agricultural Development Strategy 2030 and its New Delta Project expanded cultivated land and strengthened export competitiveness through better water management and logistics infrastructure. Similarly, Morocco's Plan Maroc Vert (2008–2020) and its successor, Génération Green 2020–2030, increased yields and diversified export crops through public–private partnerships and rural investment schemes. Across the subregion, governments also strengthened trade facilitation and regional integration, leveraging the AfCFTA and existing RECs to enhance market access and intra-African trade in agricultural goods (AfDB 2023).

Central, West, and East Africa participate in intracontinental markets mostly as net importers, with persistent deficits often exceeding US$1 billion annually. These might reflect structural challenges, including inadequate infrastructure, fragmented markets, and underdeveloped value chains that limit their agricultural competitiveness.

Building on these regional patterns, clear specializations emerge across product categories. Southern Africa dominates exports of cereals, dairy, meat, and processed foods, serving as the continent's primary supplier of staple products. Similarly, West Africa leads in cocoa and horticultural exports, while North Africa excels in fish, vegetable, and fruit exports. East Africa specializes in the export of coffee, tea, and floriculture. Conversely, Central and East Africa are consistently net importers across most food groups, with East Africa accounting for over 70 percent of continental cereal deficits and more than 80 percent of oilseed shortfalls.

At the country level, trade performance varies dramatically within these regional frameworks. In North Africa, for instance, Egypt emerges as the principal food exporter while Libya, Algeria, and Morocco face persistent deficits. Likewise, Mauritania and Senegal are leading exporters in West Africa, whereas Liberia, Nigeria, and Niger experience significant shortfalls. Central Africa's trade is dominated by modest exporters Angola and Gabon, while the DRC and CAR are net importers. East Africa is polarized between Tanzania's substantial food surplus and Somalia's net intraregional imports. Southern Africa's trade structure, however, centers entirely on South Africa's overwhelming export dominance, with neighbors such as Botswana, Namibia, and Lesotho participating in regional markets as net importers.

Based on the finding that intra-African agricultural trade is resilient and strategically vital for food security and remains dwarfed by extracontinental imports, policy must prioritize regional self-sufficiency. Specific policies under the AfCFTA should aggressively reduce nontariff barriers and streamline customs procedures to make regional trade more attractive than global imports, thereby shielding the continent from external supply shocks. Given the heavy dominance of food products in intra-African trade and the severe import dependence of regions like East and Central Africa, policy must directly address structural production gaps. Consequently, targeted investments in climate-resilient agriculture and input systems are essential for deficit regions, focused specifically on closing East Africa's cereal and oilseed shortfalls to enhance continental food security. This requires not only better trade rules, but also innovation in irrigation, farm-level water management, and production planning so that farmers can raise yields, stabilize output, and respond more effectively to new market opportunities created by the AfCFTA.

To sustain the notable progress in processed agricultural trade, policy must channel investment into addressing the specific infrastructure gap, prioritizing cold chains, storage facilities, and processing plants in key agricultural corridors to reduce postharvest losses and capture more value within the continent. The stark regional imbalances—with Southern Africa a dominant net exporter and Central, West, and East Africa net importers—reveal systemic geographic disparities in trade capacity. Accordingly, policy should promote complementary regional specialization, facilitating partnerships where surplus regions like Southern Africa invest in productive capacity and infrastructure in deficit regions to create a more balanced and integrated continental market.

North Africa's remarkable transformation from a net food deficit to a surplus region offers valuable lessons for other parts of the continent. These successes should be systematically documented and shared as best practices to inform policy and investment strategies elsewhere. Furthermore, joint ventures between North African agribusinesses and Sub-Saharan African food processors could facilitate the transfer of critical technologies and managerial expertise across regions. Given that the AfCFTA framework provides the institutional foundation for continental integration, despite facing implementation challenges, an AfCFTA Agricultural Trade Monitoring Dashboard is needed to track monthly trade flows and identify bottlenecks.

The key lessons for other African regions are clear: sustained growth in intraregional trade requires not only production capacity but also coordinated policies that link productivity gains to market development. North Africa's experience demonstrates the importance of combining infrastructure investment (irrigation, transport, storage) with regulatory reforms that reduce trade barriers and promote agro-processing. Moreover, aligning national agricultural strategies with continental frameworks such as the Comprehensive Africa Agriculture Development Programme will help attract investment and harmonize standards, thereby fostering regional competitiveness. Other regions can replicate this model by investing in climate-smart agriculture, logistics infrastructure, and regional value chains to strengthen both trade performance and food system resilience.

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Appendix 2.1

Table A2.1 Food and nonfood products categorization and HS codes

Product categories	HS Chapters	HS Headings	HS Codes
Food products			
Live farm animals	01	0102 - 0105	All except 010221, 010231, and 010310
Meats and edible offals	02	0201 - 0210	All except 020910 and 020990
	16	1601 - 1603	All
Dairy and eggs	04	0401 - 0408	All
Fish	03	0301 - 0305	All except 030111 and 030119
	16	1604	All
Shellfish	03	0306 - 0308	All
	16	1605	All
Animal fats	02	0209	020910 and 020990
	15	1501 - 1504, 1506, and 1516	All except 151620
Vegetables	07	0701 - 0714	All except 070110
	11	1105, 1106, and 1108	All except 110630, 110811, and 110812
	20	2001 - 2005	All
Edible fruits and nuts	08	0801 - 0814	All
	11	1106	110630
	20	2007 and 2008	All
Juices	20	2009	All
Coffee and tea	09	0901 - 0903	All
	21	2101	All
Cocoa and chocolate	18	1801, 1803 - 1806	All
Cereals	10	1001 - 1008	All except 100111, 100191, 100210, 100310, 100410, 100510, 100710, 100821, and 100830
	11	1101 - 1104 and 1107 - 1109	All except 110813, 110814, 110819, and 110820
Oilseeds and vegetable oils	12	1201 - 1208	All except 120110, 120230, 120721
	15	1507 - 1517	All except 151610
Food preparations	19	1901 - 1905	All
Sugars and sugar confectionery	17	1701 - 1704	All
Beverages	22	2201 - 2206, 2208, and 2209	All

Table A2.1 Food and nonfood products categorization and HS codes (cont'd)

Other edible products	04	0409 and 0410	040900 and 041000
	05	0504	050400
	06	0602	060220
	09	0904 - 0910	All
	11	1108	110819 and 110820
	12	1210 and 1212	All except 121229
	13	1301 - 1302	All
	16	1603	160300
	20	2006	200600
	21	2102 - 2106	All
	33	3301	All
	35	3502	All
Nonfood products			
Live plants, cut flowers, and foliage	06	0601 - 0604	All except 060220
Seeds	12	1209	All
		1201, 1202, 1207	120110, 120230, and 120721
	07	0701	070101
	10	1001 - 1005, 1007, and 1008	100111, 100191, 100210, 100310, 100410, 100510, 100710, 100821, and 100830
Residues and waste	23	2301 - 2309	All
	12	1213 and 1214	121300, 121410, and 121490
	18	1802	180200
Tobacco and manufactured tobacco substitutes	24	2401 - 2403	All
Hides and skins	41	4101 - 4103	All
	43	4301	All
Animal fibers	50	5001 - 5003	All
	51	5101 - 5103	All
Cotton and other vegetable textile fibers	52	5201 - 5203	All
	53	5301 - 5302	All
	14	1404	140420

Table A2.1 Food and nonfood products categorization and HS codes (cont'd)

Other nonfood products	01	0101	All
		0102	010221 and 010231
		0103	010310
		0106	All
	05	0501, 0502, 0505 - 0508, 0510, and 0511	All
	12	1211	All
		1212	121229
	14	1401 and 1404	All except 140420
	15	1505, 1518, 1520 - 1522	All
	22	2207	All
	29	2905	All
	35	3501, 3503 - 3505	All
	38	3809	All

Source: Authors' elaboration based on the list of products under the WTO definition of Agriculture + Fisheries products. Note: HS = Harmonized System.

Table A2.2 Regional groupings of African countries

North Africa	Algeria, Egypt, Libya, Morocco, Sudan, Tunisia
West Africa	Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, The Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, Togo
Central Africa	Angola, Cameroon, Central African Republic, Chad, Republic of the Congo, Democratic Republic of the Congo, Equatorial Guinea, Gabon, São Tomé and Príncipe
East Africa	Burundi, Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Rwanda, Seychelles, Somalia, South Sudan, Tanzania, Uganda, Zambia, Zimbabwe
Southern Africa	Botswana, Lesotho, Namibia, South Africa, Swaziland

Source: United Nations geoscheme. https://en.wikipedia.org/wiki/United_Nations_geoscheme

CHAPTER 3

The Rice Value Chain in Africa

Fousseini Traoré, David Laborde Debucquet, Davide del Prete, Marco Sánchez, and Insa Diop

1. Introduction

Rice is both a strategic commodity and a staple food in most African countries. It is the second most important source of dietary energy in the region, after maize, providing 9 percent of human calorie intake (van Oort 2023). In many countries, particularly in West Africa, per capita consumption exceeds 100 kg/year (FAO 2024), putting Africa second only to Asia. Due to the combined effects of population growth, changing diets, urbanization, and income growth in Africa, rice demand is now growing at 6 percent annually, faster than any other staple food (AfricaRice, n.d.), and projected to increase significantly in the next decade. By 2034, Africa is likely to be the largest importing region globally, despite increasing intraregional trade (FAO 2025).

Rice is produced in 40 of 54 African countries, and production has increased steadily over the past 30 years, though more slowly than consumption, creating persistent trade deficits. Average yields across the continent remain 57 percent below the world average (FAO 2025). Rice production is carried out by millions of smallholders, primarily in rainfed systems, with only a quarter of Africa's rice-producing areas under irrigation. As a result, production increases have been driven mainly by expansion of cropping area. Although the low productivity of Africa's rice systems is likely to improve with climate change, due to the effect of CO_2 fertilization, Africa's comparative advantage at the global level is projected to deteriorate (Thomas 2024).

The policy environment plays a key role in the rice sector's evolution. In general, the sector benefits from significant market price support mechanisms and subsidies, although there is some heterogeneity: some countries aim to promote self-sufficiency by incentivizing rice production while others, particularly during food crises, aim to protect consumers through policies intended to maintain low prices and dampen the effects of international price surges, and thus their social and political consequences (Headey and Fan 2010). Understanding how these policy supports have shaped the sector's evolution is essential to analyzing today's African rice sector.

Rice is not a homogeneous product, and the rice value chain involves multiple stages from production to food preparations. Therefore, this chapter provides an overview of the African rice sector from a value chain perspective, analyzing the different stages, the market, and its environment and drivers, as well as the main challenges and opportunities facing the sector. The chapter structure is as follows. In the next section, we set the scene by describing the rice value chain. We then examine the current rice market and future outlook in Africa, focusing on production and consumption. In the following section, we examine trade patterns, showing Africa's dependence on global markets and the role of informal intra-African trade flows. The final part of our analysis examines the policy environment, focusing on the roles of price incentives and public expenditures. The final section offers conclusions and recommendations.

2. The Rice Value Chain

Value chains encompass all the activities and actors involved in bringing a product from farms to consumers. Figure 3.1 below illustrates the rice value chain for a typical African country.

Figure 3.1 Rice value chain

Source: Authors' elaboration.

The first stage (production) involves the supply and demand of farming inputs (seeds and fertilizers, especially NPK fertilizers) and primary factors of production (labor and capital). Rice production in Africa is labor-intensive, with a predominance of female labor (Palacios-Lopez et al. 2017). Production is carried out by millions of small-scale farmers, typically farming less than 3 hectares (Kinkingninhoun Medagbe et al. 2020). Rainfed systems (the majority of farms in Africa) rely solely on rainfall, limiting production to the rainy season and low-lying wetlands and inland valleys. Rainfed rice competes with other crops in production, leading to extensive practices. Depending on the region, single- or double-season production is practiced, with a diversity of crop calendars across and within countries (Balasubramanian et al. 2007). In irrigated systems, which account for a much smaller share of African rice, production depends on water control and management, which is still an issue in Africa.

Rice is harvested mainly by manual methods, and in the postharvest stage, it is aggregated by various value chain actors, including individual farmers, rural traders, and cooperatives, who move it to processing areas. Rice is usually transported using human and animal power, and sometimes, machine power. Depending on the region, some (manual) threshing and drying may take place in the field. However, these practices are known to induce significant postharvest losses (Lantin 1999).

In the middle nodes of the chain, millers play a pivotal role[1]. Africa's milling sector includes small artisanal, medium-scale, and large industrial actors. While the artisanal sector includes hundreds of mills across the continent, the concentrated industrial sector comprises just a few companies, which derive potential market power from this oligopsonistic and oligopolistic structure. Depending on the nature of paddy rice received, threshing, drying, and cleaning may take place before milling. The milling process then removes the husk and bran layers, thereby converting paddy into milled rice suitable for consumption. Clean products include brown and white rice with different levels of milling and polishing (semi or wholly milled), which can then be processed further. Byproducts from milling include broken rice, and straw and husks, which are largely used as animal feed or fuel.

1 See Box 3.1 for more details and specific issues pertaining to milling.

In addition to millers, the distribution nodes of the value chain—trading and retail—are playing an increasingly important role. These actors include transporters, wholesalers, brokers, and retailers. The expansion of modern supermarkets as incomes increase is particularly important (Campbell et al. 2009) as these retailers shape demand and create quality and marketing challenges for local producers. It is worth noting that the distribution stage is the point where imported and local rice begin to compete. However, while the domestic rice market is often competitive (less concentrated), comprising many small actors, (formal) imports are dominated by large wholesalers who often operate under oligopoly conditions (Box 3.2).

Consumers make up the final node of the value chain. Households are the most important consumers, and have specific tastes and dietary patterns across and within countries (discussed in more detail in the following section). In addition to households, recurrent food crises have led many national, regional, and international actors to enter, or amplify their actions, in the market. Their institutional purchases aim to build stocks (reserves) and serve either as a rapid response to crises (food emergencies) or as a price-stabilization mechanism. The ECOWAS regional food security reserve, created in 2013, is one of the most active entities playing this role.

Box 3.1 Rice Processing Issues

Rice millers play a pivotal intermediary role in the rice value chain, particularly in developing countries where smallholder farmers dominate agricultural production. In addition to their role as processors, they frequently operate as aggregators, credit providers, storage operators, and even exporters. Their strategic position—embedded between upstream producers and downstream traders—affords them considerable influence over both the operational and financial dynamics of the rice sector.

Millers' role goes beyond serving as price-setting intermediaries. They are also critical enablers of coordination, credit provision, and resilience. In Ghana and Côte d'Ivoire, Laurent et al. (2025) find that millers frequently engage in interlinked transactions—offering credit or accepting delayed payments from farmers in exchange for paddy. These arrangements alleviate liquidity constraints, deepen commercial ties, and allow for more stable procurement.

Beyond logistics and credit, millers are also the initial point of quality upgrading and value addition. Investments in modern milling equipment—such as rubber roll mills, huskers, and sorters—allow millers to produce higher-quality rice that meets the demands of increasingly segmented domestic and export markets. Soullier et al. (2020) document such a process in West Africa, where millers are central to ongoing efforts to upgrade value chains both technologically and in terms of organization. These changes are not merely technical—they involve shifts in institutional arrangements, sourcing strategies, and marketing channels, all of which hinge on the capabilities of millers to lead the transformation.

However, the adoption of upgraded technologies and practices remains uneven. Barriers such as limited access to long-term finance, fragmented procurement systems, and poor infrastructure continue to constrain the broader transformation of the milling sector. Ghana, for example, has seen the emergence of semi-industrial millers with improved machinery and business models, but these remain concentrated in more accessible regions (Laurent et al. 2025). Soullier et al. (2020) similarly argue that successful upgrading often depends on policy coordination, public-private partnerships, and targeted investment in midstream actors such as millers.

In sum, rice millers are far from passive intermediaries. They are active economic agents whose decisions and capacities shape farmer incentives, product quality, and market structure. Their position in the value chain allows them to simultaneously respond to and shape upstream production and downstream demand. Strengthening the role of millers through targeted policy support, access to finance, and institutional innovation is essential for building more inclusive and resilient rice value chains—especially in economies where rice is central to food security and rural livelihoods.

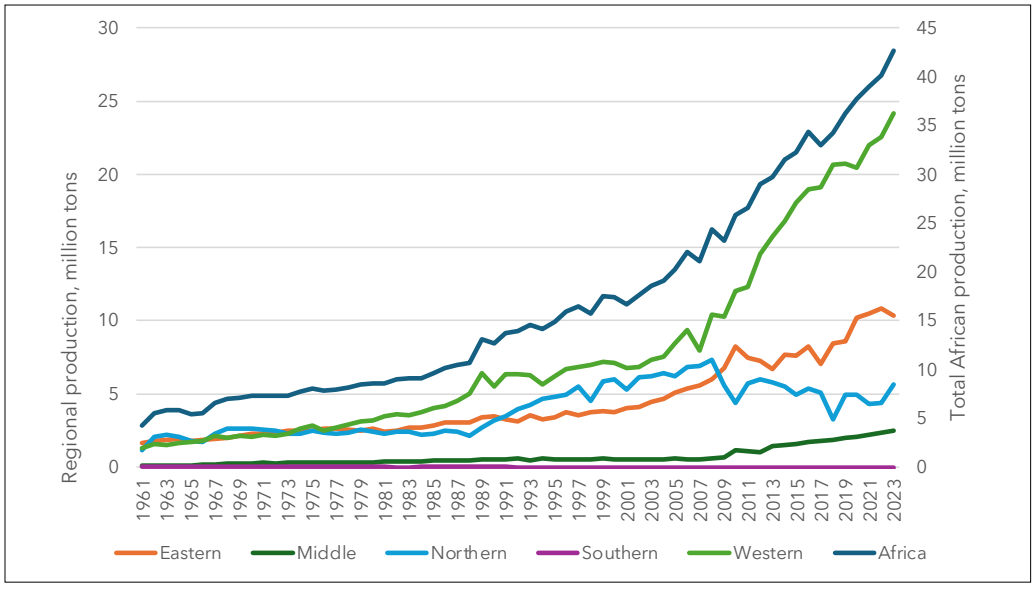
3. The Rice Market in Africa

Production

Africa produces 42 million metric tons of paddy rice (about 27 million tons of milled rice), accounting for 26 percent of its cereals production value in 2023 (FAO 2025). Africa accounts for 5 percent of the world's rice production and 11 percent of the total world rice area. Rice is grown in 40 out of the 54 African countries and involves more than 35 million smallholder farmers, with a labor force comprising more women than men (AfricaRice n.d.; Saito et al. 2023). Production has increased continuously over the past 30 years (Figure 3.2), doubling from 2003 to 2023, especially after the 2008 food price crisis, when it received a boost in public support. Production is concentrated in western and eastern African countries, accounting for 57 percent and 24 percent of total volume, respectively, as well as in Egypt, which is the continent's second-largest producer (Table 3.1). The top five producers have remained stable over the years, though concentration has decreased. While in 1993 the top five producers realized 78 percent of total volume, this share declined to 63 percent in 2023.

The primary driver of increasing rice production in Africa has been area expansion, rather than yield growth. The area under rice expanded steadily from 1993 to 2023 (Figure 3.3), doubling in 14 years alone (from 2009 to 2023). Regional figures indicate the distribution of production has not changed, with significant shares in western and eastern Africa throughout the period. Although cropping systems are diverse across the continent, rice is grown in three main environments: irrigated lowlands, rainfed lowlands, and rainfed uplands. In sub-Saharan Africa, these three systems account for 26 percent, 38 percent, and 32 percent of Africa's total rice area, respectively (Dossou-Yovo et al. 2022).

Figure 3.2 Rice production volume, African total and main African regions, 1961–2023



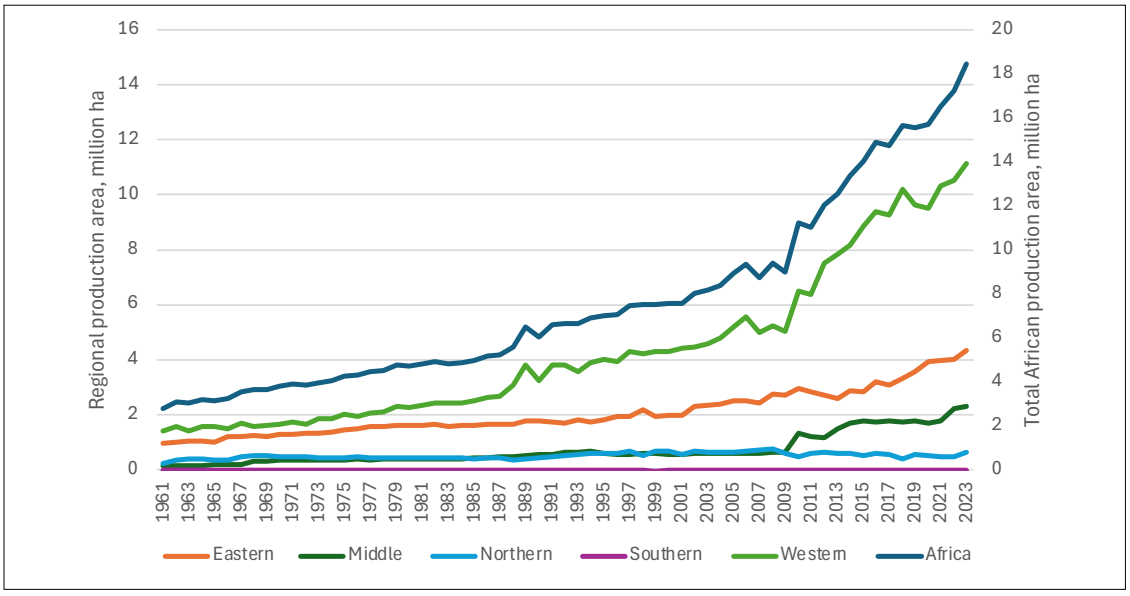
Source: FAO (2025).

Table 3.1 Top rice producers, production volume, and share in African total, 1993 and 2023

1993		Africa share (%)	2023		Africa share (%)
Country	Production (thousand tons)		Country	Production (thousand tons)	
Egypt	4.161	29	Nigeria	8.902	21
Nigeria	3.065	21	Egypt	5.600	13
Madagascar	2.550	18	Madagascar	5.118	12
Guinea	843	6	Tanzania	3.588	8
Côte d'Ivoire	676	5	Guinea	3.535	8
Total	**11.294**	**78**	**Total**	**26.743**	**63**

Source: FAO (2025).

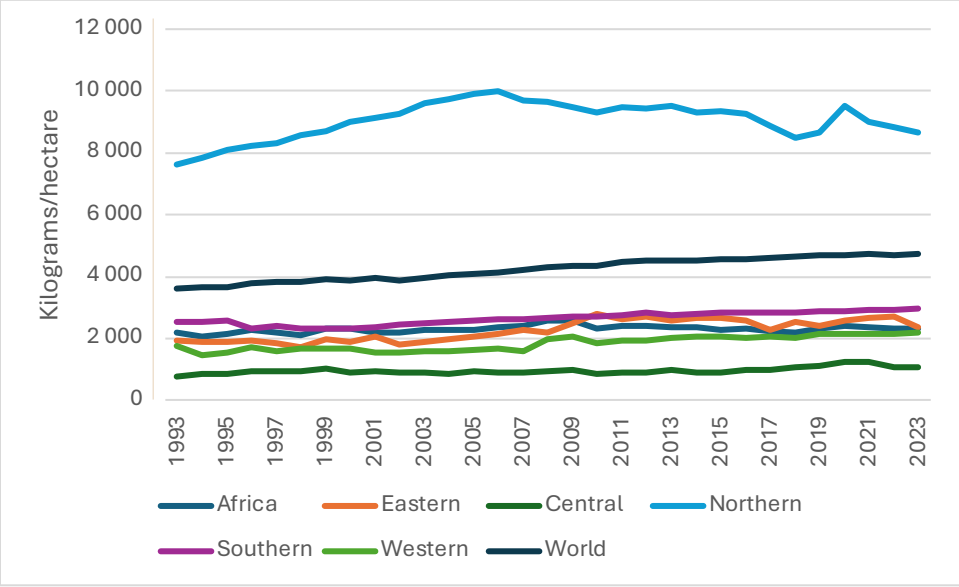
Figure 3.3 Rice production area, African total and main African regions, 1961–2023



Source: FAO (2025).

The average yield in Africa (2.1 tons/ha) is less than half the world average (4.8 tons/ha). Excluding Egypt, the average yield in Africa has shown very little improvement over time and has almost stagnated over the past three decades (Figure 3.4). Egypt is a notable exception, with yields reaching twice the world average, which is reflected in the Northern Africa yield data. Africa's low yields are caused by several factors, including limited and outdated production technologies, poor management practices, and the dominance of rainfed agriculture (Saito et al. 2023). Compared with rice production in other parts of the world, irrigated cropping systems are only a tiny share of the rice area in Africa.

Figure 3.4 Evolution of rice yields in kg/ha, 1993–2023



Source: FAO (2025).

Given this lag in productivity, climate change is one of the most serious challenges Africa's agricultural systems will face over the next decades. Most studies conclude that rising temperatures, plant pests, droughts, and changes in the distribution of precipitation pose significant threats, given the importance of rainfed agriculture and the frequency of water stress. Using data aggregated from the GAEZ project (IIASA and FAO 2012), Gouel and Laborde (2021) find that rice yields will be reduced by 15 percent in 2040 due to climate change (changes in temperature and rainfall) compared to a baseline without it. In a comprehensive study using five climate models, Thomas (2024) estimates even lower figures (Table 3.2). For rainfed rice, the most vulnerable variety, the median figure is positive (+2.9 percent), with an uneven distribution. East Africa registers negative impacts, while North Africa sees a significant gain of up to 30 percent. For irrigated rice, all regions register gains, although smaller than those accruing to rainfed production. It is worth noting that these results incorporate the impact of "CO_2 fertilization"; increased CO_2 in the atmosphere, although a driver of climate change, is expected to benefit some crops, including rice (Leung et al. 2022). Without CO_2 fertilization, the impact of climate change is negative in all scenarios. This modeling effort also allows us to compare Africa's performance under climate change (with and without CO_2 fertilization) with the rest of the world. Without the CO_2 fertilization effect, average yields for rainfed rice fare worse in Africa (−8.1 percent) than in the rest of the world (−6.8 percent), reducing the continent's comparative advantage. Similarly, with CO_2 fertilization, while yields for the rest of the world are expected to increase (+8.2 percent), African yields will rise much less (+3 percent).

Table 3.2 Estimated impacts of climate change on rice yields in 2050, percent change

Region	Rainfed		Irrigated	
	Median	Without CO_2 fertilization	Median	Without CO_2 fertilization
World	8.2	−6.8	7.8	−6.4
Africa	2.9	−8.1	5.4	−5.5
Eastern Africa	−4.5	−14.1	3.1	−9.0
Central Africa	2.0	−9.2	7.0	−10.4
Northern Africa	29.5	14.1	4.8	−14.9
Southern Africa	6.6	−2.2	6.5	−1.4
Western Africa	3.4	−8.7	2.0	−12.4

Source: Thomas (2024).

Consumption

Rice is an important staple food in Africa, particularly in Sub-Saharan Africa, and is the second largest source of dietary energy and fastest growing staple food (AfricaRice, n.d.). Due to the combined effect of rising incomes, urbanization, and population growth, rice consumption has risen steadily over recent decades. In most parts of the continent, consumers are moving away from other traditional cereals and roots and tubers toward rice as their incomes rise (D'Alessandro et al. 2020). Before analyzing consumption data, a couple of preliminary remarks are needed. First, comparable data on consumption is rarely available. Therefore, as in other studies, we rely on data from the Food and Agriculture Organization (FAO)'s food balance sheets (FBS) on per capita supply to estimate human consumption. Second, while our study covers more than 30 years, comparing figures across time requires some caution, as the methodology used for the FBS has undergone changes. Notably, data collected before 2010 are for milled rice; post-2010, the FBS data are for paddy rice and various derived products. This change increases the figures for per capita supply by at least 50 percent. To convert all figures to rice milled equivalent for comparability, we use the average conversion factors from the 2010 to 2013 period, in which the two datasets overlap.

Per capita figures show that West African countries, particularly in coastal regions, are by far the largest rice consumers in Africa (Table 3.3). In 1992 and in 2022, 7 of the 10 biggest consumers in Africa were in West Africa. With a few exceptions, per capita consumption rose significantly between 1992 and 2022, increasing by at least 20 percent in half of the top-10 consuming countries, and by 2022, consumption levels exceeded 100 kg per capita in most of these countries (Table 3.3).[2] Increased consumption has contributed to increased imports, discussed in the section of this chapter on trade.

In Africa, rice is consumed mainly in urban areas with a preference for the imported varieties, particularly in West Africa. In addition, several other consumption patterns are apparent across the continent, and consumers' tastes vary between and within countries. While rich households tend to prefer long-grain white and parboiled rice, low-income households generally consume broken rice, a byproduct of rice processing that is much cheaper than long-grain rice. Yet in some West African countries, including Mali and Senegal, broken rice is the main ingredient of the national dish and is also consumed by rich households, accounting for more than 70 percent of imports (see the section in this chapter on trade).

Consumers' preferences are complex, and their choices between local and imported varieties depend on several factors, including their income levels, prices, and the quality attributes of the product. The main attributes affecting rice consumers' choices are t≠he degree of milling,

2 The figure for Gambia in 2022 appears to be an outlier, as the average value for the five previous years is 145 kg per capita.

foreign matter content, organoleptic[3] qualities, and the ease of preparation and preservation. Locally produced rice often fails to meet consumer standards, leading to a preference for imported varieties (Hathie and Ndiaye 2015). However, when these market attributes are improved for local rice varieties (absence of impurities, greater ease of preparation and conservation, and so on) and the product is attractively packaged, consumers prefer it over imports. This is the case of Gambiaka rice in Mali and Ofada rice in Nigeria (Koné and Camara 2014; D'Alessandro et al. 2020). Given the importance of these attributes in shaping consumer preference, rice millers play a pivotal intermediary role in the rice value chain, and there may be several entry points to strengthen their role through product improvements (see Box 3.1).

Table 3.3 Top 10 rice-consuming countries, kg per capita, 1992–2022

1992		2009		2010		2022	
Guinea-Bissau	113.5	Madagascar	103.6	Madagascar	105.0	Gambia	222.9
Sierra Leone	98.0	Guinea	98.8	Guinea	100.5	Comoros	168.1
Madagascar	97.9	Sierra Leone	94.0	Guinea-Bissau	99.1	Guinea	127.1
Guinea	93.2	Guinea-Bissau	91.2	Liberia	89.5	Liberia	109.4
Liberia	90.7	Liberia	89.6	Sierra Leone	88.2	Madagascar	103.3
Gambia	69.6	Senegal	69.0	Côte d'Ivoire	82.4	Sierra Leone	94.2
Mauritius	64.0	Gambia	67.8	Comoros	70.9	Guinea-Bissau	93.9
Senegal	58.9	Côte d'Ivoire	64.4	Senegal	66.6	Senegal	82.7
Côte d'Ivoire	54.7	Mauritius	59.3	Mauritius	63.9	Djibouti	79.7
Mauritania	48.7	Mali	58.3	Gambia	58.2	Côte d'Ivoire	74.9

Source: FAO (2024).

Market outlook

In this subsection, we explore the outlook for the African rice market over the next 10 years, drawing on the recent 10-year baseline projections (OECD and FAO 2024). The projections assume no change in current national policies and support, stable weather conditions, and a continuation of current trends in technological progress. Therefore, the projections shown here are "deterministic" ones (Glauber and Mamun 2024), although some partial stochastic analysis accounting for uncertainties is performed for price forecasts.

The baseline projects a significant 33 percent increase in rice production in Africa over the next 10 years. For Nigeria and Egypt, the two largest producers, production is expected to increase by 39 percent and 16 percent, respectively. These figures are higher than projections from the U.S. Department of Agriculture (USDA-ERS, n.d.), which estimates 18 percent growth for the continent's production, and growth of 10 percent for Nigeria and 7 percent for Egypt. The divergence in the projections reflects differences in the data sources used by the two institutions, along with different assumptions in their models about the evolution of key exogenous variables. In addition, while USDA uses 2024 as the starting point, the OECD-FAO baseline starts with the average values over the 2021–2023 period.

Rice consumption is expected to continue growing at a sustained pace, increasing by 41 percent in 2033, while consumption per capita increases at an annual pace of 0.79 percent, reaching 13 percent by 2033 (OECD and FAO 2024). Consumption growth over the next decade will continue to be driven by population growth, a shift in diets toward more carbohydrates, urbanization, and income growth. Over this decade, Africa's population is projected to grow by 24 percent, with slightly higher growth in sub-Saharan Africa (26 percent), while urbanization

3 "Organoleptic qualities" refers to the properties perceived by the senses.

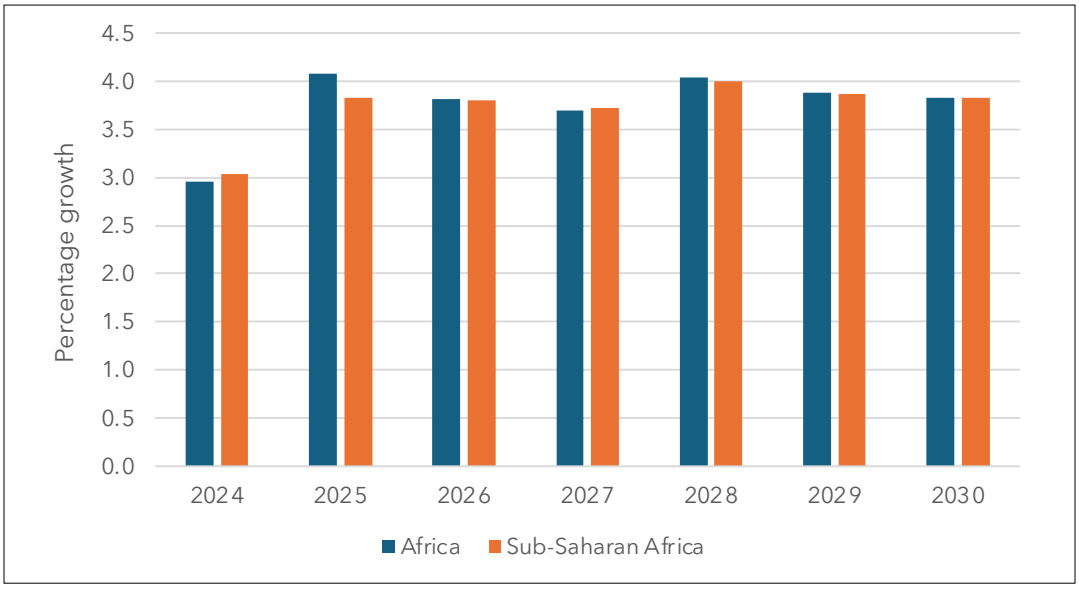
rates will rise from 45 percent to 50 percent for the whole continent, and from 43 percent to 49 percent in the sub-Saharan region (UN 2025). Income is also expected to register continuous growth, at a rate exceeding 3 percent annually (Figure 3.5). A surge in imports will be among the main consequences of increased consumption. Overall, imports will grow by 56 percent (Table 3.4), reaching 27 million tons annually, representing 40 percent of world imports by 2034, and making Africa the top rice-importing region in the world.

Table 3.4 OECD-FAO projections for the rice market, 2021/23–2033

	Production	Growth	Consumption		Growth		Imports	Growth
	Thousand tons	%	Tons	Kg per capita	Total	Kg per capita	Thousand tons	%
Africa	33.512	33.18	60.101	28.5	41.85	13.54	26.956	56.02
Egypt	4.194	15.63	4.936	34.0	18.89	2.10	752	72.08
Nigeria	7.208	38.90	11.247	33.7	49.38	17.01	4.043	73.52

Source: OECD and FAO (2024).

