Improving Food Security in Eastern Africa Through Greater Intra-Regional Trade – A Review of the Issues

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Table of Contents

List of Figures

List of Tables

List of Boxes

List of Annexes

Acknowledgements

In recent years, Eastern Africa has been hit hard by a series of calamitous climatic events. As the refrain goes, when it doesn't rain, it pours….and when there is drought, they have become prolonged and devastating in their scope. This has often had a dramatic impact on food security in parts of Eastern Africa. The prevailing sensation is that Eastern Africa really is on the frontline of climate change.

This report was initially motivated by both our interest in comprehending better the causes of food insecurity in Eastern Africa and marry that knowledge with the sub-regional office's specialisation on regional trade. We wanted to analyse the links between the two and understand the extent to which greater intra-regional trade flows in food products could improve regional food security.

The lead author of the report was the Andrew Mold. Chaltu Kalbessa took the lead on providing an early draft, and important inputs were provided by Rodgers Mukwaya, Rosemary Bagiza and Insaf Guedidii, all at the Sub-Regional Office for Eastern Africa of UNECA. Additional observations and corrections were made by Elena Acebes, Simone Assah Kuete, and John Musekera. An earlier draft of the report benefited from extremely useful comments by Aline Kame Nakaima and Ndinaye Sekwi Charumbira from the Regional Integration and Trade Division at UNECA Headquarters. The report also benefited from comments and corrections by Priscilla Lecomte, Office of the Climate Crisis Coordinator, Nairobi, and colleagues at Food and Agriculture Organization (FAO) of United Nations - Mehnaz Ajmal Paracha, Celia Akita, and Suffyan Koroma. As is customary, any remaining errors remain the responsibility of the authors.

Executive Summary

Food security remains a fundamental challenge in Eastern Africa, where climate variability, population growth, and economic instability continue to undermine agricultural production and food access. Despite the region's vast agricultural potential, one in five people in Eastern Africa is chronically undernourished. Some of the poorest countries (e.g. Burundi, The Democratic Republic of Congo, South Sudan, and Somalia) regularly face problems of chronic food security, driven by a combination of extreme weather conditions, conflict, and economic shocks. But the problem affects all countries in the region, with differing degrees of severity. As a result, achieving the African Union's goal of ending hunger by 2025 and the global target of Zero Hunger by 2030 remains highly improbable for Eastern Africa.

This report explains how enhancing intra-African trade could contribute to better food security and help build more resilient food systems across Eastern Africa. The report places the region's food security challenges within a broader context of sweeping changes in the global food system. In an attempt to dispel some commonplace myths and misunderstandings about the nature of those challenges, the report highlights some of the persistent structural problems with food production at a continental and regional level. While not a standalone solution, greater intra-regional trade offers opportunities to boost productivity and strengthen food systems. The report also highlights key barriers to achieving this objective and provides some policy recommendations.

The Climate Crisis and Its Impact on Agriculture

In **Section 2**, we provide an overview of the climate crisis and its profound impact on African agriculture. Climate change has become an increasingly significant driver of food insecurity, worsening an already fragile situation across the continent. In 2023, climate-related shocks were the leading cause of a doubling in the number of people in Eastern Africa suffering from acute food insecurity since 2021. Rising temperatures, erratic rainfall, and severe weather events such as droughts and floods have led to both declining agricultural productivity and increased food shortages. Between October-December 2024 alone, severe flooding in Burundi, Kenya, Rwanda, South Sudan and Uganda displaced 5 million people. The destruction of croplands and livestock deepened regional food insecurity and economic strain.

Going forward, the situation is likely to deteriorate further. Crop yields south of the Sahara are projected to decline by 5 to 17 percent by 2050, especially in key staples. Some countries are likely to be more affected than others: for instance, it is projected that climate change could reduce Ethiopia's agricultural output by one third by 2050 (IMF, 2022). Another recent study (Ortiz-Bobea et al., 2021) finds that climate change may already have reduced agricultural total factor productivity growth by 21 percent since 1961, and by as much as 40 percent in some parts of Eastern and Western Africa. Employment is also going to be impacted. For example, fisheries-related jobs are expected to decline around Lake Tanganyika by almost 30 percent by 2050 (IMF, op.cit.).

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To address the negative impacts of climate change, more mitigation strategies will be necessary, through greater investments in irrigation, soil conservation, and climate-smart agricultural practices. The evidence suggests that such strategies could be highly effective in reducing the costs of climate change. A recent study looking at the potential for adaptation in rainfed cereal crops in Eastern Africa (Alimagham et. al., 2024) found that without adaptation by 2050 more than half of regional cereal production could see a decline in yield or stability. With adaptation, the estimated impacted share shrinks to less than 20%.

Mitigation measures alone will not suffice however. Facilitating greater intra-regional food trade will be crucial for reducing food shortages and improving resilience, particularly under the African Continental Free Trade Area (AfCFTA) framework. Climate variability will increase the importance of cross-border trade, ensuring more stable food supplies and providing farmers and traders with the incentives needed to meet Africa's rising demand for staple commodities.

Mapping the Global Food Production and Trade Landscape

Section 3 of the report examines the backdrop of global food production and trade patterns, highlighting how shifts in agricultural production and trade have reshaped the dynamics of food security. At an aggregate level, global production of primary crops reached 9.6 billion tonnes in 2022, increasing by 56 percent since 2000, while over the same period, the world's population expanded by 31 percent. In principle, then, food production is keeping pace with demographic changes. However, food availability alone does not guarantee food security, as economic inequality, trade dependencies, and climatic disruptions all create disparities in people's access to food.

Contrary to popular belief, Africa is not the most food import-dependent region in the world – that title goes to Asia – with a food trade deficit standing at USD290 billion in 2022, six times higher than that of the African continent.

The Section challenges common misconceptions about Africa's food trade balance. Contrary to popular belief, Africa is not the most food import-dependent region in the world – that title goes to Asia – with a food trade deficit standing at USD290 billion in 2022, six times higher than that of the African continent (USD 47 billion), according to FAO data for 2022. Even though in per capita terms the difference is less accentuated, Asia's deficit is still around double that of the African continent.

Moreover, it is not commonly realized that there are individual countries with much larger negative food trade balance than the whole of the African continent – in 2023, that list included China, Japan, the United States, United Kingdom, South Korea and Saudi Arabia. A major concern is the increasing concentration of agricultural exports among a few key players—just five countries control 77% of global rice exports, while another five dominate 65% of wheat exports. This creates vulnerabilities, as disruptions in these regions can significantly affect global food prices and availability.

This degree of productive concentration is reflected in the corporate sector too. Worryingly, four companies control about 90% of the global grain trade, while another four dominate 66% of the agricultural chemicals market and 53% of the global seed market. And none of the said companies are African owned. Such corporate consolidation raises concerns about market concentration, price manipulation, and supply chain fragility.

The growing divide between a handful of major exporters and a vast number of food import-dependent nations highlights the need for more coordinated efforts to ensure food security. For Eastern Africa, reducing external dependencies by strengthening intra-African trade and supply chains is crucial to improving resilience.

Unlocking Potential: The State of Agriculture in Africa

Section 4 of the report provides an overview of the state of agriculture in Africa, highlighting both its immense potential as well as some persistent structural challenges. The importance of the agricultural sector is reflected in its prioritization within the continental development agenda—AU Agenda 2063. Some prominent African agricultural development initiatives include the creation of the New Partnership for Africa's Development (NEPAD), the Maputo Declaration of 2003, the African Union's Malabo Declaration, the Comprehensive Africa Agriculture Development Programme (CAADP), the Alliance for a Green Revolution in Africa (AGRA), and Abuja Declaration on Fertilizer for a Green Revolution in Africa.

Yet the sector continues to face major challenges. Except for in a few countries such as Egypt and South Africa, Africa's agriculture potential remains largely unrealised (AUC & FAO, 2021). The sector is especially central to the Eastern Africa's economy, employing over 50% of regional population and contributing 25%-36% of the GDP. It is often observed that the continent possesses around 60% of the world's unused arable land. Less recognized is the extent to which some parts of Eastern Africa face severe land pressures, increasing the risk of food insecurity and conflict. Agricultural productivity remains low, due to limited mechanization and irrigation. At a continental level, only 1% of farmers own a tractor, and just 12% use machinery services, while irrigation—despite its high potential returns—remains underdeveloped. Land degradation further threatens agriculture, with 65% of productive land degraded due to overgrazing, deforestation, and poor farming practices.

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Despite these obstacles, the continent's agricultural sector holds vast potential for economic transformation, food security, and job creation. Targeted policies, investment, and innovation could unlock this potential, with intra-African trade playing a critical role in strengthening agricultural value chains.

The (Complex) Links Between Food Trade and Food Security

In Section 5, the complex relationship between trade and food security is examined. Food security can be defined in several ways: Broadly speaking, two distinct strategies towards national food security can be identified. One is through pursuing **food self-sufficiency** whereby food availability is obtained solely from national resources; the other is **food self-reliance**, where international trade is used to access part of the food consumed, by exporting cash crops in exchange for the import of staple foods to complement domestic supply. In this report, we propose another approach, and that is by defining food self-reliance on a regional basis – **regional food self-reliance**. As we move towards a more

integrated continental economy, it makes sense to increasingly see food security in collective terms, as something to be achieved on a regional or sub-regional level.