Figure 3.5 Annual growth in GDP per capita, 2024–2030



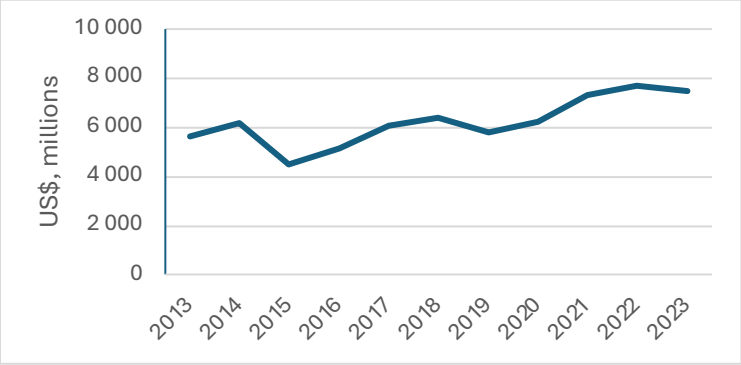
Source: IMF (2025).

4. Trade

External trade

Africa is the world's second largest rice importer, accounting for 24 percent of world rice imports by value and 34 percent by volume. Annual imports average 15 million tons, with a value of US$6.2 billion per year over the past decade (Figure 3.6), meeting 40 percent of continental demand. Africa's rice imports have grown continuously, at an annual rate of 8.25 percent over the past two decades, and are expected to double in the next decade, making the continent the largest rice importer in the world by the mid-2030s. Exports are marginal, averaging US$40 million over the past decade. An important feature of import markets in Africa is the double concentration phenomenon: the concentration of suppliers (countries) and of importers and traders (see Box 3.2).

Figure 3.6 Africa's net rice imports, million US dollars, 2013–2023



Source: 2025 AATM database.

As of 2023, 36 African countries imported rice from the rest of the world. These imports are highly concentrated, despite some decrease in concentration in recent years. On average, the top three importers accounted for 41 percent of the continent's imports in 2009/2013 and 26 percent in 2019/2023 (Table 3.5). Nigeria, Côte d'Ivoire, Benin, South Africa, and Senegal were the main importers during these years. For Benin, the small size of the country suggests that re-exports are likely at play, as highlighted in many studies since the 1990s (Bensassi et al. 2019; Benz 1991), due mainly to Nigeria's restrictive policies (high tariffs and bans) (see also the section on informal trade in this chapter). Africa's suppliers are also highly concentrated, with the top three accounting for 7 percent of imports in 2013 and 80 percent of imports in 2023. India and Thailand were the top two suppliers in both years, with Viet Nam emerging as the third-largest supplier in 2023. Other suppliers, though with a limited share, include China and Pakistan. India remains the continent's main supplier of rice despite a series of restrictions—including a ban on exports of broken rice—that India imposed beginning in July 2022 (partially lifted in 2025), which led Africa to decrease imports from India and shift toward new actors such as Brazil (Antonio et al. 2025). It is also worth noting that India granted temporary exemptions for some African countries, including Madagascar, Kenya, Senegal, and Egypt.

Box 3.2 Imports market concentration

An important feature of import markets in Africa, and particularly in West Africa, is the double concentration phenomenon: concentration of suppliers (countries) and concentration of importers and traders. The market is oligopolistic in most African countries, with just a few traders controlling a significant market share. In Mali, which is probably the most extreme case, the top three companies realize two-thirds of imports, with the largest accounting for more than half (D'Alessandro et al. 2020). In Ghana, the top four importers account for 75 percent of the total volume of imports, while in Senegal they controlled 64 percent of imports as of 2010 (Traoré et al. 2022).

The main consequences of the oligopolistic nature of the market are asymmetric price transmission and downward price rigidities. Due to the market power of importers, increases and decreases in world prices are transmitted differently. This market failure is observed in most developing countries, and several studies have highlighted the phenomenon. In Burkina Faso, Badolo (2012) finds an asymmetric transmission in the rice market: 54 percent of the deviations from the long-run equilibrium are corrected when world prices go up, against 22 percent when world prices decrease. In Senegal, Traoré et al. (2022) find a similar pattern: when world prices go up, 39 percent of deviations are eliminated after one month, but when international prices go down, only 11 percent of deviations are eliminated by the end of the subsequent month.

The structure (composition) of imports is presented in Figure 3.7 by regional economic community (REC). For all RECs, milled rice (semi- or wholly milled) makes up the vast majority of imports. Paddy, that is, unprocessed rice, is barely traded. The shares of milled rice in total REC rice imports represent between 69 percent (observed in ECOWAS) to 92 percent (in EAC). As highlighted in the previous section, rice is not a homogeneous commodity. Consumers prefer broken rice in some regions, particularly in West Africa, where it is the main ingredient in many dishes. In ECOWAS, broken rice makes up 27 percent of total rice imports. In addition to its taste, this category of rice is also cheaper than whole grain rice and is generally consumed by low-income households. Overall, processed rice (semi or wholly milled and broken categories[4]) is by far the most traded product.[5]

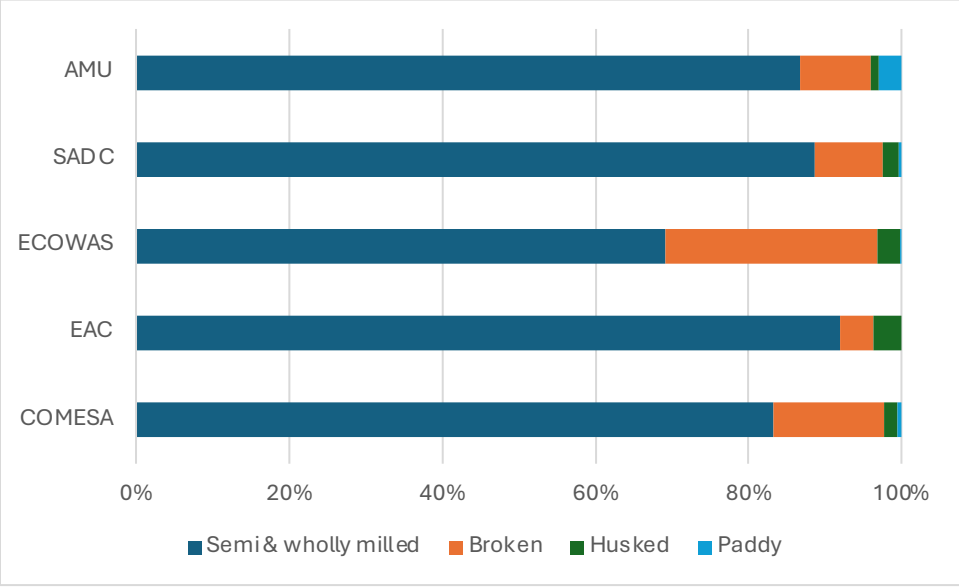
Table 3.5 Top rice importers in 2009/2013 and in 2019/2023, by value, averages

2009/2013			2019/2023		
Country	**US$ millions**	**Share of African imports (%)**	**Country**	**US$ millions**	**Share of African imports (%)**
Nigeria	1.211	21	Côte d'Ivoire	712	10
Côte d'Ivoire	560	10	Benin	584	8
South Africa	550	10	South Africa	520	8
Senegal	397	7	Senegal	499	7
Ghana	317	6	Ghana	395	6
Cameroon	297	5	Ethiopia	292	4
Benin	275	5	Niger	250	4
Mozambique	199	4	Mozambique	249	4
Angola	173	3	Cameroon	201	3
Kenya	159	3	Guinea	191	3
Total	4.140	73	Total	3.892	56

Source: 2025 AATM database.
Note: This table does not include intra-African trade.

4 Although broken rice is milled, therefore processed, it is considered a by-product.
5 It is also worth noting that while part of milled rice can go through further processing and enter different preparations, especially in chapters 11 and 19, the latter are not disaggregated by cereal type.

Figure 3.7 Composition of rice imports by REC, average, 2019–2023



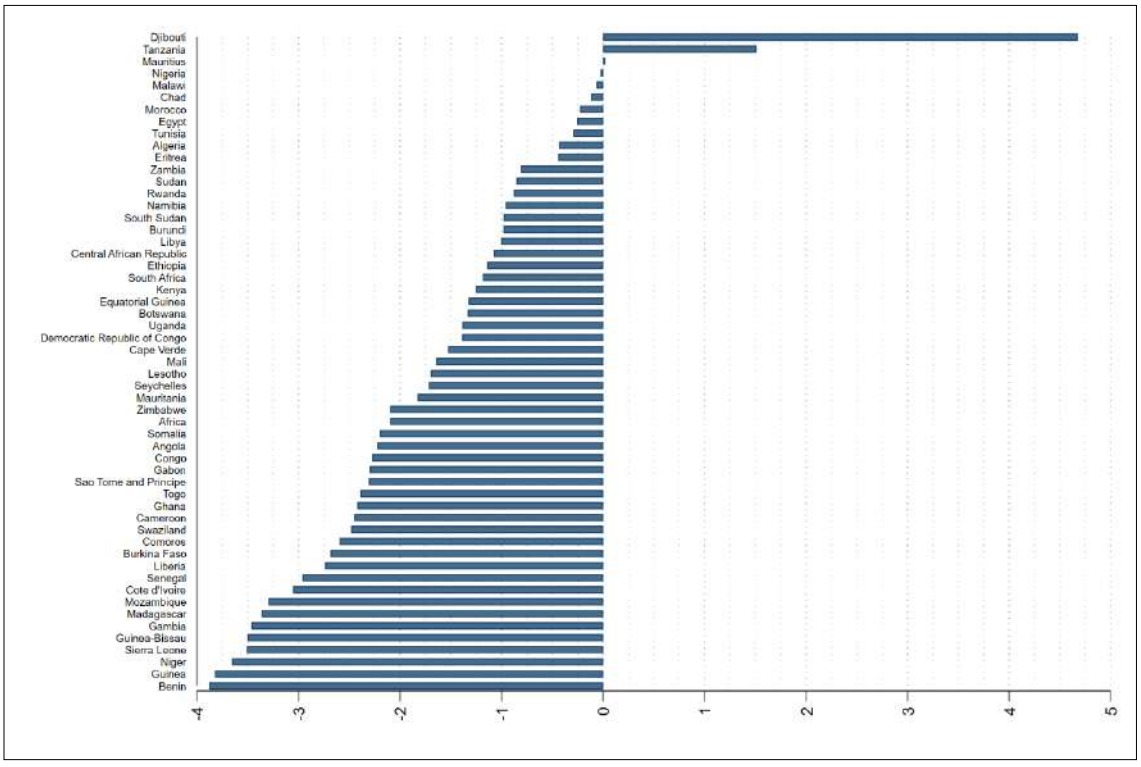
Source: 2025 AATM database.

Note: COMESA: Common Market for Eastern and Southern Africa; EAC: East African Community; ECOWAS: Economic Community of West African States; SADC: Southern African Development Community; AMU: Arab Maghreb Union.

5. Competitiveness of African countries

The previous subsections highlighted the supply constraints of the rice sector in Africa, which, in combination with rapidly growing consumer demand, contribute to a high dependence on extraregional imports. Rice productivity remains low in Africa, and output growth is driven mainly by the expansion of cultivated area, with both productivity and area expansion facing challenges associated with climate change. In this subsection, we explore the competitiveness issue by analyzing the comparative advantage of the continent and the main importer countries (see Box 3.3).

Figure 3.8 Comparative (dis)advantages for rice of African countries, 2019–2023 average



Source: 2025 AATM database.

Note: A positive (negative) value refers to a comparative advantage (disadvantage); for instance, Djibouti shows the highest comparative advantage and Benin the highest disadvantage. To reduce the dispersion while preserving signs and orders in calculating comparative (dis)advantage, we used the Inverse hyperbolic sine (IHS) transformation. For any given x, $IHS(x) = \log\left(x + \sqrt{1 + x^2}\right)$.

Figure 3.8 presents the comparative advantage of rice producers in Africa. All the main importing countries reveal a comparative disadvantage for rice, and not surprisingly, Africa as a whole also reveals a comparative disadvantage. Among the top five performers, only Djibouti, Tanzania, and Mauritius present a comparative advantage in trading rice. These three countries also figure among the top exporters within the continent. Nigeria and Malawi, the next two best performers, exhibit a slight comparative disadvantage. Since the relative position of the continent vis-à-vis the rest of the world is expected to deteriorate with climate change, in all likelihood, comparative disadvantages will persist in the absence of new policies.

Box 3.3 Revealed comparative advantage index

To compute the revealed comparative advantage of each country, we rely on the Contribution to Trade Balance (CTB) index (modified version of Cheptea et al. 2014), which is more robust and has fewer shortcomings compared with the more frequently used Balassa index. The index is defined as follows:

$$CTB_{i,k,t} = \frac{1000}{Y_i}\left[X_{i,,k,t} - M_{i,,k,t} - w_{i,k,t}\left(X_{i,,,,t} - M_{i,,,,t}\right)\right]$$

with $w_{i,k,t} = \frac{X_{i,,k,t} + M_{i,,k,t}}{X_{i,,,,t} + M_{i,,,,t}}$ referring to the share of k (rice) HS4 product in country i's total trade

with the rest of the world, Y refers to the GDP of the country, X refers to exports, and M to imports. The index consists of the realized trade balance minus the expected trade balance, given the share of the product in total trade. Therefore, to reveal comparative advantages (disadvantages), the observed trade balance $X_{i,,k,t} - M_{i,,k,t}$ must be greater (less) than the theoretical balance $w_{k,t}\left(X_{i,,,,t} - M_{i,,,,t}\right)$. Thus, positive (negative) values of CTB refer to a comparative advantage (disadvantage). The index is normalized on the GDP (Y) of the country in question to take the size of the economy into account.

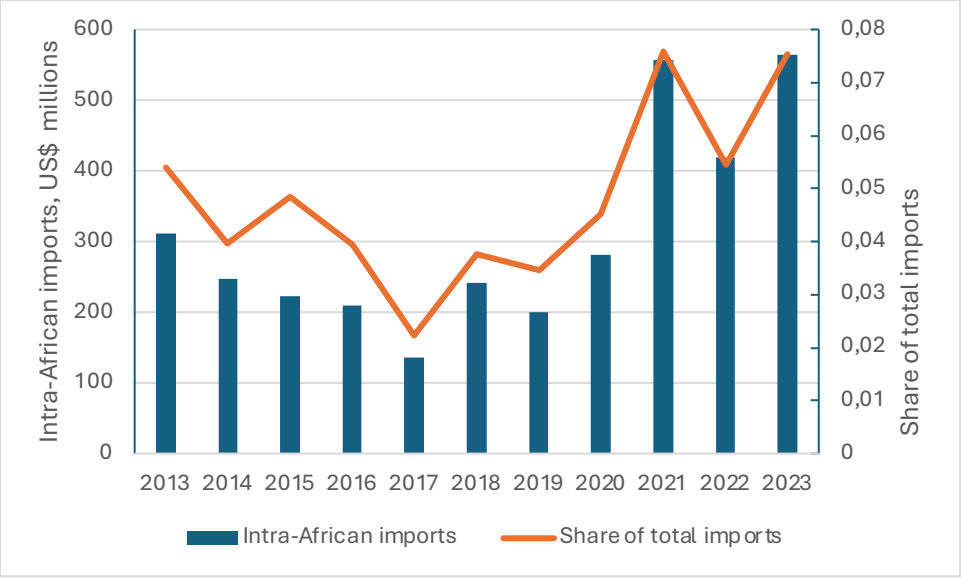
Intra-African trade

Most African rice trade is with partners outside the continent. While extracontinental imports averaged US$6 billion over the past decade, intra-African trade never exceeded $600 million according to official data, although it has generally risen in the current decade (Figure 3.9). The value of intra-African trade fluctuates with the domestic and international environment, and its share in total imports follows a similar pattern. For any given year, intra-African flows represented less than 10 percent of total imports, ranging from 2 percent in 2017 to 7 percent in 2023. In addition to supply conditions, trade policies of both exporting and importing countries have strong effects on intra-African trade. First, although most trade takes place between countries in the same REC, that is, under free trade, and rice is generally exempt from certificate of origin requirements, various impediments remain. Illegal checkpoints, payments, and bribes impose significant costs on traders. In West Africa, these illegal payments represent an ad valorem equivalent that can be as high as 23 percent (Bouët et al. 2021). Another major limiting factor within Africa is the surge of various trade restriction measures, including full trade bans, put in place to stabilize domestic rice markets and favor consumers. Since the 2008 crisis, Burkina Faso (in 2023), Cameroon (in 2022), Ghana (in 2024), Mali (in 2021), and Niger (in 2024) have implemented such measures.

Table 3.6 shows the main intra-African rice exporters and importers, indicating a high degree of concentration for both groups. Exports are dominated by Djibouti, South Africa, and Tanzania, with 74 percent of flows. Intra-African imports are dominated by Ethiopia, Uganda, and Zimbabwe, which together realize 47 percent of these imports. The presence of trade overlap in South Africa is worth noting; while South Africa is among the main importers from outside Africa, it also contributes 21 percent of intra-Africa exports. However, while South Africa's imports from the rest of the world are almost entirely (98 percent) composed of semi and wholly milled rice, intra-African exports are more diversified, including 25 percent broken rice and 3 percent rough or paddy rice.

All these figures should be considered with caution, given that intra-African trade in agricultural products, particularly rice, is often informal, sometimes through re-exports, as a response to differences in trade policies between neighboring countries. The next section discusses this issue.

Figure 3.9 Intra-African rice imports, millions of US dollars (left axis), and share in total rice imports (right axis), 2013–2023



Source: 2025 AATM database.

Table 3.6 Top rice exporters and top importers, share in 2019/2023 average value

Exporter	Share in exports (%)	Importer	Share in imports (%)
Tanzania	39	Uganda	23
South Africa	21	Ethiopia	13
Djibouti	14	Zimbabwe	11
Senegal	8	Kenya	9
Mauritius	6	Botswana	8
Total	**88**	**Total**	**64**

Source: 2025 AATM database.

Informal cross-border trade

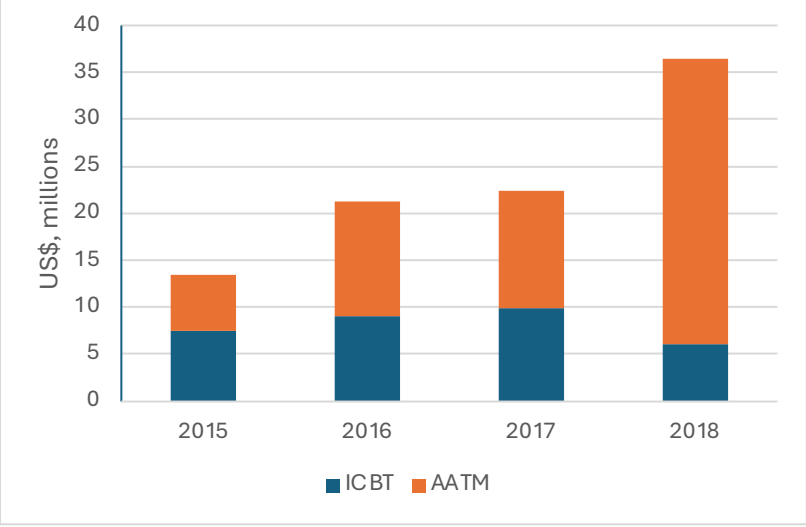
Informal cross-border trade (ICBT) is pervasive within Africa, particularly for agricultural products. Previous studies find that official statistics rarely include ICBT, but it could account for 10 percent to 60 percent of total trade flows in the agriculture sector (Bouët et al. 2020). A recent literature review concludes that ICBT makes up between 7 percent and 16 percent of intra-African trade and between 30 percent and 72 percent of the value of trade between neighboring countries (Gaarder et al. 2021). A recent assessment for West Africa finds that intraregional trade flows are six times the officially reported flows (OECD and SWAC 2025). It is worth noting that no continental direct assessment of ICBT exists to date, although a recent initiative by the African Union, Afreximbank, and UNECA is seeking to fill the gap. In addition, several initiatives are underway at the subregional level. In West Africa, CILSS and WACTAF[6] have the only permanent ICBT monitoring system for agro-silvo-pastoral products and fisheries.

6The Permanent Committee for Drought Control in the Sahel (CILSS) and the West African Association for Cross-Border Trade, in Agro-forestry-pastoral and Fisheries Products (WACTAF).

The data collection activities started in April 2013 and cover 57 products for which the value and volume of intraregional trade is recorded for strategic markets and along the major commercial corridors linking Senegal, Mali, Burkina Faso, Benin, Togo, Ghana, Côte d'Ivoire, and Nigeria. In eastern and southern Africa, FEWSNET, in collaboration with local partners, conducts regular analysis of markets and trade of food commodities such as maize, beans, wheat, rice, sorghum, and sesame. At the country level, the Uganda Bureau of Statistics has the most exhaustive and regular ICBT data collection system, in an effort initiated in 2005 in collaboration with the Bank of Uganda. While other sources or initiatives exist, they are neither exhaustive nor regular.

In West Africa, the Benin–Nigeria case is of particular interest since trade flows involve both exports and re-exports. While official sources report no rice trade data for the 2019–2020 period (partly due to the closure of the border between the two countries in 2019–2020), informal flows recorded by CILSS-ECO-ICBT are valued at more than US$3 million over the period. Trade flows to Togo present a similar pattern: official flows are less than US$10,000 while CILSS reports US$1.1 million. In East Africa, two cases illustrate the magnitude of ICBT in rice. In Uganda, ICBT represents a significant share of trade flows, accounting for up to 55 percent of total imports (Figure 3.10). For Tanzania's exports to Burundi, in three of the five years considered, ICBT constitutes a majority of flows, reaching 78 percent in 2021 (Figure 3.11). These three examples are in line with previous studies and point to the need for caution when analyzing intraregional agricultural trade flows in Africa.

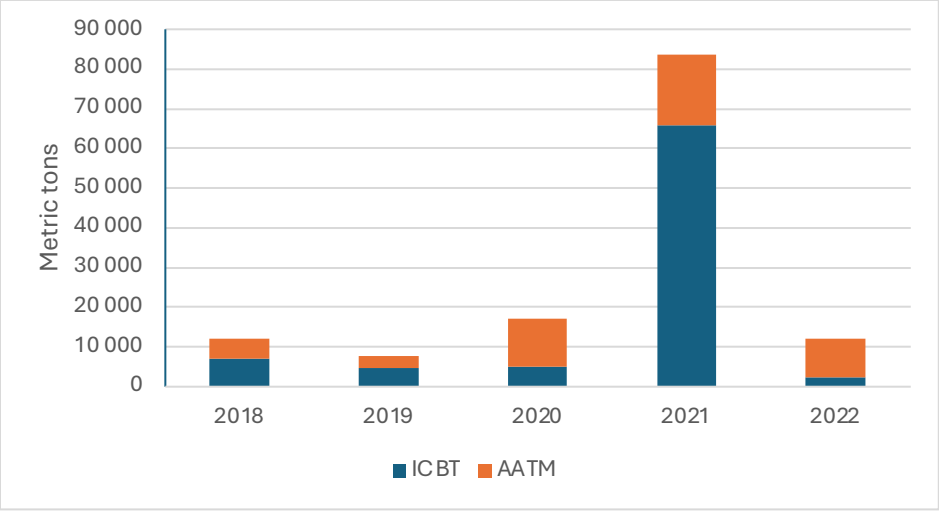
Figure 3.10 Uganda imports of rice, millions of US dollars, 2015–2018



Source: Uganda, Bureau of Statistics (2019).

Note: AATM refers to the AATM (formal) trade database.

Figure 3.11 Tanzanian exports of rice to Burundi, metric tons, 2018–2022



Source: FEWSNET.

Note: AATM refers to the AATM (formal) trade database.

Rice market integration

The previous sections highlighted the presence of intra-African trade flows, although flows from the rest of the world tend to dominate for rice. It is therefore relevant to assess the extent to which these regional markets are integrated. Although different approaches are available for testing market integration, we use the "border effects" approach (Engel and Rogers 1996), which allows us to compare the evolution of relative prices across and within neighboring countries. We compare pairs of markets across and within countries, controlling for distance and other relevant exogenous variables in ECOWAS, SADC, and COMESA. It is assumed that the difference in prices between two markets is positively related to the distance between them, but holding distance constant, it should be higher for two markets separated by a national border if trade barriers exist. In this framework, a significant border effect suggests markets are not integrated (see a description of the underlying model in Box 3.4).

Our analysis finds that, for all three REC examples—ECOWAS, SADC, and COMESA—at the conventional significance levels, the price dispersion is higher for cross-border market pairs than within-country market pairs, suggesting additional transaction costs associated with crossing international borders[7]. The largest effect is observed for ECOWAS (28 percent) and the smallest for SADC (8 percent). The small border effect observed in the SADC example, compared with other RECs, is consistent with previous findings on agricultural market integration in Africa (Cissé et al. 2020). When the sample is split into individual RECs to test whether these effects vary over time, the results suggest an increasing impact of the border in all three examples. These high and increasing border effects identified for rice differ from results found in previous studies on Africa for other staples, such as millet, sorghum, and cassava, which are less or, most often, not impacted by international trade and less subject to public interventions (Araujo Bonjean and Brunelin 2013). Indeed, since the 2008 food crisis, the rice sector has been subject to significant public interventions aimed at isolating domestic markets and reducing trade (see section on intra-African trade). The results also suggest a decreasing impact of distance over time, which may reflect falling transportation costs, possibly as a result of infrastructure improvements.

7 Table A3.A in the appendix reports the results from the regression.

Box 3.4 Border effects model

We run fixed-effects regressions of the form:

$$y_{ijt} = \alpha_0 + \alpha_1 Border_{ij} + \alpha_2 \ln(Distance_{ij}) + \delta_i + \mu_j + \lambda_t + \varepsilon_{ijt} \quad (1)$$

where y_ijt $ln\left|\frac{P_{it}}{P_{jt}}\right|$ is the log of the price ratio between market i and market j.

$Border_{ij}$ is a dummy variable taking 1 if i and j are not in the same country and 0 otherwise; α_1 represents the border effect between countries; and δ_i and μ_j represent the markets fixed effects and λ_t represents monthly fixed effects.

In the analysis, we consider three examples involving three countries with strong trade links in three RECs in Africa: ECOWAS, SADC and COMESA. For ECOWAS, since reexports are present and represent a majority of flows, we consider the imported variety of rice, while we restrict the study to local rice for COMESA and SADC. In addition, since for a pair of markets located in different countries and far from the border, country-level unobserved heterogeneities can be an issue and potentially confound the border effects, in our estimation sample, we consider only market pairs no more than 500 kilometers apart.

Two sources of data are available: the Global Information and Early Warning System on Food and Agriculture (GIEWS), through its food price monitoring and analysis tool, and the World Food Program's Economic Explorer platform. As the Economic Explorer has greater coverage—providing monthly food price data by regional markets in 75 countries—we rely on it first. Due to data availability, the sample covers the 2000–2024 period for SADC and COMESA and 2013–2024 for ECOWAS. Distance matrices between and within countries have been computed using the centroid coordinates from shapefiles.

AfCFTA and regional trade potential

The African Continental Free Trade Area (AfCFTA) is the most ambitious trade initiative ever undertaken on the continent. When fully operational, the AfCFTA will establish a market of 1.2 billion people and US$2.5 trillion in GDP (World Bank 2025). The agreement is creating high expectations and aims to address some key issues in Africa's trade landscape. First, Africa remains the least open continent in the world. Its intracontinental tariffs are the highest in the world, averaging 9 percent, while the world average is 3.5 percent (Bouët et al. 2017). Yet, trade complementarities exist between African countries, and there is a potential for regional trade to help stabilize domestic markets, particularly in agriculture and especially for cereals (Badiane et al. 2014). In addition, recent crises and tensions in global markets (in particular, export restrictions in large exporting countries) have highlighted Africa's dependence on the rest of the world, underscoring the importance of greater integration as a risk-coping strategy (Laborde Debucquet et al. 2023).

To identify the continental trade potential of rice, it is important to analyze the state of taxation in the sector. Rice is currently highly taxed in Africa (see Tables 3.7 and 3.8), particularly in AMU, COMESA, and SADC, while ECOWAS and ECCAS apply relatively low tariffs (around 10 percent). Overall, paddy (unprocessed) rice, including seeds, is taxed less than processed rice, with ECOWAS applying the lowest tariffs. This taxation structure creates positive effective protection for the sector. Moreover, some intracontinental tariffs are higher than the ones applied to imports from the rest of the world. This is the case for AMU and COMESA. These high intracontinental tariffs confirm the results from the border effects analysis and the potential for increasing intracontinental trade.

The strategic nature of rice is visible in countries' market access offers under the AfCFTA. For the three RECs for which data are available (CEMAC, EAC, and ECOWAS), at least one tariff line for rice is treated as sensitive (to be liberalized over a longer period) or excluded from liberalization. This special treatment will dampen the positive effects expected from the AfCFTA as a risk-coping strategy and a domestic market stabilization mechanism. This risk is particularly important for COMESA,[8] where rice imports face high tariffs despite strong potential for regional trade to stabilize domestic markets. Indeed, in this REC, aggregate production is much more stable than domestic production, and cross-country correlations are weak (Mamboundou et al. 2024).

Table 3.7 Average duties applied on paddy (unprocessed) rice, percentage

Exporting blocs	Importing blocs					
	AMU	**COMESA**	**ECCAS**	**ECOWAS**	**SADC**	**ROW**
AMU	7.5	14.3	7.1	5.0	26.3	27.1
COMESA	17.7	3.6	7.1	5.0	14.0	25.5
ECCAS	19.7	14.3	2.0	5.0	26.1	27.0
ECOWAS	19.7	15.0	7.1	0.0	26.3	25.3
ROW	18.4	14.8	7.1	5.0	26.3	32.2
SADC	19.7	9.3	7.1	5.0	0.0	28.0

Source: MacMAp-HS6 database (2019).

Note: ROW: rest of the world; COMESA: Common Market for Eastern and Southern Africa; EAC: East African Community; ECOWAS: Economic Community of West African States; SADC: Southern African Development Community; AMU: Arab Maghreb Union.

Table 3.8 Average duties applied on processed rice, percentage

Exporting blocs	Importing blocs					
	AMU	**COMESA**	**ECCAS**	**ECOWAS**	**SADC**	**ROW**
AMU	7.5	14.4	7.06	11	27.5	24.9
COMESA	20.6	3.6	7.06	11	14.9	25.7
ECCAS	23.2	14.9	2.02	11	27.2	25.7
ECOWAS	23.2	15.0	7.06	0	27.5	25.6
ROW	20.7	14.9	7.06	11	27.5	25.2
SADC	23.2	9.0	7.06	11	0.0	27.1

Source: MacMAp-HS6 database (2019).

Note: ROW: rest of the world; COMESA: Common Market for Eastern and Southern Africa; EAC: East African Community; ECOWAS: Economic Community of West African States; SADC: Southern African Development Community; AMU: Arab Maghreb Union.

8 Most EAC countries are also part of COMESA, thus with a special treatment for rice.

6. Policy Environment

The development of the rice sector and its value-chain linkages largely depends on the policy environment, both domestic and international. This section examines that environment using two key indicators: price incentives and public expenditures. Price incentives are a widely used measure to assess how policies influence agricultural returns and whether they create an enabling environment for farmers and consumers (Krueger et al. 1988; Anderson et al. 2008). In particular, we analyze the nominal rate of protection (NRP) at the commodity level, which is a preferred indicator because it captures the combined effects of policies on producer and consumer behavior and on overall welfare. For public expenditures, to take advantage of a newly developed tool, we use economic modeling to determine if budget support for rice producers should be increased (decreased) because it will be relatively more (less) optimal to support them vis-à-vis other farmers, which is an indication of the competitive advantage of the sector vis-à-vis other sectors. The policy implications of the analysis are discussed.

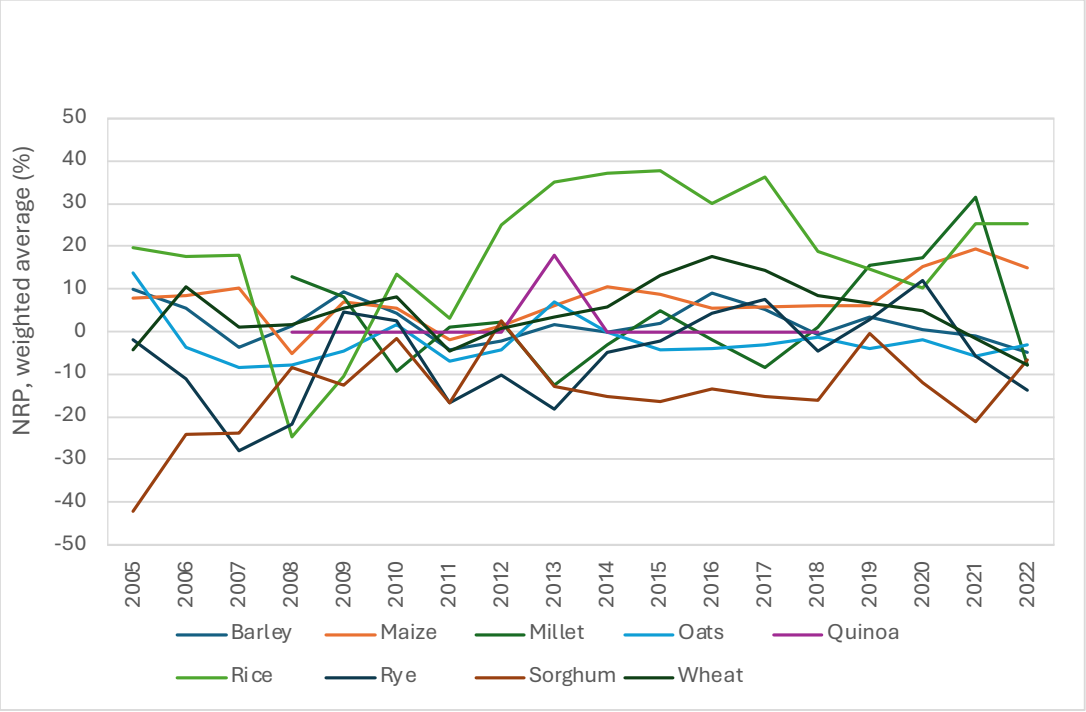
Price incentives through market price support and subsidies

The first indicator we look at is the nominal rate of protection (NRP), which quantifies the impact of agricultural policies on the market price of a commodity compared to world prices. It is calculated as the percentage difference between the farmgate price received by producers and an undistorted reference price at the farmgate level. Reference prices are derived from border prices of commodities, adjusted for market costs and quality and quantity factors to ensure comparability with domestic prices. These prices are considered free from domestic policy influences and market distortions. A positive NRP indicates that local prices exceed reference prices, signifying that there are price incentives for producers and wholesalers, whereas a negative NRP indicates price disincentives for those actors. The price incentives or disincentives result from border measures (that is, trade policies) and market price regulations. Krueger et al. (1988) first used the NRP approach, and Anderson et al. (2008) expanded it to measure the nominal rate of assistance to agriculture (NRA), which includes the elements in the NRP and also encompasses broader assistance mechanisms that affect the incentives for agricultural production, such as fiscal transfers or subsidies.

We analyze the NRP for 47 countries over the period 2005 to 2022. Figure 3.12 shows that rice is the most protected grain,[9] with an average NRP of 18.5 percent over the period.[10] Since 2010,[11] the NRP of rice has consistently exhibited positive values, followed by that of maize and wheat. Although the rice price incentives are the highest, they also show significant variation over time and across countries. The standard deviation of 16.5 makes rice's NRP nearly three times greater than those of maize (5.8) and wheat (6.8), underscoring substantial heterogeneity in terms of how the sector is incentivized/disincentivized over time.

9 We exclude teff from Figure 3.1 because its maximum NRP of 415 percent is out of scale, and it is produced exclusively in Ethiopia.
10 Grains as a group, including rice, maize, and wheat, exhibit significantly higher price incentives than other sectors, with an average NRP of 9.3 percent from 2005 to 2022.
11 Export restrictions imposed by major rice exporters, including India and Viet Nam, caused global rice prices to surge sharply in 2007/08. The highly negative NRP observed during this period suggests that farmers did not fully benefit from the price increase, as importers appear to have captured most of the gains.

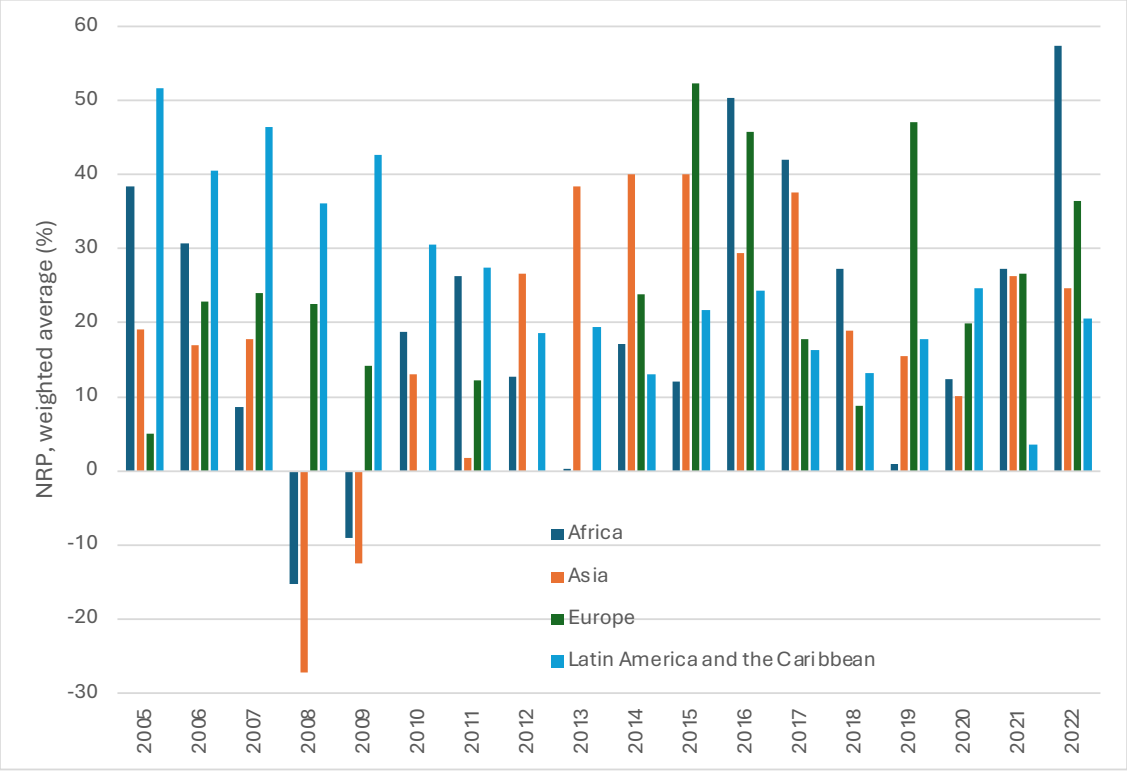
Figure 3.12 Product-level global nominal rate of protection, 2005–2022



Source: AgIncentives Consortium (2024).

Figure 3.13 shows that on average, during the 2005 to 2022 period, African countries also provided price incentives for rice producers, reflected by a 19.9 percent NRP, which is comparable to levels observed in Latin America (26 percent) and Europe (21 percent). However, these averages mask considerable heterogeneity. Across African countries, the standard deviation of rice producer support is 19.7, the highest among all regions analyzed, reflecting substantial differences in producers' support across the continent. Moreover, the average for Africa also shows considerable fluctuations in price support over time, with reductions from 2005 to 2007 and even price disincentives in 2008 and 2009, negligible support in 2013, and an increasing trend beginning in 2019. This underscores that, while Africa has recorded the highest average price support for rice in recent years, it is also the region with the greatest variability.

Figure 3.13 Nominal rate of protection for rice at the regional level, 2005–2022

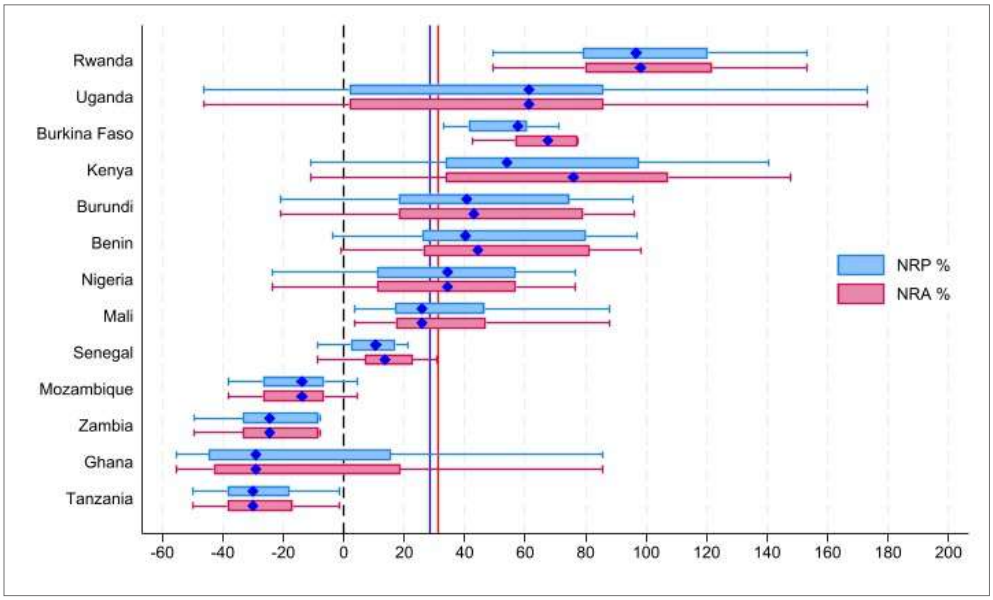


Source: AgIncentives Consortium (2024).

Focusing on Africa, significant variability is evident in both the NRP and the NRA for rice, not only across but also within countries (Figure 3.14). The two measures largely overlap, as data are available for only a subset of countries and years in our sample, and, as explained, the NRA includes the elements of the NRP. Where this information was available, we see that market price support constitutes 90 percent of the total NRA value, with fiscal transfers accounting for the remainder. This breakdown suggests that budget support for rice farmers—such as subsidies related to production and inputs exclusively due to fiscal transfers—is relatively low in the region, as we discuss.

While some countries (Rwanda and Uganda) display high positive NRPs, reflecting strong price incentives for producers, others (Zambia and Tanzania) consistently show negative NRPs, indicating disincentives. Notably, there are no clear regional patterns in the distribution of the NRP, as the NRP range is wide in both western and eastern African regions. Regarding within-country heterogeneity, this is evident in the length of the boxplots (Figure 3.14). For example, Uganda shows a particularly wide range for its NRP, highlighting substantial fluctuations in producer price incentives over time.

Figure 3.14 Nominal rates of protection and assistance for rice at the country level, 2005–2022



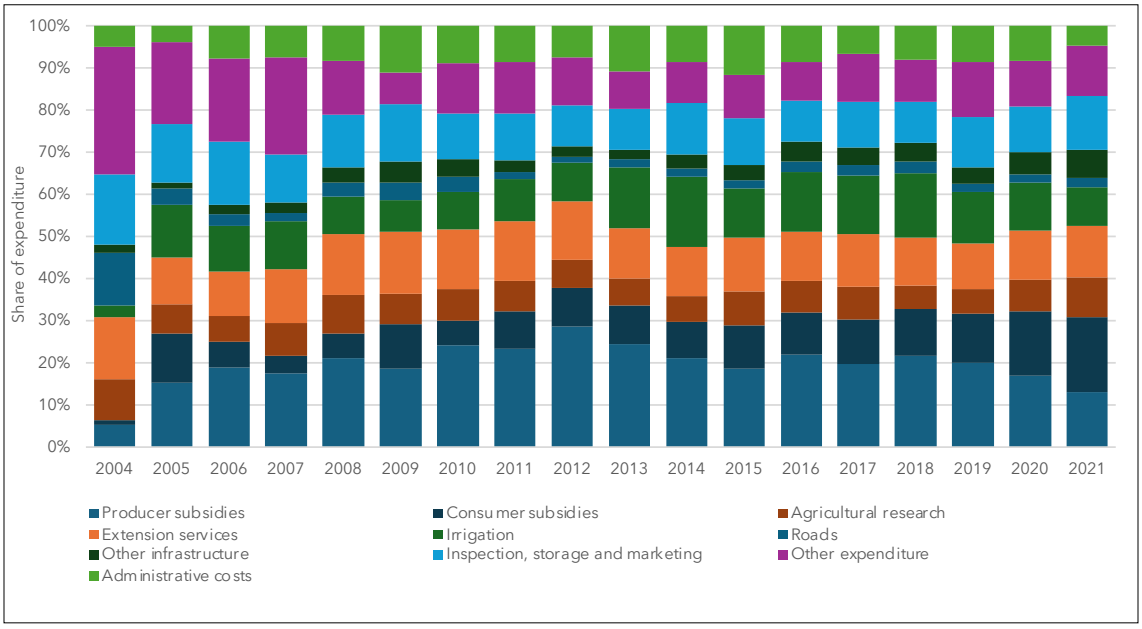
Source: AgIncentives Consortium (2024).

The analysis of the NRP and the NRA also highlights the diverse and intertemporally inconsistent policy environments affecting rice production in Africa. On the one hand, countries with high positive price incentives likely aim to boost domestic production through protective measures. For instance, this is the case of Rwanda, which has supported its producers with a 75 percent import duty and various initiatives to promote self-sufficiency and market competitiveness, including the country's Crop Intensification Programme (CIP) launched in 2007, the National Rice Development Strategy (NRDS II, 2021–2030), and the Strategic Plan for Agricultural Transformation (PSTA IV, 2018–2024). On the other hand, negative NRPs (such as those of Mozambique, Zambia, Ghana, and Tanzania, shown in Figure 3.15) may be evidence that countries prioritize low consumer prices rather than boosting domestic production. Such high heterogeneity in NRPs and NRAs both across and within countries suggests the need for more stable and targeted policy interventions to balance producer incentives and market competitiveness.

Public expenditure and budget support

The NRA includes fiscal transfers (that is, subsidies) that are reflected in agricultural budgets and expenditures. However, the NRA does not provide a full picture of all the domestic policy support, requiring a more thorough analysis of agricultural budgets and their allocation across policy-support measures. Historically, the share of government budgets devoted to agriculture in Africa has been low compared with Asia and has even been declining recently (Fan and Breisinger 2011; Pernechele et al. 2021). Recently, Sánchez et al. (2024) have shown that the share of public spending on agriculture in 18 African countries over the 2004–2021 period was consistently below the 10 percent CAADP target in most of the countries and has been declining. They also note that a substantial portion of public expenditure in food and agriculture (including consumer transfers) in these countries was allocated to producer subsidies (about 21 percent on average), followed by extension services (12 percent), and irrigation infrastructure (12 percent). But, as further noted below, the rice sector may not be the main beneficiary of such subsidies. Over time (Figure 3.15), the shares of budgets allocated to producer subsidies, roads, and irrigation have trended downward.

Figure 3.15 Composition of public expenditure in the food and agriculture sector over time, average for all countries by year, 2004–2021



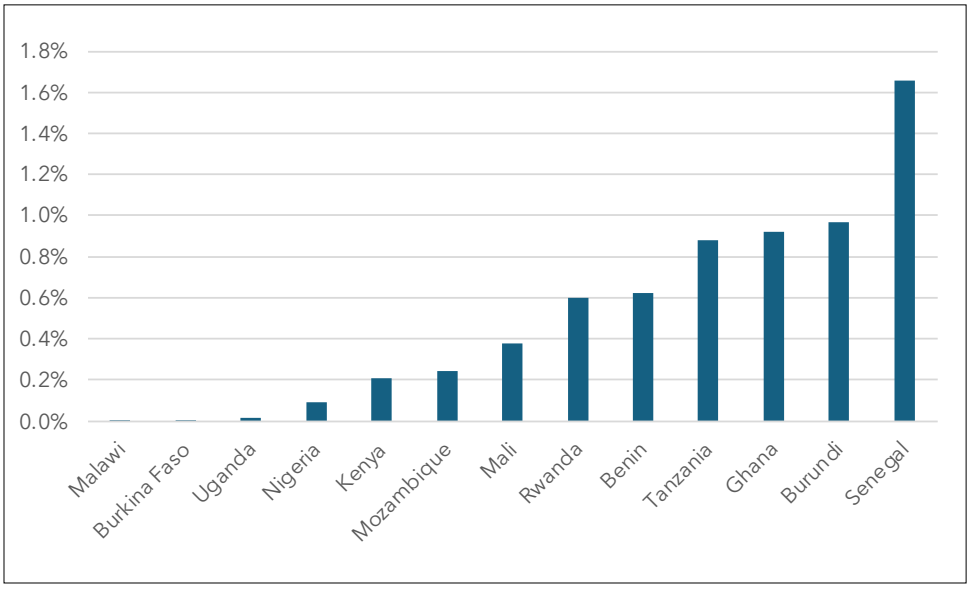
Source: Sánchez et al. (2024), based on Monitoring and Analysing Food and Agricultural Policies: Data hub–Public expenditure, accessed October 2024. https://www.fao.org/in-action/mafap/data-hub

Note: Countries and years covered are as follows: Benin (2008–2020), Burkina Faso (2006–2020), Burundi (2005–2017), Ethiopia (2009–2021), Ghana (2016–2020), Kenya (2007–2018), Malawi (2006–2020), Mali (2005–2020), Mauritania (2009–2021), Mozambique (2009–2020), Niger (2004–2018), Nigeria (2015–2021), Rwanda (2012–2020), Seychelles (2004–2013), Uganda (2004–2022), United Republic of Tanzania (2011–2017), Zambia (2014–2019), and Zimbabwe (2011–2017). Unfortunately, the number of countries is not homogeneous across all years.

In the case of rice, market price measures have been the primary support mechanism (reflected in NRP, recall Figures 3.13 and 3.14), rather than budget support, although some countries have invested in increased irrigation for rice, among other priority areas. In fact, data available in 13 African countries indicate three important characteristics of the share of direct budget support to producers in total agriculture public expenditure (Figures 3.16 and 3.17):[12] (1) this share varies substantially across countries, (2) it is a very small share on average, close to negligible in some countries, and reaches 1 percent only in one country (Senegal), and (3) considering the countries together, the support has been steadily declining, after having reached its maximum in 2010. Putting fiscal constraints aside, this evidence raises important questions: Is budget support for rice producers low and declining because it does not produce expected outcomes (such as boosting productivity)? Or, to the contrary, should it be increased to help producers reach their potential? To answer these questions, we employ economic modeling.

12 Countries and years covered are: Benin (2008–2020), Burkina Faso (2006–2020), Burundi (2005–2017), Ghana (2016–2020), Kenya (2007–2018), Malawi (2006–2020), Mali (2005–2020), Mozambique (2009–2020), Nigeria (2015–2020), Rwanda (2012–2020), Senegal (2010–2020), Tanzania (2011–2017), Uganda (2004–2022). The number of countries varies across years, and it is lower for the initial and final years.

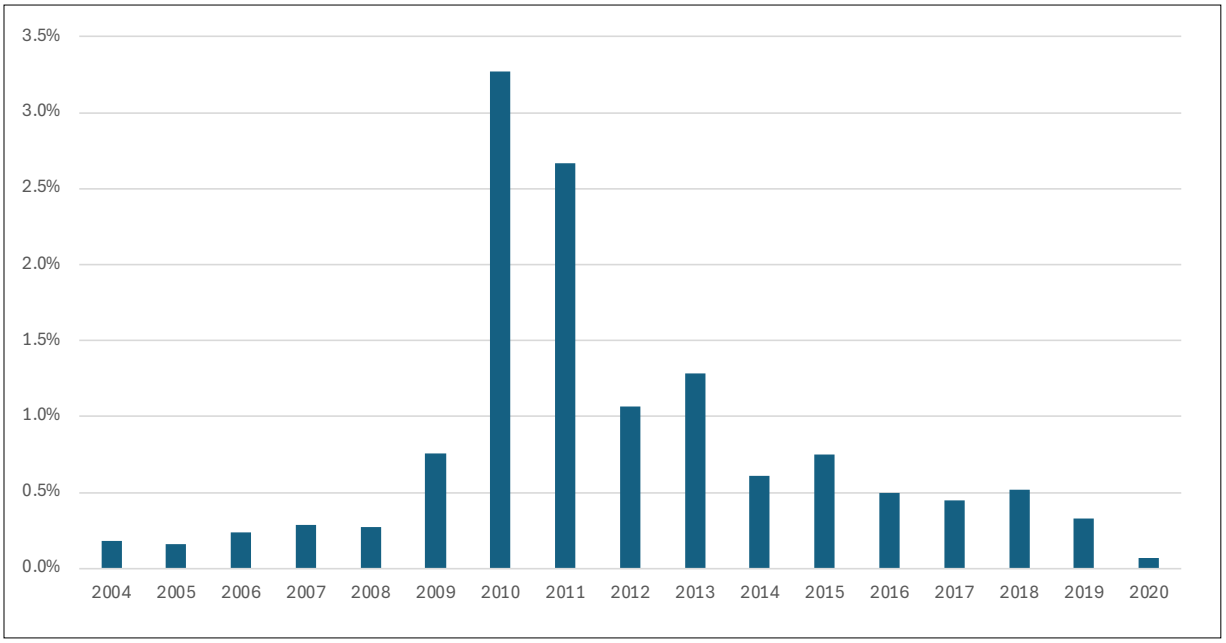
Figure 3.16 Direct support to rice producers as a share of total public expenditure in agriculture, annual average, 2005–2020



Source: Authors based on Monitoring and Analysing Food and Agricultural Policies: Data hub – Public expenditure, Accessed on December 2024. https://www.fao.org/in-action/mafap/data-hub

Note: Direct support to producers includes subsidies to production, inputs, and on-farm services; income support; and other producer transfers. Total public expenditure for agriculture includes this support, transfers to the value chain agents (producers, consumers, and other agents), general support to the sector (extension services, R&D, technical assistance, training, inspection, storage, marketing, and agricultural infrastructure), and administrative costs.

Figure 3.17 Direct support to rice producers as a share of total public expenditure in agriculture across 13 African countries, 2004–2020



Source: Authors based on Monitoring and Analysing Food and Agricultural Policies: Data hub–Public expenditure, accessed December 2024. https://www.fao.org/in-action/mafap/data-hub

Note: The 13 countries are the same as those presented in the previous figure.

A scenario analysis, presented in Sánchez et al. (2024), uses a policy optimization modeling tool for six sub-Saharan African countries to provide additional insights into the position of the rice sector in the current budget support landscape, where not only subsidies but also other policy support measures are identified.[13] First, they generate a base business-as-usual scenario for 2025 to 2030, in which there is no change in the public budget in food and agriculture as a share of GDP or its relative allocation across policy support measures and subsectors/commodities. Second, they develop a policy optimization scenario in which the projected public expenditures in the crop farming and livestock sectors are optimized across policy support measures to pursue four policy objectives from 2025 to 2030: (1) maximize agrifood output, (2) maximize off-farm job creation in rural areas, (3) minimize rural poverty, and (4) minimize the cost of a healthy diet. The comparison of these two scenarios points to existing inefficiencies in the allocation of public support to agriculture in the six countries.

Reallocation of public expenditures to optimize policy support measures to improve on the four policy objectives can be expected to change the support across subsectors/commodities.[14] In the particular case of the objective that seeks to reduce the cost of a healthy diet, governments in most of the six countries would have to reduce support to cereals primarily, but also to livestock, in order to increase the supply of fruits and vegetables. Overall, the authors find that eliminating budget support inefficiencies will allow for higher agrifood output growth, the creation of thousands of off-farm jobs in rural areas (852,461), helping millions of people to escape poverty (2,776,027), and allowing many more to newly afford a healthy diet (more than 16 million).

Disaggregation of the results presented in Sánchez et al. (2024) to single out rice for five countries for this paper[15] shows that resolving the existing budget support inefficiencies to achieve the four socioeconomic objectives would have important implications for the rice sector. We find that increasing budget support to rice producers is optimal only in Mozambique, and even there only to a very modest extent (Figure 3.19), given the observed impact of this support on productivity.[16] In the other four countries, it would be more cost-effective to reduce the budget support to rice producers and reallocate it to other sectors where the productivity effect will be larger at given unit costs and coverage of the existing budget support measures. The productivity effect would increase by almost 7 percentage points in Ghana and 4 percentage points in Burkina Faso. This observation is valid only if current budget support needs to be prioritized (given a continuing budget constraint) to gain efficiency, and it implies a trade-off for rice that can only be reversed with investments in climate-smart technological shifts that change the cost-effectiveness of budget support in the sector.

Without such technological shifts, the implication is that current support to rice producers in the five countries considered would result in larger total factor productivity effects (and the resulting economywide effects) if reallocated to support other producers, including those of

13 The policy optimization modeling tool applied in Sánchez et al. (2024) was developed by and is fully described in Sánchez and Cicowiez (2022, 2023). It combines a multicriteria decision-making technique with a recursive-dynamic computable general equilibrium model that is calibrated to country-specific datasets. The six countries are Burkina Faso, Ethiopia, Ghana, Mozambique, Nigeria, and Uganda.

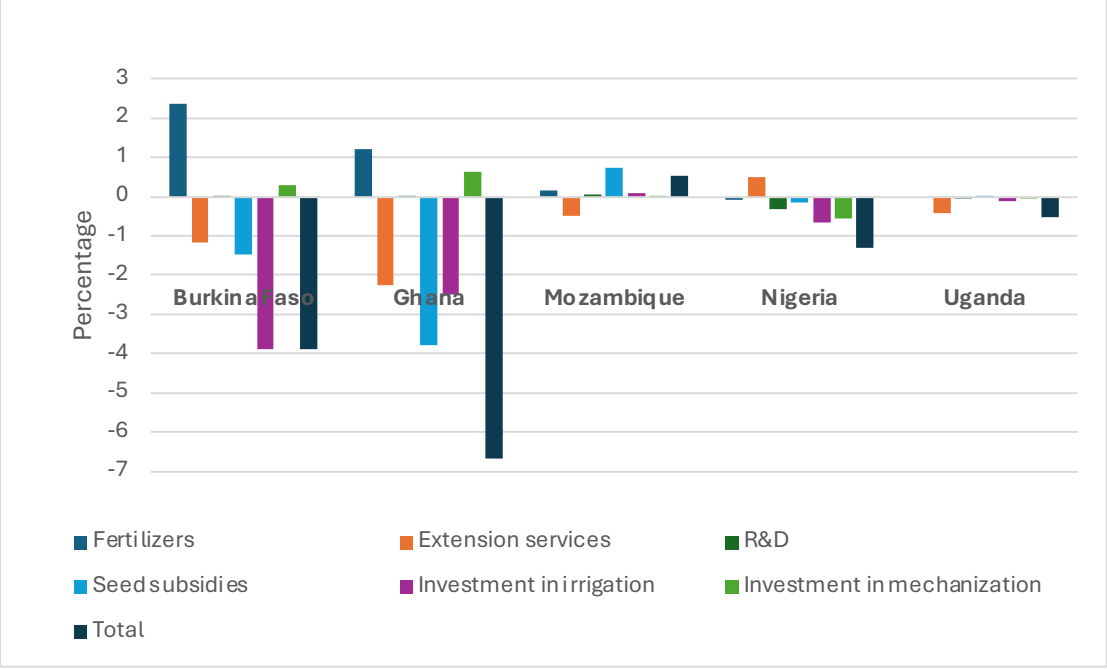
14 Sánchez et al. (2024) find that some countries would have to spend relatively less on irrigation (Ghana, Ethiopia, Nigeria, and Uganda) or seed subsidies (Burkina Faso and Ghana), whereas others would need to increase support for seed subsidies (Ethiopia and Mozambique) or investment in mechanization (Burkina Faso, Ghana, and Nigeria). In addition, extension services would need to be given greater priority in Burkina Faso and Nigeria in order for these countries to improve on the four policy objectives.

15 For the purposes of this chapter, we have further disaggregated the scenario results presented in Sánchez et al. (2024) to separate the rice subsector from the group of cereals in all cases except Ethiopia, where the national account data disaggregation was not available. Hence, we present results only for Burkina Faso, Ghana, Mozambique, Nigeria, and Uganda. .

16 The observed impact accounts for the unit cost of support measures for rice and the coverage of these measures vis-à-vis those for other sectors (as reported in Sánchez et al. 2024; Annex 2).

fruits and vegetables, as shown in Sánchez et al. (2024). Interestingly, while the current overall support to rice producers seems suboptimal, increasing fertilizer subsidies, investment in mechanization, and R&D in Burkina Faso, Ghana, and Mozambique, or even seed subsidies and investment in irrigation in Mozambique, would increase the support's return in the sector compared with the other policy support measures (Figure 3.18).

Figure 3.18 Optimal reallocation of public expenditure across support measures for rice to improve output level and diversity and income (relative to a business-as-usual scenario), 2025–2030



Source: Authors based on a commodity disaggregation of the scenario results reported in Sánchez et al. (2024).

Note: The optimal reallocation of public expenditures across support measures covers all commodities in the crop farming and livestock sectors. The sum of the percentages shown for rice in the figure and the percentages for all other commodities (not shown in the figure) is equal to zero. Other support measures included in Sánchez et al. (2024), such as investments in rural electrification or rural roads, are excluded as they do not target specific commodities.

7. Conclusion

Given its contribution to diets in many African countries, rice is a strategic commodity. This chapter has illustrated and confirmed this status and provided new insights. The sector involves millions of small farmers, with women predominant in the labor force. Due to the combined effects of population and income growth, urbanization, and changing diets, rice consumption will continue to grow at a sustained pace. At the same time, production is expected to grow but at a slower pace, and driven mainly by expansion of the production area rather than yield improvements. While climate change—one of the main threats to African agricultural systems—is expected to have some positive effects on these yields in parts of the continent due to CO_2 fertilization, the relative situation of the continent vis-à-vis the rest of the world is expected to deteriorate. Moreover, in the absence of this CO_2 effect, yields will decline significantly. Given this risk, policy support should be aimed at boosting resilience and productivity in the rice sector. Such measures should first focus on increasing water-use efficiency through intelligent

irrigation systems using real-time data and artificial intelligence. In addition, the development of drought-resistant varieties must be prioritized, as not all production systems will benefit from irrigation. Furthermore, the best management practices adopted from Asia should be strongly promoted as they have proven effective (Otsuka et al. 2024). These measures should be accompanied by strong insurance mechanisms and early warning systems to fill information gaps.

Africa has consistently been a net importer of rice over recent decades. Rice accounted for one-quarter of the region's total cereals trade deficit on average during the 2019 to 2023 period. Overall, the continent does not have a comparative advantage in producing rice. Given the rising demand and the production challenges that are likely to be exacerbated by climate change, Africa is expected to be the largest rice-importing region by 2035. While intra-African trade is present, it remains marginal and is subject to various restrictions by both importing and exporting countries. Significant border effects remain compared to intranational trade, even between countries in the same RECs. Informal flows and smuggling are pervasive and aim at avoiding restrictions.

African countries have intervened in the rice sector with different strategies and objectives. The policy environments affecting rice production in Africa are both diverse and intertemporally inconsistent. While one group of countries provides large price incentives to producers through various market price support measures (trade policies and regulations), rice producers in another group of countries are disincentivized by policies that aim to maintain low consumer prices, particularly in urban areas. This heterogeneous pattern even occurs within the same country over time, with positive incentives during normal times and disincentives in periods of crisis (high world prices) intended to protect consumers. Despite the heterogeneity of price support mechanisms across the continent, overall, other forms of support through fiscal transfers, particularly subsidies to producers (as a share of agricultural public expenditure), have been declining since 2010. However, even with limited budgets, there is room to make support to the rice sector more efficient through an optimal reallocation among its different components. In some countries, increasing fertilizer subsidies and investing more in mechanization and R&D would better support the rice sector, whereas in other countries the solution may be to step up seed subsidies or invest more in irrigation, in order to contribute to a range of socioeconomic goals.

One key question remains regarding the status and the future of the commodity. Rice has been at the forefront of contentious debates in Africa, particularly in the aftermath of the 2008 food crisis. Governments intervened massively to protect consumers and launched various initiatives to reach self-sufficiency and even produce a surplus. At the same time, efforts have been made to improve the quality of local varieties. Both actions aim at increasing consumption in countries with already high consumption levels. Yet recent studies show that shifting toward more healthy, cost-effective diets would likely require reducing rice consumption in these countries to allow for a more diverse diet (Marivoet et al. 2021). In fact, to make healthy diets less costly, policy support within existing budgets would have to be reallocated to promote fruit and vegetable supply, rather than staples (Sánchez et al. 2024). Thus, if African governments shift policies to increase the affordability of healthy diets, it could pose a challenge for the rice sector or provide an opportunity to realign trade. Furthermore, budget support is likely to be shifted away from rice and toward sectors deemed more cost-effective if support must be prioritized amid fiscal constraints in African countries. Managing this potential trade-off from budget reprioritization will require investments in climate-smart technological shifts that enhance the cost-effectiveness of budget support in the rice sector.

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Appendix 3.1

Table A3.1. Border effects estimation by REC (ECOWAS, SADC, COMESA)

Dependent variable: |ln (*Pit/Pjt*)|	ECOWAS (NGA-BEN-NER)			SADC (MOZ-MWI-TZA)			COMESA (MWI-ZMB-DRC)		
	2013-2024	2013-2018	2019-2024	2000-2024	2000-2012	2013-2024	2000-2024	2000-2012	2013-2024
Border Effect	0.25***	0.10***	0.33***	0.08***	0.02	0.12***	0.19***	0.12***	0.21***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.02)	(0.01)
Log (Distance)	0.02**	0.03***	0.02**	0.05***	0.04***	0.05***	0.03***	0.05***	0.03***
	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)
Constant	0.07**	0.01	0.06*	-0.13***	0.06*	-0.19***	-0.04	-0.01	-0.05
	(0.03)	(0.05)	(0.03)	(0.02)	(0.04)	(0.02)	(0.03)	(0.07)	(0.03)
Markets FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Monthly FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Country pairs FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	4.369	1.447	2.922	26.340	5.504	20.836	13.808	3.072	10.736
r2	0.36	0.36	0.54	0.10	0.28	0.10	0.20	0.20	0.22

Source: Authors

Note: *plural * Significant at the 10% level, ** significant at the 5% level, *** significant at the 1% level; Standard errors are in parentheses. Niger officially withdrew from ECOWAS in January 2025.

The border effect measures the additional cost associated with crossing a border between two markets in different neighboring countries, compared to the equivalent markets located in the same country. When significant, it indicates a lack of regional market integration.

CHAPTER 4

The Role of Fertilizer Trade in Enhancing Food Security in Africa

Sunday Odjo, Fousseini Traoré, and Chahir Zaki

1. Introduction

A comprehensive approach to understanding the relationship between food security and trade must include the trade and accessibility of agricultural inputs. Fertilizers (organic and mineral) are crucial for delivering essential nutrients to crops, significantly boosting agricultural productivity and, in turn, enhancing food security. Increased fertilizer use can help make food more available and affordable by generating higher crop yields, lowering farmers' production costs, and increasing supply. In addition, by achieving higher crop yields on the same land area, fertilizers can reduce the need to expand agricultural land, helping to prevent deforestation.

Fertilizer application rates in Africa are among the lowest in the world. In 2018, sub-Saharan Africa averaged a fertilizer application rate of just 22.3 kilograms per hectare (kg/ha), significantly lower than the global average of 139 kg/ha (Odjo et al. 2024). This low level explains the region's markedly lower crop yields, especially for cereals, whose yields are estimated to be only 40 percent of global averages (FAO 2025a). Gains in agricultural production in sub-Saharan Africa have primarily come from expanding cropland rather than improvements in productivity.[1] The critical need to boost fertilizer use in Africa is acknowledged in continentwide initiatives. For example, the target fertilizer application rate in the 10-year African Fertilizer and Soil Health Action Plan unveiled at the 2024 Summit in Kenya is 54 kg/ha by 2034.

While there is consensus on the need to increase fertilizer use in Africa, the continent still relies heavily on imports, especially for nitrogen and potash, raising serious concerns, despite increasing nitrogen production in countries like Nigeria. Global fertilizer markets are highly concentrated, with the majority of exports supplied by a limited number of countries. For example, the top three exporters supply 57 percent and 80 percent of the global trade of potash and phosphates, respectively (Hebebrand and Laborde 2022), putting the continent at risk of price spikes and supply disruptions, as occurred when the Russia–Ukraine war began in 2022. With the implication of Belarus, the conflict region involved three of the largest players in global fertilizer markets. Overall, more than one-half of African countries import fertilizer from either Russia or Ukraine, with countries such as Benin, Nigeria, and the Central African Republic showing import dependency ratios above 45 percent (Laborde, Matchaya, and Traoré 2023).

Africa's high dependence on fertilizer imports and the highly concentrated nature of world fertilizer markets raise the question of the continent's vulnerability to external shocks and the strategies needed to cope with the associated risks. Indeed, the negative impacts registered in the wake of the Russia–Ukraine crisis pushed many analysts and policymakers to consider boosting intra-African trade in fertilizer as a diversification mechanism and risk-coping strategy. Both the 2024 Nairobi Declaration, which followed the Africa Fertilizer and Soil Health Summit, and the associated 10-year Action Plan advocate for the promotion of regional trade and emphasize the use of the African Continental Free Trade Area (AfCFTA) to double intra-Africa fertilizer trade by 2034.

Against this background, this chapter analyzes the role of fertilizer trade in enhancing food security in Africa. This timely, specialized topic is embedded in the broader question of trade and food security, which constitutes the common thread of this report. The complex links between fertilizer trade and food security are examined in the context of increased global crises, shifting regional dynamics, and climate change. The latter is of utmost importance as Africa is highly subject to rising temperatures, extreme weather events, plant diseases, and rainfall variability, all of which seriously threaten agricultural production, requiring more and better use of fertilizers.

1 See Chapter 3 of this report for an illustration with rice.

The chapter is organized as follows. Section 2 presents an overview of the supply side of Africa's fertilizer sector. Section 3 analyzes trade flows in fertilizers and the associated policies. Section 4 summarizes the main findings and concludes with some policy recommendations.

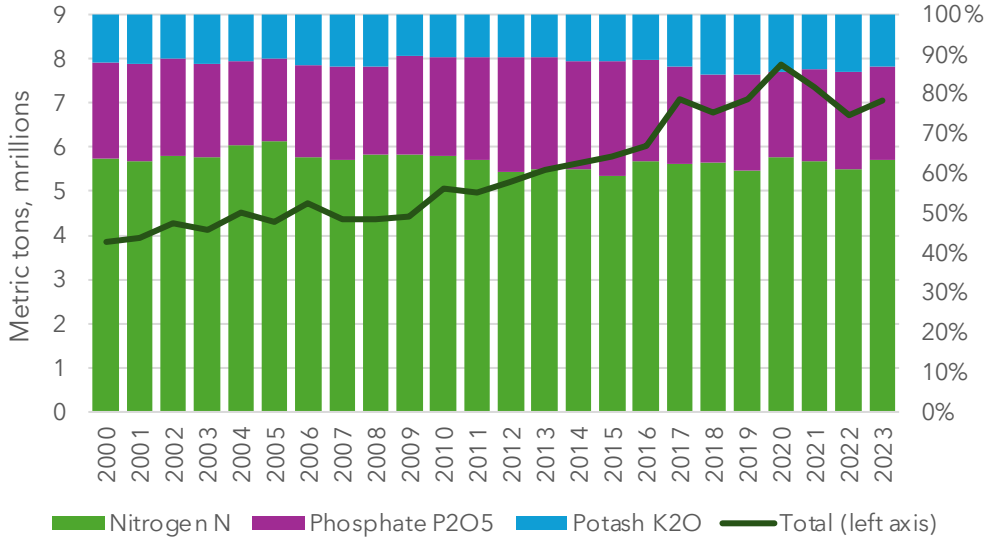
2. Overview of Fertilizers in Africa

Fertilizers are crucial for maintaining soil fertility, improving agricultural productivity, and ensuring food security. This section examines recent trends and regional patterns in inorganic and organic fertilizer consumption and production in Africa.