While trade can enhance food access and price stability, past price spikes on a global level (e.g., in 1973-1974, 2006-2007, and 2022-2023) reveal that market openness can also increase price volatility for food import-dependent countries. However, in the right circumstances, trade can mitigate shocks and improve sustainability. Trade policy can be leveraged in different ways to achieve different objectives – albeit in ways which are not always consistent. To protect their producers, importing countries often impose import tariffs when prices fall and use the tariff revenues to subsidize consumers when prices rise. For example, Kenya recently (September 2024) banned imports of sugar from outside COMESA and the EAC, in the face of improved domestic production. A further example is the request of Rwandan rice producers in November 2024 to restrict rice imports so that local producers can supply at least 40 percent of the market.

Large and sustained price variations within the region for some commodities suggest a greater scope for smoothing consumption and prices through greater intra-regional trade… For example, average Ethiopian maize prices in June 2024 hit USD 722/ton—nearly four times the USD 191/ton price in Tanzania at the same point in time.

There is some a priori evidence that food security in East Africa could benefit from greater intra-regional food trade. Large and sustained price variations within the region for some commodities suggest a greater scope for smoothing consumption and prices through greater intra-regional trade. Ethiopia, for instance, tends to heavily tax imports from neighbouring countries. As a consequence, prices on the domestic market often diverge with prices in other Eastern African markets. For example, average Ethiopian maize prices in June 2024 hit USD 722/ton—nearly four times the USD 191/ton price in Tanzania at the same point in time.

An analysis of the patterns of regional trade complementarity reveals that food production cycles across Eastern Africa are only weakly correlated. Given Eastern Africa's diverse agroecological conditions, stronger regional trade policies could help smooth supply disruptions and reduce price volatility, benefiting both producers and consumers. The report calls for more coordinated trade strategies that enhance food security while minimizing risks linked to external dependencies. A good example of the right kind of policy was the announcement in June 2024 to remove the 25% excise duty on imported eggs, potatoes, and onions from EAC partner states, with the aim of promoting intra-trade within the region and addressing the high prices of these products in Kenya.

Agri-trade Dynamics in Africa: Assessing the Current Landscape

In **Section 6**, the report assesses the current landscape of agricultural trade for the whole continent. While Africa exports large volumes of cocoa, coffee, tea, and cotton, it remains dependent on imports for staple crops like wheat, rice, soybeans, and meat. The continent spends 16% of total import expenditures on food, double the global average of 8%. This reliance exposes Africa more heavily to external price shocks, with food prices in highly import-dependent countries closely mirroring global price fluctuations. Dependency is particularly high for products such as vegetable oils and cereals.

Nonetheless, the Section stresses the extent to which the bulk of continental food imports are concentrated in a handful of countries – pointedly, not one of those countries is in Eastern African. North African countries dominate net food imports, with Egypt, Algeria, and Libya accounting for over 80% of the total. The Section then unpacks the continent's food trade balance, noting that while food imports have increased markedly since the beginning of the Millennium, this needs to be put in the context of rising food prices, a population which is 80% larger, and the fact that the continent's GDP has expanded by around 40%. While food export growth has not generally kept pace with the rising food imports, there has been no secular decline in the continent's food trade balance. In the aftermath of the Covid-19 pandemic, and the subsequent sharp rise in global food prices, imports to the continent surged in 2021-2022, and as a result, the net deficit by 2022 stood at USD -38.6 billion.

Preliminary data for 2023 reveal a marked improvement in Africa's food trade balance, with a 40% decline in deficit (to USD 23.2 billion). Remarkably, this improvement in the food trade balance went largely unnoticed and runs counter to the standard narrative of an inexorable increase in food imports.

However, preliminary data for 2023 reveal a marked improvement in Africa's food trade balance, with a 40% decline in deficit (to USD 23.2 billion). Remarkably, this improvement in the food trade balance went largely unnoticed and runs counter to the standard narrative of an inexorable increase in food imports. Indeed, when looking at the imbalance as a % of GDP, the severity of the current imbalance looks less alarming still – just -0.8% of GDP, a situation similar to where it was back in the early 2000s. The lesson here is that we must be careful of inferring an ever-deteriorating food trade balance from nominal values, or without making the proper adjustments.

As for the situation regarding Eastern Africa, while the collective food trade balance for the region has deteriorated over the last two decades, with imports rising faster than exports, the imbalance is not that large, standing at USD 1.3 billion in 2023 for the Eastern African-14 countries. Arguably, regional food security has suffered not so much from excessive imports but from a failure to expand exports in line with economic growth. Countries facing severe foreign exchange shortages, such as Burundi and South Sudan currently, often struggle to balance food imports with other development priorities.

The Section also highlights the trade-off between cash crops and food security. While Kenya's horticultural sector rebounded strongly post-pandemic (25% growth from 2018 to 2023), cereal production fell by 10% over the same period, illustrating the tension between export-focused agriculture and food security in staples. While coffee, cocoa, tea, and spices dominate exports, key intra-African trade items include cereals, sugar, and dairy. Strengthening intra-African agricultural trade is essential to buffer against external shocks and improve food availability and price stability.

Exploring African Food Production

Building on the previous discussion of Africa's agricultural trade landscape, **Section 7** explores the continent's food production patterns and their implications for food security. Africa's diverse climatic conditions support a wide range of crops, but production remains concentrated on staple crops like maize, rice, wheat, sorghum, millet, cassava, yams, and potatoes. Cereals provide 50% of Africa's daily

caloric intake, yet slow yield growth and rising demand—projected to triple by 2050—make self-sufficiency increasingly difficult.

In 2021, Africa produced 216 million tonnes of cereals, accounting for 7% of global production, but the continent remains a net importer of rice and wheat, with North African countries among the world's largest wheat importers. Nonetheless, Eastern Africa is a key player, producing a significant share of the continent's cereals, pulses, fruits, and livestock products. Ethiopia alone accounts for 50% of the region's cereal production, followed by Tanzania (20%). Maize is a staple in Burundi, Rwanda, Kenya, Tanzania, and Uganda, contributing over 50% of their national grain supply. The region is also a leading producer of fruits and vegetables, with Uganda, Tanzania, Kenya, and the DRC responsible for over 70% of Eastern Africa's total output.

Eastern Africa is a key player in cereal production, producing a significant share of the continent's cereals, pulses, fruits, and livestock products. Ethiopia alone accounts for 50% of the region's cereal production, followed by Tanzania (20%). Maize is a staple in Burundi, Rwanda, Kenya, Tanzania, and Uganda, contributing over 50% of their national grain supply.

Livestock and dairy farming are equally vital, with Ethiopia, Kenya, Tanzania, South Sudan, and Uganda among the largest producers. The region leads Africa's milk production and contributes significantly to meat output, reinforcing its role in food security. Despite these strengths, climate variability, low mechanization, and weak infrastructure hinder agricultural growth. However, Ethiopia's recent successes in improving wheat production shows these challenges can be overcome with the right policy framework. Strengthening Africa's food production systems will be key to enhancing food security and positioning the continent as a major global food producer.

Food Trade: A Product-Driven Analysis

Following the discussion on Africa's agricultural production, **Section 8** examines food trade patterns across key product categories, particularly cereals, cash crops, fruits and vegetables, meat, dairy, and poultry. Cereals dominate African food trade, yet Eastern Africa has shifted from self-sufficiency in the 1980s to increasing import dependence, with cereal imports now valued at five times that of exports. Although 78% of Africa's cereal exports stay within the continent, production struggles to meet demand, particularly for wheat and rice. Africa's comparative advantage remains firmly in unprocessed cereals, emphasizing the need for greater value-chain development.

As noted in Section 6, cash crops, such as coffee, tea, and spices, drive Eastern Africa's exports, with Ethiopia, Uganda, Tanzania, and Kenya leading in coffee production. However, over 98% of these exports go to international markets, with little intra-regional trade. The same applies to fruits and vegetables, where Kenya, Tanzania, and Ethiopia dominate production, but exports largely serve Europe and the Middle East, limiting regional benefits. Moreover, despite vast livestock resources, Africa remains a net importer of meat, dairy, and poultry. Most live animal exports go to the Middle East – Somalia being the leading exporter - while regional processing and consumption remain underdeveloped.

To sum up, Africa's food trade is skewed toward unprocessed commodities, restricting value addition and limiting intra-African trade. Investing in processing industries and strengthening regional markets will be key to reducing import dependence and improving food security.

Revealing Eastern Africa's Agricultural Comparative Advantage

Section 9 examines Eastern Africa's agricultural comparative advantage and its role in strengthening regional trade. Through an analysis of Revealed Comparative Advantage (RCA), the Section concludes that the region holds significant potential for expanding its food trade in certain products. Uganda has a strong comparative advantage in un-milled cereals while Tanzania excels in rice production, and Rwanda in cereal preparations. However, logistical bottlenecks, high trade costs, and inefficient customs clearance in the EAC hinder trade efficiency.

Despite strong local production capacity, wheat, rice, and dairy imports from outside Africa dominate regional markets. Aligning export strengths with regional import needs could reduce dependence on external markets and improve food security. For example, Uganda's strengths in cereal and dairy production position it as a key supplier for African nations currently importing from Europe and the Americas, while Tanzania's competitive rice production could lessen reliance on Asian imports. Strengthening trade linkages, infrastructure, and AfCFTA implementation will be crucial in building a more integrated and resilient regional food system.