Inorganic fertilizer use in African agriculture

The use of inorganic fertilizers in agriculture has significantly increased since 2000, with slight decreases in more recent years (Figure 4.1). The combined amount of the three main nutrients (nitrogen, phosphate, and potash) used doubled between 2000 (3.9 million nutrient tons) and 2020 (7.9 million nutrient tons). The total fell 14 percent in 2022 (to 6.7 million nutrient tons) before recovering somewhat in 2023 (to 7 million nutrient tons). Nitrogen-based fertilizer products are the most applied, with nitrogen (N) representing 63 percent of the total nutrient content in inorganic fertilizers used across the continent. The most common nitrogen-based fertilizer products include urea (the most widely used), ammonium nitrate, and ammonium sulfate. Phosphate accounted for 23 percent of the nutrient content of all inorganic fertilizers used between 2019 and 2023, while potash contributed 14 percent. Rock phosphate, single superphosphate, and triple superphosphate are the most widely used phosphate-based fertilizer products. Potassium chloride, also known as muriate of potash, dominates the potash-based fertilizer products used. Nitrogen-phosphorus-potassium (NPK) blends, diammonium phosphate (DAP), monoammonium phosphate (MAP), and calcium ammonium nitrate are the most commonly used compound fertilizer products in African agriculture.

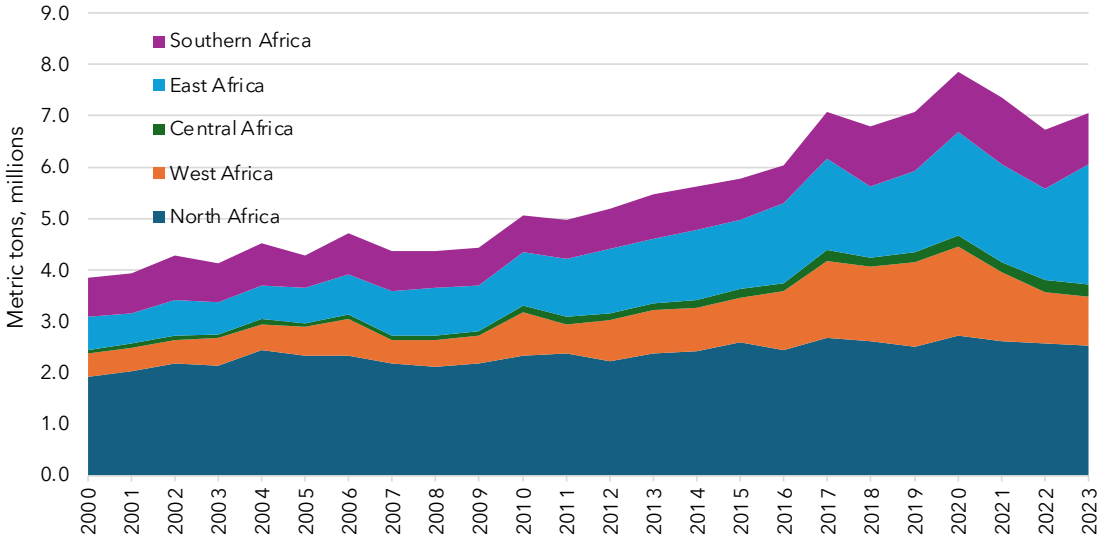
Figure 4.1 Africa's agricultural use of fertilizers by nutrient content, million nutrient tons, 2000–2023



Source: Authors based on FAOSTAT online database, accessed October 2025.

Regional disparities arise in the use of fertilizers (Figure 4.2). North Africa dominates the use of inorganic fertilizers in agriculture, representing 36 percent of the continent's fertilizer consumption over 2019–2023, down from 50 percent in 2000 and 46 percent over 2009–2013. This reduction is mainly due to the larger increase in fertilizer use in West Africa and East Africa. East Africa is the second-largest user; its share trended upward from 17 percent in 2000 to 33 percent in 2023. Over 2019–2023, West Africa and Southern Africa accounted for 19 percent and 16 percent, respectively, of fertilizer use in African agriculture, while Central Africa represented only 3 percent. West Africa's share is trending upward, in contrast to Southern Africa's.

Figure 4.2 Africa's agricultural use of inorganic fertilizers by region, 2000–2023



Source: Authors based on FAOSTAT online database, accessed October 2025.

Figure 4.3 displays the leading fertilizer users within each region. Inorganic fertilizer consumption is concentrated in a few countries (left panel). Egypt, South Africa, Ethiopia, Nigeria, and Morocco accounted for 60 percent of the continent's consumption of inorganic fertilizers on average for the 2019–2023 period. These five countries, along with Kenya, Zambia, Tanzania, Malawi, and Ghana, are the top 10 fertilizer users, accounting for 76 percent of total consumption.

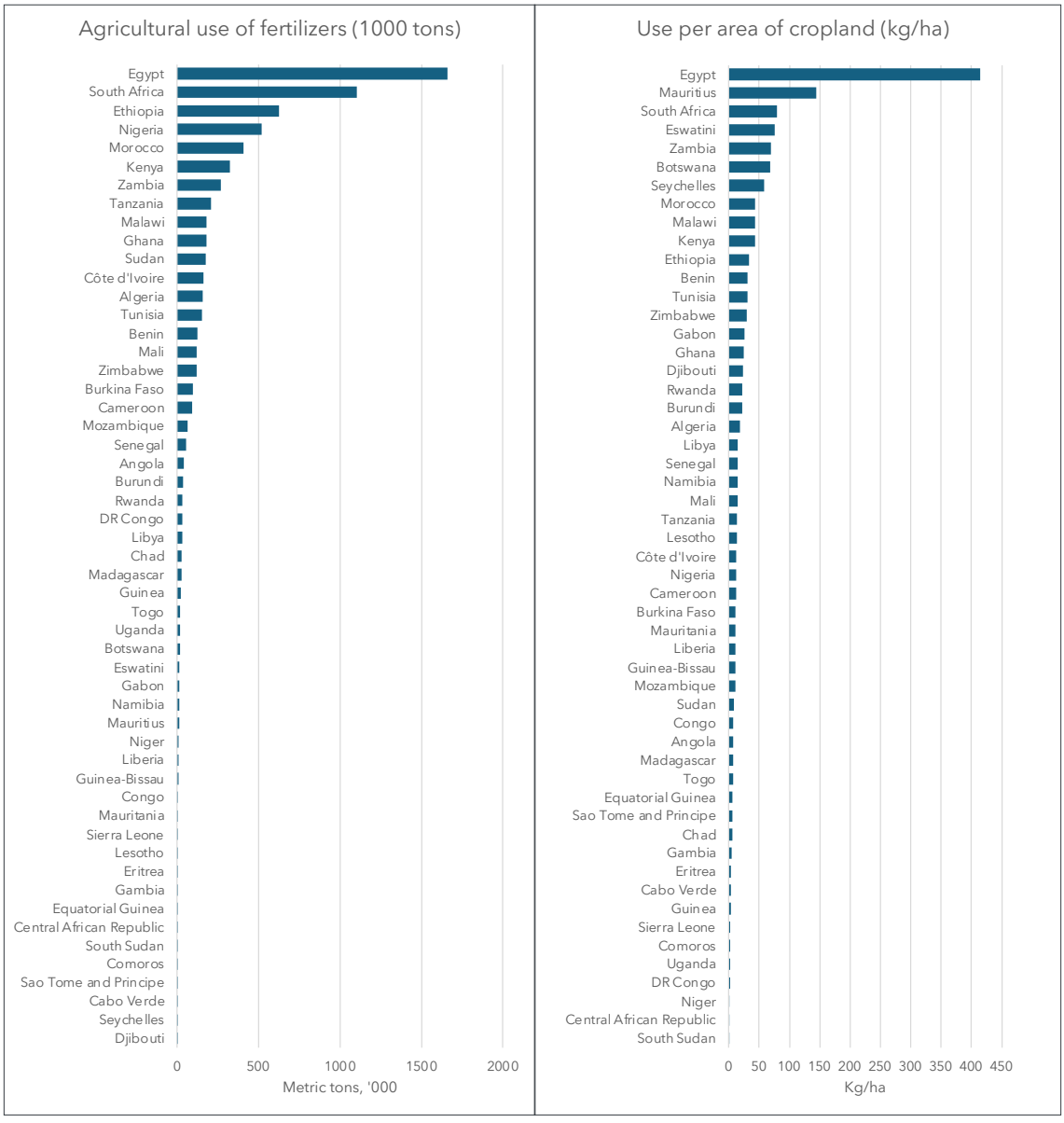
Fertilizer use intensity is measured by the quantities of inorganic fertilizers used in individual African countries divided by the area of cropland (Figure 4.3, right panel). The continental average was 23 kg/ha in 2023 versus 186 kg/ha in Asia and 83 kg/ha in Oceania. A few countries use more than 50 kg/ha, the target for 2015 set in the African Union's 2006 Abuja Declaration.[2] Egypt is particularly remarkable, with 414 kg/ha achieved on average over 2019–2023. Mauritius (144 kg/ha), Zambia (70 kg/ha), and Seychelles (58 kg/ha) are the most intensive fertilizer users in East Africa. South Africa (80 kg/ha), Eswatini (76 kg/ha), and Botswana (68 kg/ha) achieved the most intensive use in Southern Africa. At 44 kg/ha, Morocco is the second-most intensive fertilizer user in North Africa after Egypt. In West Africa, fertilizer use intensity is highest in Benin (30 kg/ha), followed by Ghana (25 kg/ha). Gabon (26 kg/ha) and Cameroon (12 kg/ha) are the most intensive fertilizer users in Central Africa. Fertilizer use intensity is less than 25 kg/ha in 37

2 The Nairobi Declaration of 2024 marks a paradigm shift from the Abuja Declaration of 2006, focusing not on increasing fertilizer use but on adopting methods adapted to local specificities that take into account soil health, soil diversity, and climate for sustainable productivity. https://cgspace.cgiar.org/server/api/core/bitstreams/67ff26c5-9492-4a49-ade2-f7e9c61719c8/content#

of the 53 countries shown. While relatively low fertilizer use per hectare is a concern for food security in some countries, excessive use of fertilizers can be detrimental if nutrients are not sufficiently taken up by crops, leading to nutrient losses to the environment.

Figure 4.3 Country rankings by fertilizer use ('000 tons) and fertilizer use intensity (kg/ha), 2019–2023 average

(a) Agricultural use of fertilizers ('000 tons) **(b) Use per area of cropland (kg/ha)**



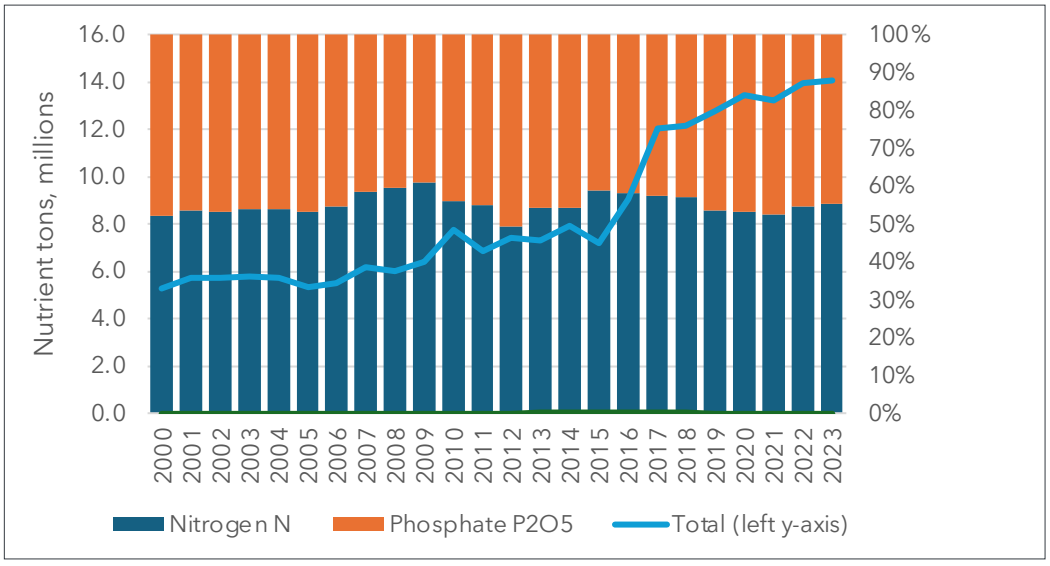
Source: Authors based on FAOSTAT online database, accessed October 2025.

We now shift from examining fertilizer use across regions and countries to explore recent trends and patterns in fertilizer production in Africa.

Production of inorganic fertilizers in Africa

The production of inorganic fertilizers in Africa increased by 165 percent between 2000 and 2023, more than doubling from 5.3 million metric nutrient tons to 14.1 million metric nutrient tons, and outpacing consumption across the continent (Figure 4.4). Most of the production consists of nitrogen and phosphorus fertilizers, which on average accounted for 54 percent and 46 percent, respectively, over 2019–2023. Common fertilizer products produced in Africa include: nitrogen-based fertilizers such as urea and ammonium nitrate; phosphate-based fertilizers such as diammonium phosphate (DAP), MAP, and superphosphates; and various NPK compound fertilizers.

Figure 4.4 Africa's inorganic fertilizer production by nutrient content, million nutrient tons, 2000–2023



Source: Authors based on FAOSTAT online database, accessed October 2025.

North African countries are the major producers of inorganic fertilizers (Table 4.1), with Morocco and Egypt contributing 79 percent of Africa's total production over 2019–2023. Algeria and Tunisia accounted for an additional 11 percent, raising North Africa's overall contribution to 90 percent. Nigeria, South Africa, and four other countries contributed the remaining 10 percent. More specifically, Morocco dominated phosphate production and was the second-largest producer of nitrogen after Egypt. Conversely, Egypt was the leading producer of nitrogen and the second-largest producer of phosphate. Algeria and Senegal produced more nitrogen than phosphate, while Tunisia, South Africa, and Zimbabwe produced more phosphate. Nigeria and Libya produced only nitrogen, while Tanzania produced only phosphate. Growth in fertilizer production was mixed over recent years, expanding by 5.4 percent in Morocco, 17.8 percent in Nigeria, 32.4 percent in Zimbabwe, and 41.6 percent in Tanzania, but decreasing by 24.6 percent in Libya, 18.9 percent in Senegal, and 3.2 percent in South Africa. The result was a slow continentwide production growth rate of 2.7 percent annually.

Table 4.1 Africa's inorganic fertilizer production by country, '000 tons, 2019–2023 average

	Quantity ('000 tons)			Share in Africa's fertilizer production (%)	Annual growth rate (%)
	Nitrogen	Phosphate	Total		
Morocco	1575.5	5353.4	6928.9	51.2	5.4
Egypt	3437.6	318.0	3755.5	27.8	0.8
Algeria	1043.2	32.4	1075.6	8.0	0.0
Nigeria	918.0		918.0	6.8	17.8
Tunisia	135.0	283.9	419.0	3.1	0.3
South Africa	145.5	188.1	333.6	2.5	−3.2
Zimbabwe	7.4	34.6	42.0	0.3	32.4
Senegal	14.9	7.4	22.3	0.2	−18.9
Libya	17.5		17.5	0.1	−24.6
Tanzania		9.8	9.8	0.1	41.6
Africa, total	7294.7	6227.6	13522.2	100.0	2.7

Source: Authors based on FAOSTAT online database, accessed October 2025.

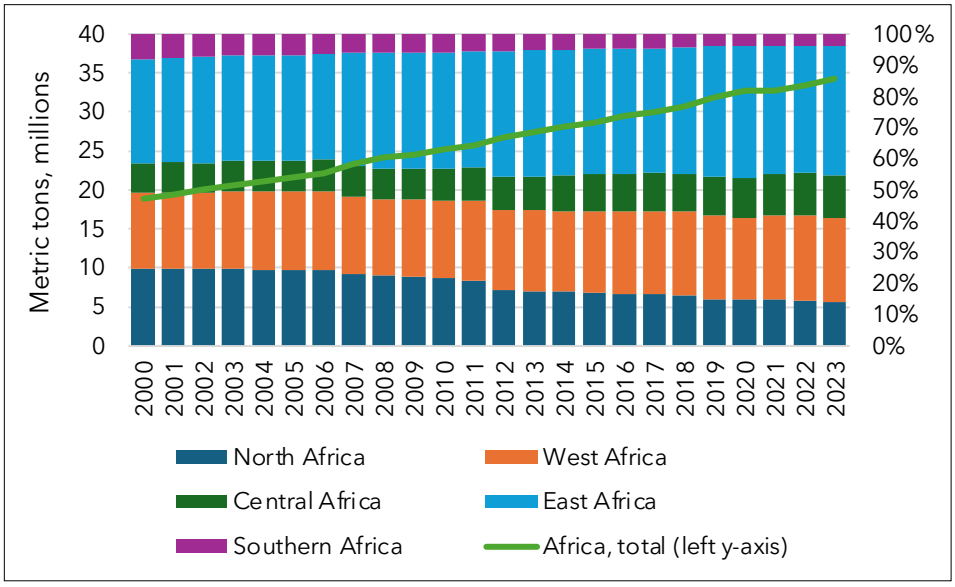
Livestock manure is another valuable source of nutrient inputs to agricultural soils. The production of livestock manure nitrogen across African regions and countries is analyzed next.

Livestock manure (nitrogen content)

Livestock manure supplies essential macronutrients and micronutrients to soils and plants. The NPK content of manure varies by animal type, feed, bedding, and storage conditions. While NPK concentrations in animal manure are relatively low compared with inorganic fertilizers, manure offers other important benefits: it improves soil structure, increases organic matter content, promotes microbial activity, and releases nutrients gradually. The FAOSTAT database provides estimates of nitrogen inputs from livestock manure by animal type and by country, with global coverage, over the period 1961–2023 (FAO 2025b). These estimates are compiled using official FAOSTAT statistics on animal stocks and by applying the internationally approved Guidelines of the Intergovernmental Panel on Climate Change (IPCC). However, estimates of other nutrient inputs to agricultural soils from livestock manure are not available. The following analysis is hence restricted to the nitrogen content of livestock manure.

The total amount of nitrogen content in total excreted livestock manure increased steadily at a compound annual growth rate of 2.6 percent, from 19 million metric tons in 2000 to 34 million metric tons in 2023 (Figure 4.5). East Africa produced the largest share of manure nitrogen (42 percent) over 2019–2023, followed by West Africa (27 percent), North Africa (15 percent), Central Africa (13 percent), and Southern Africa (4 percent). The shares of North Africa and Southern Africa decreased over the period of analysis, while East Africa's expanded. Overall, Ethiopia, Nigeria, Chad, Sudan, and Tanzania—countries with high populations of livestock—provided the largest amounts of manure nitrogen (Figure 4.6). Together, they represented 47 percent of the continentwide nitrogen content of manure.

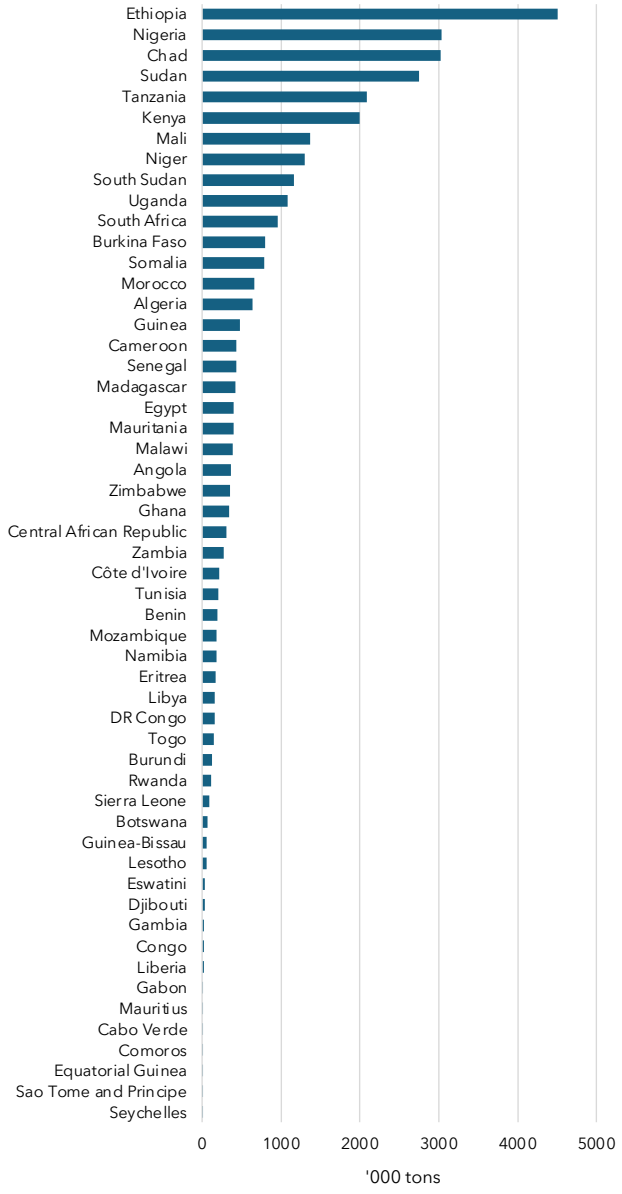
Figure 4.5 Manure nitrogen produced (million tons) by African region (%), 2000–2023



Source: Authors based on FAOSTAT online database, accessed October 2025.

In short, African fertilizer consumption in agriculture is low compared to international standards and to the African Union's 2006 Abuja Declaration target of 50 kg/ha by 2015. However, Africa's fertilizer production is larger than its consumption, and it is growing faster. On average between 2019 and 2023, production of inorganic fertilizers (13.5 million tons) grew annually by 2.7 percent, compared to 1.0 percent for consumption (7.2 million tons). Both inorganic and manure fertilizers are important for soil fertility, but their use is limited. Inorganic fertilizers are expensive for smallholders, while the use of manure is limited by transportation costs and nutrient loss due to poor storage. Low fertilizer use intensity is associated with low agricultural productivity and ongoing food insecurity on the continent. North Africa and Nigeria dominate both the production and use of inorganic fertilizer, while East Africa dominates the production of manure nitrogen. As discussed in the next section, the facilitation of increased fertilizer trade between these regions and the rest of the continent as part of AfCFTA implementation should be beneficial for productivity improvement and food security.

Figure 4.6 Quantity ('000 tons) of livestock manure nitrogen produced by country, 2019–2023 average



Source: Authors based on FAOSTAT online database, accessed October 2025.

3. Trade in Fertilizers

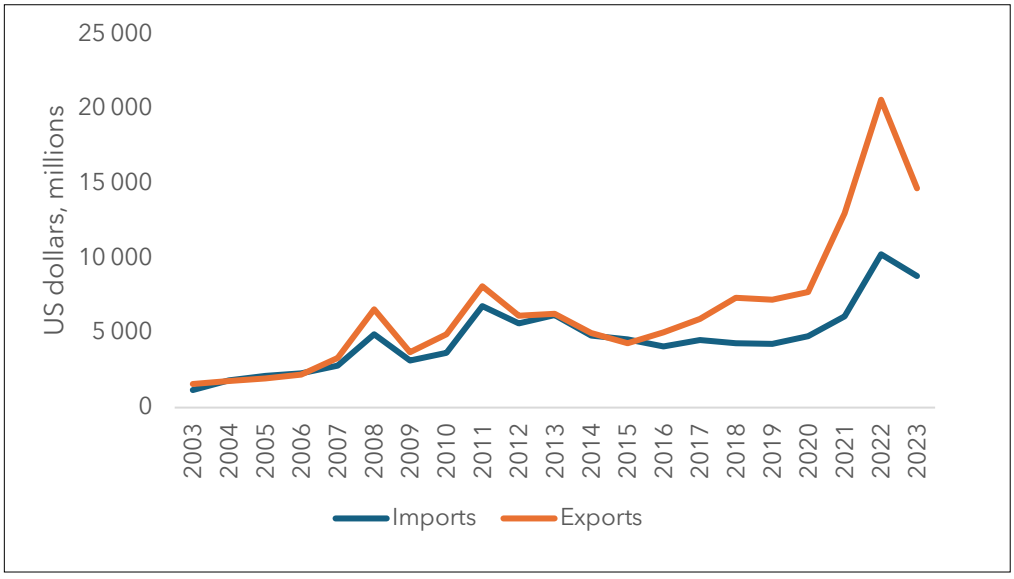
This section analyzes the main export and import patterns of fertilizers, with a special focus on their related policies.

Trade flows

Figure 4.7 shows the evolution of total exports and imports of fertilizers from 2003 to 2023. Overall, Africa is a net exporter of fertilizers, with exports of US$14.7 billion and imports of $8.8 billion in 2023. This surplus of $5.8 billion in 2023 was a large increase from the $0.9 billion surplus in 2016. Before 2016, the trade balance held steady at around $0.45 billion, with

exports more or less equal to imports. The relatively recent increase in performance can be attributed to several factors (Liverpool-Tasie et al. 2025). First, important players in the fertilizer industry increased their production, especially countries north of the Sahara, such as Morocco and Egypt (AGRA 2019). Second, several countries invested heavily in this sector. Two good examples are the green ammonia project in Egypt and Morocco (with low carbon nitrogen) and Dangote's[3] production of urea in Nigeria (Balana and Fasoranti 2022). Third, foreign markets are more attractive since they are larger and have more regular offtakers compared to African markets. Hence, exporting to larger markets is more predictable and more profitable, leading to lower intra-African trade.

Figure 4.7 Total fertilizer exports and imports in Africa (US$ million), 2003–2023

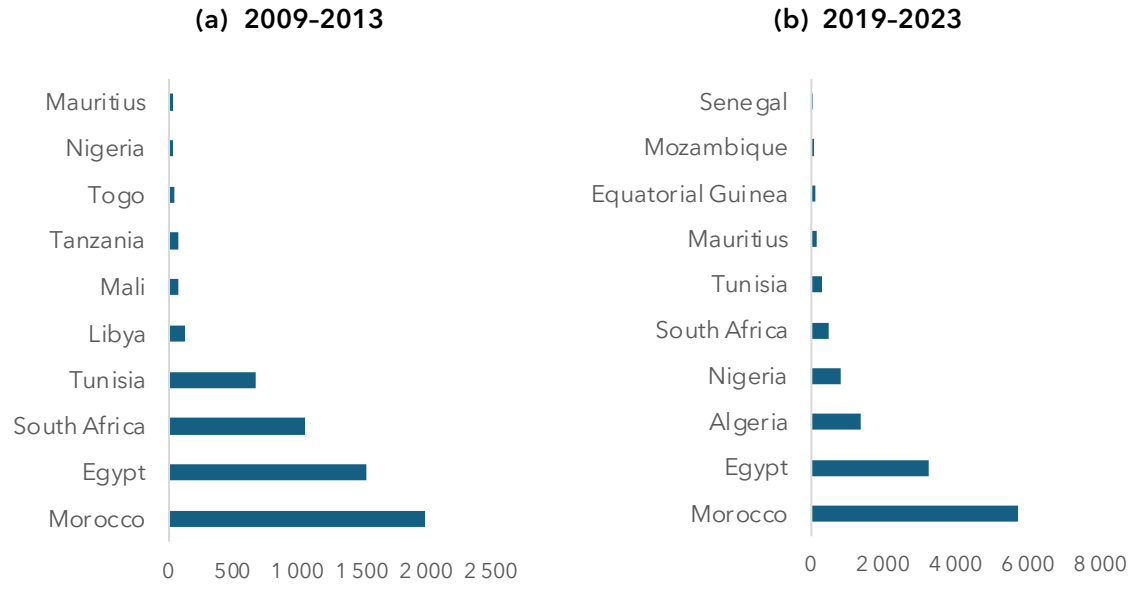


Source: AATM 2025 database.

Looking at the performance of individual countries reveals that exports are highly concentrated: the top 10 African exporters represent around 97 percent of Africa's fertilizer exports (Figure 4.8). Notably, Morocco's share of exports was not only high over 2009–2013 (34 percent of Africa's exports), but increased to 45 percent over 2019–2023. Egypt ranked second, with 25 percent of Africa's exports in both periods. Algeria, Tunisia, South Africa, and Mauritius are also among the top African exporters of fertilizers. These trade patterns are chiefly explained by these countries' endowments and their recent policies. For example, Morocco holds around 70 percent of the world's phosphate rock reserves (Cooper et al. 2011). The Moroccan government has supported the development of the phosphate industry through investment in research and development with OCP (Morocco's state-owned phosphate company), the development of tailor-made fertilizers adaptable to different crop and soil varieties, and improvements in soil fertility mapping. Egypt's reserves, while lower than Morocco's, are rich and mainly concentrated in the Abu Tartur region in the Western Desert. The Government of Egypt offered incentives to support and attract investment in this sector and to increase its exports. Nigeria is also a large exporter of nitrogen fertilizers, thanks to its endowments of oil and natural gas.

3 Dangote Industries Limited is a large firm producing in a wide range of sectors including cement, sugar, salt, condiments, packaging, energy, port operations, fertilizer, and petrochemicals in Nigeria and Africa.

Figure 4.8 Top 10 exporters of fertilizers in Africa (US$ million)

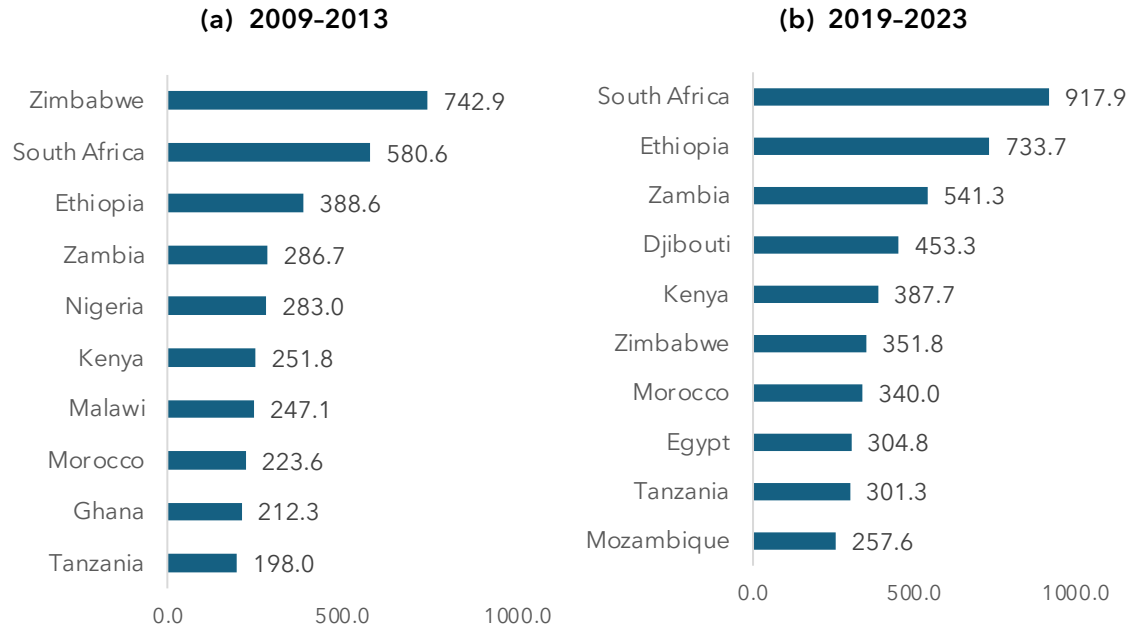


Source: AATM 2025 database.

Three interesting features emerge from examination of the top 10 importers in Africa (Figure 4.9). First, several top African exporting countries—Egypt, Morocco, Mozambique, and South Africa—also import fertilizer, due to the heterogeneity of fertilizers traded. For instance, Egypt exports phosphates but imports potash and urea to meet domestic demand.[4] Likewise, Morocco exports phosphate-based fertilizers but imports ammonia and sulfur. Second, with the exception of these countries, the top importers of fertilizers are Ethiopia, Zimbabwe, and Zambia over the two periods of analysis, pointing to the reliance of their agriculture sectors on imported fertilizers that are essential for agricultural crops and for livestock, which consume forage and feed crops heavily intensive in fertilizers. This can increase the vulnerability of their comparative advantages (for instance, livestock for Ethiopia, livestock and maize for Zimbabwe). Third, South Africa was the third highest exporter over 2009–2013 but dropped to fifth place over 2019–2023. Moreover, already the second-highest importer in the first period, South Africa moved to first place in the second period, with imports reaching almost US$1 billion. This is mainly because South Africa lacks a potassium reserve and is not endowed with complete urea production plants (Benson and Mogues 2018).

4 Figures A4.2a and A4.2b show the top imported and exported products by African countries in 2019–2023. Nitrogenous, urea, whether or not in aqueous solution, diammonium hydrogenorthophosphate, and ammonium dihydrogenorthophosphate and mixtures were the top exported fertilizers. In addition to nitrogenous and urea, fertilizers containing the three (NPK) or two (NP) elements are the top imported ones.

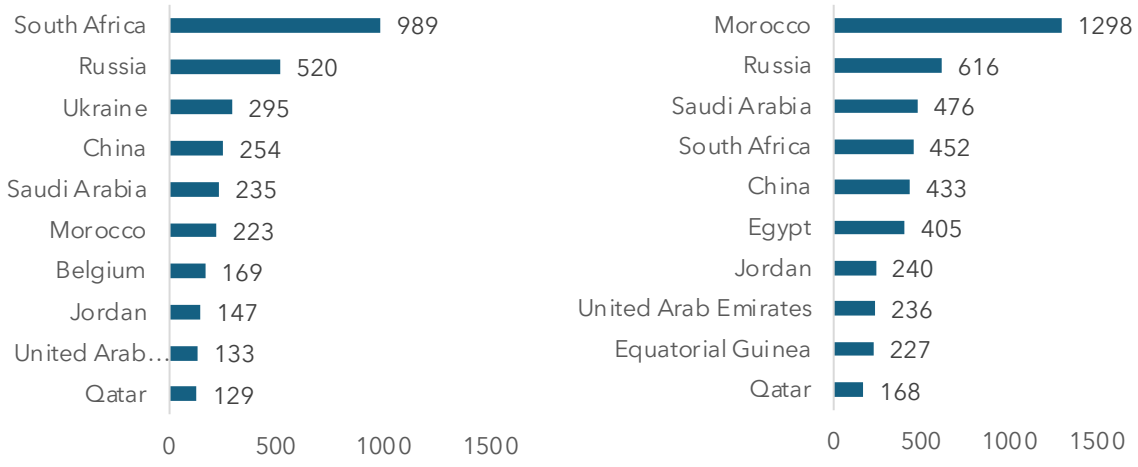
Figure 4.9 Top 10 importers of fertilizers in Africa (US$ million)



Source: 2025 AATM database.

Africa is, in general, dependent on non-African countries such as Russia, China, the United Arab Emirates, Qatar, and Jordan for its fertilizer supply (Figure 4.10). These players remained the top exporters of fertilizer to Africa over the two periods of analysis, while intra-African fertilizer trade was mainly sourced from Morocco, Egypt, South Africa, and Equatorial Guinea. Yet the origin of Africa's fertilizer imports changed significantly between the two periods of analysis for at least two reasons. First, while South Africa was the main supplier of fertilizers to other African countries in the first period, Morocco overtook it in the second. This is rather good news, as Morocco is an important global fertilizer supplier and, with more continental initiatives, could partially meet Africa's fertilizer demand. Second, while Russia maintained its number two position as a fertilizer exporter to Africa, Ukraine disappeared in the second period, revealing Africa's vulnerability to external shocks (Lin et al. 2023). On a positive note, the share of imports sourced from within Africa rose from 24 percent to 36 percent over the two periods of analysis.

Figure 4.10 Countries of origin of imported fertilizer in Africa (US$ million)



Source: AATM 2025 database.

4. Trade policies

As mentioned, even though Africa is a net exporter of fertilizer, it imports a significant quantity to fulfil its increasing demand. Moreover, while some African exporters are important fertilizer suppliers within Africa, large economies dominate the fertilizer market and imposed several protectionist measures in 2023–2024, such as higher tariffs and nontariff measures (export bans, quotas, subsidies, and so on). Subsidies reflect any financial support that can distort the market and thus affect the relative competitiveness of African countries when it comes to their exports or the price and quantity of their imports.

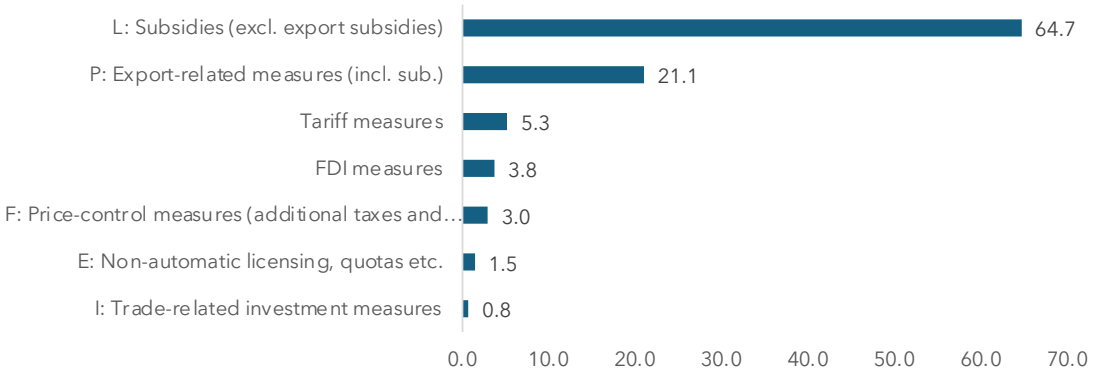
Data from Global Trade Alert show that the measures imposed on fertilizers were mainly subsidies (65 percent of the total number of measures), export-related measures (21 percent), and tariffs (5 percent) (Figure 4.11). Most were imposed by the European Union (EU), followed by China and Turkey (Figure 4.12). Subsidies include, for instance, measures implemented by the United States Department of Agriculture, which provided additional funding to increase American-made fertilizer production or to support the production of organic nutrient fertilizers. EU countries, the United States, and Japan imposed export bans and tariffs mainly on Russia after its invasion of Ukraine. China imposed export restrictions on fertilizers, including a temporary ban on phosphate exports, affecting the supply to African countries. In the same spirit, India imposed an export license for fertilizers such as urea and DAP to ensure that its domestic demand would be satisfied. Similarly, Viet Nam imposed a 5 percent export tax on superphosphate.[5]

Several African countries subsidize fertilizers; the average expenditure on fertilizer subsidy programs was US$35 million between 2017 and 2022 (AGRA 2024), either through universal programs (such as in Burkina Faso and Kenya) or targeted programs (such as in Ghana and Malawi). Some African countries reduced tariffs and export caps. For instance, Egyptian fertilizer companies were previously limited to exporting 45 percent of their production. In 2025, the government allowed firms to export up to 55 percent by reducing the quota related to mandatory government procurement.[6] The literature shows mixed evidence regarding

5 https://www.vietnam.vn/en/hiep-hoi-phan-bon-viet-nam-gop-y-kien-ve-thue-xuat-khau-phan-bon
6 https://www.madamasr.com/en/2025/09/24/news/u/egypt-to-boost-fertilizer-exports-to-offset-planned-slash-to-industrial-energy-subsidies/

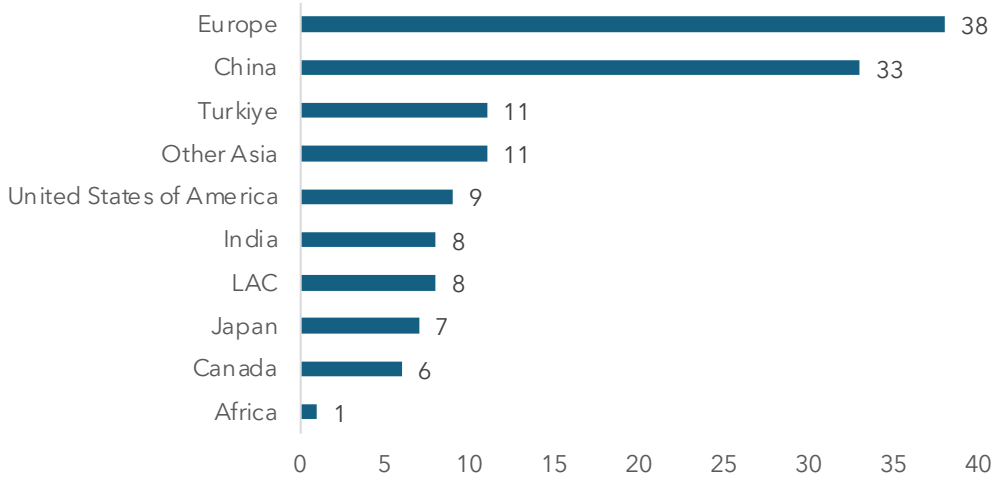
the impact of subsidies on African countries, as they can increase farmer productivity and income, improve fertilizer system efficiency, and lead to higher domestic food production and thus greater food security (AGRA 2024). However, subsidies can incentivize smuggling into neighboring countries that do not subsidize or subsidize at a lower rate (IFDC 2020). Moreover, subsidies can be associated with diversion and leakage of subsidized fertilizer, thereby distorting the market.

Figure 4.11 Share of harmful measures affecting the fertilizer sector by type, 2023–2024



Source: Global Trade Alert online database.
Note: FDI = foreign direct investment. Each letter stands for a nontariff measure chapter following the UNCTAD classification.

Figure 4.12 Number of harmful measures affecting the fertilizer sector by region/country, 2023–2024



Source: Global Trade Alert online database. https://globaltradealert.org/

In addition to the aforementioned trade-related measures, AGRA (2024) argues that trade in fertilizers is still impeded by several barriers at both the extra- and intraregional level. First, several African countries do not have an authority that oversees fertilizer trade. This results in overlapping and conflicting roles of different institutions, which increases the transaction costs of importing, the time to trade, and delays in clearance. Second, intraregional African trade is hindered by deficient infrastructure and poor connectivity. For instance, in Rwanda, it

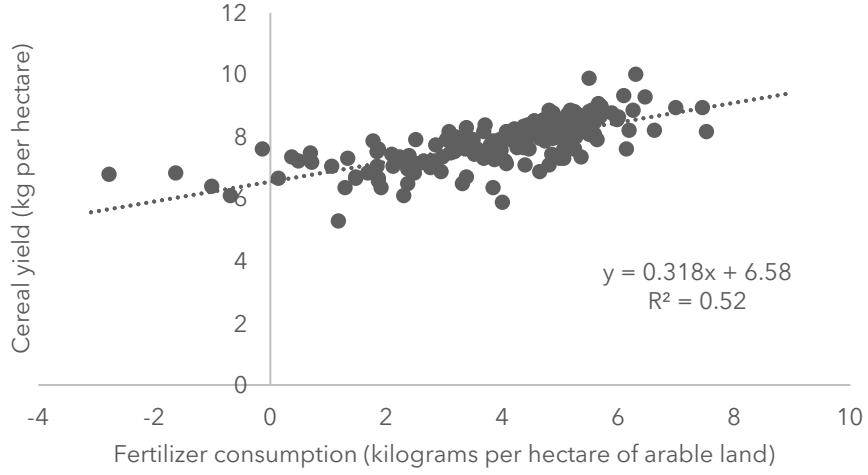
costs approximately US$160 to transport 1 ton of fertilizer from Mombasa or Dar es Salaam to Kigali. This adds around 45 percent to the final retail price charged for that fertilizer, affecting its competitiveness. Therefore, despite the potential supply that can originate from main African exporters such as Morocco and Egypt, these additional costs deter African exporters.

When it comes to the impacts of fertilizers, their use is significantly associated with improved food security through several channels. First, fertilizers can increase crop yields as they are a source of nutrients such as nitrogen and phosphorus. Figure 4.13a confirms this, as fertilizer consumption is positively correlated with cereal yields (kg/ha), which are essential for food security. Second, greater food availability reduces food prices, especially because food demand is generally price inelastic, which increases its affordability, especially for people experiencing poverty, thereby improving food access. This is confirmed by the negative association between fertilizer consumption and the prevalence of undernourishment (Figure 4.13b). In fact, greater yields ensure a higher level of food availability in domestic markets, which can reduce dependence on imported food. However, it is important to note that several countries rely heavily on imported fertilizers (such as African countries). Although imports of fertilizers can increase agricultural yields (especially cereals, as shown in Figure 4.13c), importing countries are always subject to volatile prices and supply disruptions, which can affect future harvests, increase food prices, and reduce food security (Hebebrand and Laborde 2023). In the same vein, Rosa and Gabrieli (2022) show that 1.78 billion people per year rely on imports of either fertilizers or natural gas. Hence, energy shocks that affect natural gas can increase the vulnerability of fertilizer production and thus food production. Moreover, fertilizer use can lead to environmental degradation, soil nutritional imbalances, and suboptimal food production (Penuelas et al. 2023).

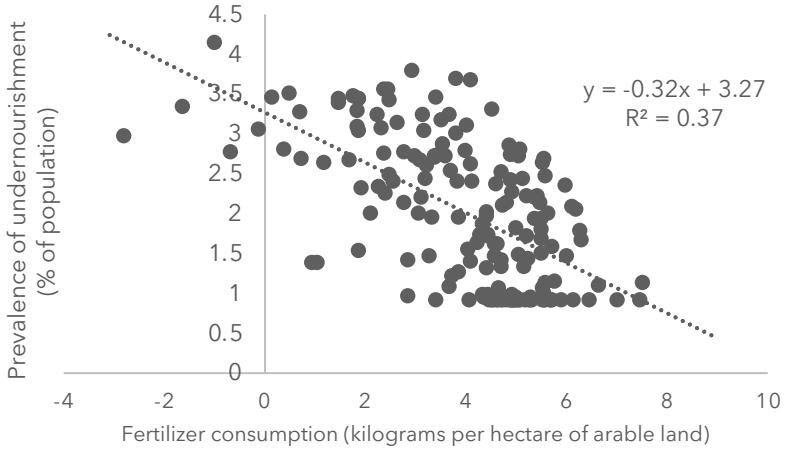
Given the potential physical and chemical degradation of the soil as a result of continuous application of mineral fertilizer, farmers normally invest in organic fertilizers that build up the soil structure and naturally replenish nutrients in the soil with relatively low cost. Moreover, the nutrients supplied by organic fertilizer are available over a longer time horizon compared to nutrients supplied by mineral fertilizer. For example, Jacoby and Mansuri (2008) indicate that field trials in Pakistan revealed that the marginal effects of manure on grain yields persist for at least three years following the initial application, while the productivity effects of mineral fertilizers are essentially limited to the season of application.

Figure 4.13 Correlations between fertilizers and food security variables

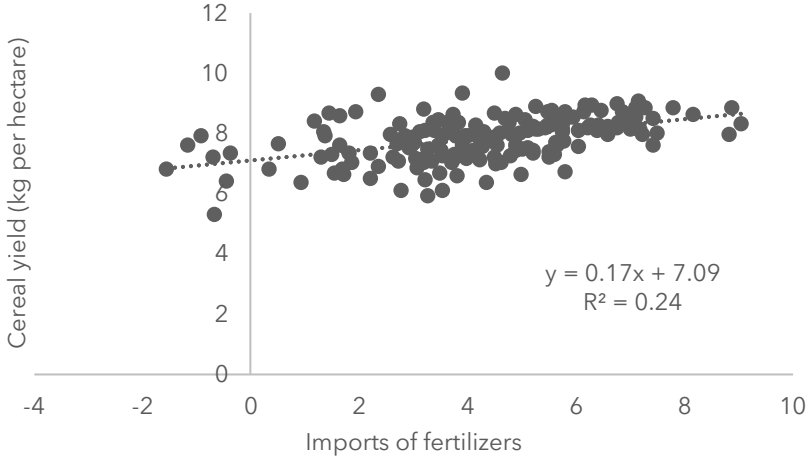
(a) Correlation between fertilizer consumption and cereal yield



(b) Correlation between fertilizer consumption and food insecurity



(c) Correlation between imports of fertilizers and cereal yield



Source: Authors' own elaboration using the World Development Indicators online dataset.
Note: All figures are averaged over 2000-2023 for all countries. Variables are in natural logarithm.

5. Conclusion

Fertilizers play a crucial role in agricultural production by enhancing productivity and therefore contributing to food availability, a key element of food security. Yet Africa's agricultural systems remain characterized by a low intake of fertilizers. While the continental average stands at 23 kg/ha, for two-thirds of countries, fertilizer-use intensity is less than 25 kg/ha, far below the 50 kg/ha target set in the African Union's 2006 Abuja Declaration. This situation hinders the development of African agriculture, where yields are among the lowest in the world, at only 40 percent of the world average for cereals and 8 percent for vegetables (FAO 20 2025a).

While characterized by a low fertilizer-use intensity, Africa is paradoxically becoming a more significant producer and exporter. As a result of their natural endowments, many African countries produce enough fertilizers to cover their domestic demand and export the surplus either to other African countries or to the rest of the world. Countries such as Morocco, Egypt, Algeria, and Nigeria are typical examples: Morocco has large reserves of phosphate, while the

other three countries are endowed with oil and natural gas. Given this natural advantage and the investments made in key countries, Africa has been an overall net exporter of fertilizers since 2016. However, given the heterogeneous nature of fertilizers and the specific requirements of crops, Africa still imports a large quantity of fertilizers, especially potash, the production of which has yet to expand on the continent. In addition, two-way trade occurs at the continental level, especially for nitrogen, because export prices are better than domestic market prices for some countries, such as Nigeria. Given this finding, one crucial part of the African fertilizer story relates to the fact that, overall, Africa is a net exporter of fertilizers to countries outside of the continent, meaning that it is more profitable for companies to export fertilizer off the continent than to try to sell it within Africa, where markets are underdeveloped.

Recent crises (COVID-19 and the Russia–Ukraine war) and their subsequent policy responses have highlighted the fragility of Africa given its dependence on world markets. First, global fertilizer markets are highly concentrated. So any restrictive policy in one country can destabilize world markets. Yet, in the wake of COVID-19 and the Russia–Ukraine crisis, several countries adopted restrictive measures such as export bans and quotas to favor their domestic markets and needs. Second, the disruption of supply routes and the explosion of insurance premiums due to the war added an additional layer of complexity, despite the availability of the product in some cases. Most African countries responded with (consumption) subsidies, resulting in mixed results. However, the growing trend of intra-African trade over the past decade constitutes a good risk-coping strategy to face abrupt external shocks and policy uncertainty.

Our results showed a positive correlation between fertilizer use and food security through improved agricultural yields. Increased yields induce higher food availability and lower prices, thus increasing the affordability of food and improving food access. These findings should be confirmed and extended, by developing a causal model and framework that goes beyond correlation analysis.

From a policy perspective, these findings reinforce the need for integrated and regionally coordinated approaches to agricultural input management. Strengthening domestic fertilizer production capacity, improving intra-African trade logistics, and investing in rural infrastructure can enhance both the availability and affordability of fertilizers. Equally important are complementary interventions, such as targeted and coordinated subsidies at the regional level to avoid leakages and cross-border smuggling; digital input delivery platforms; and credit access that improve smallholder farmers' ability to use fertilizers efficiently and sustainably.

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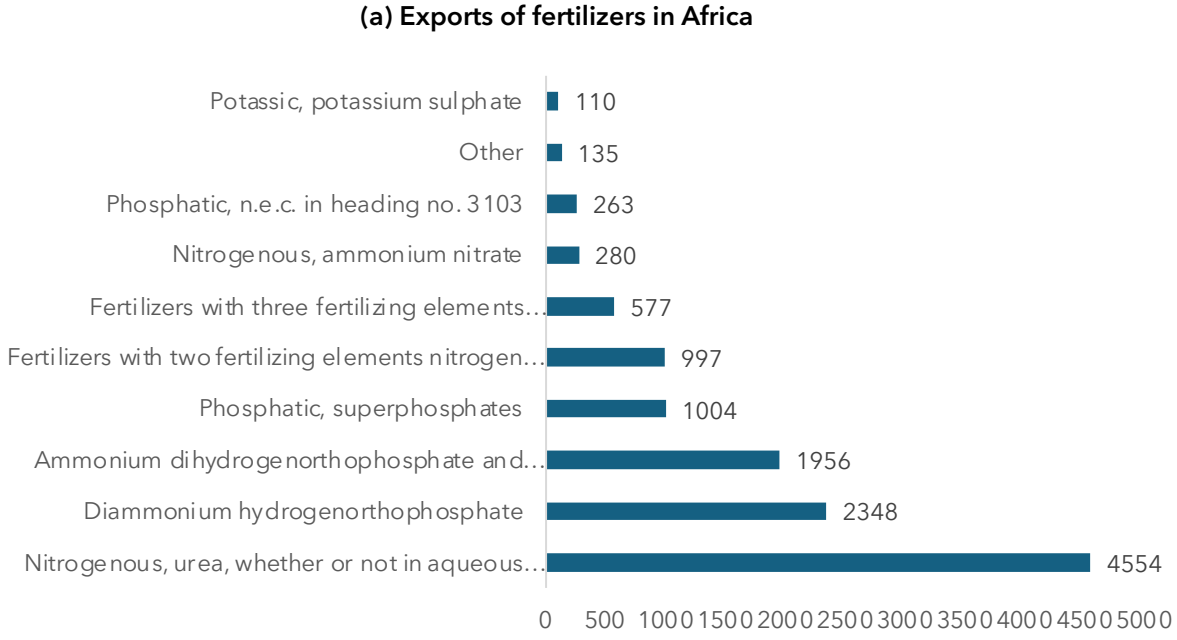
Appendix 4.1 Regional grouping of African countries

North Africa	Algeria, Egypt, Libya, Morocco, Sudan, Tunisia
West Africa	Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, The Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, Togo
Central Africa	Angola, Cameroon, Central African Republic, Chad, Congo, Democratic Republic of the Congo, Equatorial Guinea, Gabon, São Tomé and Príncipe
East Africa	Burundi, Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Rwanda, Seychelles, Somalia, South Sudan, Tanzania, Uganda, Zambia, Zimbabwe
Southern Africa	Botswana, Lesotho, Namibia, South Africa, Swaziland

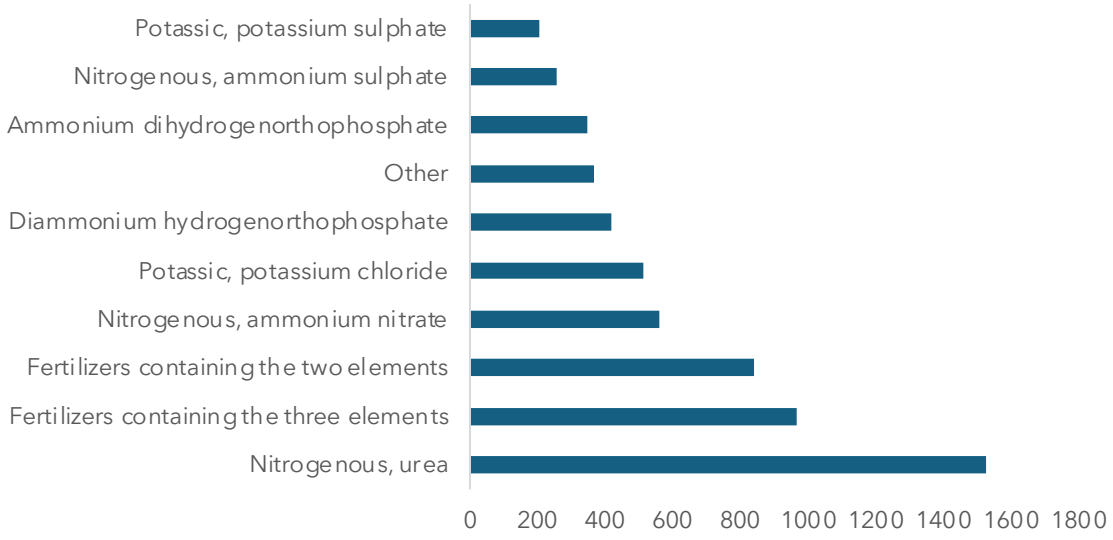
Source: United Nations geoscheme. https://en.wikipedia.org/wiki/United_Nations_geoscheme

Appendix 4.2 Sectoral Flows

Figure A4.2 Exports and imports of fertilizers, by type, 2019–2023 average



(b) Imports of fertilizers in Africa



Source: 2025 AATM database.

CHAPTER 5

Regionalism, "Continentalism," and Multilateralism: Building or Stumbling Blocks for Africa?

Leysa Maty Sall, Antoine Bouët, and Abdoulaye Seck

1. Introduction

Following World War II, a multilateral framework was established to structure global trade based on shared principles, including nondiscrimination through Most Favored Nation (MFN) treatment, consolidation of customs duties, the ability to implement trade remedies in cases of unfair competition, and the creation of transparent trade policies and a binding dispute settlement mechanism. This framework was established in the General Agreement on Tariffs and Trade (GATT)[1] and later by the World Trade Organization (WTO). It facilitated the rapid expansion of international trade for several decades: according to the WTO, world trade volume today is 45 times the level recorded in 1950.[2]

Nevertheless, since 2001, this multilateral system has become increasingly fragile. Its credibility and functionality have suffered from repeated failures in multilateral trade negotiations (nonconclusion of Doha Development Round; see Bouët and Laborde 2010); major trading powers' increasing noncompliance with WTO rules (lack of transparency by China; MFN, National Treatment and Schedule of Concessions by the United States[3]; see Bouët, Sall, and Métivier 2024); and paralysis of the WTO's Appellate Body (Starshinova 2021). The advent of a new US administration in 2025, which declared its intention to prioritize strategic bilateralism and protective trade policies, has the potential to further weaken, or even bring to an end, the existing multilateral trade system (Bouët et al. 2025). This raises the question of the need for a novel regulatory and institutional framework for international trade. This is particularly important for African countries, which have long sought inclusive development through multilateral trade: 45 African countries are WTO members and 6 are negotiating their accession.

While multilateralism is a key channel for African countries' participation in international trade, another important strategy is regional integration by way of regional trade agreements (RTAs), allowed under the multilateral framework for global trade. While the nondiscrimination principle requires uniform treatment of all WTO members, exceptions are permitted through the negotiation of these agreements, which have proliferated on a global scale, particularly in Africa. Notably, regional blocs such as ECOWAS (Economic Community of West African States), CEMAC (Communauté Économique et Monétaire de l'Afrique Centrale/Economic and Monetary Community of Central Africa), COMESA (Common Market for Eastern and Southern Africa), EAC (East African Community), and SADC (Southern African Development Community) have evolved at varying levels of integration, as concluded in previous AATM reports. For example, EAC, IGAD (Intergovernmental Authority on Development), and WAEMU (West African Economic and Monetary Union) show high trade introversion. As of May 2025, the World Bank reported 381 RTAs in force worldwide, including 48 in Africa (World Bank 2025), demonstrating that regionalism has expanded even within the multilateral system (Winters 2000; Glania and Matthes 2005). However, their emergence may have resulted in declining multilateralism: that is, RTAs may hinder rather than promote the advantages of multilateralism. It is important to note that an RTA confers privileged access for one country to one or more other countries. The coexistence of multilateral and regional agreements may undermine the latter's benefits by providing identical access to all countries worldwide, a phenomenon known as the erosion of preferences (Bouët et al. 2006; Francois et al. 2006; Hoekman et al. 2008).

Recently, African countries have chosen a third trade strategy: continental integration through the African Continental Free Trade Area (AfCFTA), which entered into force in 2019 and became operational on January 1, 2021. It represents a major milestone toward creating a

1 See Bagwell and Staiger (1999) for an economic theory, and Wolff (2023) for an institutional description.
2 See https://www.wto.org/english/res_e/statis_e/trade_evolution_e/evolution_trade_wto_e.htm, accessed September 17, 2025.
3 The US Inflation Reduction Act did not respect the National Treatment rule; the reciprocal tariffs announced by President Trump on April 2, 2025, did not respect the MFN and Schedule of Concessions rules.

single continental market among the 55 African Union member states, the largest of its kind. Can this free trade area be the driving force for the dynamic and harmonious development of international trade among African countries, contributing to inclusive development? For the AfCFTA to be an effective catalyst for African trade, its implementation must accommodate not only the provisions of existing RTAs, but also African countries' membership in the WTO.

This leads to the key questions explored in this chapter: Are existing RTAs building blocks or stumbling blocks for African trade? Will AfCFTA implementation lead to a significant and harmonious expansion of African trade? Does WTO membership reinforce trade between African countries?

To answer these questions, we must understand the mechanisms through which the AfCFTA affects trade between members of the same REC and between members of different RECs. It is anticipated that the AfCFTA Agreement—which entails reducing tariff and nontariff barriers to trade between African countries as well as cooperation on trade facilitation, investment, competition policy, intellectual property rights, e-commerce, and inclusion (women and youth)—will enhance trade among African countries that do not belong to the same REC. However, its impact on intra-REC trade is not as clear. Article 19 of the Agreement stipulates that the AfCFTA shall prevail in case of conflict with existing regional agreements, but also allows REC members to maintain higher levels of integration where these already exist. On one hand, it may address existing barriers to trade, presumably increasing intra-REC trade. On the other hand, lower trade barriers with non-REC countries could divert trade away from member countries through shifts in relative trade costs across multiple partners (multilateral resistance) effects (Anderson and van Wincoop 2003; Anderson and Yotov 2012).

This chapter considers whether the AfCFTA will (1) reduce trade within African RECs and shift it toward other African partners, or instead increase both intra-REC and extra-REC trade, and (2) whether WTO membership plays a positive or negative role. The analysis relies on a structural gravity equation applied to a global database of annual trade data for 233 countries (including 54 African economies) over the period 1988–2022. Thus, this year's AATM extends the scope of previous editions by taking a broader perspective, examining the interplay among regionalism, continentalism, and multilateralism[4] in Africa's trade architecture, and how these different levels of commitment reinforce or undermine each other in practice. We show that to date, intra-African trade has developed mainly thanks to RECs, and that WTO membership has amplified this effect for some countries. This effect is significant overall for all goods combined, but the impact has been less for agricultural products. The AfCFTA has had little effect so far. However, if comprehensively implemented, with commitments fully in place and legally enforceable, the AfCFTA's effect on intra-African trade would increase substantially, with positive effects on both intra- and inter-REC trade. This effect would be significant in countries' agriculture sectors, with an overall increase in within-REC exports, but negative effects on intra-REC trade in some communities (COMESA, EAC, UEMOA, and others).

The chapter unfolds as follows. The next section defines the African RECs and reviews the literature on RTAs' effects, followed by a description of African RECs' trade and tariff patterns. We then present the methodology, data, and empirical results before offering conclusions.

2. Literature Review

This section provides an overview of the existing literature on RTAs and RECs in Africa. It outlines the historical development of RTAs on the continent, reviews theoretical debates around the

4 "Regionalism" refers to integration within African RECs; "continentalism" refers to Africa-wide integration initiatives, most notably the AfCFTA; and "multilateralism" refers to integration at the global level, particularly through the WTO framework.

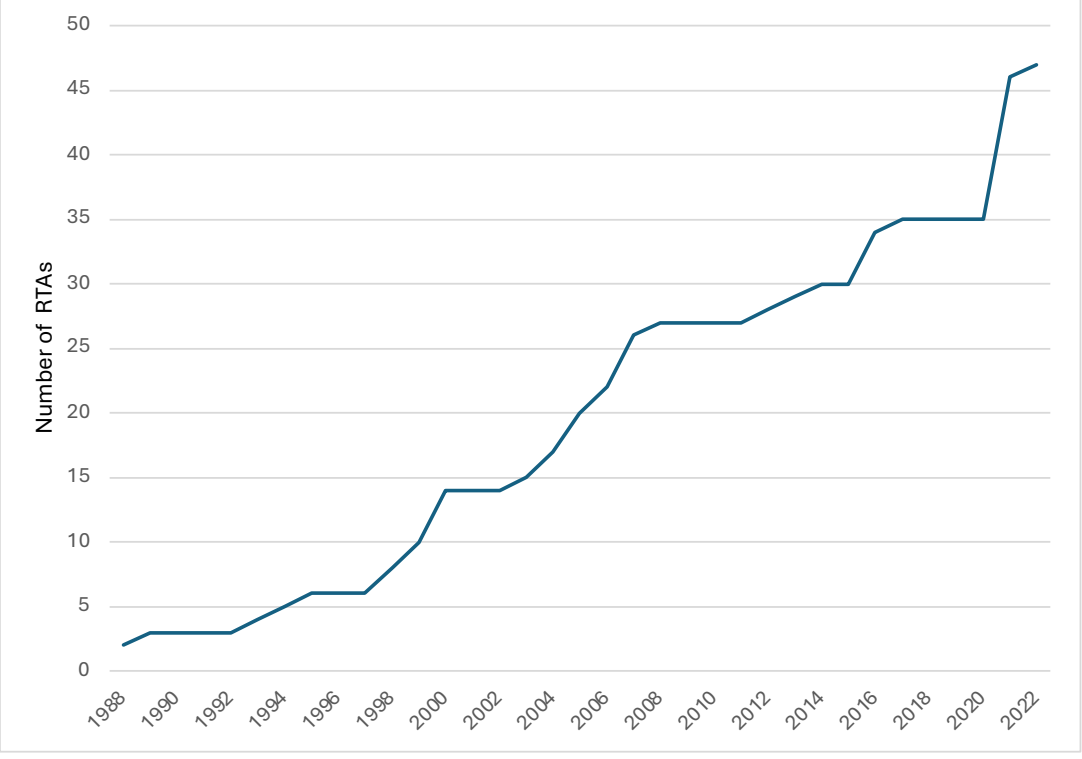
benefits and limitations of regionalism, and discusses the evolving role of RECs in the broader African trade architecture. Additionally, it touches on the overlap between regionalism and multilateralism and introduces the AfCFTA.

Evolution of RTAs and RECs in Africa

The evolution of RTAs, including in Africa, has fluctuated, with periods of both rapid growth and slowdowns. From the 1970s to the mid-1990s, the number of RTAs remained limited. Trade integration gained momentum in the late 1990s, with a gradual increase to two agreements achieved per year in 1998 and 1999. More recent agreements have expanded beyond the continent. Indeed, a turning point occurred in 2021, driven by Brexit, which led to 11 trade agreements between the United Kingdom and various African countries and regions, including Cameroon, Côte d'Ivoire, East and Southern Africa states, Egypt, Ghana, Kenya, Morocco, Mozambique, SACU, and Tunisia. In addition, Mozambique signed an RTA with Indonesia in 2022, and Kenya entered an agreement with the European Union in 2024. As of 2022, 47 RTAs involving African countries were in force (Figure 5.1).

Despite this growth, active intra-African trade agreements remain limited. Only eight RTAs are operational on the continent, namely CEMAC, COMESA, EAC, ECOWAS, the Namibia-Zimbabwe Agreement, SACU, SADC, and WAEMU. CEMAC and WAEMU regional groupings go beyond trade agreements and encompass monetary policy coordination. This trend highlights Africa's evolving trade landscape, which is shaped by external partnerships and regional consolidation.

Figure 5.1 Number of regional trade agreements in force involving African countries, 1988–2022



Source: WTO Regional Trade Agreements database, accessed January 2025. https://rtais.wto.org/UI/PublicMaintainRTAHome.aspx

Note: All RTAs, including accessions, are included. Only one additional agreement (EU-Kenya, 2024) entered into force after 2022.

The African Union officially recognizes eight RECs in Africa as building blocks for continental integration (AfCFTA): COMESA, EAC, ECCAS, ECOWAS, SADC, AMU, CEN–SAD, and IGAD (Table 5.1). They differ in their date of establishment, membership composition, and coverage and depth of integration, with some having achieved customs union status while others remain at the free trade stage or earlier. Some are shallow (covering only tariffs and other border measures), while others are deep (encompassing a broader set of policies; see Matthews 2007). Subsequent sections of this chapter use the term "REC" for all groups described above, whether officially recognized by the African Union or not.[5]

Table 5.1 Description of African RECs

Acronym	Full Name	Year Created	Members (as of 2025)	Stage
COMESA	Common Market for Eastern and Southern Africa	1994	21 (Burundi, Comoros, Democratic Republic of the Congo (DRC), Djibouti, Egypt, Eritrea, Eswatini, Ethiopia, Kenya, Libya, Madagascar, Malawi, Mauritius, Rwanda, Seychelles, Somalia, Sudan, Tunisia, Uganda, Zambia, Zimbabwe)	Free trade area +Customs union (launched in 2009 but not fully implemented)
EAC	East African Community	2000	7 (Kenya, Uganda, Tanzania, Rwanda, Burundi, South Sudan, DRC)	Customs union
ECCAS	Economic Community of Central African States	1983	11 (Angola, Burundi, Cameroon, Central African Republic, Chad, DRC, Equatorial Guinea, Gabon, Republic of Congo, Rwanda,* São Tomé and Príncipe≠≠) *= withdrew in June 2025	Economic cooperation (overlaps with CEMAC)
ECOWAS	Economic Community of West African States	1975	15 (Benin, Cabo Verde, Côte d'Ivoire, Ghana, Guinea, Guinea-Bissau, Liberia, Nigeria, Senegal, Sierra Leone, Gambia, Togo, Burkina Faso,* Mali,* Niger* *=withdrew in 2023–24	Customs union (since 2015)
WAEMU	West African Economic and Monetary Union	1994	8 (Benin, Burkina Faso, Côte d'Ivoire, Guinea-Bissau, Mali, Niger, Senegal, Togo)	Customs union + Monetary union
SADC	Southern African Development Community	1992	16 (Angola, Botswana, Comoros, DRC, Eswatini, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Tanzania, Zambia, Zimbabwe)	Free trade area (since 2008; Angola and DRC have not yet implemented)
SACU	Southern African Customs Union	1910	5 (Botswana, Eswatini, Lesotho, Namibia, South Africa)	Customs union (fully harmonized tariffs)
AMU	Arab Maghreb Union	1989	5 (Algeria, Libya, Mauritania, Morocco, Tunisia)	Inactive

5 The appetite for regional cooperation in Africa goes beyond the RECs to include five energy-based organizations (such as West Africa Power Pool-ECOWAP), 15 river and lake organizations (such as the Senegal River Basin Development Organization-OMVS), three peace and security organizations (for example, G5-Sahel), and one environmental organization (Central African Forests Commission-COMIFAC) (Interactive map: Mapping regional organizations in Africa - ECDPM, accessed August 1, 2025).

Table 5.1 Description of African RECs (cont'd)

CEN–SAD	Community of Sahel-Saharan States	1998	25 (Benin, Burkina Faso, Central African Republic, Chad, Côte d'Ivoire, Comoros, Djibouti, Egypt, Eritrea, Gambia, Ghana, Guinea, Guinea-Bissau, Libya, Mali, Mauritania, Morocco, Niger, Nigeria, Senegal, Sierra-Leone, Sudan, Somalia, Togo, Tunisia)	Economic, cultural, political, and social integration (overlaps with ECOWAS, ECCAS, COMESA)
IGAD	Intergovernmental Authority on Development	1996	8 (Djibouti, Eritrea, Ethiopia, Kenya, Somalia, South Sudan, Sudan, Uganda)	Cooperation (not a trade bloc)
TFTA	Tripartite Free Trade Area	2015	3 blocs (COMESA, EAC, SADC)	Pending implementation Entered into force in July 2024

Source: Authors' compilation.

Theoretical and empirical perspectives on regional integration

After reviewing the historical evolution and institutional landscape of Africa's RTAs, this section examines the theoretical debates and empirical evidence on regional integration and its economic effects. Creating a free trade area or a customs union (a free trade area with a common external tariff) has both positive and negative effects. A key advantage is trade creation, whereby the removal of tariffs and nontariff barriers between member countries leads to increased trade flows, greater consumer access to lower-cost imports, and improved resource allocation through specialization and economies of scale. Conversely, trade diversion may occur when cheaper goods from more efficient nonmember countries are replaced by costlier imports from less efficient member countries due to preferential treatment, potentially reducing overall welfare. In sum, the creation of a free trade area or a customs union can either increase or decrease trade flows and the well-being of member countries (Viner 1950). Scholars such as Rodrik (2000a) have argued that a major limitation of Viner's insights is that they offer a purely static view of the benefits of regional integration.