Impact of Existing Regional Trade Agreements on African Agricultural Exports

In Section 10, the role of regional trade agreements in shaping African agricultural exports is analyzed. Contrary to a lot of earlier research, recent studies have confirmed that existing regional trade agreements have had a positive impact on intra-African trade volumes. Afesorgbor (2016) carried out a careful meta-analysis combining 14 previous studies covering the period from 1980–2006; and found that, on average, the formation of African regional trade agreements (RTAs) boosted bilateral trade by about 27–32%. However, less well researched is the specific impact of regional economic blocs on agricultural trade.

For the purposes of this report, an econometric gravity model analysis, using a Poisson Pseudo-Maximum-Likelihood (PPML) estimator, was undertaken, with bilateral agricultural trade data for 45 African countries between 1990 and 2019. The results confirmed the standard gravity model results that proximity, shared borders, common languages, and historical ties significantly influence agricultural trade flows. However, in quantitative terms, the results suggest existing RTAs have increased intra-regional agricultural exports by only 15% on average. The reason for the weaker results is probably related to a number of factors, including i) a greater number of exclusions from tariff liberalisations in sensitive sectors ii) the excessive use of Phytosanitary Standards and other technical barriers on food trade. With the AfCFTA offering a more

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ambitious framework for integration, the key question is whether its implementation can drive a more substantial shift in intra-African food trade.

The AFCFTA: A Catalyst for Greater Food Security

Section 11 examines the AfCFTA's potential to boost food security, reviewing the results of several recent Computable General Equilibrium studies. The AfCFTA currently covers 54 AU member states and seeks to eliminate tariffs on 97% of goods and reduce non-tariff barriers (NTBs), such as import restrictions and SPS standards. Challenges remain in terms of its effective implementation, as some food products (meat, dairy, fish, and vegetables) are being classified as sensitive items or even excluded. However, these restrictions are subject to review within five years. Beyond trade, the AfCFTA aims to strengthen agricultural value chains, reduce post-harvest losses, and boost local processing.

Under the AfCFTA, intra-African trade in agri-food would increase by around 60% by 2045 relative to the baseline. The subsectors in which there is the greatest potential for an increase in intra-African trade are milk and dairy products; processed food; cereals and crops; and sugar (ECA/CEPII forthcoming).

The results of a recent study by ECA and CEPII (forthcoming) predict that the successful implementation of the AfCFTA would significantly boost intraregional trade, particularly in agri-food, estimating that intra-African trade in agri-food would increase by around 60% by 2045 relative to the baseline. The subsectors in which there is the greatest potential for an increase in intra-African trade are milk and dairy products; processed food; cereals and crops; and sugar. By removing the barriers to intra-African trade, trade in agri-food sectors—both processed and unprocessed—is expected to increase significantly for both intermediate and final consumption. The rise in intra-African agri-food trade for intermediate consumption in particular is expected to contribute to the development of intra-African agri-food value chains, in turn, contributing to an increase in agri-food trade for final consumption.

Challenges to Boosting Intra-African Agricultural Trade

Section 12 highlights the fact that the majority of countries are failing to meet commitments made under the Malabo Declaration on Accelerated Agricultural Growth adopted in June 2014 by African Heads of State and Government in Malabo, Equatorial Guinea.

On the supply side, Africa's reliance on rainfed farming, inadequate investment in mechanization and infrastructure, and low adoption of modern agricultural technologies hinder productivity. Most countries have yet to meet the 10% budget allocation for agriculture, as per the Malabo Declaration. Low agricultural productivity remains a challenge, as Africa missed the Green Revolution, leaving cereal yields stagnant since 1960, while other regions tripled output. Most farmers still rely on rainfed agriculture with little mechanization or inputs. Financial access is also limited—only 10% of African farmers have credit access, and climate finance remains far below the required USD 250 billion annually.

Underinvestment in regional agriculture has left Africa's yields stagnant since the 1960s, while other regions have tripled production. Limited access to finance combined with low public spending and weak R&D investment, further hinders agricultural growth. While doubling R&D spending could reduce poverty by 9% annually, most African nations invest less than 1% of agricultural GDP in research.

On the demand side, exporters face high tariff and non-tariff barriers, weak compliance with quality standards, and disruptions from external shocks like the COVID-19 pandemic and the Ukraine war. Tariff barriers remain a major constraint. Some RECs, such as the EAC, have low intra-regional tariffs, but others, like ECCAS and AMU, impose rates as high as 12.5% and 16.6%. African countries often levy higher tariffs on regional imports than on goods from outside the continent. Additionally, non-tariff measures (NTMs), such as sanitary and phytosanitary (SPS) regulations, increase trade costs, making food prices at least 13% higher on average.

Section 12 also highlights the disparity in agricultural research investments between staple crops in Africa and those in Europe and North America. While significant resources have been devoted to improving wheat and corn, African staples like millet, cassava, and sweet potato have been neglected. For example, teff, a crucial cereal in Ethiopia, Eritrea, Somalia, and parts of Kenya, has not received adequate research funding despite its importance. The Gates Foundation is now funding research to develop shorter, more resilient teff varieties. Similarly, the International Institute of Tropical Agriculture (IITA) in Nigeria has developed higher-yielding cassava varieties, and the International Potato Center (CIP) is working on drought-resistant sweet potatoes. Governments are also supporting innovations, such as Nigeria's approval of genetically modified cowpea to meet local demand and combat pests. These efforts show great promise in helping improve food security and adapting to climate change.

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Conclusions and Recommendations

Finally, **Section 13** concludes the report and presents key recommendations for strengthening food security through trade. The findings of this report highlight the urgent need for a strategic, multi-faceted approach to enhancing food security in Eastern Africa. While the AfCFTA presents a unique opportunity to integrate regional food markets, as stressed in previous Sections, its success hinges on effective implementation, the reduction of trade barriers, and complementary investments in infrastructure and agricultural productivity. Addressing tariff and non-tariff measures, harmonizing trade regulations, and streamlining cross-border procedures are critical to fostering a more integrated and resilient regional food system.

Beyond trade liberalization, there is a pressing need for greater public and private investment in climate-resilient agriculture, irrigation systems, mechanization, and sustainable land management practices. Expanding agro-industrialisation, particularly in food processing and storage, can enhance food self-sufficiency and reduce post-harvest losses. Similarly, investment in research and

development (R&D) is crucial, given that doubling agricultural R&D spending has the potential to reduce poverty by 9% annually.

While the AfCFTA presents a unique opportunity to integrate regional food markets, its success hinges on effective implementation, the reduction of trade barriers, and complementary investments in infrastructure and agricultural productivity.

Eastern Africa, with its fertile land and diverse agricultural potential, must strengthen regional coordination to mitigate external shocks and reduce dependence on global markets. Countries in the region should enhance cooperation in research, technology adoption, and climate-smart agricultural practices. Additionally, financial inclusion must be improved, as only 10% of African farmers currently have access to credit, severely constraining their ability to invest in productivity-enhancing technologies.

This report has stressed the potential of greater regional trade to improve food security. Ultimately, however, food security in Eastern Africa will not be achieved through trade reforms alone. It requires a holistic strategy that integrates trade facilitation with investment in infrastructure, innovation, and institutional capacity. Governments, the private sector, and development partners must work collaboratively to create an enabling environment that ensures agricultural productivity gains translate into tangible improvements in food security and economic resilience across the region.

1: Introduction

In recent years, the global food system has been under increasing stress from multiple shocks, threatening the food security and nutrition of millions of people. Since 2020, a prolonged pandemic, a major international conflict (the Russian-Ukraine war), and the growing impact of climate change have exacerbated the global food crisis. In 2023, according to FAO estimates, around 733 million people around the world faced severe hunger., about 152 million people more than in 2019.[1] The consensus is that little progress has been made in reducing hunger on a global scale in nearly a decade (GHI, 2023).

In recent years the global food system has been confronting major challenges, with multiple shocks jeopardizing the food security and nutrition of millions. In 2023, around 733 million people around the world faced severe hunger.

Concerns about food insecurity are particularly acute in Africa, where the proportion of the population facing severe malnourishment affects over 20% of the population.[2] Africa is not in fact the continent with the highest absolute number of malnourished people – that dubious 'honour' goes to Asia. But pointedly the direction of travel is wrong for Africa, with a rising share of malnourishment, while in Asia the share has been falling for the last two decades (**Figure 1**). Moreover, Eastern Africa is the worst impacted region of all[3], with 138.5 million people currently estimated as malnourished, representing nearly half (46%) of all the undernourished people on the continent in 2023 (**Figure 2**). As of June 2023, the worst affected countries in Eastern Africa included the Democratic Republic of the Congo (DRC), South Sudan, and Somalia, where it was estimated that 46%, 59% and 91% of their populations, respectively, are suffering from insufficient food consumption (WFP, 2023). Extreme weather conditions, conflict and insecurity, disease outbreaks and economic shocks (including COVID-19 and the Ukraine war) have been the main drivers of acute food insecurity across the region. Against such a backdrop, it is unsurprising that the African Union's *Comprehensive African Agriculture Development Programme* (CAADP)[4] Biennial Review (2019-2021) reports that the continent is not going to be able to meet its goal of ending hunger by 2025 (Brookings, 2023). Likewise, achieving

Eastern Africa is the worst affected region by hunger on the continent, with about one in five people chronically under-nourished in 2023.

[1] This represents 9.2% of the world population facing chronic hunger in 2023, compared with 7.9% in 2019 (FAO et al., 2024).

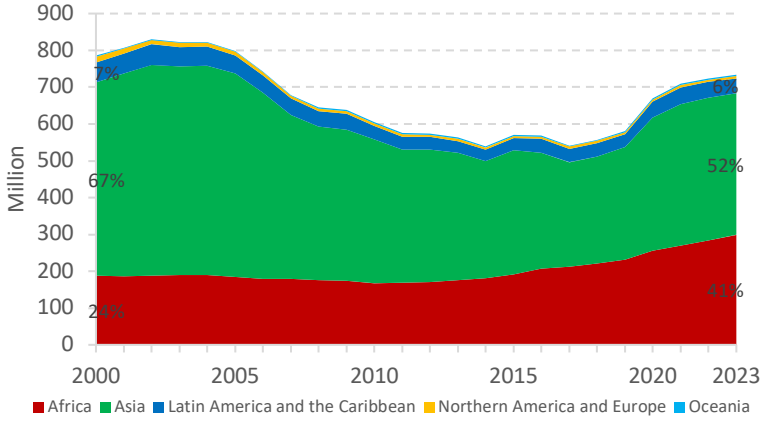
[2] Compared with 8.1% in Asia, 7.3% in Oceania and 6.2% in Latin America (FAO, 2024).

[3] In this instance, "Eastern Africa" refers to FAO classification including the following countries: Burundi, Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Rwanda, Seychelles, Somalia, South Sudan, Uganda, Tanzania, Zambia, and Zimbabwe. In the rest of the report, unless otherwise stipulated, we take Eastern Africa to follow the ECA denomination of 14 countries, i.e. Burundi, Comoros, the Democratic Republic of Congo, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Rwanda, Seychelles, Somalia, South Sudan, Uganda, and Tanzania.

[4] The Comprehensive Africa Agriculture Development Programme (CAADP) is a continental framework established by the African Union (AU) to promote agricultural development and food security across the African continent. It was adopted in 2003 as one of the pillars of the New Partnership for Africa's Development (NEPAD). CAADP aims to address the challenges facing African agriculture and rural development by fostering sustainable agricultural growth (AU, n.d.).

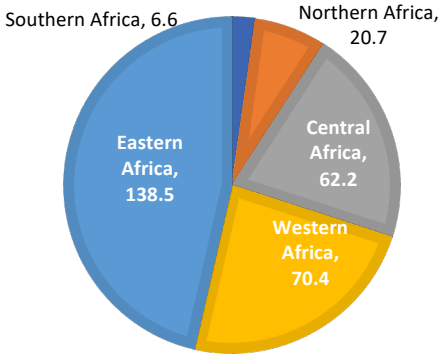
the Sustainable Development Goal (SDG[5]) target of Zero Hunger by 2030 looks highly improbable for Eastern Africa.

Figure 1: Number and share of undernourished people by region, 2000-2023



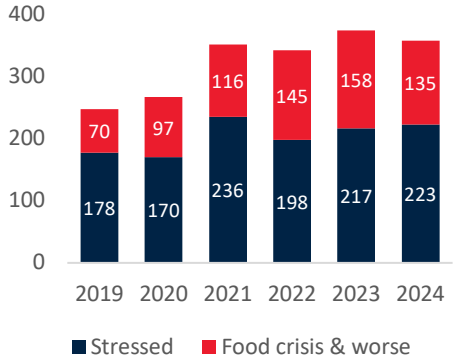
Source: FAO Statistical Yearbook (2024)

Figure 2: Number of undernourished people in Africa 2023, by sub-region(millions)



Source: FAO et al., (2024)

Figure 3: Food insecurity in SSA (millions of people), 2019-2024



Source: World Bank Global Economic Prospects, July 2024

Against this sobering background, this report provides an overview of patterns of regional food trade in Africa, with a focus on Eastern Africa. It explores how intra-African food trade can help address the food insecurity crisis and enhance agricultural productivity in the region, amid rising hunger and challenges to agriculture and food systems. The report identifies the main barriers and opportunities for improving food trade and food security in the region and provides some tentative recommendations. Trade is not a magic bullet, however. It will not be able to resolve the food crisis on its own, and for this reason this report also stresses other measures that are required to guarantee better food security. We look at some of the structural constraints to raising yields and producing more food to cater to regional demand. The report finishes by highlighting some of the actions necessary to improve food security in Eastern Africa.

[5] SDG 2 is one of the 17 global goals that make up the 2030 Agenda for Sustainable Development, and is focused on ending hunger, achieving food security, improving nutrition, and promoting sustainable agriculture.

2: The Climate Crisis and Its Impact on Regional Agriculture

It is widely acknowledged that climate change has been intensifying food insecurity across the world, with lasting adverse effects, especially on economic development and poverty reduction. Weather extremes in 2023 were the primary driver of acute food insecurity for 57 million people, double the number compared to 2021 (FSIN & Global Network Against Food Crises, 2023) The World Economic Forum's Report 2024 predicts that by 2050, the climate crisis could cause an additional 14.5 million deaths, USD 12.5 trillion in economic losses and USD 1.1 trillion in extra costs to healthcare systems around the globe.

The years since the Covid-19 pandemic struck have been especially disruptive, with Russia's war in Ukraine provoking a rapid spike on global cereal prices, and a series of serious climatic events. The IMF (2022) claimed that since 2020 food insecurity on the African continent had already risen by at least 30 percent. The growing frequency and intensity of droughts, floods, cyclones and higher temperatures are set to exacerbate matters by hampering agricultural production and food distribution.

Weather extremes in 2023 were the primary driver of acute food insecurity for 57 million people, double the number compared to 2021.

The long-term consequences are particularly worrying. It is well established[6] that poor nutrition hurts early childhood development, educational attainment, and earnings potential. Consequently, increased food insecurity could jeopardize hard-earned improvements in incomes, education and health outcomes for decades to come. Fears are also often expressed that the humanitarian and economic implications could fuel conflict and large-scale migration (Baptista et. al., 2022).

There have been several recent efforts to quantify some of the economic impacts of climate change. At a global level, Adom et al.'s (2024) recent literature survey suggests that with 2-3 degrees of warming, projected global output per capita in 2100 would be 15 to 25 percent lower than absent climate change. This is a huge figure and clearly the negative impacts go far beyond the agricultural sector. Moreover, as pointed out by Kenny (2024), the problem is not so much the average climatic impact, but about the extremes, and about the people who will be affected by those extremes. A recent summary of climate research by the IMF (2022) suggests that a mere one-degree Celsius temperature increase in developing countries is associated with a 3-percentage point reduction in agricultural output, leading to a 1.3 percentage point decline in growth.

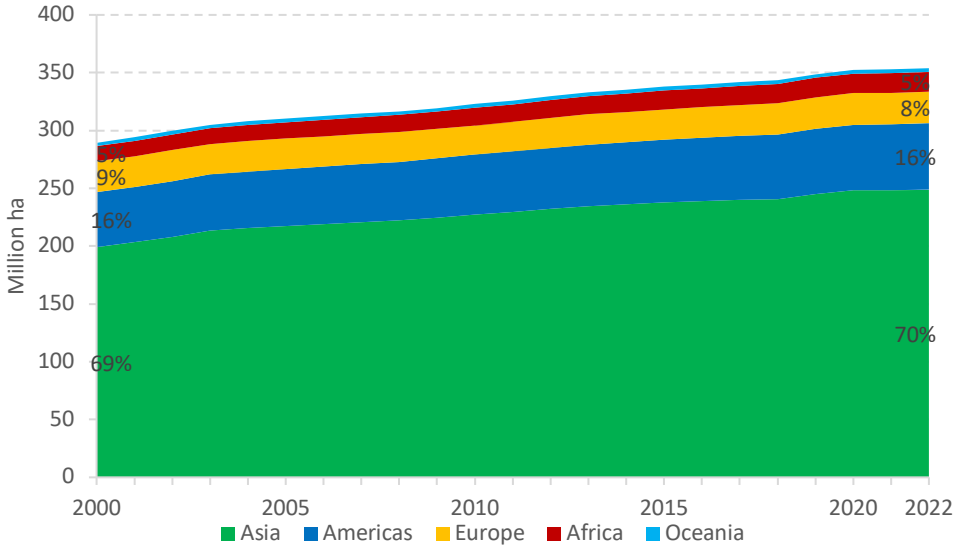
A mere one-degree Celsius temperature increase in developing countries is associated with a 3-percentage point reduction in agricultural output, leading to a 1.3 percentage point decline in growth.

The consensus holds that the future impact of climate change is likely to be larger in Africa than elsewhere, due to a combination of factors including high levels of poverty, a greater reliance on

[6] See, inter alia, UNICEF (2021), Georgieff (2023).

agriculture, and limited capacity to adapt to climate changes.[7] It will also be worse for countries that are heavily dependent on rainfed agriculture, and Africa has some of the lowest rates of irrigation in the world (IPCC, 2023; FAO, 2024; Ritchie, 2024) (**Figure 4**).