A related theoretical literature on free trade agreements (FTAs) examines the distributional consequences of trade liberalization and identifies who is more likely to gain or lose from regional integration. This line of research explores the link between changes in output prices and changes in returns to factors of production, such as real wages and returns to capital. According to the Stolper–Samuelson theorem (Stolper and Samuelson 1941), trade liberalization affects relative factor prices: owners of a relatively abundant factor in a country may benefit from trade opening, while owners of a relatively scarce factor may see their real returns decline. This implies that within an RTA, the benefits and costs are not equally shared across sectors or groups, raising important policy questions about how to design mechanisms that ensure the net welfare effect remains positive for all member countries. It has also been demonstrated that trade agreements are not gender neutral, underscoring the need for targeted measures to ensure that trade agreements do not exacerbate gender inequalities. The question of how to ensure gains outweigh losses (whether the country engaging in an FTA is better or worse off) has drawn some research interest. For instance, it has been shown that governments could use lump-sum transfers to achieve Pareto gains from trade (that is, gains for everybody or at least no loss for anybody) to the extent that they are nondistorting, on one hand, and provided that people do not react strategically as a result of such redistribution, on the other hand

(Kemp and Wan Jr. 1976; Grinols 1981; Grinols and Wong 1991; Ju and Krishna 2000; Dixit and Norman 1980; Panagariya and Krishna 2002).[6] In practice, this has provided a rationale for compensation mechanisms that serve as an important tool to help FTA members weather short-run adjustments. For example, the AfCFTA Adjustment Fund is an operational instrument designed to "support African countries and the private sector to effectively participate in the new trading environment established under the AfCFTA."[7]

Another key concept shaping the evaluation of RTAs is the "natural trading partner" hypothesis (Lipsey 1960), which suggests that welfare gains from preferential trade agreements (PTAs) are more likely to materialize when member countries already trade heavily with each other. This assumption is based on the idea that such patterns reduce the likelihood of trade diversion. However, critics such as Bhagwati and Panagariya (1996) argue that high pre-PTA trade volumes may amplify welfare losses as a result of increased trade diversion and forgone tariff revenues, particularly for smaller economies that remain open to global trade. Schiff (2001) challenges the traditional volume-based view by introducing the notion of trade complementarity—the extent to which one country imports what another country exports. From this perspective, it is not the intensity of prior trade that determines the success of an RTA, but whether the trade relationship is complementary or substitutable. Agreements between countries with complementary trade structures are more likely to yield welfare gains, while those between substitutable economies risk inefficiencies and limited benefits.

In Africa, overlapping membership in multiple RECs adds another layer of complexity, referred to as the "spaghetti bowl" effect (Bhagwati 1996). This fragmentation can result in legal, institutional, and policy inefficiencies. While many studies point to the negative implications of such overlaps, several authors argue that this issue is less relevant when overlapping trade agreements remain shallow. Baldwin (2006), for instance, emphasizes that when regional agreements focus mainly on tariff preferences and lack deep regulatory commitments, the risk of legal or institutional conflict is limited. Similarly, Estevadeordal et al. (2008) and the World Bank (2005) show that shallow integration is less likely to result in inefficiencies, particularly in Africa, where most RECs do not yet involve complex regulatory harmonization or binding institutional provisions.

This debate is also connected to the distinction between shallow and deep trade agreements. While shallow RTAs mainly address tariffs and quantitative restrictions, deep trade agreements extend commitments to a broader set of policy areas, including investment, competition policy, intellectual property rights, services trade, public procurement, and the reduction of nontariff measures. Theoretically, deep RTAs can generate higher welfare gains by reducing behind-the-border barriers, fostering regulatory convergence, and enhancing investor and trader predictability. Baldwin (2011) and Rocha et al. (2020) highlight that such deeper commitments can create "supply chain disciplines" that integrate markets more effectively than tariff cuts alone, especially in sectors with high value added and complex cross-border production. However, deep integration can also raise adjustment costs, constrain domestic policy autonomy, and exacerbate asymmetries between members if institutional capacities are uneven (World Bank 2020).

Debate also arises over whether RTAs act as building blocks or stumbling blocks for multilateralism. RTAs and multilateral trade agreements both aim to reduce trade barriers, but through different frameworks. While multilateralism is based on nondiscrimination and global openness, RTAs operate on a preferential basis, which can generate both trade creation and trade diversion.

6 Additional instruments to guarantee that an FTA will lead to Pareto gains include a system of commodity taxes and subsidies (Dixit and Norman 1980; Dixit 1986).
7 See https://au-afcfta.org/operational-instruments/the-afcfta-adjustment-fund/, accessed on August 1, 2025.

Empirical studies of African RTAs have evolved. Findings from early ex post studies based on a meta-analysis and gravity model of the success of RTAs in promoting intra-African trade were mixed, partly due to methodological shortcomings, such as the omission of multilateral resistance terms and the inadequate treatment of zero trade flows (Afesorgbor 2017). However, recent studies provide more robust and coherent results, showing that several RECs—including ECOWAS, COMESA, SADC, and, to a lesser extent, EAC—have had a positive, significant effect on bilateral trade among their members (Fofack et al. 2021).

Even if other critical factors may impede the gains from RTAs, one important challenge to realizing their benefits lies in their rules of origin (RoO). The complexity arising from RoO heterogeneity is widely documented, particularly through estimates of associated compliance costs. Anson et al. (2005), Carrère and de Melo (2004), and Estevadeordal et al. (2007) highlight that these costs can significantly erode, or even outweigh, the benefits of preferential market access under FTAs. For instance, Anson et al. (2005) estimate RoO compliance costs at around 6 percent of the export value, surpassing the average preferential margin of 4 percent. Cadot et al. (2006) show that selected SADC RoO in agriculture and manufacturing may hinder the efficiency gains expected from the free trade area, as they tend to preserve pre-trade protocol protectionist structures and existing trade patterns. Signé and Madden (2020) highlight that negotiations on RoO under the AfCFTA are complicated by the existing diversity of RoO regimes across Africa's RECs. Their analysis considers preference margins, the availability of intermediate inputs, trade volumes, and certification costs and finds that while preference margins are relatively high for many products, the limited availability of intermediate inputs and low trade volumes pose constraints. Furthermore, they point out that certification requirements could be burdensome for the large number of small and medium-sized enterprises (SMEs) operating in Africa, potentially limiting the use of preferential trade benefits.

On overlapping memberships, Afesorgbor and van Bergeijk (2011) use a gravity model for 35 countries over the 1995–2006 period and within ECOWAS, and find that such overlaps can even enhance trade, suggesting that the spaghetti bowl effect is not universally negative when agreements are shallow. Simulation evidence further informs the building-versus-stumbling-block debate. For example, FAO (2022)—using the multicountry computable general equilibrium model MIRAGRODEP calibrated with GTAP 11—shows that while agreements like the AfCFTA may significantly increase intra-African trade, they may also reduce trade with more competitive non-African partners, thereby limiting global efficiency gains. These findings underline the importance of aligning regional trade integration with broader multilateral objectives.

The AfCFTA represents a critical step toward greater African integration, aiming to consolidate existing regional frameworks and overcome fragmentation. Its success will depend on addressing the continent's high protectionism, the diversity of its 55 member states, the complex nature of trade negotiations, and the extent to which member countries perceive it as complementing rather than substituting for their existing RECs. Therefore, understanding the current structure of intra- and extraregional trade flows, tariff regimes, and the composition of trade is essential to assess where the AfCFTA can reinforce existing integration dynamics and where it may face challenges.

3. Regional Integration in Africa: Trade Structure and Policies

The theoretical and empirical perspectives outlined above provide a framework for understanding the possible effects of regional integration in Africa. To empirically assess the dynamics, this section examines the current structure of trade flows and tariff regimes across Africa's RECs. First, it examines the dynamics of trade flows and measures trade introversion across RECs. Next, it focuses on trade policy instruments, including the tariff structure across different stages of processing. Finally, it assesses the depth of RTAs. The aim is to shed light on the heterogeneity of Africa's regional integration efforts and identify gaps that the AfCFTA should address.

Trade flows

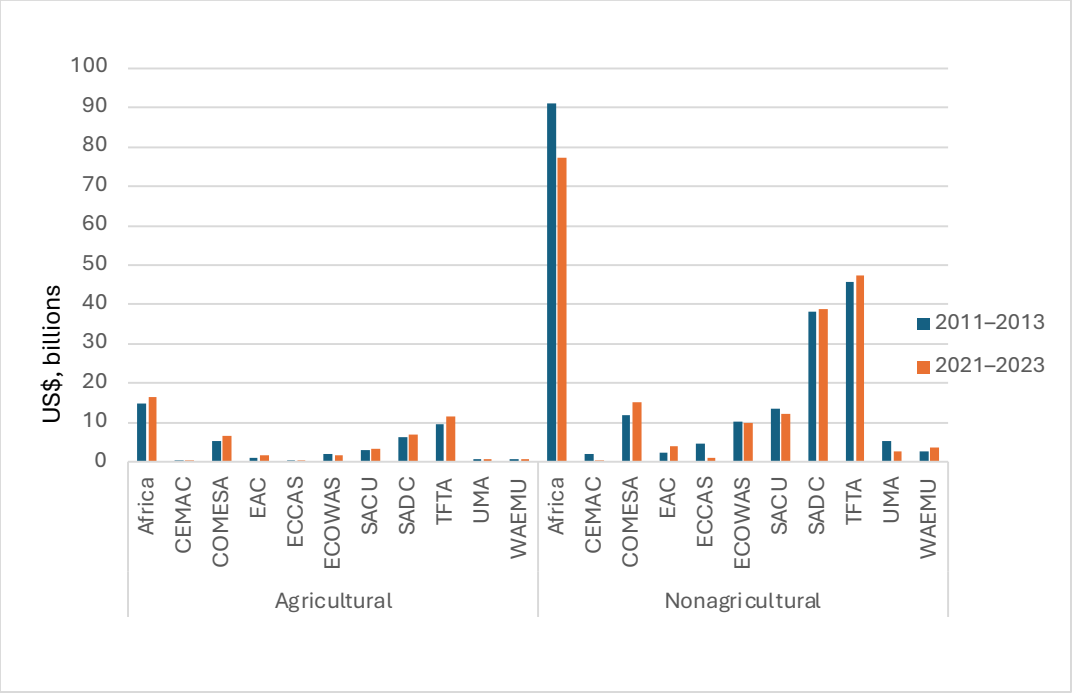
This subsection examines the evolution and structure of trade flows within and across African RECs, focusing on the intensity of intraregional trade and the degree of trade introversion as indicators of regional integration.

Intraregional trade values for agricultural and nonagricultural products[8] across African RECs between 2011–2013 and 2021–2023 highlight the trends in regional trade integration (Figure 5.2). Intra-African agricultural trade increased from US$14.8 billion to $16.6 billion, reflecting a moderate growth of 12 percent, though this expansion was uneven across regions. Significant growth occurred in the Tripartite Free Trade Area (TFTA)[9] (+22.2 percent), COMESA (+20.9 percent), and SADC (+9.2 percent), while CEMAC (−38.7 percent) and ECOWAS (−19.3 percent) recorded declines, indicating persistent disparities in agricultural trade integration. However, these figures likely underestimate intra-African trade, as informal cross-border trade (ICBT) is widespread, largely concentrated in agricultural products, and not captured in official statistics (Bouët et al. 2020). Bouët, Sy, et al. (2025) show that, in 2018, the COMTRADE database missed 84 percent of the total value of trade flows for the 33 products investigated by the ECO-ICBT database.

While intra-African agricultural trade increased, nonagricultural trade declined from US$91.1 billion to $77.2 billion, a 15 percent contraction, likely amplified by supply chain disruptions caused by the COVID-19 pandemic and the Russia-Ukraine crisis, which affected African economies both directly and indirectly. In particular, the war triggered global price spikes and shortages of key inputs, such as fertilizers, cereals, and energy, thereby raising production costs. It also disrupted maritime and logistics routes, leading to higher transport costs and delays (Laborde Debucquet et al. 2023). While nonagricultural trade grew in COMESA (+26.9 percent), EAC (+67.4 percent), and WAEMU (+43.7 percent), it declined substantially in CEMAC (−78.6 percent), ECCAS (−74.9 percent), ECOWAS (−4.9 percent), and AMU (−51.1 percent), suggesting weaker industrial integration. These patterns suggest that, beyond global shocks, structural factors such as diversification, competitiveness, and infrastructure development may also play a role in shaping RECs' trade performance.

8 "Agricultural products" defined here goes beyond HS Chapters 01–24 (excludes fish and fisheries HS 03). In addition to food and beverages (live animals, meat, dairy, cereals, oilseeds, fruits, vegetables, beverages, and tobacco), it covers selected agriculture-based raw materials and inputs, natural textile fibers, raw hides and skins, and certain plant-based chemicals.
9 TFTA is a free trade area that includes COMESA, EAC, and SADC RECs, with 29 participating countries.

Figure 5.2 Intra-REC trade, 2011–2013 and 2021–2023, US$ billions



Source: 2025 AATM database and authors' calculations.

Regional trade introversion, a measure of the extent to which trade is conducted within a regional bloc rather than with external partners, varies significantly across African RECs. Based on the regional introversion index, the data for the periods 2003–2005, 2011–2013, and 2021–2023 reveal both persistent disparities and sector-specific dynamics in Africa's regional integration trajectory (Table 5.2).

For nonagricultural products, the average introversion index for Africa declined from 0.52 in both 2003–2005 and 2011–2013 to 0.44 in 2021–2023, indicating a growing orientation toward extra-Africa trade in industrial goods. Most RECs followed this downward trend. For example, COMESA dropped from 0.59 to 0.51, and ECCAS from 0.75 to 0.38. AMU experienced the largest decline: its index fell from 0.42 to 0.18 between 2011–2013 and 2021–2023. In contrast, by 2021–2023, blocs including EAC (0.91), WAEMU (0.94), and IGAD (0.90) were maintaining relatively high levels of intraregional trade in nonagriculture sectors. Despite slight decreases, SADC (0.82), SACU (0.76), and TFTA (0.68) also retained robust intra-bloc industrial trade in the same period. The only major exception was AMU, which saw a significant drop in its index from 0.90 to 0.62, indicating that trade in this Maghreb region has become more extraverted than introverted.[10]

For agricultural products overall, the trend in regional trade integration weakened slightly at the continental level. Africa's average introversion index declined from 0.56 to 0.46 between 2003–2005 and 2011–2013 and remained stable at 0.46 in 2021–2023.[11] However, distinguishing processing stages offers a different perspective and a more granular understanding of regional trade integration.

For unprocessed agricultural products, the trend is similarly downward at the continental level: Africa's average introversion index fell from 0.40 to 0.27 over the two decades. However, some

10 See previous releases of the AATM report to get more details of African RECs' level of trade integration.
11 These values are not presented in Table 5.2.

RECs stand out for their resilience and strong internal agricultural markets. SACU (0.93)[12], SADC (0.90), and EAC (0.92) consistently led in regional trade of primary agricultural goods. IGAD (0.81) and CEMAC (0.77) also maintained relatively high levels. Conversely, CEN-SAD's integration collapsed from 0.26 to 0.02, while AMU's decreased marginally from a weak baseline (from 0.22 to 0.18). These figures underscore the uneven integration of agricultural value chains, with Southern and East Africa performing significantly better than Central and North Africa.

By contrast, the processed agricultural products sector is where African RECs are most integrated. The continentwide average introversion index rose from 0.82 in 2011–2013 to 0.87 in 2021–2023, surpassing even the 2003–2005 level of 0.86. Processed agricultural products consistently exhibit higher introversion levels than unprocessed ones in several RECs: WAEMU, SACU, EAC, and SADC all recorded values between 0.97 and 0.98 in 2021–2023, reflecting strong intraregional trade in value-added agricultural goods. COMESA (0.86), ECOWAS (0.94), IGAD (0.95), and TFTA (0.94) also remained well-integrated.

In summary, the regional introversion indices paint a nuanced picture of Africa's regional trade integration. While some RECs—particularly EAC, SADC, SACU, and WAEMU—have established strong and growing intraregional ties, especially in processed agriculture sectors, others remain externally oriented and show little or no progress. The persistent weaknesses observed in regions like AMU, ECCAS, and CEN-SAD suggest that integration is not only incomplete but also uneven across the continent and sectors.

Table 5.2 Regional trade introversion indicators, 2003–2005 to 2021–2023

	2003–2005	2011–2013	2021–2023
Nonagricultural products			
Africa	0.52	0.52	0.44
CEMAC	0.76	0.91	0.77
CEN-SAD	0.49	0.34	0.34
COMESA	0.59	0.58	0.51
EAC	0.98	0.94	0.91
ECCAS	0.43	0.75	0.38
ECOWAS	0.87	0.73	0.73
IGAD	0.90	0.86	0.90
SACU	0.86	0.80	0.76
SADC	0.88	0.84	0.82
TFTA	0.75	0.70	0.68
WAEMU	0.98	0.97	0.94
AMU	0.27	0.42	0.18
Nonprocessed agricultural products			
Africa	0.40	0.29	0.27
CEMAC	0.89	0.77	0.77
CEN-SAD	0.26	0.05	0.02
COMESA	0.58	0.60	0.54
EAC	0.89	0.92	0.92
ECCAS	0.70	0.58	0.76
ECOWAS	0.66	0.39	0.38

12 Figures are for the 2021–2023 period.

Table 5.2 Regional trade introversion indicators, 2003–2005 to 2021–2023 (cont'd)

IGAD	0.82	0.85	0.81
SACU	0.95	0.94	0.93
SADC	0.93	0.92	0.90
TFTA	0.77	0.68	0.66
WAEMU	0.78	0.66	0.57
AMU	0.22	0.33	0.18
Processed agricultural products			
Africa	0.86	0.82	0.87
CEMAC	0.99	0.96	0.88
CEN-SAD	0.85	0.81	0.79
COMESA	0.84	0.85	0.86
EAC	0.97	0.98	0.98
ECCAS	0.92	0.81	0.85
ECOWAS	0.96	0.94	0.94
IGAD	0.97	0.97	0.95
SACU	0.95	0.96	0.98
SADC	0.95	0.94	0.97
TFTA	0.91	0.89	0.94
WAEMU	0.99	0.97	0.98
AMU	0.90	0.76	0.62

Source: 2025 AATM database and authors' calculations.

Note: This indicator measures the intensity of regional trade introversion. It is symmetric, independent of region size, and increases only if intraregional trade grows more quickly than extraregional trade. With this indicator, and contrary to the regional trade share, cross-region comparisons are possible. A positive (negative) sign means that a region is more (less) introverted than extraverted. A higher introversion index indicates stronger intraregional integration, suggesting that REC members are more dependent on each other for trade. A lower index indicates greater openness to extraregional partners. More details are available in Bouët, Cosnard, and Laborde (2017).

Intra-and extra-REC tariffs

The higher regional introversion observed for processed agricultural goods potentially reflects tariff escalation patterns that make extraregional sourcing costlier for value-added products. Table 5.3 presents average tariffs applied on all goods between African RECs and trading partners, offering insights into the continent's trade policy. In addition, we distinguish between tariffs for processed and unprocessed products to test whether tariff escalation—that is, a tariff structure with increasing customs duties along the value chain from raw commodities to final consumption goods—holds for African economies where industrialization and agro-processing are of interest.

Intra-African tariffs remain relatively high, with Africa's average tariff on African imports at 7.5 percent, twice the world average. This reflects ongoing, though incomplete, trade liberalization under various regional integration schemes. Intra-REC tariffs are generally low or zero, especially within customs unions such as CEMAC, SACU, and WAEMU, which apply zero tariffs among their members. ECOWAS and EAC also maintain very low internal tariffs (0.2 percent and 2.8 percent, respectively), in line with their customs union status. COMESA (5.5 percent),

SADC (2.2 percent), and TFTA (6.2 percent) apply low-to-moderate internal tariffs, though not all have achieved full harmonization. In contrast, inter-REC tariffs remain relatively high. For example, CEMAC applies some of the highest tariffs (up to 14.6 percent on ECOWAS), while COMESA, ECCAS, and ECOWAS often maintain tariffs above 10 percent on goods from other African RECs. Only SADC stands out for applying comparatively lower tariffs on other RECs (for example, 5.2 percent on COMESA and 3.5 percent on TFTA).

Compared to the average African tariff applied to the rest of the world (ROW), the average African tariff on imports from the ROW is 10.0 percent, and in several cases, African countries apply equal or higher tariffs on other RECs than on non-African partners. For example, EAC applies a 3.7 percent rate to the ROW but 15.5 percent to ECOWAS, while IGAD applies a 5.9 percent rate to the ROW but 14.3 percent to CEN-SAD. This structure suggests that, in practice, trade within Africa may face barriers not present in external trade relations. Overall, while intra-REC liberalization is progressing, especially within customs unions, high inter-REC tariffs reveal persistent fragmentation. Achieving greater harmonization across RECs is essential to move from a regional framework toward a more efficient, single continental market.

Table 5.3 Average applied tariffs imposed by African RECs (as importers) on their partners for all goods (%), 2022

		Exporting partner													
		Africa	**CEMAC**	**CEN-SAD**	**COMESA**	**EAC**	**ECCAS**	**ECOWAS**	**IGAD**	**ROW**	**SACU**	**SADC**	**TFTA**	**WAEMU**	**AMU**
Importing partner (Reporter)	**Africa**	7.5	3.9	7.1	7.8	8.4	4.1	6.4	11.4	10.0	8.8	7.7	8.0	7.4	6.5
	CEMAC	13.2	0.0	14.1	14.2	15.6	7.1	14.6	17.3	14.0	13.2	13.0	13.4	14.4	11.3
	CEN-SAD	7.7	3.6	5.6	8.7	9.4	3.6	3.9	12.7	10.8	10.8	9.2	9.3	4.3	5.5
	COMESA	8.7	3.6	9.9	5.5	6.1	3.2	12.4	8.0	12.0	11.2	8.6	8.1	14.0	5.5
	EAC	9.0	5.2	12.9	4.8	2.8	6.0	15.5	5.3	13.4	8.2	6.8	6.7	16.1	10.7
	ECCAS	10.8	2.7	11.7	10.8	11.2	5.4	12.4	13.3	10.7	10.8	10.5	10.8	12.9	8.5
	ECOWAS	7.6	5.0	4.2	11.7	12.1	6.1	0.2	14.3	10.0	9.4	9.5	10.2	0.3	8.3
	IGAD	12.3	10.7	14.3	8.2	9.4	9.5	16.2	10.8	14.8	13.1	11.3	11.0	15.8	11.9
	ROW	2.5	1.2	2.5	3.1	3.7	0.9	1.7	5.9	3.1	3.4	2.8	2.9	2.0	2.3
	SACU	2.4	0.4	4.0	4.6	1.6	0.2	0.4	8.1	6.3	0.0	0.2	2.4	0.8	8.4
	SADC	5.2	3.8	8.6	5.2	3.8	2.8	8.9	7.6	7.7	2.3	2.2	3.5	11.0	9.1
	TFTA	7.2	3.6	9.3	5.3	4.9	3.1	10.6	7.8	10.0	7.8	6.0	6.2	12.5	6.7
	WAEMU	6.6	4.1	3.4	11.0	11.8	4.8	0.0	13.9	9.5	8.9	8.9	9.5	0.0	7.5
	AMU	5.3	4.0	3.3	3.6	6.0	4.3	5.1	9.0	8.5	9.4	6.9	6.0	8.8	0.9

Source: MacMap-HS6, CEPII database.

The tariff structure across African RECs reveals generally higher protection levels for agricultural products than for all goods, highlighting agriculture's sensitive and strategic nature in trade policy. In RECs with common external tariffs, many agricultural products are designated as sensitive or excluded, subjecting them to higher tariffs. While intra-REC tariffs on all goods are often zero or low within customs unions such as CEMAC, SACU, and WAEMU, the same does not apply consistently to agriculture, where even some intra-REC tariffs remain nonnegligible. For instance, the COMESA-to-COMESA tariff is 8.2 percent for agricultural products compared with 5.5 percent for all goods, and TFTA-to-TFTA trade faces 13.2 percent tariffs on agricultural products versus 6.2 percent on all goods. Even within SADC, where all goods face a low intra-REC tariff of 2.2 percent, agricultural goods are subject to a higher 3.5 percent protection rate.

Inter-REC agricultural tariffs, often well above 10 percent, are notably higher than inter-REC tariffs on all goods. For example, COMESA applies a 17.5 percent tariff on agricultural products from Africa (versus 8.7 percent on all goods), and CEN-SAD applies a 15.0 percent tariff (compared with 7.7 percent). Some RECs even apply agricultural tariffs above 20 percent on other African RECs, as seen with COMESA's tariff on SACU agricultural products (33.6 percent) and IGAD on SADC products (28.3 percent), suggesting strong protectionist tendencies in agrifood markets.

In summary, agricultural trade remains more heavily protected than nonagricultural trade across the continent, with both intra-REC and inter-REC agricultural tariffs generally higher than their counterparts for all goods. This suggests slower liberalization progress in the agriculture sector, which is critical for food security and rural development. These findings reinforce the need for targeted harmonization of agricultural trade policies under the AfCFTA to ensure that the benefits of regional integration extend fully to agriculture.

Table 5.4 Average applied agricultural tariffs imposed by African RECs on partners (%), 2022

		Exporting partner												
		Africa	**CEMAC**	**CEN-SAD**	**COMESA**	**ECCAS**	**ECOWAS**	**IGAD**	**ROW**	**SACU**	**SADC**	**TFTA**	**WAEMU**	**AMU**
Importing partner (Reporter)	**Africa**	13.8	9.7	12.2	12.1	13.3	10.2	13.1	23.7	20.5	15.8	14.8	10.2	18.3
	CEMAC	19.6	0.0	20.2	19.5	16.1	19.9	20.3	18.6	19.6	18.8	19.3	18.9	22.3
	CEN-SAD	15.0	11.9	9.5	13.3	15.0	5.8	13.9	27.9	28.6	21.0	18.2	5.8	15.9
	COMESA	17.5	11.5	15.1	8.2	14.4	18.9	8.8	34.7	33.6	22.3	17.1	19.0	16.0
	ECCAS	16.5	6.1	17.2	15.4	13.1	17.7	14.8	16.9	17.9	16.4	16.0	17.2	18.8
	ECOWAS	12.2	16.0	7.4	15.8	14.7	0.0	16.0	15.0	17.5	15.8	16.0	0.0	19.2
	IGAD	19.0	24.3	21.0	10.8	19.5	24.5	11.0	25.1	28.3	19.9	16.6	24.3	27.8
	ROW	9.1	2.9	7.3	10.1	4.7	4.2	9.5	11.6	15.7	13.3	11.9	3.7	9.4
	SACU	7.4	1.5	11.3	10.2	1.6	2.1	10.0	17.0	0.0	1.2	7.6	2.4	26.3
	SADC	9.8	6.0	15.1	9.1	8.5	15.4	10.1	17.1	3.6	3.5	7.2	16.3	23.0
	TFTA	14.6	7.6	15.7	8.7	12.1	17.6	9.4	29.0	22.2	14.8	13.2	18.3	19.5
	WAEMU	11.3	12.5	6.5	15.3	13.7	0.0	15.5	14.9	17.2	15.6	15.6	0.0	18.9
	AMU	11.3	7.9	6.5	6.6	9.1	8.7	11.2	18.6	24.8	19.9	13.9	8.5	4.7

Source: MacMap-HS6, CEPII database.

While the regional introversion index shows that processed agricultural products are the most integrated segment of Africa's intraregional trade, tariff data confirm the role of tariff escalation in shaping this pattern (Appendix 5.5). Africa's average tariff on intra-African processed agricultural imports is 16.1 percent versus 9.7 percent on unprocessed agricultural imports. Within several RECs, intra-REC tariffs on processed goods exceed those on unprocessed goods, such as in COMESA (8.8 percent versus 7.2 percent), IGAD (12.9 percent versus 8.3 percent), SADC (7.6 percent versus 6.9 percent), and TFTA (16.2 percent versus 8.4 percent). Customs unions show the expected internal liberalization (near-zero within CEMAC, WAEMU, and SACU), but outside those unions, intra-REC escalation persists. The higher inter-REC and agricultural tariffs overall explain why processed products display higher regional introversion than unprocessed ones. External and inter-REC tariff escalation—where tariffs rise with the level of processing and are higher for products imported from outside a REC—increases the relative cost of extra-bloc sourcing for processed goods. This encourages firms to trade more within their own regional markets, strengthening regional value chains.

An implication for the AfCFTA could be to prioritize tariff abatement on processed agricultural products across non-customs-union RECs and to streamline RoOs that permit full cumulation to achieve the agreement's industrialization and regional value chain development goals.

Depth of intra-African agreements

The depth of trade agreements in Africa is critically important, directly influencing the extent to which they can drive economic growth, trade integration, and structural transformation on the continent. Depth here refers to the range of policy areas covered beyond traditional tariff reductions. We distinguish two types of provisions: (1) "WTO-plus" provisions (falling under the current mandate of the WTO and already subject to some form of commitment in WTO agreements); and (2) "WTO-X" provisions (obligations outside of the current WTO mandate). To measure the depth of preferential trade agreements, we construct two types of indicators for each main area following the classification of Aboushady et al. (2023). Horizontal depth indicators count the total number of provisions, while vertical depth indicators measure enforceable provisions.

The WTO-plus provisions are grouped into three categories: (1) tariffs; (2) nontariff measures (NTMs); and (3) services (see Appendix 5.1). In tariffs, WTO-plus commitments involve greater liberalization, such as the full elimination of duties in agriculture and industry. NTMs cover stricter disciplines on customs procedures, export taxes, technical barriers to trade (TBT), sanitary and phytosanitary (SPS) measures, and trade remedies like antidumping and countervailing duties. In the services sector, WTO-plus commitments extend beyond the General Agreement on Trade in Services (GATS), including rules on state aid, public procurement, investment under the Agreement on Trade-Related Investment Measures (TRIMs), intellectual property under the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), and deeper liberalization of service sectors.

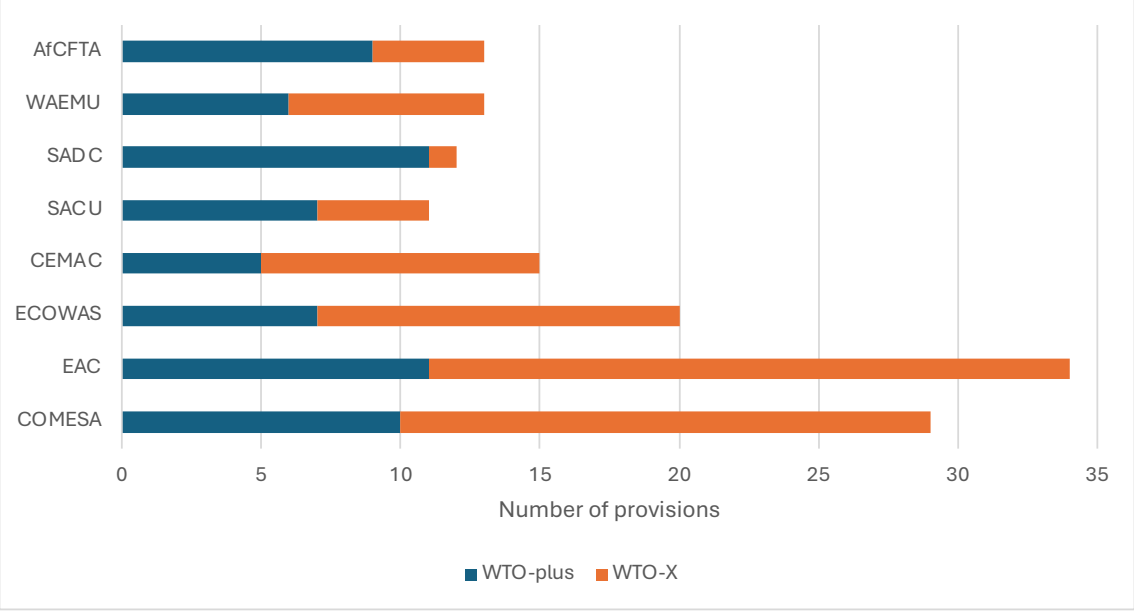
Unlike WTO-plus provisions, which focus on existing WTO commitments, WTO-X provisions introduce new disciplines that go beyond the WTO's scope, reflecting modern economic, social, and regulatory challenges (Appendix 5.1). The WTO-X provisions are grouped into five broad categories: (1) agriculture and health (for example, provisions related to food security, sustainable agriculture, and public health issues); (2) institutional and regulatory frameworks (for example, governance and legal provisions aimed at enhancing transparency, market competition, and consumer rights); (3) production processes and economic policies affecting investment, labor, education, innovation, and energy markets; (4) cooperation and institutional support (for example, provisions related to economic dialogue, financial assistance,

taxation, governance, and regional cooperation); and (5) a broad range of other political, security, and social policies beyond economic issues covered in FTAs. WTO-X commitments promote regulatory alignment, economic cooperation, and social governance, reflecting the growing intersection of trade and nontrade issues in modern agreements. These provisions are increasingly important in regional integration efforts, fostering deeper economic and institutional ties beyond market access.

A comparison of WTO-plus (trade-related) and WTO-X (nontrade) provisions across African RTAs shows that the AfCFTA has a balanced but moderate focus, emphasizing trade liberalization while incorporating some nontrade commitments (Figure 5.3). The AfCFTA Agreement incorporates nine WTO-plus provisions, covering tariffs (industrial and agricultural), customs procedures, SPS, TBT, state trading enterprises (STEs), countervailing measures (CVM), state aid, and GATS. While it is closely aligned with COMESA, EAC, and SADC, which have the most WTO-plus provisions, the AfCFTA remains less extensive than these agreements, lacking public procurement, TRIMs, and TRIPs. EAC and SADC have the most comprehensive WTO-plus provisions (11 each), followed by COMESA (10), while WAEMU, CEMAC, and SACU include fewer trade-related commitments (5–7 provisions). Compared to COMESA and EAC, which have the highest WTO-X provisions covering investment, labor, financial policies, and governance, the AfCFTA remains more trade-centered. ECOWAS, WAEMU, and CEMAC also include significant WTO-X commitments, reflecting deeper regional economic cooperation, while SADC has the least WTO-X coverage, focusing more on trade-related rules.

Overall, the AfCFTA stands between the trade-driven approach of SACU and the broader scope of COMESA and the EAC. It thus provides a strong regional trade framework for trade facilitation and regulatory harmonization, but still has room to expand into investment, intellectual property, and public procurement disciplines, which are more commonly included in advanced FTAs.

Figure 5.3 Horizontal depth of African RTAs, number of provisions included, 2024



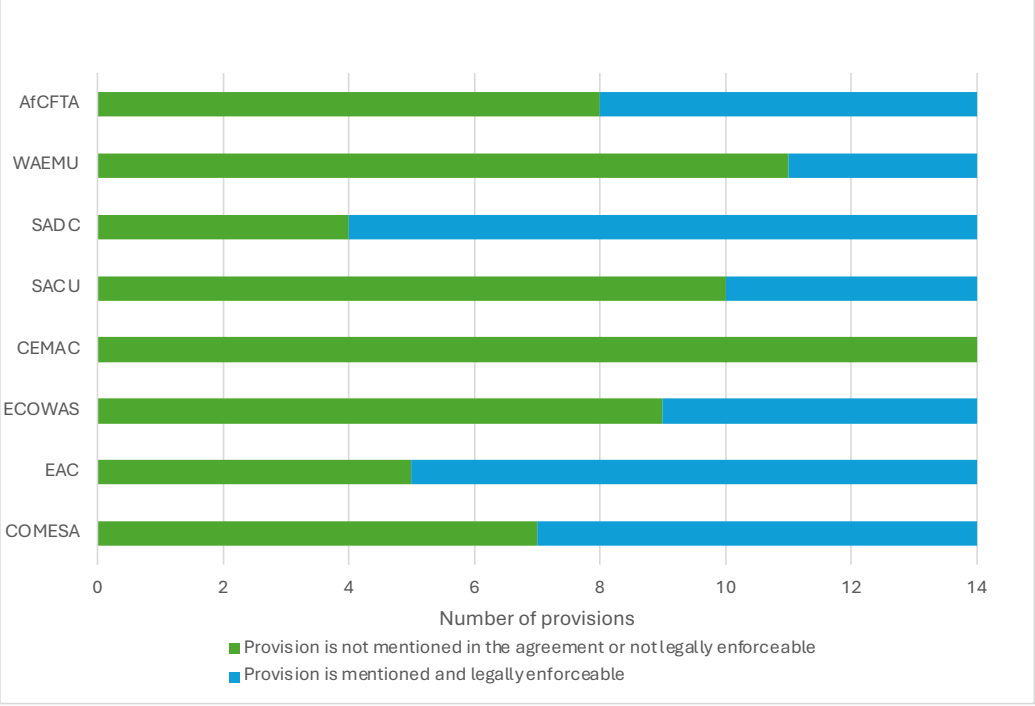
Source: Authors' calculations using the World Bank's 2025 Deep Trade Agreement database, https://datatopics.worldbank.org/dta/table.html

We now compare the vertical depth of African PTAs across WTO-plus and WTO-X provisions, considering whether they are: (1) not mentioned in the agreement or not legally enforceable; (2) legally enforceable but explicitly excluded by the dispute settlement provision; or (3) mentioned and legally enforceable.