Figure 4: Area equipped for irrigation by region, millions hectare, and % of global total



Source: FAO Statistical Yearbook (2024)

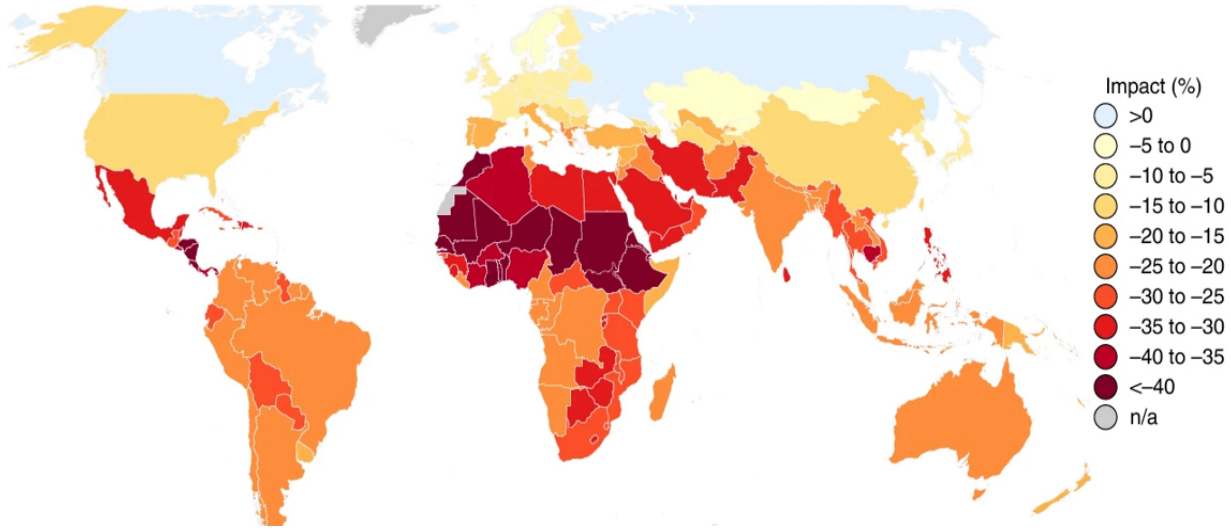
In more disaggregate analysis, Western and Eastern Africa countries are commonly forecast to be most seriously impacted. For instance, climate change could reduce Ethiopia's agricultural output by one third compared to a no-climate-change scenario. Some argue that those impacts have clearly already materialized - one recent study (Ortiz-Bobea et al., 2021) claims that existing climate change may have already reduced agricultural total factor productivity growth by 21 percent since 1961, and by as much as 40 percent in some parts of Eastern and Western Africa (**Figure 5**).[8] Projections reported by IMF (2022) suggest that crop yields south of the Sahara are projected to decline by 5 to 17 percent by 2050, especially in key staples. Notably, rising temperatures and rainfall volatility are key contributors to the shrinking of growing seasons and arable land, resulting in reduced productivity from overuse—impeding total factor productivity in agriculture. Employment is also going to be impacted. For example, fisheries-related jobs are expected to decline around Lake Tanganyika by

[7] Note that according to the projections reviewed by IPCC6 (2023; Chapter 11), the largest temperature rises will tend to impact the temperate and colder latitudes of both the Northern and Southern Hemispheres, rather than in the tropics. However, extreme weather events are frequently more devastating in tropical countries that are ill-prepared to withstand their impacts. A good example of how preparedness for extreme weather events makes a vast difference to outcomes is Cuba. Cuba established a well-organized Civil Defence System in 1966, including comprehensive evacuation plans, early warning systems, and community drills, and this has significantly reduced death tolls and economic damage to the island. See Prashad, V., & de los Santos, M. (2022).

[8] See IPCC (2023), Chapter 5 for a summary of the evidence. Note however, that the findings of the Ortiz-Bobea et al. (2021) study have been challenged by, inter alia, Thomas et. al. (2025, forthcoming) who argue that the study's models and assumptions might not fully account for adaptive measures that farmers and agricultural systems can implement to mitigate the effects of climate change. Critics also suggest that the study may overestimate the speed and severity of climate impacts without considering technological advancements and policy interventions that could alleviate some of the projected negative outcomes.

almost 30 percent by 2050. There are even projected impacts on land values: climate change is expected to reduce the value of farmland in Africa in the long term by 36 to 61 percent (IMF, 2022).

Figure 5: Impact of climate change on agricultural productivity, 1961-2015



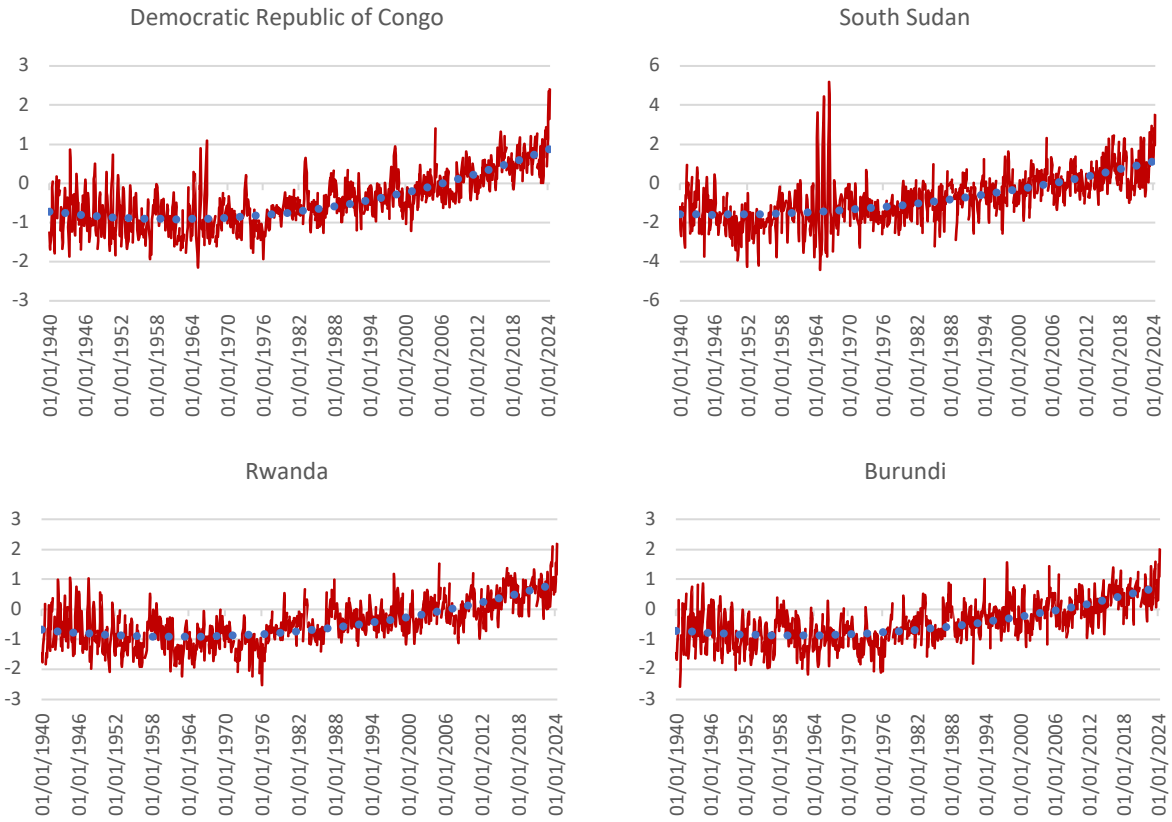
Source: Ortiz-Bobea et al. (2021)

At 2°C global warming, the risk of climate-caused food insecurity would be severe for the region, increasing the incidence of malnutrition, undernourishment, and micronutrient deficiencies. Evidence that we are already on the road to such outcomes is evident for some parts of Eastern Africa. As an illustration, in May 2024 four countries in the sub-region – Burundi, DRC, South Sudan, and Rwanda - were experiencing a more than 2-degree deviation of the month's average surface temperature from the 1991–2020 mean (**Figure 6**). Some consequences of this change in the climate are already evident. For instance, rising temperatures and water levels are causing insects and weed seeds to migrate into the region. The 2019–20 locust infestations in Ethiopia, Kenya, and Somalia affected 1.25 million hectares of land, and the infestation response increased the region's financing needs by about USD 70 million (IMF, 2022). By the end of 2022, the drought in the Horn of Africa had already killed more than 1.5 million livestock and drastically cut cereal production.[9]

In 2024, from October-December, heavy rainfall and floods impacted about 5 million people across the region (especially Burundi, Kenya, Rwanda, Tanzania, Uganda and South Sudan).

[9] The link between these events and climate change has been clearly established. See, for instance, World Weather Attribution, 23rd April 2023.

Figure 6: Monthly temperature anomalies in 4 East African countries, May 15, 2024*



*The deviation of a specific month's average surface temperature from the 1991–2020 mean, in degrees Celsius.
Source: Samborska (2024)

At the other extreme, Eastern Africa is increasingly being struck by torrential rainfall and floods. In 2024, from October-December, heavy rainfall and floods impacted about 5 million people across the region (especially Burundi, Kenya, Rwanda, Tanzania, Uganda and South Sudan). The floods impacted agriculture, transport, health, education, and tourism. In Kenya, President William Ruto announced in April that at least 210 people had died, and the country's National Disaster Operations Centre reporting that some 4,824 livestock had died, 27,717 acres of cropland damaged, 264 small businesses and 24 schools affected. Besides food shortages, the rains have also caused significant damage to critical infrastructure, including roads, and bridges, cutting off access to many areas (Anami, 2024).