Figure 5.4 highlights the legal enforceability of WTO-plus provisions across African RTAs, revealing significant disparities. SADC and EAC emerge as the strongest in terms of enforceability, with 10 and 9 fully legally binding provisions, respectively, ensuring a robust framework for trade governance. The AfCFTA, with only six enforceable provisions and eight non-legally binding ones, falls behind leading RTAs, suggesting room for improvement in strengthening commitments and dispute-resolution mechanisms.

COMESA and SACU display a moderate balance, with seven and four enforceable provisions, respectively, while WAEMU, ECOWAS, and CEMAC rank lower: the first two feature a significant number of unenforceable provisions, while CEMAC has no legally binding provisions. Positioned between weakly enforceable agreements like ECOWAS and strong ones like SADC, the AfCFTA needs to enhance its legal framework by ensuring more provisions are binding and subject to dispute settlement to foster deeper trade integration across Africa.

Figure 5.4 Vertical depth of African RTAs, enforcement of WTO-plus area provisions, 2024



Source: Authors' calculations using the World Bank's (2025) Deep Trade Agreement database, https://datatopics.worldbank.org/dta/table.html.

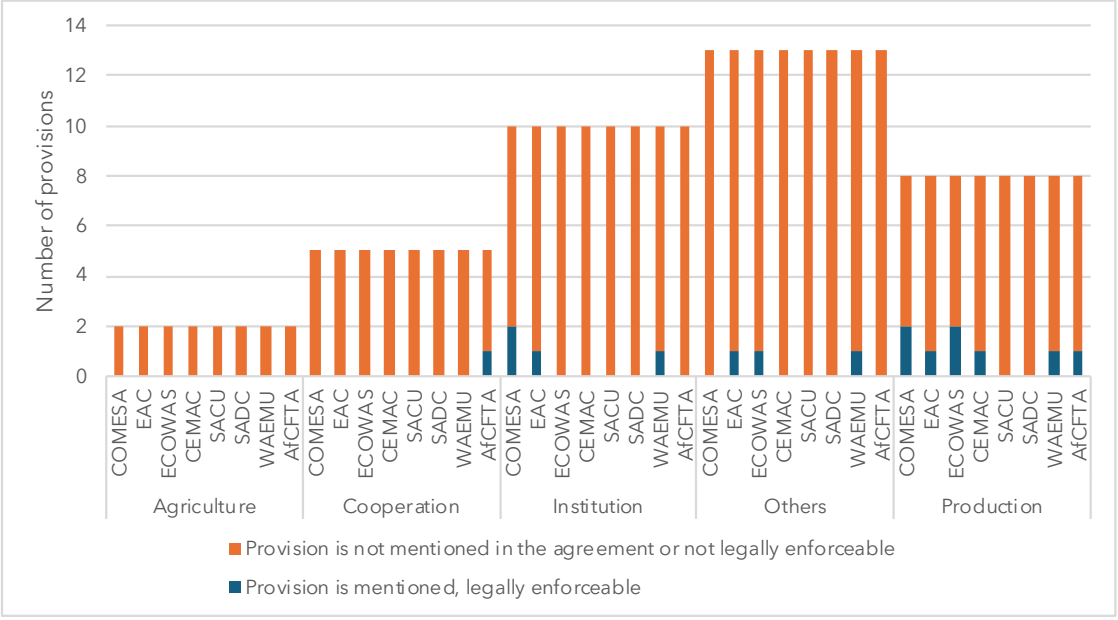
Figure 5.5 shows how selected African RECs and the AfCFTA include enforceable provisions in WTO-X areas. The data reveal that enforceable commitments remain limited across RECs. No REC includes legally enforceable provisions in agriculture, while only the AfCFTA mentions enforceable provisions related to cooperation. Institutional provisions show slightly more engagement. COMESA (2), EAC (1), and WAEMU (1) include enforceable commitments in this category, though the majority of RECs, including the AfCFTA, lack such legal provisions. This suggests that the institutional architecture within African RTAs is either underdeveloped or not legally binding.

The "other" category of WTO-X provisions also shows limited enforceability. EAC and ECOWAS each have only one legally binding provision, while the rest, including the AfCFTA, lack enforceable commitments.

The production category exhibits the highest incidence of enforceability, with seven enforceable provisions across five RECs. COMESA and ECOWAS lead with two enforceable production-related commitments each, followed by the AfCFTA, EAC, and CEMAC, with one each. This indicates a relatively higher willingness among some RECs to legislate binding commitments on production processes and regulations.

Overall, Figure 5.5 shows that while some RECs, including the AfCFTA, have started incorporating enforceable WTO-X provisions, particularly related to production, legal enforceability remains shallow across most regulatory areas. This suggests that regulatory integration and institutional commitment are still evolving in Africa's trade agreements. It is worth noting that in many cases, the effectiveness of enforcement depends not only on the formal inclusion of legal provisions but also on the quality and strength of domestic institutions responsible for implementing and upholding these commitments (Levchenko 2007).

Figure 5.5 Vertical depth of African RTAs, enforcement of WTO-X area provisions, 2024



Source: Authors' calculations using the World Bank's (2025) Deep Trade Agreement database.

Impact of Intra-African RTAs on African Trade

RTAs have long been at the center of Africa's integration agenda, fostering economic cooperation and development continentwide. Despite widespread adoption, their effectiveness varies significantly, influenced not only by their membership but also by the depth and enforceability of the provisions they encompass. This section seeks to estimate the contribution of operational African RTAs under RECs by accounting for these factors. Beyond a binary analysis of membership, we incorporate the qualitative and legal dimensions of these agreements to better understand their role in driving intra-African trade and integration. Specifically, we address the following questions:

(1) Does the AfCFTA reinforce or weaken existing REC-level integration by affecting intra- and extra-REC trade flows?

(2) How do the depth and legal enforceability of African RTAs shape their effectiveness in driving trade integration across the continent?

Methodology

To answer these questions, this section first conducts an ex post analysis of the trade effects of African RECs and the AfCFTA, with particular attention to their interaction with WTO membership. The analysis is conducted both for all products and for agricultural products only, covering AMU, CEMAC, CEN-SAD, COMESA, EAC, ECCAS, ECOWAS, IGAD, SACU, SADC, TFTA, and WAEMU. It is based on: BACI trade data (from 1988 to 2022)[13] constructed from UN COMTRADE, which covers 233 countries; the CEPII Gravity database (2025); the WTO RTA database (2025); and the World Bank's Deep Trade Agreement database (2025). Full methodological details are provided in Appendix 5.3.

The empirical assessment uses a partial equilibrium structural gravity model, estimated via Poisson pseudo-maximum likelihood (PPML), which allows identification of average trade effects while controlling for multilateral resistance terms through exporter-time, importer-time, and bilateral fixed effects. Accounting for these interactions allows a better understanding of whether WTO membership enhances or substitutes for the effectiveness of regional integration schemes, and whether the AfCFTA adds value beyond existing multilateral arrangements (see Appendix 5.2 for the full specification).

Given the limited timeframe and impact observed so far in the post-AfCFTA period, we next provide an ex ante analysis of the trade impacts of the AfCFTA using a conditional general equilibrium framework with a scenario where all provisions are legally enforceable (Appendix 5.1). The methodology relies on a structural gravity model estimated via PPML to capture conditional general equilibrium effects that incorporate both direct and indirect changes in trade costs, while holding gross domestic products constant. This enables a simulation of changes in total and intra-African trade at the country level when WTO-type provisions in the AfCFTA are legally enforceable. The procedure follows three main steps: (1) estimation of trade flows using a panel gravity model with exporter-time, importer-time, and bilateral fixed effects to identify the role of RTAs, deep trade agreements (DTAs), and WTO membership; (2) derivation of bilateral trade costs from fixed effects and regression on standard trade cost determinants (for example, distance, language, colonial history); and (3) simulation of a counterfactual AfCFTA scenario by modifying trade costs and recalculating trade flows.

The trade effect of RTAs is computed by exponentiating the estimated coefficient on the RTA dummy and adjusting for Jensen's inequality, following standard practice in the structural gravity literature.[14] Tariff-equivalent effects are derived as the ad valorem tariff whose removal would have generated the same impact as the trade policy[15] (Baier and Bergstrand 2007; Yotov et al. 2016). We use a constant elasticity of substitution[16] $\sigma = 5$ as in Fontagné et al. (2023) and Fofack et al. (2021).

13 We thank Pierre Cotterlaz from CEPII for access to early years of the BACI dataset from 1988.

14 The semi-elasticity is converted into a percentage change using the formula $\frac{\partial \ln(X_{ijt})}{\partial RTA_{ijt}} = (e^{\hat{\beta}_{RTA} - \frac{\hat{\sigma}^2_{RTA}}{2}} - 1) * 100$.

15 Tariff-equivalent effects are calculated using $(e^{(\hat{\beta}_{RTA} - \frac{\hat{\sigma}^2_{RTA}}{2})/\sigma} - 1) * 100$, where $\sigma = 5$ is the trade elasticity of substitution.

16 σ measures how easily consumers substitute between goods from different origins in response to relative price changes. A higher σ implies stronger substitution and greater trade responsiveness to tariff changes.

Key findings

Ex post assessment of the impact of African RTAs and the AfCFTA

Table 5.5 presents the results from a structural gravity model estimating the effects of RTAs, WTO membership, and AfCFTA-related interactions on trade flows and tariff-equivalent reductions for all products and for agricultural products in Africa over the 1988–2022 period.

The findings suggest that RTAs are associated with an average 11.70 percent increase in trade flows for all products, with a tariff-equivalent reduction of 2.24 percent, indicating a significant liberalization effect. However, the impact on agricultural trade is not statistically significant. One potential explanation may be that agricultural products are frequently placed on sensitive or exclusion lists within RECs; in addition, as shown by Bouët et al. (2020), a large share of agricultural trade in Africa takes place through ICBT, which is not captured in official statistics. Both factors contribute to underestimating the true effects of RTAs on agricultural trade. Moreover, the coefficient for WTO membership alone is positive and significant for all products (12.17 percent), with a comparable tariff-equivalent reduction effect (2.32 percent). Yet the effect is not significant for agriculture, and the interaction term between RTA and WTO (RTA x WTO) is not significant in either product category. This implies that, on average, multilateral commitments under the WTO do not systematically enhance trade gains, consistent with findings in the broader literature. While Rose (2004), using a standard gravity model, concludes that WTO membership has not systematically increased members' trade flows, Subramanian and Wei (2007) show that the WTO has had a strong positive, but uneven, impact on trade, with industrial countries witnessing a larger increase in trade than developing countries. These results suggest that while African RTAs demonstrate measurable effects on trade, the additional contribution of multilateral commitments may appear limited on average.

These effects vary significantly across regions. SACU shows the strongest trade gains across both product categories, with a 111.66 percent increase in trade for all products and an even higher 186.05 percent for agriculture, both highly significant. TFTA also shows trade growth, particularly in agriculture (+134.82 percent). In contrast, ECCAS shows large and statistically significant negative effects both for all products (−54.56 percent) and for agriculture (−79.95 percent), indicating persistent structural weaknesses in regional trade.

Regional interactions with the WTO are mixed. For ECCAS, WTO interaction significantly reverses the negative direct effect, generating substantial estimated trade gains (222.17 percent for all products and 548.09 percent for agriculture). Similarly, COMESA and SADC show positive and statistically significant interaction effects with WTO membership, suggesting that multilateral commitments may help mitigate institutional or coordination failures within regional blocs.

In contrast, IGAD exhibits statistically significant negative effects overall, possibly reflecting friction between overlapping memberships or ineffective implementation of trade policies. These findings suggest that WTO rules and commitments may help offset regional weaknesses, particularly in poorly performing RECs, and multilateralism can play a complementary role when regional integration is incomplete. Overall, these patterns highlight that the effectiveness of RECs depends not only on their design and enforcement but also on how they interact with broader multilateral frameworks.

At the continental level, the AfCFTA variable is not statistically significant in either product category, suggesting that measurable trade gains have not yet been realized, at least within the timeframe and implementation stage captured by the data. This is not surprising, as the official

launch in January 2021 was delayed by the COVID-19 pandemic, and actual trade under the AfCFTA only began in late 2022 through a pilot known as the Guided Trade Initiative (GTI), which covered a limited set of countries and products. This outcome thus likely reflects the recency of the agreement, delays in operationalization, and challenges in translating commitments into real trade flows.

Moreover, AfCFTA interaction terms with RECs fail to show statistically significant results, including for key groupings such as COMESA and ECOWAS. The only marginally significant effect is observed for SACU's interaction with the AfCFTA on agricultural trade (+33.13 percent), hinting at some emerging synergies in more institutionalized regions.

In summary, the results underscore the dominant role of RTAs in shaping African trade patterns. Multilateralism (WTO) can play a complementary role, particularly where regional institutions are weak. However, the AfCFTA's impact remains unobservable at this early stage, indicating a need for greater implementation, enforcement, and alignment with existing regional frameworks to realize its transformative potential.

Table 5.5 Ex post analysis of the trade impact of African RTAs, 1988–2022

	All products				Agricultural products			
	Coefficient	p	Trade effects (%)	Tariff effects (%)	Coefficient	p	Trade effects (%)	Tariff effects (%)
ECCAS	**−0.71**	*	**−54.56**	**−14.59**	**−1.54**	****	**−79.95**	
IGAD	**0.98**	**	**139.17**	**19.05**	**1.27**	**	**206.99**	**25.15**
CEN-SAD	0.08				**0.44**	*	**51.75**	**8.70**
AfCFTA	−0.13				−0.04			
SACU	0.76	****	111.66	16.18	1.06	****	186.05	23.39
RTA	**0.11**	***	**11.70**	**2.24**	0.06			
WTO	**0.12**	*	**12.17**	**2.32**	−0.02			
RTA x WTO	−0.06				0.01			
numRTA	0.00				−0.01			
ECOWAS x WTO	**0.71**	***	**98.11**	**14.65**	**1.18**	****	**212.85**	**25.62**
COMESA x WTO	**0.53**	***	**67.93**	**10.92**	**0.43**	**	**50.84**	**8.57**
SADC x WTO	**0.39**	**	**45.38**	**7.77**	0.26			
ECCAS x WTO	**1.28**	***	**222.17**	**26.36**	**1.96**	****	**548.09**	**45.32**
IGAD x WTO	**−1.14**	**	**−71.94**	**−22.44**	−0.92			
SACU x AfCFTA	0.04				**0.30**	*	**33.13**	**5.89**

Source: Authors' estimations.

Note: p stands for p-value; * p<0.10 **p<.05 *** p<.01 ****p<0.001. Only coefficients of significant interactions and region variables are presented. The full result is in Appendix 5.4. The **sign** of the coefficient indicates the **direction** of the trade effect: a positive value suggests that the provision is associated with increased trade, while a negative value implies a reduction. **Bolded values** indicate statistically significant results at the 10% level (p < 0.10). The **trade effects (%)** represent the estimated percentage change in trade flows linked to the presence or depth of a specific provision, holding other factors constant. **Tariff effects** reflect the associated tariff removal that would have generated the same impact as the trade policy, where positive values imply a liberalization impact. For example, the average tariff-equivalent fall of the introduction of an RTA would amount to 2.24 %.

What would happen if all AfCFTA provisions were legally enforceable? Are RECs building blocks or stumbling blocks for Africa?

At this early stage of AfCFTA implementation, many provisions are not legally enforceable, which is likely to constrain their full trade-enhancing potential. Legal enforceability speaks directly to the institutional quality of trade agreements, which is essential for reducing uncertainty and transaction costs in cross-border trade (North 1990; Rodrik 2000b). The ex ante analysis of the AfCFTA simulates a scenario in which all its provisions are legally enforceable. In this scenario, only the most significant provisions in the baseline are included, namely those related to NTMs, services (WTO-plus provisions), and agriculture, production, and cooperation (WTO-X provisions). Provisions classified under "others" covering political, security, and social policies beyond core economic issues are unchanged, as we focus mainly on the trade of goods.

Results from the partial equilibrium model suggest that greater legal enforceability, particularly in production-related areas, would generate stronger trade outcomes, especially in agriculture. In addition, RTAs covering WTO-plus areas such as services show modest positive effects on trade and are associated with a 7.37 percent increase in trade for all products, while NTMs contribute smaller gains for all products (3.65 percent).

Indeed, provisions related to services can impact trade in goods by affecting trade costs, supply chains, and overall economic competitiveness. Regulations on services like transportation, logistics, and communication can directly influence the efficiency and cost of moving goods across borders. Furthermore, the availability and quality of services can affect the productivity of industries involved in manufacturing and exporting goods (Deardorff 2001; Baier and Bergstrand 2007). This aligns with Mattoo et al. (2001) and Borchert et al. (2014), who found that binding commitments on services—especially in transport, finance, and telecommunications—amplify the effects of goods trade liberalization by lowering behind-the-border costs. For example, in East Africa, Kenya and Uganda's bilateral trade surged after the harmonization of product standards and customs protocols under the EAC, which included the establishment of the One Stop Border Post (OSBP) at Busia. This reform facilitated faster border clearance, reducing delays by up to 70 percent (World Bank 2020).[17]

In WTO-X areas, horizontal provisions on cooperation have the highest trade benefits (3.77 percent for all products), whereas areas like institutions and cooperation have more limited or mixed impacts. For agricultural products, the most significant provision is in WTO-X areas, especially on agriculture and cooperation, with positive trade effect gains of 18.86 percent and 6.17 percent, respectively.

On the vertical dimension, the most significant gains are observed for WTO-X commitments on production, with trade effects of 30.13 percent for all products. For agriculture, enforceability of production processes enhances trade by 75.04 percent. Overall, the results suggest that greater legal depth in specific policy areas, especially those related to production, is linked to stronger trade outcomes, particularly in the agriculture sector.

17 Similar Joint Border Post (JBP) initiatives have been developed in ECOWAS to streamline the cross-border movement of people and goods by consolidating customs, immigration, and quarantine services into a single coordinated facility. Examples include Sèmè-Kraké (Nigeria/Benin), Noépé-Akanu (Ghana/Togo), and Ekok-Mfum (Nigeria/Cameroon).

			All products			Agricultural products		
			Coefficient	**Standard deviation**	**Trade effects (%)**	**Coefficient**	**Standard deviation**	**Trade effects (%)**
		RTA	0.21	0.37		−0.01	0.19	
		numRTA	−0.01	0.03		−0.06	0.03	
		RTA_WTO	**−0.08****	**0.04**	**−7.46**	0.02	0.05	
Horizontal depth	**WTO-plus areas**	Tariff	-0.10	0.22		0.03	0.21	
		NTMs	**0.04***	**0.02**	**3.65**	0.02	0.03	
		Services	**0.07****	**0.03**	**7.37**	0.06	0.05	
	WTO-X areas	Agriculture	0.05	0.04		**0.17*****	**0.05**	**18.86**
		Institution	−0.02	0.01		−0.01	0.01	
		Production	−0.02	0.02		**−0.04***	**0.02**	**−3.83**
		Cooperation	**0.04***	**0.02**	**3.77**	**0.06****	**0.03**	**6.17**
		Other	**−0.02****	**0.01**	**−2.24**	**−.05*****	**0.02**	**−4.9**
Vertical depth	**WTO-plus areas**	Tariff	−0.08	0.27		−0.20	0.37	
		NTMs	−0.10	0.12		−0.06	0.15	
		Services	−0.24	0.15		−0.25	0.21	
	WTO-X areas	Agriculture	−0.12	0.10		−0.17	0.17	
		Institution	0.05	0.15		0.09	0.21	
		Production	**0.28***	**0.16**	**30.13**	**0.58*****	**0.22**	**75.04**
		Cooperation	−0.01	0.15		−0.31	0.22	
		Other	0.00	0.27		**0.85****	**0.41**	**115.07**

Table 5.6 Partial effects based on trade agreement depth
Source: Authors' estimations.

Note: * p<0.10 **p<.05 *** p<.01 ****p<0.001. The **sign** of the coefficient indicates the **direction** of the trade effect: a positive value suggests that the provision is associated with increased trade, while a negative value implies a reduction. Stars denote the conventional levels of statistical significance. The **trade effects (%)** represent the estimated percentage change in trade flows linked to the presence or depth of a specific provision, holding other factors constant. **Bolded values** indicate statistically significant results at the 10% level (p < 0.10).

Using the conditional general equilibrium framework, we define a counterfactual scenario, namely "AfCFTA," in which a trade agreement among all African countries is fully implemented and all AfCFTA provisions are assumed to be legally enforceable, including tariff reductions, trade facilitation measures, and regulatory harmonization (Appendix 5.3 contains full details).

Based on this simulation, the AfCFTA is projected to significantly boost intra-African trade, with intraregional trade increasing by 27.0 percent in agriculture and 17.3 percent across all goods. The model also allows for a disaggregated analysis by REC, revealing significant heterogeneity in trade effects across regions. The results indicate that almost all RECs would act as "building blocks," contributing positively to trade expansion under a fully implemented and legally enforceable AfCFTA. Only IGAD appears to function as a "stumbling block," showing limited or no contribution to intra-African trade growth (Table 5.7).

AMU is projected to experience the largest intraregional agricultural trade increase (38.6 percent), while its total agricultural exports to the rest of Africa rise by 57.5 percent.[18] These gains are largely driven by a 74.1 percent increase in inter-REC agricultural exports. These results may suggest considerable regional complementarities and trade potential within and beyond the bloc. Export gains suggest that under a fully implemented AfCFTA, AMU could play a pivotal role in cross-regional value chains and act as a key supplier to the continental market, especially in AMU's competitive sectors. Similarly, CEN-SAD emerges as a strong performer, with intraregional agricultural trade growing by 28.6 percent and exports to the rest of Africa increasing by 42.0 percent, for a total rise of 31.6 percent. Other notable RECs include SADC (up 22.7 percent), ECOWAS (20.3 percent), and TFTA (17.1 percent), which are projected to benefit from intra-bloc agricultural trade growth above 17 percent, along with significant interregional export gains. ECCAS (13.8 percent) and SACU (8.1 percent) show moderate increases, supported by customs union frameworks and existing trade facilitation mechanisms. In terms of agricultural exports to Africa outside each REC, ECOWAS (83.3 percent), CEMAC (81.4 percent), and COMESA (54.9 percent) expand inter-REC trade, highlighting the importance of cross-bloc integration for realizing the AfCFTA's full potential in agriculture.

For all goods, AMU registers an increase of 30.4 percent in intraregional trade and a total trade gain of 34.4 percent, reflecting high inter-REC export growth (38.4 percent). Other RECs with moderate intra-bloc trade growth include CEN-SAD (7.0 percent), ECCAS (13.7 percent), SADC (8.3 percent), SACU (7.6 percent), and TFTA (7.3 percent), ranging from 7 percent to 14 percent, and even higher inter-REC export growth, especially for TFTA (43.9 percent) and SADC (40.1 percent). For these blocs, total trade with African partner outside their own regions confirms their integration potential: CEMAC (+37.6 percent), TFTA (+21.4 percent), and ECCAS (+18.9 percent) show strong cumulative effects. These RECs appear to align well with AfCFTA objectives, likely due to more harmonized trade frameworks, better infrastructure connectivity, or diversified production bases.

Conversely, some RECs show limited or even negative trade effects following full AfCFTA implementation. COMESA (+7.9 percent) and EAC (+5.4 percent) see the lowest growth in intraregional agricultural trade, while COMESA (−7.8 percent), EAC (−5.8 percent), WAEMU (−2.9 percent), and ECOWAS (−1.0 percent) experience negative changes in intraregional trade. These outcomes suggest that trade within these RECs is constrained by preexisting trade agreements, regulatory misalignment, nontariff barriers, or external trade dependencies that prevent the full realization of AfCFTA benefits. IGAD (+2.5 percent) and EAC (+8.8 percent) also show minimal gains in exports to Africa outside their region, highlighting weaker trade complementarities.

18 This result does not take into account the current state of diplomatic and political relations among AMU countries.

Table 5.7 Trade effects by region in the AfCFTA scenario, change compared to the baseline where provisions are not fully enforceable (%)

Regions	Agriculture			All goods		
	Change in intra-regional trade	Change in exports to Africa outside the region	Change in exports to Africa	Change in intra-regional trade	Change in exports to Africa outside the region	Change in exports to Africa
Africa	29.3		29.3	17.3		17.3
CEMAC	22.1	85.6	43.6	3.3	56.2	37.6
CEN-SAD	33.2	48.2	36.5	7.0	42.3	20.6
COMESA	7.9	53.9	23.3	-7.8	22.4	5.9
EAC	5.4	27.4	13.5	-5.8	8.8	0.9
ECCAS	16.4	31.0	22.7	13.7	20.7	18.9
ECOWAS	20.6	91.3	34.8	-1.0	56.2	22.7
IGAD	7.8	22.0	14.1	-5.5	2.5	-1.6
SACU	11.4	39.9	24.1	7.6	22.1	15.7
SADC	21.0	50.2	25.5	8.3	40.1	13.3
TFTA	18.9	59.8	23.7	7.3	43.9	11.8
WAEMU	18.3	46.6	32.9	-2.9	27.1	14.3
AMU	44.8	74.9	60.9	30.4	38.4	34.4

Source: Authors' estimations.

Note: Changes are in percentage terms compared to the baseline scenario where AfCFTA provisions are not fully enforceable. Blue bars represent changes in **agriculture** (agricultural products only), while yellow bars represent changes in **all goods** (agricultural and nonagricultural products). Red bars indicate **negative changes**. "Intraregional trade" refers to trade within each region. "Exports to Africa outside the region" refers to trade with African countries not in the same region. "Exports to Africa" refers to total African exports (both intra- and extraregional). "Agriculture" covers agricultural products only; "All goods" covers both agricultural and nonagricultural goods.

Implications for AfCFTA implementation

Knowing which RECs act as building blocks identifies strategic entry points for advancing the AfCFTA. Specifically, AMU, CEN-SAD, SADC, ECOWAS, TFTA, ECCAS, and SACU demonstrate relatively strong intra- and interregional trade gains and could serve as regional points to consolidate the continental market. Policymakers should prioritize investment in trade infrastructure, policy coordination, and implementation support in these regions to leverage their integration capacity. At the same time, the relatively weaker or negative trade responses in COMESA, EAC, WAEMU, and IGAD indicate the need for targeted policy interventions. Due to weak integration or limited trade complementarities, these blocs may require greater harmonization of trade policies, reduced regulatory fragmentation, and investment in trade facilitation infrastructure to fully capitalize on the AfCFTA's potential. WAEMU's trade policy is handled by ECOWAS, so improving performance requires coordination not only within WAEMU but across the broader ECOWAS framework. Addressing regulatory misalignment, reducing nontariff barriers, and improving transport and logistics will be essential. A harmonized and inclusive approach to AfCFTA implementation will be critical to ensure that all RECs can participate meaningfully in the continentwide trade agenda.

4. Conclusions and Policy Recommendations

This chapter assesses the performance and trade effects of African regional trade agreements, with a particular focus on the AfCFTA. After providing an ex post analysis of the trade impact of different African RTAs, it examines the differentiated impacts of the AfCFTA across RECs, focusing on how existing regional frameworks act as either conduits or constraints to deeper trade integration.

Using trade introversion indicators, tariff structures, agreement depth metrics, and a conditional general equilibrium simulation, the chapter highlights both the progress made and the persistent challenges that shape Africa's regional trade landscape. The analysis of regional trade introversion reveals a fragmented picture. While regions like SADC, TFTA, and WAEMU exhibit relatively high and stable intraregional trade levels, particularly in processed agricultural products, CEMAC, ECCAS, and AMU remain weakly integrated. The strongest progress is observed in SADC and EAC in trade in agro-processed products, where intra-REC shares have increased notably, pointing to enhanced agro-industrial linkages. These findings indicate that integration remains uneven and differs by sector across regions.

Tariff data further underscore the continent's trade environment. Intra-REC tariffs are generally low or nonexistent, especially within established customs unions such as CEMAC, SACU, and WAEMU. However, inter-REC tariffs remain elevated, often exceeding the average duties applied to extra-African partners. This intracontinental asymmetry is most evident in CEMAC and ECOWAS, which impose tariffs as high as 14–15 percent on imports from other African RECs. Tariff structures help explain why processed agricultural goods in particular exhibit stronger intra-REC trade orientation.

The analysis of RTAs' depth reveals important differences in legal commitments and scope. While many agreements include provisions in WTO-plus and WTO-X areas such as services, technical standards, and institutional cooperation, their enforceability varies widely. Vertical commitments in WTO-X provisions, such as for agriculture and product standards, have the most substantial effects on trade flows, yet their application remains inconsistent across regions.

The ex post analysis reveals that the AfCFTA has not yet delivered significant trade gains, suggesting that its current implementation remains too limited to generate measurable outcomes. In contrast, traditional RTAs such as SACU and TFTA appear to be the most effective drivers of trade integration, particularly in agriculture. Moreover, WTO membership plays a complementary role by amplifying trade effects in low-performing RECs such as ECCAS, COMESA, and SADC, underscoring the importance of multilateral commitments when regional mechanisms are weak. IGAD's negative interaction with WTO membership may reflect institutional misalignment between IGAD's objectives and WTO disciplines.

The ex ante simulation based on a conditional general equilibrium framework projects substantial trade gains when AfCFTA commitments are fully implemented and legally enforceable. The results indicate that most African RECs could act as building blocks, supporting the development of continental trade, especially in agriculture, with a projected 27.0 percent increase in intra-African agricultural trade and a 17.3 percent rise in trade across all goods. However, these gains are unequally distributed. AMU is expected to experience the highest increase in intra-REC agricultural trade (38.6 percent) and an even greater rise in exports to the rest of Africa (57.5 percent). CEN-SAD, TFTA, ECOWAS, ECCAS, and SADC also demonstrate strong responsiveness, benefiting from overlapping memberships, diversified production systems, and improving trade facilitation frameworks. Conversely, COMESA, EAC, IGAD, and WAEMU exhibit limited or negative trade gains regionally under the AfCFTA, reflecting ongoing structural constraints, or limited complementarities, and regulatory fragmentation.

Overall, the findings suggest that the AfCFTA's full potential will only be realized if regional disparities are addressed and Africa's trade landscape becomes less fragmented. While several RECs serve as effective platforms for integration, others face reduced intraregional trade. Policy efforts should thus focus on deepening legal commitments, reducing inter-REC barriers, investing in infrastructure, and supporting regulatory convergence to ensure that the AfCFTA becomes a truly inclusive mechanism for continentwide trade development. Ultimately, continental integration should be seen as a complement to multilateral engagement. In a global context marked by rising tariffs and protectionist pressures, Africa's efforts to consolidate its internal market should be even more strategic. Strengthening regional value chains and policy coordination can help Africa reduce its vulnerability to external shocks and reinforce its influence in international trade negotiations.

Appendix 5.1 Descriptions of WTO-plus and WTO-X areas

Table A5.1a Description of WTO-plus areas

Category	Description	Provisions
Tariffs	Goes beyond WTO tariff bindings by accelerating or expanding liberalization	Complete elimination of tariffs in certain sectors under FTAs (FTA Industry and FTA Agriculture)*
Nontariff measures	Expands or deepens rules on trade barriers other than tariffs	· Customs procedures (deeper trade facilitation rules)* · Export taxes (restrictions on export duties) · TBT* · SPS (harmonization or mutual recognition of standards)* · Trade remedies (stricter rules on antidumping and countervailing duties)*
Services	Extends GATS commitments in trade in services	· State aid (competition rules on subsidies)* · Public procurement (more open government procurement markets) · TRIMs (additional investment rules) · TRIPS (stronger IPR protection) · GATS (greater market access in specific service sectors)*

Source: Authors' compilation.

Note: * Provision is mentioned in the AfCFTA.

Table A5.1b Description of WTO-X areas

Category	Description	Provisions
Agriculture and Health	Provisions related to agriculture, food security, and public health	Agriculture, Health
Institutions and Regulatory Frameworks	Governance and legal provisions enhancing transparency, market competition, and consumer rights	Anticorruption, Competition, IPR, Environmental Laws, Consumer Protection, Data Protection, Human Rights, Information Society, Social Matters, Statistics
Production Process and Economic Policies	Policies affecting investment, labor, education, innovation, and energy markets	Investment, Labor Market Regulation, Movement of Capital, Innovation Policies, Education & Training, Energy, Research and Technology, SMEs*
Cooperation and Institutional Support	Provisions related to economic dialogue, financial assistance, taxation, governance, and regional integration	Economic Policy Dialogue, Financial Assistance, Taxation, Public Administration, Regional Cooperation
Other Policy Areas	Covers political, security, and social policies beyond economic issues	Approximation of Legislation, Audio-Visual, Civil Protection, Cultural Cooperation, Illegal Immigration, Illicit Drugs, Industrial Cooperation, Mining, Money Laundering, Nuclear Safety, Political Dialogue, Terrorism, Visa and Asylum

Source: Authors' compilation.
Note: Only Regional Cooperation, SME, Human Rights, and Movement of Capitals are WTO-X provisions included in the AfCFTA Agreement.

Appendix 5.2 Ex post analysis of the AfCFTA's impact on trade

The ex post analysis estimates the impact of the AfCFTA and other regional and multilateral trade agreements on bilateral trade flows using the following specification, which allows for interaction effects between RECs and WTO membership, as well as between RECs and AfCFTA membership:

$$X_{ij,t} = \exp\Big[\pi_{i,t} + \chi_{j,t} + \mu_{ij} + \beta_1 RTA_{ij,t} + \beta_2 WTO_{ij,t} + \beta_3 RTA_{ij,t} * WTO_{ij,t} + \sum_k (\gamma_k REC_{kij,t} + \delta_k REC_{kij,t} * WTO_{ij,t} + \theta_k REC_{kij,t} * AfCFTA_{ij,t})\Big] * \epsilon_{ij,t} \quad (1)$$

where:

- $\pi_{i,t}$: Exports from country to country at time .
- $\pi_{i,t}$ and $\chi_{j,t}$: Exporter-time and importer-time fixed effects.
- Country-pair fixed effects.
- $RTA_{ij,t}$: Representative of bilateral trade, which indicates the presence of an between countries i and j at time t.
- $WTO_{ij,t}$: Dummy variables equal to 1 if both countries i and j are WTO members at time t.
- $AfCFTA_{ij,t}$: Dummy variables equal to 1 if both countries i and j are AfCFTA members at time t.
- $REC_{ij,t}$: Dummy variables for membership in specific RECs/regions.

Interaction terms between RECs and the WTO or the AfCFTA capture whether RECs' trade effects are conditional on countries' participation in multilateral or continental trade frameworks. Overlapping REC memberships are accounted for by allowing multiple REC dummies to equal 1 for a given bilateral pair in a given year. Thus, a country pair can simultaneously belong to more than one REC. Interaction terms are included separately for each REC to isolate their individual trade effects and to assess whether these effects are moderated by joint WTO or AfCFTA membership. Multicollinearity concerns are mitigated by including fixed effects at the country-pair level and by controlling for all major overlapping blocs.

Appendix 5.3 Ex ante analysis of the AfCFTA's impact based on legal enforcement of provisions

The ex ante analysis estimates the potential trade impact of making AfCFTA provisions legally enforceable by simulating changes in trade flows and trade costs under a counterfactual scenario. The methodology follows three key steps.

Step 1: Estimating the gravity equation

We estimate a **partial equilibrium gravity model** in which bilateral exports are a function of country-specific factors, trade agreements (RTAs and DTAs), and trade cost variables. The depth and enforceability of trade agreements are captured through dedicated indicators.

The baseline gravity equation estimated for all goods and agricultural goods is:

$$X_{ij,t} = \exp\left[\pi_{i,t} + \chi_{j,t} + \mu_{ij} + \beta_{RTA}\, RTA_{ij,t} + \beta_{wto}\, WTO_{ij,t} + \beta_{rta\ X\ wto}\, RTA_{ij,t} * WTO_{ij,t} + \beta_{DTA}\, DTA_{ij,t}\right] * \epsilon_{ij,t} \quad (2)$$

or

$$X_{ij,t} = \exp\left[\pi_{i,t} + \chi_{j,t} + \mu_{ij} + T_{ij,t}\beta\right] * \epsilon_{ij,t} \quad (3)$$

with:

$$T_{ij,t} = \beta_{RTA}\, RTA_{ij,t} + \beta_{wto}\, WTO_{ij,t} + \beta_{rta\ X\ wto}\, RTA_{ij,t} * WTO_{ij,t} + \beta_{DTA}\, DTA_{ij,t} \quad (4)$$

where:

- $X_{ij,t}$: Exports from country to country at time .
- $\pi_{i,t}$ and $\chi_{j,t}$: Exporter-time and importer-time fixed effects (controlling for multilateral resistance).
- Country-pair fixed effects.
- $RTA_{ij,t}$: Represents bilateral trade, which indicates the presence of an between countries i and j at time t.
- $DTA_{ij,t}$: Vector of variables capturing the vertical and horizontal depth of trade agreements for different types of provisions.
- $WTO_{ij,t}$: Dummy variables equal to 1 if both countries i and j are WTO members at time t.
- $\epsilon_{ij,t}$: Stochastic error.

Bilateral fixed effects control for time-invariant unobserved characteristics of the country pairs and capture the endogeneity due to Free Trade Agreement (FTA) composition (Baier and Bergstrand 2007). The main advantage of using a panel specification with pair fixed effects to identify the effects of trade policies is that the pair fixed effects effectively absorb all bilateral trade frictions in the cross-section.

Step 2: Estimating bilateral trade costs

Bilateral trade costs are recovered using the estimated pair fixed effects from the gravity model. These fixed effects are then regressed on standard trade cost determinants such as distance, common language, colonial ties, and contiguity. Missing trade cost values are filled using predicted values from this regression.

$$[\hat{t}_{ij,t}^{1-\sigma}]^{BLN} = \exp[\hat{\mu}_{ij} + T_{ij,t}\hat{\beta}] \quad \textbf{(5)}$$

with:

$$\hat{\mu}_{ij} = \exp\left[\pi_i + \chi_j + \beta_1 LnDIST_{ij} + \beta_2 CONTIG_{ij} + \beta_3 Comlang_{ij} + \beta_4 Colon_{ij}\right] * \epsilon_{ij,t} \quad \textbf{(6)}$$

where:

- $DIST_{ij}$: Bilateral distance.
- $CONTIG_{ij}$: Contiguity dummy.
- $Comlang_{ij}$: Common official language.
- $Colon_{ij}$: Colonial history dummy.

Step 3: Simulating the AfCFTA counterfactual

A counterfactual scenario simulates how trade flows would change if all relevant AfCFTA provisions were included and legally enforceable. This step involves solving for new trade costs and recalculating exports under the counterfactual (AfCFTA) scenario.

Counterfactual trade costs:

$$[\hat{t}_{ij,t}^{1-\sigma}]^{CFL} = exp\left[\hat{\mu}_{ij} + T_{ij,t}^{CFL}\hat{\beta}\right] \quad (7)$$

Counterfactual trade flows:

$$X_{ij,t}]^{CFL} = \exp\left[\pi_{i,t}^{\mathrm{CFL}} + \chi_{j,t}^{\mathrm{CFL}} + \bar{\mu}_{ij} + T_{ij,t}^{CFL}\bar{\beta}\right] * \epsilon_{\mathrm{ij,t}}^{CFL} \quad [\ \textbf{(8)}$$

The methodology provides a structured approach to quantify the impact of trade agreements on trade costs and flows. The impact of RTAs on African trade focuses on WAEMU, ECOWAS, COMESA, EAC, CEMAC, SADC, SACU, TFTA, AMU, ECCAS, IGAD, and CEN-SAD.

Appendix 5.4 Estimation results

Table A5.4 Ex post analysis of African RTAs, 1988–2022

	Products							
	All goods	**Agriculture**		**All goods**	**Agriculture**		**All goods**	**Agriculture**
UEMOA	-0.213	-0.445	UEMOA x WTO	-	-	UEMOA x AfCFTA	0.0664	0.243
	(0.234)	(0.285)		-	-		(0.231)	(0.198)
ECOWAS	-	-	ECOWAS x WTO	0.715***	1.179****	ECOWAS x AfCFTA	-0.338	-0.216
	-	-		(0.250)	(0.279)		(0.229)	(0.200)
COMESA	-0.194	0.0697	COMESA x WTO	0.535***	0.430**	COMESA x AfCFTA	-0.165	-0.0612
	(0.192)	(0.223)		(0.181)	(0.197)		(0.186)	(0.145)
EAC	0.0684	0.771	EAC x WTO	0.188	-0.228	EAC x AfCFTA	0.153	-0.0903
	(0.590)	(0.550)		(0.614)	(0.590)		(0.235)	(0.195)
CEMAC	0.0571	0.491	CEMAC x WTO	0.693	-0.711	CEMAC x AfCFTA	0.322	-0.199
	(0.886)	(0.434)		(1.042)	(0.541)		(0.352)	(0.385)
SADC	0.0547	-0.00934	SADC x WTO	0.392**	0.260	SADC x AfCFTA	-0.0645	-0.0816
	(0.185)	(0.201)		(0.190)	(0.198)		(0.182)	(0.196)
TFTA	0.176	-0.203	TFTA x WTO	-0.283	0.236	TFTA x AfCFTA	0.0732	0.0637
	(0.181)	(0.163)		(0.191)	(0.181)		(0.207)	(0.171)
AMU	-	-	AMU x WTO	-0.128	0.455	AMU x AfCFTA	0.164	0.101
	-	-		(0.304)	(0.281)		(0.241)	(0.171)
ECCAS	-0.712*	-1.541****	ECCAS x WTO	1.279***	1.957****	ECCAS x AfCFTA	-0.0499	0.0828
	(0.393)	(0.362)		(0.466)	(0.421)		(0.310)	(0.209)
IGAD	0.978**	1.267**	IGAD x WTO	-1.138**	-0.919	IGAD x AfCFTA	-0.141	-0.164
	(0.460)	(0.539)		(0.516)	(0.728)		(0.215)	(0.183)
CEN-SAD	0.0821	0.444*	CEN-SAD x WTO	-0.198	-0.258	CEN_SAD x AfCFTA	0.104	-0.0531
	(0.242)	(0.232)		(0.255)	(0.251)		(0.141)	(0.107)

	Products							
	All goods	**Agriculture**		**All goods**	**Agriculture**		**All goods**	**Agriculture**
AfCFTA	-0.131	-0.0411		-	-		-	-
	(0.159)	(0.100)		-	-		-	-
SACU	0.758****	1.060****	SACU x WTO	-	-	SACU x AfCFTA	0.0413	0.302*
	(0.127)	(0.137)		-	-		-0.163	-0.18
RTA	0.112***	0.065	cons	23.11****	20.60****			
	-0.042	-0.058		-0.06	-0.091			
WTO	0.117*	-0.0218	N	1454688	1277107			
	-0.069	-0.102						
RTA_WTO	-0.0554	0.00689						
	-0.039	-0.057						
numRTA	0.00183	-0.00529						
	-0.02	-0.022						

Source: Authors' estimations.

Note: p stands for p-value; * p<0.10 **p<.05 *** p<.01 ****p<0.001. The **sign** of the coefficient indicates the **direction** of the trade effect: a positive value suggests that the provision is associated with increased trade, while a negative value implies a reduction. The **trade effects (%)** represent the estimated percentage change in trade flows linked to the presence or depth of a specific provision, holding other factors constant.

Appendix 5.5 Average applied tariffs imposed by African RECs

Table A5.5 Average applied tariff imposed by African RECs (as importers) on their partners by processing stage (%), 2022

			Exporting partner													
			Africa	CEMAC	CEN-SAD	COMESA	EAC	ECCAS	ECOWAS	IGAD	ROW	SACU	SADC	TFTA	WAEMU	AMU
Importing partner (Reporter)	Africa	Agricultural processed	16.07	21.59	14.04	12.99	12.41	15.93	12.46	13.43	34.70	23.96	18.74	16.98	12.37	19.78
		Agricultural unprocessed	9.71	3.96	7.22	10.75	8.18	6.95	6.48	12.99	9.94	13.42	10.30	11.18	6.69	12.83
		All products	7.47	3.91	7.12	7.85	8.43	4.12	6.40	11.42	9.99	8.83	7.74	8.01	7.39	6.50
		Non- Agricultural	6.02	3.73	5.74	5.94	7.27	3.77	5.46	9.47	7.78	7.15	6.35	6.38	6.31	4.91
	CEMAC	Agricultural processed	19.56	0.00	19.88	19.85	20.18	17.41	18.49	20.45	21.22	19.79	19.51	19.83	17.80	22.09
		Agricultural unprocessed	19.64	0.00	20.63	18.98	15.99	12.20	21.26	20.49	13.74	19.67	17.61	18.78	19.83	22.70
		All products	13.25	0.00	14.08	14.22	15.63	7.08	14.64	17.35	14.00	13.17	12.97	13.45	14.44	11.29
		Non- Agricultural	11.77	0.00	12.40	11.77	13.99	6.69	13.28	14.17	13.23	12.31	11.94	12.00	12.42	9.85
	CEN-SAD	Agricultural processed	17.78	23.23	11.14	14.37	13.68	17.55	7.24	14.69	44.45	33.68	25.11	21.14	7.12	17.19
		Agricultural unprocessed	9.85	5.33	4.93	11.39	9.38	8.18	3.56	13.10	9.78	17.23	12.79	12.79	3.74	11.78
		All products	7.68	3.63	5.59	8.65	9.43	3.62	3.93	12.66	10.76	10.79	9.16	9.26	4.34	5.49
		Non- Agricultural	6.08	3.42	4.55	6.63	8.16	3.24	3.45	11.22	7.92	8.37	7.22	7.23	3.76	4.18
	COMESA	Agricultural processed	21.39	23.37	17.23	8.82	9.03	16.82	23.30	9.25	57.99	41.11	27.86	20.90	23.47	18.00
		Agricultural unprocessed	10.46	5.24	10.34	7.17	5.45	7.81	11.27	8.30	10.10	16.99	11.73	10.15	11.47	13.00
		All products	8.73	3.60	9.88	5.47	6.10	3.19	12.39	8.05	11.95	11.22	8.60	8.14	14.00	5.46
		Non- Agricultural	6.87	3.39	8.48	4.33	5.38	2.85	10.73	7.17	8.22	8.11	6.40	6.17	12.07	4.12
	EAC	Agricultural processed	17.26	27.66	22.12	7.74	3.23	19.17	27.53	4.49	31.22	21.40	14.99	12.63	27.51	37.24
		Agricultural unprocessed	13.81	11.54	22.21	7.77	1.67	9.55	25.53	9.57	29.62	18.74	11.50	10.50	24.75	23.93
		All products	8.96	5.18	12.90	4.79	2.81	6.05	15.52	5.35	13.37	8.16	6.77	6.66	16.09	10.69
		Non- Agricultural	6.95	4.30	10.11	3.15	2.83	4.59	12.27	3.40	10.09	6.27	5.32	5.17	12.47	7.22
	ECCAS	Agricultural processed	17.34	10.57	17.38	16.24	15.38	14.83	17.65	15.76	19.45	18.77	17.91	17.08	17.34	20.46
		Agricultural unprocessed	15.21	2.20	17.61	13.76	10.40	7.56	17.84	13.78	13.52	16.40	13.45	14.02	16.91	23.23
		All products	10.77	2.69	11.65	10.84	11.21	5.38	12.39	13.33	10.73	10.80	10.49	10.78	12.90	8.45
		Non- Agricultural	9.40	2.61	10.11	8.76	9.95	4.97	10.99	11.75	9.69	9.81	9.39	9.46	11.21	7.09
	ECOWAS	Agricultural processed	13.31	22.81	8.56	16.69	15.41	15.97	0.00	16.56	17.90	18.72	17.58	17.28	0.00	19.96
		Agricultural unprocessed	9.57	6.51	2.69	13.65	10.60	9.68	0.01	15.51	8.41	14.65	11.62	13.29	0.01	15.78
		All products	7.57	4.96	4.21	11.73	12.08	6.14	0.22	14.26	9.96	9.41	9.49	10.16	0.32	8.34
		Non- Agricultural	6.33	4.59	3.27	9.52	11.05	5.40	0.28	12.36	9.04	8.23	8.21	8.51	0.44	6.61
	IGAD	Agricultural processed	20.77	27.64	21.72	11.74	12.68	20.28	26.90	12.94	27.00	29.81	21.79	18.11	26.84	30.30
		Agricultural unprocessed	14.79	15.94	17.55	8.24	7.61	15.19	18.26	8.33	21.57	25.70	16.48	13.42	17.91	23.03
		All products	12.28	10.71	14.25	8.24	9.35	9.53	16.22	10.81	14.78	13.06	11.30	10.96	15.83	11.88
		Non- Agricultural	10.46	10.16	12.24	6.85	8.43	8.46	13.92	10.56	12.78	10.74	9.49	9.38	12.82	9.09

			Exporting partner													
			Africa	CEMAC	CEN-SAD	COMESA	EAC	ECCAS	ECOWAS	IGAD	ROW	SACU	SADC	TFTA	UEMOA	AMU
Importing partner (Reporter)	ROW	Agricultural processed	15.56	4.47	12.34	17.51	20.57	9.85	5.68	20.05	13.37	21.69	19.23	18.06	5.07	21.15
		Agricultural unprocessed	6.61	2.51	5.74	7.00	5.36	2.96	3.74	4.52	12.18	11.52	9.67	8.60	3.30	9.54
		All products	2.53	1.25	2.53	3.15	3.68	0.91	1.69	5.87	3.11	3.43	2.78	2.90	1.98	2.31
		Non- Agricultural	1.59	1.17	1.62	1.63	1.42	0.83	1.24	2.27	2.07	2.20	1.69	1.68	1.24	1.53
	SACU	Agricultural processed	11.69	2.42	19.12	14.58	12.20	3.80	5.25	20.59	22.04	0.00	2.55	11.53	6.48	37.28
		Agricultural unprocessed	3.16	1.44	4.25	5.41	6.69	1.36	0.97	4.79	3.74	0.00	0.03	4.31	1.16	6.69
		All products	2.37	0.38	3.96	4.62	1.61	0.19	0.42	8.14	6.32	0.00	0.23	2.44	0.80	8.42
		Non- Agricultural	1.24	0.25	2.22	2.36	0.24	0.14	0.15	3.03	4.96	0.00	0.04	1.07	0.28	5.76
	SADC	Agricultural processed	11.10	17.79	17.96	9.29	6.80	11.00	19.68	8.65	20.70	4.20	4.33	7.60	20.27	26.79
		Agricultural unprocessed	7.03	1.94	7.49	9.16	3.93	3.56	7.16	12.04	9.14	2.57	2.16	6.92	8.56	12.98
		All products	5.21	3.82	8.61	5.24	3.82	2.79	8.88	7.62	7.69	2.29	2.20	3.49	11.04	9.10
		Non- Agricultural	4.01	3.66	6.76	3.27	2.87	2.38	7.31	4.64	6.26	2.08	1.93	2.44	9.28	6.82
	TFTA	Agricultural processed	17.93	21.47	18.54	9.17	8.04	15.54	22.41	9.20	45.19	27.87	19.04	16.17	22.88	22.27
		Agricultural unprocessed	8.65	2.38	8.95	7.98	4.17	5.09	9.42	9.83	9.44	10.99	7.45	8.38	10.24	12.64
		All products	7.22	3.60	9.26	5.27	4.87	3.12	10.57	7.79	10.05	7.75	6.03	6.22	12.50	6.75
		Non- Agricultural	5.53	3.44	7.51	3.74	4.08	2.76	8.84	5.83	7.10	5.55	4.49	4.52	10.42	4.95
	WAEMU	Agricultural processed	12.99	22.26	8.45	16.25	14.80	15.54	0.00	15.84	17.46	18.66	17.30	16.87	0.00	19.85
		Agricultural unprocessed	8.15	5.86	2.07	13.20	11.31	8.43	0.00	15.13	9.06	14.16	12.08	13.14	0.00	15.02
		All products	6.60	4.11	3.40	11.03	11.81	4.80	0.00	13.85	9.51	8.95	8.93	9.48	0.00	7.55
		Non- Agricultural	5.47	3.89	2.58	8.84	10.71	4.28	0.00	12.12	8.61	7.85	7.69	7.91	0.00	6.00
	AMU	Agricultural processed	14.63	21.40	6.06	7.79	11.65	15.28	11.19	12.38	25.52	31.17	24.33	16.97	10.47	2.07
		Agricultural unprocessed	9.00	6.33	6.95	6.02	9.83	6.57	8.00	10.25	10.34	16.72	14.08	10.87	8.09	0.96
		All products	5.28	4.00	3.27	3.62	5.97	4.27	5.13	8.96	8.53	9.35	6.93	6.00	8.83	0.92
		Non- Agricultural	4.70	3.93	2.67	3.18	5.43	4.23	4.47	6.24	7.06	8.09	6.18	5.34	9.08	0.62

Source: MacMap-HS6, CEPII database.

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The 2025 Africa Agriculture Trade Monitor (AATM) examines recent trends in Africa's global and regional trade. With its updated statistics and data, the AATM serves as a comprehensive tool for monitoring Africa's participation in global trade and the progress made in intra-African trade and regional integration. This year's AATM focuses on trade and food security, including the continent's high dependency on world markets for key staples and the potential of regional trade, as well as related bottlenecks. The report also provides a detailed analysis of the rice value chain, a key commodity that contributes to food security but faces significant challenges. This edition of the AATM also features an innovative analysis of the fertilizer sector's role as a key input in agricultural production and its links with food security. Given the debate over trade integration in Africa, the report examines whether existing regional trade agreements support or hinder deeper continental integration and what can be expected from the African Continental Free Trade Area (AfCFTA). This concluding chapter discusses the report's main findings and related policy implications.

The report begins by examining recent trends in Africa's agricultural trade. The first chapter highlights the increasing prevalence of food insecurity, which has been exacerbated by recent crises, including the COVID-19 pandemic and the Russia-Ukraine war. The weakness of domestic food systems and growing demand have led to a heavy reliance on imports for basic products such as cereals, which are also subject to high price volatility in international markets. Africa primarily exports fruit, nuts, and traditional cash crops, which have a more stable market value. New trading partners have begun to play a greater role, primarily those from emerging economies such as China, Saudi Arabia, Brazil, and India. However, African agricultural exporters still face substantial nontariff measures that impede their access to global markets, particularly with some of their most important partners, such as Europe, whose measures are among the most restrictive in the world. As highlighted in previous editions of the AATM, Africa also has the world's highest tariffs, even for agrifood products, which can contribute to food insecurity. In addition, Africa's import partners are concentrated, creating another layer of vulnerability. Low diversification among suppliers of imported products reduces the continent's resilience to external shocks, as indicated by the Food Import Vulnerability Index, which this analysis modified to integrate import market concentration as an additional component.

Intra-African trade has long been at the forefront of policy debates, especially its contribution to food security. This year's AATM examines this important relationship, showing that contrary to common views, the linkage between trade and food security is neither guaranteed nor uniformly positive. The growth of intra-African agricultural trade over the past decade has shown resilience to global economic shocks such as the 2008 financial, food, and energy crisis and the COVID-19 pandemic. Thus, increasing intra-African trade can be a coping strategy for global crises and supply chain disruptions. While a large portion of agrifood trade occurs in unprocessed or semi-processed forms, the increasing share of processed agricultural products is a positive development, especially for the promotion of value addition and agro-industrialization. The report finds significant disparities across African regions: while Southern Africa has consistently maintained a trade surplus as a net exporter, the opposite is true for Central, West, and East Africa, which continue to be net importers with persistent trade deficits. The case of North Africa serves as a valuable example for the rest of the continent: in a remarkable transition, the region shifted from a deficit in the early 2010s to a surplus due to targeted policy reforms, increased agricultural investment, and modernized infrastructure. Yet, complementary measures are required, beyond increasing production. Coordinated policies at the regional and continental levels that connect productivity gains to market development are necessary to boost regional trade by combining infrastructure investment, such as irrigation, transport, and storage, with regulatory reforms that reduce trade barriers and promote agro-processing. These policies would allow countries to achieve the full potential of the Comprehensive Africa Agriculture Development Programme (CAADP) and the AfCFTA, thereby enhancing food security by increasing availability and stabilizing domestic food markets.

This edition of the AATM gives special attention to rice, a key staple for which demand is expected to grow significantly over the coming decades due to the combined effects of population growth, rising incomes, and urbanization. As production is expected to grow at a slower pace due to lower yields and inefficient practices, Africa will continue to run a trade deficit in rice, which already accounts for one-quarter of its total trade deficit in cereals. With climate change, this deficit is expected to worsen for most regions, as the continent's general situation is expected to deteriorate relative to the rest of the world. Given the strategic importance of rice, however, the sector has also benefited from significant policy support over the past two decades, including direct support to trade and markets, and regulatory measures in the form of trade bans, apart from periods of global crisis when policy support shifted to maintain low prices for consumers. Thus, Africa must balance multiple priorities: Some countries should focus on increasing water-use efficiency through intelligent irrigation systems by using real-time data and artificial intelligence, in addition to developing drought-resistant varieties. Other countries are already consuming more than necessary for a healthy diet and should diversify dietary patterns by promoting complementary sectors such as fruits and vegetables.

This year's report also features an examination of the role of fertilizer in achieving food security. While fertilizers play a crucial role in agricultural production by enhancing productivity and therefore contributing to food availability, a key element of food security, Africa's agricultural systems continue to use low levels of fertilizer. Use intensity is far below the 50 kg/ha target set in the African Union's 2006 Abuja Declaration; this contributes to agriculture's slow development, with yields among the lowest in the world. Although the continent is characterized by low fertilizer use, it is a significant producer and exporter of fertilizer products, due to natural endowments of oil, natural gas, and phosphate in countries such as Morocco, Egypt, Algeria, and Nigeria. Due to these natural resources and investments in key countries, Africa has been a net exporter of fertilizers since 2016. However, the continent still imports a large quantity of fertilizers. This huge dependence on imports, especially potash, creates vulnerability to supply chain disruptions, such as the Russia-Ukraine war and subsequent trade restrictions adopted by key global exporters. Enhancing intra-African trade would be a beneficial coping strategy to deal with external shocks and policy uncertainty. A correlation analysis shows a negative relationship between fertilizer consumption and food insecurity, as they increase crop yields, food availability, and food access. This is why a positive association is observed between fertilizer consumption, trade, and cereal yields. However, the use of imported fertilizers can make importing countries more vulnerable to external shocks.

The last chapters of previous AATMs have each highlighted a specific regional economic community (REC). This year, the final chapter goes a step further to consider whether continental integration under the AfCFTA will be supported or hindered by Africa's existing regional trade agreements, which constitute the foundation of most RECs and, thus, affect the AfCFTA's contribution to food security. The results show a fragmented picture of regional integration: although regions such as the SADC,[1] TFTA,[2] and WAEMU[3] are relatively well integrated, linkages remain weak between CEMAC,[4] ECCAS,[5] and AMU.[6] An analysis of the tariff structure confirms the findings of previous AATM editions: tariffs are low or nonexistent within RECs but high between them, often exceeding the average duties applied to external partners. Analyzing the depth of regional trade agreements also reveals that while most agreements include provisions for areas within the mandate (WTO-plus) and beyond it (WTO-X), such as services or technical standards, their enforceability varies significantly across RECs. Vertical commitments to WTO-X provisions, such as foragriculture and product standards, have the most substantial effects on

1 Southern African Development Community.
2 Tripartite Free Trade Area.
3 West African Economic and Monetary Union.
4 Economic and Monetary Community of Central Africa.
5 Economic Community of Central African States.
6 Arab Maghreb Union.

trade flows, yet their application remains inconsistent across regions. A prospective analysis using a gravity model shows that substantial gains could be achieved under the AfCFTA if the commitments are fully implemented and legally enforceable. The chapter concludes that most African RECs support the development of continental trade, especially in agriculture. However, realizing the full potential of the AfCFTA will require considering the heterogeneous nature of RECs, and policy efforts should focus on deepening legal commitments, reducing inter-REC barriers, investing in infrastructure, and supporting regulatory convergence.

APPENDICES

Appendix 1. The AATM Database

High-quality statistics are essential for developing good policy recommendations. Therefore, the AATM report requires reliable trade statistics. Yet, the continent's official data on agricultural trade is often inaccurate, partial, and lacks sufficient information on informal cross-border trade. Thus, the construction of a high-quality trade database has been essential for the preparation of the AATM since its first edition. In this appendix, we present the statistical approach we have adopted to ensure rigorous analysis.

Like the previous reports, the 2025 edition is based on an original dataset constructed to provide better statistics on global and African trade. This analytical database is based on the United Nations Commodity Trade Statistics Database (UN Comtrade). Raw trade data are processed to provide an accurate estimate of formal cross-border trade in Africa.

In the first step, the data are harmonized and cleaned. Trade flows of less than US$1,000 at the product and bilateral levels are discarded, since they are associated with significant noise in quantity estimates. Because countries report in different Harmonized System (HS) nomenclatures, all data are converted to the HS 2012.

The second step aims to reconstruct unique trade flows in the presence of discrepancies in mirror trade flows, that is, the import and export declarations of the same trade transaction. Rather than averaging the two declarations, a series of checks is conducted to identify the most reliable declaration. First, export and import unit values for each trade flow (trade value divided by the corresponding trade quantity) are computed; outliers are identified, and their associated trade flows are discarded. An observation is considered an outlier if the absolute deviation is greater than three times the mean absolute deviation (the mean absolute deviation being the average distance between each data point and the mean). This gives us a sense of variability in the dataset. The remaining trade flows are selected based first on the importer declaration—these are generally more reliable because the collection of customs duties requires that imports be carefully monitored. Then, if an importer declaration of a trade flow is unavailable or has been previously discarded, the exporter declaration is used.

Finally, the trade flows are all expressed in CIF (cost insurance freight) value. When the exporter's FOB (free on board) declaration has been used, a CIF/FOB correction is applied. The estimates of the CIF/FOB ratios used to make this correction were obtained using a gravity equation including distance, contiguity, common official language, and colonial relationship as explanatory variables. When estimating the gravity equation, trade values were weighted by quantities using the gap between the reported mirror quantities to give more importance to trade flows similarly reported by both partners. From the gravity equations, HS2-level estimates of the CIF/FOB ratio are derived and applied to export declarations.

The annual AATM report aims to provide a comprehensive analysis of Africa's agricultural trade. Over the years, the AATM database has gained in accuracy and covered a longer time period. As of today, the data set spans the 2000–2023 period and includes both African and non-African countries. No estimate of informal trade is included in this 2025 edition of the dataset. However, as several regional and continental initiatives are ongoing, integrating informal cross-border trade (ICBT) flows into the dataset represents the next challenge. It is worth noting that, while some initiatives are already operating (FEWS NET in East Africa, ECO-ICBT in West Africa), the most ambitious initiative with a harmonized methodology at the continental level and led by the United Nations Economic Commission for Africa (UNECA), the African Union, and Afreximbank, is still in its pilot phase. In the coming years, the data collected under

all these initiatives are expected to be integrated into the AATM database, requiring additional resources.

Appendix 2. List of agricultural products

HS2	HS4/HS6	Description
01		Animals; live
02		Meat and edible meat offal
03		Fish and crustaceans, mollusks, and other aquatic invertebrates
04		Dairy produce; birds' eggs; natural honey; edible products of animal origin, n.e.s.
05		Animal originated products; not elsewhere specified or included
06		Trees and other plants, live; bulbs, roots, and the like; cut flowers and ornamental foliage
07		Vegetables and certain roots and tubers; edible
08		Fruit and nuts, edible; peel of citrus fruit or melons
09		Coffee, tea, mate, and spices
10		Cereals
11		Products of the milling industry: malt, starch, inulin, wheat gluten
12		Oil seeds and oleaginous fruits; miscellaneous grains, seeds, and fruit, industrial or medicinal plants; straw and fodder
13		Lac; gums, resins, and other vegetable saps and extracts
14		Vegetable plaiting materials; vegetable products not elsewhere specified or included
15		Animal or vegetable fats and oils and their cleavage products; prepared animal fats; animal or vegetable waxes
16		Meat, fish, or crustaceans, mollusks, or other aquatic invertebrates; preparations thereof
17		Sugar and sugar confectionery
18		Cocoa and cocoa preparations
19		Preparations of cereals, flour, starch, or milk; pastrycooks' products
20		Preparations of vegetables, fruit, nuts, or other parts of plants
21		Miscellaneous edible preparations
22		Beverages, spirits, and vinegar
23		Food industries, residues and wastes thereof; prepared animal fodder
24		Tobacco and manufactured tobacco substitutes
29	290543	Alcohols; polyhydric, mannitol
29	290544	Alcohols; polyhydric, d-glucitol (sorbitol)
33	3301	Oils; essential (concretes, absolutes); concentrates thereof in fats, fixed oils, waxes or the like (obtained by enfleurage or maceration); aqueous distillates, solutions and terpenic by-products thereof; resinoids; extracted oleoresins
35	3501	Casein, caseinates, and other casein derivatives; casein glues
35	3502	Albumins (including concentrates of two or more whey proteins, containing by weight more than 80% whey proteins, calculated on the dry matter), albuminates, and other albumin derivatives
35	3503	Gelatin (including gelatin in rectangular sheets, whether or not surface-worked or colored) and gelatin derivatives; isinglass; other glues of animal origin, excluding casein glues of heading no. 3501

35	3504	Peptones and their derivatives; other protein substances and their derivatives n.e.c. or included; hide powder, whether or not chromed
35	3505	Dextrins and other modified starches (e.g., pregelatinised or esterified starches); glues based on starches or on dextrins or other modified starches
38	380910	Finishing agents and dye carriers; to accelerate dyeing or fixing of dye-stuffs, other products and preparations, used in textile, paper, leather, etc. industries, with basis of amylaceous substances, n.e.c.
38	3824.60	Sorbitol, other than that of subheading 2905.44
41	4101	Raw hides and skins of bovine (including buffalo) or equine animals (fresh, salted, dried, limed, pickled, otherwise preserved but not tanned, parchment dressed or further prepared), whether or not dehaired or split
41	4102	Raw skins of sheep or lambs (fresh, salted, dried, limed, pickled or otherwise preserved, but not further prepared), whether or not with wool on or split
41	4103	Raw hides and skins n.e.c in headings no. 4101, 4102; fresh, salted, dried, pickled or otherwise preserved, not further prepared, whether or not dehaired or split
43	4301	Raw furskins (including heads, tails, paws, other pieces or cuttings, suitable for furriers' use), excluding raw hides and skins of heading no. 4101, 4102, or 4103
50	5001	Silk-worm cocoons suitable for reeling
50	5002	Raw silk (not thrown)
50	5003	Silk waste (including cocoons unsuitable for reeling, yarn waste, and garnetted stock)
51	5101	Wool, not carded or combed
51	5102	Fine or coarse animal hair, not carded or combed
51	5103	Waste of wool or of fine or coarse animal hair, including yarn waste but excluding garnetted stock
52	5201	Cotton; not carded or combed
52	5202	Cotton waste (including yarn waste and garnetted stock)
52	5203	Cotton, carded or combed
53	5301	Flax, raw or processed but not spun; flax tow and waste (including yarn waste and garnetted stock)
53	5302	True hemp (cannabis sativa L.), raw or processed but not spun; tow and waste of true hemp (including yarn waste and garnetted stock)

Source: Authors' elaboration using the AATM 2025 database.

Note: We adopt an extended definition of the World Trade Organization (WTO) as we add HS 03 fisheries to the WTO definition.

Appendix 3. Regional country groups used in the report

Region	Countries	Number
Africa	Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Côte d'Ivoire, Cabo Verde, Cameroon, Central African Rep., Chad, Comoros, Congo, Dem. Rep. of the Congo, Djibouti, Egypt, Equatorial Guinea, Eritrea, Eswatini, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, São Tomé and Príncipe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, South Sudan, Sudan, Togo, Tunisia, Uganda, United Rep. of Tanzania, Zambia, Zimbabwe	54
AMU	Algeria, Libya, Mauritania, Morocco, Tunisia	5

CEMAC	Cameroon, Central African Rep., Chad, Congo, Equatorial Guinea, Gabon	6
ECOWAS	Benin, Burkina Faso, Côte d'Ivoire, Cabo Verde, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Togo	15
ECCAS	Angola, Burundi, Cameroon, Central African Rep., Chad, Congo, Dem Rep. of the Congo, Equatorial Guinea, Gabon, Rwanda, São Tomé and Principe	11
EAC	Burundi, Dem. Rep. of the Congo, Kenya, Rwanda, South Sudan, Uganda, United Rep. of Tanzania	7
COMESA	Burundi, Comoros, Dem. Rep. of the Congo, Djibouti, Egypt, Eritrea, Eswatini, Ethiopia, Fmr Sudan, Kenya, Libya, Madagascar, Malawi, Mauritius, Rwanda, Seychelles, Somalia, Sudan, Swaziland, Tunisia, Uganda, Zambia, Zimbabwe	23
SACU	Botswana, Eswatini, Lesotho, Namibia, South Africa	5
SADC	Angola, Botswana, Comoros, Dem. Rep. of the Congo, Eswatini, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, United Rep. of Tanzania, Zambia, Zimbabwe	16
TFTA	Angola, Botswana, Burundi, Comoros, Dem. Rep. of the Congo, Djibouti, Egypt, Eritrea, Eswatini, Ethiopia, Kenya, Lesotho, Libya, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Rwanda, Seychelles, South Africa, South Sudan, Sudan, Uganda, United Rep. of Tanzania, Zambia, Zimbabwe	27
UEMOA	Benin, Burkina Faso, Côte d'Ivoire, Guinea-Bissau, Mali, Niger, Senegal, Togo	8
North Africa	Algeria, Egypt, Libya, Morocco, Sudan, Tunisia	6
West Africa	Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, The Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, Togo	16
Central Africa	Angola, Cameroon, Central African Republic, Chad, Congo, Dem. Rep. of the Congo, Equatorial Guinea, Gabon, São Tomé and Principe	9
East Africa	Burundi, Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Rwanda, Seychelles, Somalia, South Sudan, Tanzania, Uganda, Zambia, Zimbabwe	18
Southern Africa	Botswana, Eswatini, Lesotho, Namibia, South Africa	5
Asia & Pacific	Afghanistan, Bahrain, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, Cyprus, Dem. People's Rep. of Korea, Fiji, India, Indonesia, Iran, Iraq, Japan, Jordan, Kazakhstan, Kuwait, Kyrgyzstan, Lao PDR, Lebanon, Malaysia, Maldives, Mongolia, Myanmar, Nepal, Oman, Pakistan, Papua New Guinea, Philippines, Qatar, Rep. of Korea, Saudi Arabia, Singapore, Sri Lanka, State of Palestine, Syria, Tajikistan, Thailand, Turkey, Turkmenistan, UAE, Uzbekistan, Viet Nam, Yemen	45
BRICS	Brazil, China, India, Russian Federation, South Africa	5
Eastern Europe	Albania, Armenia, Azerbaijan, Belarus, Bosnia Herzegovina, Bulgaria, Croatia, Czech Rep., Czechia, Estonia, Georgia, Hungary, Latvia, Lithuania, Montenegro, North Macedonia, Poland, Rep. of Moldova, Romania, Russian Federation, Serbia, Slovakia, Slovenia, TFYR of Macedonia, Ukraine	25

EU	Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, United Kingdom	28
LAC	Argentina, Bahamas, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Rep., Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Saint Lucia, Suriname, Trinidad and Tobago, Uruguay, Venezuela	28
USA	USA	1

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