The repercussions are likely to be long-lasting. The floods posed an additional threat to the livelihoods of the population groups living from pasture farming, increasing the risk of violent conflicts over scarce resources. Contact between humans and wild animals has also been increasing – for example, snakes and crocodiles are more likely to inhabit flooded landscapes.[10] The collapse of sanitation

[10] Lest the reader thinks this is a trivial problem, in Kenya data from the Institute of Primate Research shows that around 20,000 people are bitten by snakes annually. Out of this, about 4,000 result in fatalities, while 7000 result in paralysis or other health complications.

systems – water supply and wastewater disposal – can have unforeseeable consequences: in 2019, a cholera epidemic in Kenya followed the floods caused by El Niño. Stagnant water in many places is also a breeding ground for mosquitoes that can transmit malaria. Even before the flooding, the countries in the region were already struggling with local outbreaks of cholera and measles.[11] The impacts on food security are palpable: As of 30th June 2024, according to AGRA (2024), across Kenya, Rwanda, South Sudan, Tanzania and Uganda there were 33 million people without sufficient food for consumption, representing nearly one in five of the regional population (**Table 1**).[12]

Table 1: Numbers of people with insufficient food consumption (millions), June 2024

Country	Total Population (millions)	People with insufficient food consumption (millions)	Percentage of total population with insufficient food for consumption (%)
Kenya	51.4	13.6	26.5
Rwanda	12.3	2.6	21.1
South Sudan	11.0	3.6	32.7
Tanzania	56.3	5.2	9.2
Uganda	42.7	8.0	18.7

Source: AGRA (2024), Food Security Monitor, Edition 48, June 2024

Against such a stark backdrop, greater (and more efficient) public spending will be necessary to support the agricultural sector make the necessary adjustments and become more climate resilient. Research suggests that repurposing public support to agriculture toward high-value investment (technology generation and diffusion, soil conservation and irrigation infrastructure, climate change adaptation, and market connectivity) could be highly effective (World Bank Africa's Pulse, 2022). For instance, a recent study looked at the potential for adaptation in rainfed cereal crops in both West and East Africa (Alimagham et. al., 2024): Without adaptation, by 2050 more than half of cereal production could see a decline in yield or stability. But with adaptation, this share shrinks to less than 20%.

[11] It is worth stressing that climate change is not a linear process. For example, recent developments in Somalia indicate some short-term relief: The 2023-2024 seasonal rains in Somalia in fact exceeded expectations, reversing a prolonged drought that had severely impacted agricultural production and livestock farming in previous years. These improved rainfall patterns contributed to increased water availability, supporting crop yields and pasture growth, all essential for Somalia's largely agrarian economy (FAO, 2024).

[12] Some caveats are necessary about this data. The food insecurity data reported for Uganda (18.7% of the population) is sourced from the AGRA (2024). The AGRA report uses data from the World Food Programme (WFP) Hunger Map, but the WFP number is not from actual collected data, but rather a combination of real and modelled data to estimate food insecurity in places where real data is not readily available. For Uganda, this model was used to derive the number of 18.7% for the whole country. Data from the World food program hunger map shows the whole country suffers from insufficient food, which, while not impossible, for a net-food exporting country like Uganda does seem rather implausible. The comparison with the IGAD 2024 report of food security (which uses Fews Net data) is revealing: that report estimates that only 2.0 million people in Uganda (or 5% of the total population) are facing acute food insecurity. Definitional issues are of course at the core of such discrepancies. For a discussion of different definitions of malnourishment and food insecurity, see FAO et al. (2023).

Above all, the imperative of increasing intra-regional food trade will come to the fore. As noted by Keyser (2015),

"Given that different seasons and rainfall patterns are not conveniently confined within national borders and that variability in production is expected to increase with climate change, facilitating cross-border trade is more important than ever to provide farmers and traders the opportunities and incentives they need to supply Africa's rapidly growing demand for staple commodities." (Keyser, 2015).

"Often the nearest source of demand is across a border, yet fragmented regional markets and lack of predictable trade policies deter much needed private investments, from small investments by poor farmers in raising productivity to large investments in input supply, seed multiplication, and food marketing. Given that different seasons and rainfall patterns are not conveniently confined within national borders and that variability in production is expected to increase with climate change, facilitating cross-border trade is more important than ever to provide farmers and traders the opportunities and incentives they need to supply Africa's rapidly growing demand for staple commodities."

At a time of continental integration under the AfCFTA, this discussion is thus a timely one. Before moving to that discussion, however, first we provide an overview of some of the most salient characteristics of the global food system, which is currently experiencing some profound changes and which have an important bearing on any strategy to improve food security on the continent in general, and Eastern Africa very specifically.

3: Mapping the Global Food Production and Trade Landscape

Over the last three decades, the global food system has undergone some dramatic changes – changes which have impacted on the ability of countries to guarantee food security to their citizens. On the face of it, in terms of overall agricultural production, it would appear that food security is not a problem: at an aggregate level, global production of primary crops reached 9.6 billion tonnes in 2022, increasing by 56 percent since 2000, while over the same period, the world's population expanded by 31 percent.[13] So, in principle, food production is keeping pace with demographic changes.

Global production of primary crops reached 9.6 billion tonnes in 2022, increasing by 56 percent since 2000, while over the same period, the world's population expanded by 31 percent. So, in principle, food production is keeping pace with demographic changes.

However, other global changes in both income and its distribution have led to marked changes in consumption patterns, with emerging economies such as Brazil, China, India, Indonesia, and the Russian Federation exerting an important influence on international agricultural markets. China, for instance, needs to assure food for 23% of the world's population with just 7% of the world's cropland, and it has only about 0.087 ha of arable land per capita (Quiang et al., 2020). Although China has maintained agricultural self-sufficiency in grains in most years, China's challenges in balancing food supply and demand have increased significantly. Inevitably, then, a higher dependence on international trade has become inevitable for China to meet domestic demand for food products and relieve pressure on land and water resource. South−South agricultural trade has also expanded significantly, opening up new sources of supply and export opportunities.

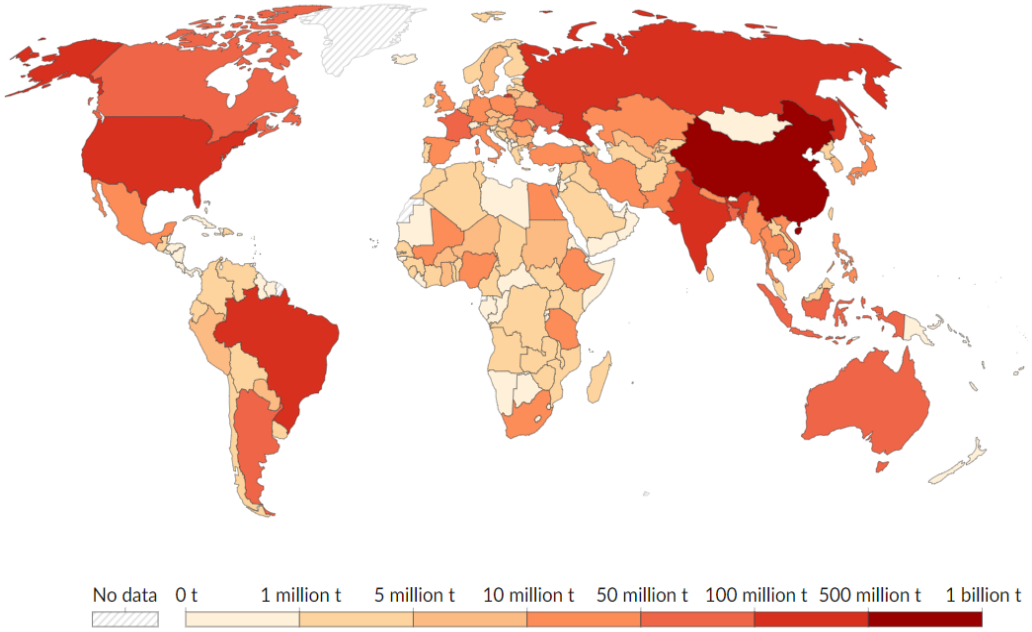
Perhaps the starkest change has been the growing concentration of both food production and food trade at a global level. Traditionally, cereal production has been highly concentrated in the temperate zones of the world (the most notable exceptions being Brazil, India and Indonesia) (**Figure 7**). However, the degree of concentration has been accelerating. This is especially apparent in the production of maize and rice, whereby just three countries account around 60 percent of global production (**Figure 8**). But the trend is evident in other products too. For instance, just three nations - Brazil, the US, and Argentina - grow 86% of the world's soybeans.

These patterns of concentration in the production and structure of global agricultural markets have been accompanied by a more pronounced divergence in the net trade performance in agricultural products by region over recent decades, with some regions becoming increasing net exporters and others increasing net importers. Net trade position patterns are largely driven by natural resource endowments, climatic conditions for agricultural production, population density and productivity (FAO, 2024; Chapter 2). Rapidly shifting patterns of consumption also play a role, driven, as diets change in response to urbanization, rising incomes, and societal changes (Vermeulen et al., 2020).[14]

[13] Maize, wheat and rice accounted for 90 percent of total cereals production in 2022 (FAO, 2023).

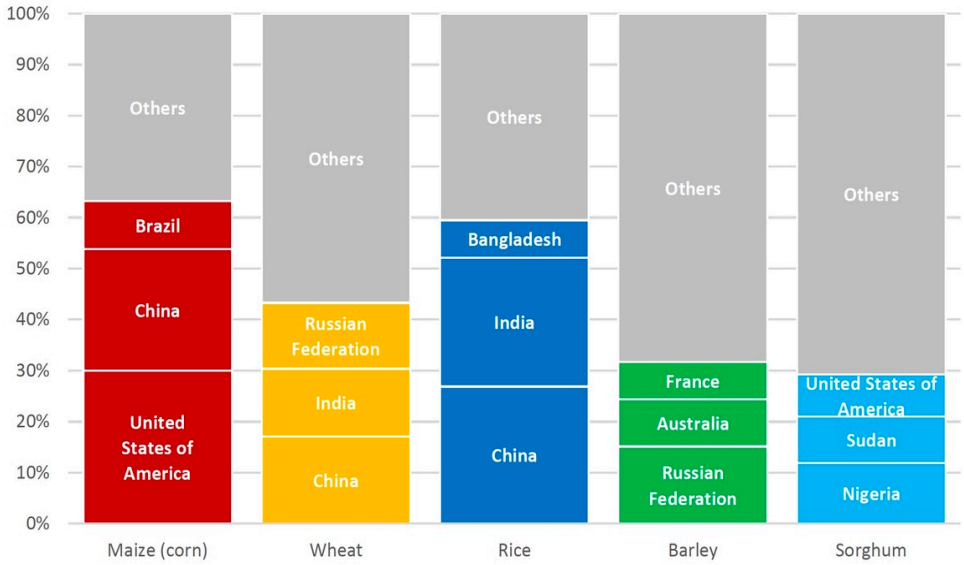
[14] People, almost without exception, are eating more food than their grandparents did. The mean 2250 calories humanity

Figure 7: Cereal production 2022*



* Cereal production is measured in tonnes and represents the total of all cereal crops including maize, wheat, rice, barley, rye, millet and others. Source: Ritchie et al. (2023), from FAO data.

Figure 8: Top largest cereal producers in 2022



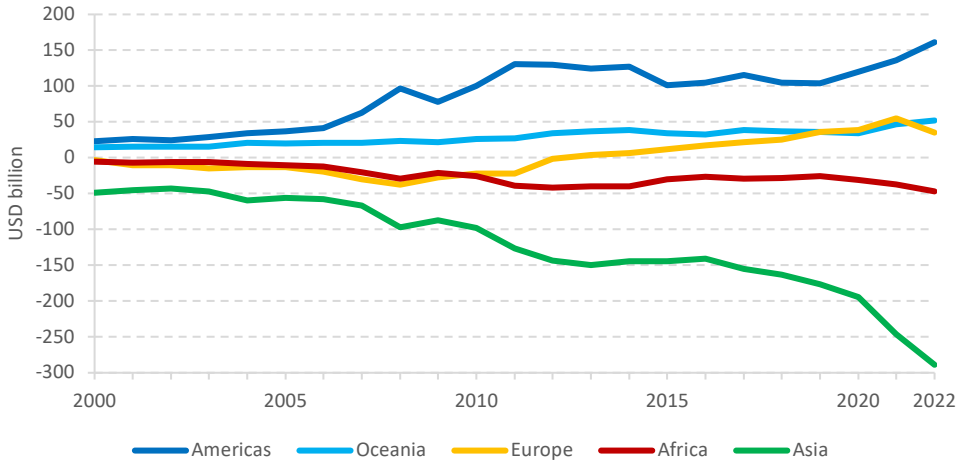
Source: FAOSTAT Analytical Brief 79 Agricultural Production Statistics 2000–2022

Indeed, when net food trade balances (i.e. exports minus imports) are calculated at a regional level, it is clear that, in global terms, Africa's food import dependence is not that consequential. Asia sustains

consumed in 1960 rose to 2800 by 2010, a 24% increase globally in half a century. Similar trends are true for protein (+25%), fat (+46%), and food mass (+25%). Paradoxically, individual diets have diversified, while global diets grew more homogenous, with national food supplies becoming 36% more similar over the half century (Vermeulen et al., 2020).

the largest food deficits and, what is more, the Asian deficit has ballooned in the last 4 or 5 years, being now 6 times in value larger than those of Africa. The Americas are the top net food exporting region in the world, followed by Europe and Oceania (**Figure 9**).

Figure 9: Food net trade by region (billions USD), 2000-2022



Source: FAO et al. (2024)

There is increasing concentration of exports of agricultural commodities by a handful of countries…. just 5 countries (Thailand, Vietnam, India, the US, and Pakistan) sell 77% of the world's rice, and 5 (the US, France, Canada, Russia, and Australia) supply 65% of the wheat.

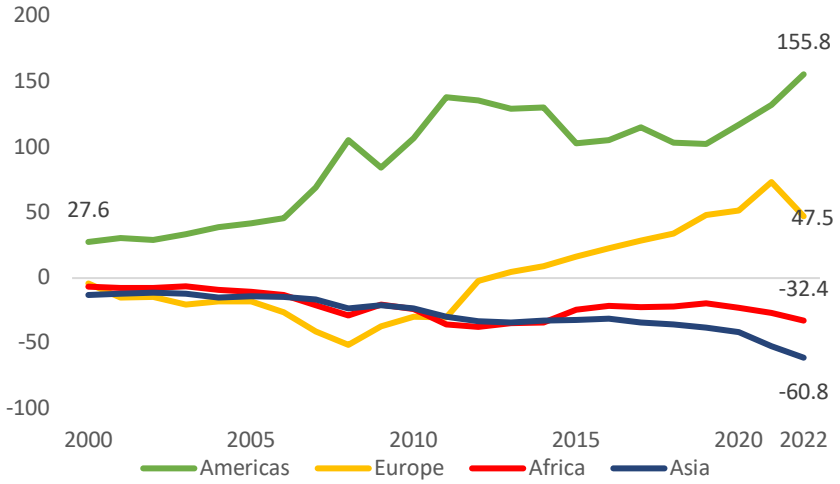
A complimentary way of viewing global food trade balances is by looking at them in per capita terms. Asia's deficit, as the most populated region of the world, accounting for nearly 60% of the global population) is less pronounced in per capita terms but is still approximately double that of the African continent. One interesting, and less remarked trend is how Europe has converted itself from a net food importer into a net exporter since 2013. The resources that European countries dedicate to their agricultural sectors are not of course comparable to those available to African nations – the Common Agricultural Policy alone costs around USD 55 billion a year.[15] But it does show that regions can flip quite quickly from net food importers to exporters, if a set of policies are in place that are broadly supportive of the agricultural sector.[16] In fact, however, the cleavage between net importing and net exporting regions is even more pronounced than this aggregate view suggests: Mirroring the earlier observed concentration there is increasing concentration of exports of agricultural commodities by just a handful of countries, while imports are more dispersed over a large number of countries. For

[15] European Commission (2024).

[16] Some of these regional trends are driven by the export prowess of a few nations. For instance, the Kingdom of the Netherlands became the world's second largest net exporter of food products in 2023, with a balance of USD 27.7 billion. Oceania's trade balance is driven by Australia (the third largest next exporter) and New Zealand. The largest food exporter in the world, Brazil, had net exports worth USD115.8 billion in 2023. See FAO (2024).

instance, five countries (Thailand, Vietnam, India, the US, and Pakistan) supply 77% of the world's traded rice, and five (the US, France, Canada, Russia, and Australia) supply 65% of the wheat.

Figure 10: Net food trade balance per capita (USD), 2000-2022



Source: FAO et al. (2024)

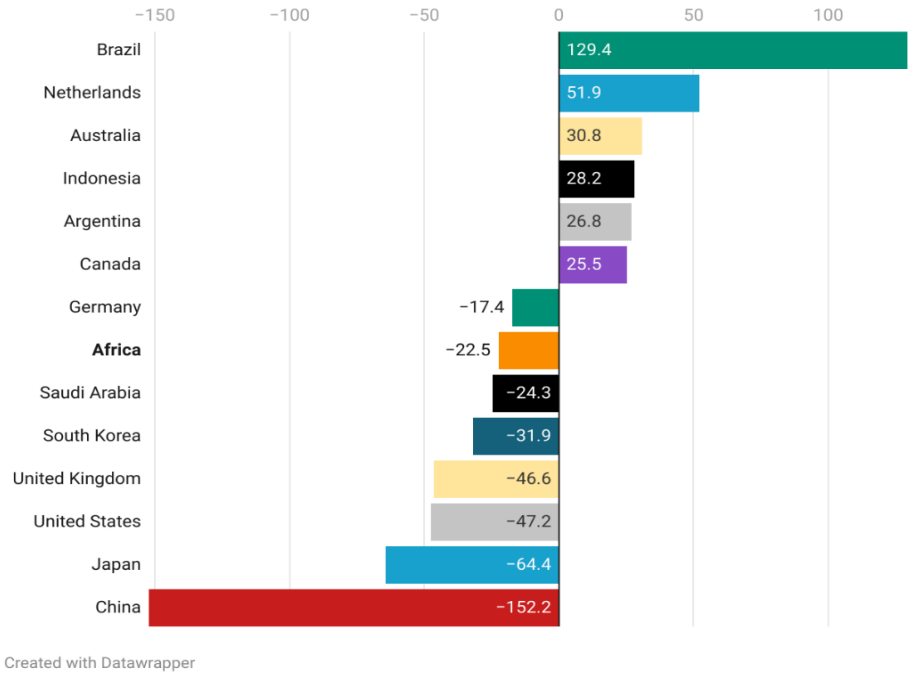
There have been some accompanying changes in the major contributors to net food exports globally: while in 1986 the United States contributed approximately a quarter (26%) of the food placed on the global trade market,[17] by 2009 it had decreased to less than a fifth (17%). By 2023, the United States accounted for just 8% of total food exports, and since 2014 has persistently registered food trade deficits. This decline in the predominance of the United States as a food exporter was paralleled by a similar decline of France and the emergence of countries like Indonesia and Brazil as major exporters (D'Odorico et al., 2014). Starkly, 50% of the net exports of all food products are now sourced from just five countries – Brazil, Argentina, Netherlands, Indonesia and Australia.

Much is made about Africa's rising food import bill…But in fact, countries like Japan and the United Kingdom actually sustain larger food trade deficits than the whole of the African continent.

Much is made about Africa's rising food import bill – a topic we will explore in depth later. But statements on the topic are often ill-informed. In fact, six countries - China, Japan, the United States, United Kingdom, South Korea, and Saudi Arabia - all sustain larger food trade deficits than the whole of the African continent. Even Germany is only slightly behind Africa in terms of the scale of its food trade deficit (**Figure 11**). Put bluntly, rising import dependence is not a phenomenon which is exclusive to Africa, but a widely shared one.

[17] Evaluated in terms of net trade flows, i.e. exports minus imports of food products. For a more detailed explanation, see **Annex 1**.

Figure 11: World's largest net food exporters/importers, 2023 (billions USD).



Source: UNECA, calculated from UNCTADStat (2024)

Four companies – Cargill, Archer Daniels Midland, Bunge, and Louis Dreyfus – are estimated to control about 90% of the global grain trade... Another four companies – ChemChina, Corteva, Bayer and BASF – control 66% of the world's agricultural chemicals market, while a similar cluster owns 53% of the global seed market.

Although often overlooked, there is an important corporate dimension to these trends of concentration in supply. Four companies – Cargill, Archer Daniels Midland, Bunge, and Louis Dreyfus – are estimated to control about 90% of the global grain trade, through a process of consolidating vertically as well as horizontally, by buying into seed, fertilizer, processing, packing, distribution, and retail businesses. Another four companies – ChemChina, Corteva, Bayer and BASF – control 66% of the world's agricultural chemicals market, while a similar cluster (with BASF replaced by Lima Grain) owns 53% of the global seed market (Monbiot, 2022).[18] Three companies control 70 percent of the world's pesticide market, 80 percent of the US corn-seed market, and overall, just six companies control the entirety of global agri-business. Ninety percent of the planted acreage of cotton in the US uses the seeds of one company – Monsanto (recently merged with rival Bayer) (Meagher, 2020: page 20).

[18] See Clap (2021), Benet (2022) for additional facts surrounding the extent of control of 'big food' companies.

This concentration of both production and trade in the hands of a few countries and companies has profound implications for global food security and the vulnerability of major food import-dependent nations – and in this context, it is not self-evident that greater global food trade has been an unmitigated blessing. For instance, a sudden disruption in the supply chain, such as a crop failure, trade disputes, or global crises, can lead to food shortages and price spikes in importing nations. This vulnerability was highlighted during the food price crisis of 2007-2008 and more recently during the COVID-19 pandemic and Ukraine war. Concerns have also been voiced that because of the concentration of market power by a few trading companies, falls in global food prices are not necessarily being passed on to consumers: analysis by UNCTAD[19] shows the extent to which high food prices have led to a surge in earnings for food traders.

The bifurcation of the global food system into a few super exporters and a large number of import-dependent countries underscores the importance of global efforts to ensure food security for all, and also the need for regions like Eastern Africa to come up with a coordinated strategy to shield themselves from any negative implications.

It is as yet unclear which region of the world is most benefiting from the ongoing intensification of food trade and how trade differentially affects food security in developed, emerging, or developing countries (MacDonald, 2013). But the bifurcation of the global food system into a few super exporters and a large number of import-dependent countries underscores the importance of global efforts to ensure food security for all, and also the need for regions like Eastern Africa to come up with a coordinated strategy to shield themselves from any negative implications. Leveraging regional trade policy is one key element in such a strategy.

[19] UNCTAD (2023) "Trade and development Report 2023 – update", Geneva.

4: Unlocking Potential: The State of Agriculture in Africa

Agriculture is a vital sector for Africa's economy, evident both in its contribution to total GDP (which is generally higher than the global average) as well as the large share of the population that still derive their income from farming. However, at a continental level the contribution of agriculture to the economy is not perhaps as pervasive as many people may think. On average, agriculture contributes only 15% of total GDP in Africa, ranging from less than 3% for South Africa to more than 50% for Sierra Leone. Eastern African countries tend to be more heavily dependent on agriculture than the continental average, with the sector accounting for between 25%-36% of the region's GDP and employing more than 50% of the population (World Bank, 2023).

The African agricultural sector is typically characterised by smallholder mixed farming of livestock, food crops, cash crops, fishing, and aquaculture. Africa's agricultural exports are dominated by a few product categories, with the top five (cocoa, edible fruits and nuts, coffee, tea and spices, and fish and edible vegetables and roots[13]) making up 53 percent of all agricultural exports, and the top 12 making up 80 percent of all agricultural exports. As we shall see in the following sections, most of those exports are destined for extra-regional markets. Exceptions include tobacco, fats and oils (both animal and vegetable sources), sugar and sugar confectionary and beverages, for which the shares exported to intraregional markets are higher than 50 percent of total exports (AUC & FAO, 2021). Agricultural commodities and agro-based products constitute an especially important role in intra-regional trade on the continent, and within the East African Community, it is estimated that about 65% of the volume of intra-regional trade is ago-related.[20]

Moreover, official trade figures do not take into account informal cross border trade. In the East African Community and surrounding countries, small traders are said to account for about 80 percent of intraregional food trade, with the vast majority of them going around the legal system because of excessive costs and difficulties navigating official channels (Feyser, 2015). Although informal trade is the *modus operandi* of a lot of intra-regional agricultural trade and provides employment to many people, it has a number of inherent weaknesses in terms of poor economies of scale, lack of dependability, vulnerability to corruption, exposure of traders to harassment, and risk of spreading disease across borders.[21]

In the East African Community and surrounding countries, small traders are said to account for about 80 percent of intraregional food trade.

[20] According to the EAC, more than 70% of the industries in the East Africa Community (EAC) are agro-based and depend on agriculture as the main source of raw materials (EAC, n.d.).

[21] Although the data is quite old, the Food Security and Nutrition Working Group (FSNWG) estimated that the total volume of informal trade between 11 countries at 36 Eastern Africa border crossings was 1.2 million metric tons from October 2011 to September 2012, including 408,000 tons of maize; 300,000 tons of beans; 252,000 tons of rice; 96,000 tons of sorghum; and 144,000 tons of other foods, including cooking bananas, groundnuts, millet, and cassava. Uganda, in particular, was identified as a major food exporter accounting for as much 70 percent of these informal exports (FSNWG, 2012).

Africa accounts for 60% of the world's unused arable land, and with its youthful population, holds huge agricultural potential.

The importance of the agricultural sector is reflected in its prioritization within the continental development agenda—AU Agenda 2063. Some prominent African agricultural development initiatives include the creation of the New Partnership for Africa's Development (NEPAD[22]), the Maputo Declaration of 2003, the African Union's Malabo Declaration, the Comprehensive Africa Agriculture Development Programme (CAADP),[23] the Alliance for a Green Revolution in Africa (AGRA), and Abuja Declaration on Fertilizer for a Green Revolution in Africa.

Yet the sector continues to face major challenges. Except for in a few countries such as Egypt and South Africa, Africa's agriculture potential remains largely unrealised (AUC & FAO, 2021). Across much of the continent, the productivity of both input factors (land and labour) is low. For instance, labour productivity[24] (excluding northern Africa) is less than half the global average (**Figure 12**) and more than 50-times lower than in the countries in which farmers are deemed most productive (e.g. USA, Netherlands, Israel, etc.). This has been a major obstacle for the growth of the sector.

The other – strongly-related – problem is that many countries suffer from *low land productivity*.[25] The average yield of cereals in Africa doubled over the past half century while the average yield of cereals in the world has tripled over the same time period.[26] The average cereal yield across the continent is half that of India, about one-fourth that of China, and one-fifth of the yield in the United States. Evidence points to an even larger productivity gap for livestock production. For instance, Africa's milk yield is estimated at about 15 percent of the world's average.[27]

In sum, compared to other regions of the world, which have experienced dramatic improvements since the early 1960s, across much of Africa yields have stagnated (Hannah, 2022). Low cereal yields can directly lead to reduced food availability, threatening food security where a significant proportion of the population relies on cereals such as maize, rice, and sorghum as staple foods. Countries with low cereal yields will also likely become more dependent on food imports, which can expose them to global shocks and trade disruptions. This can in turn increase the vulnerability of their food systems (Clapp, 2017).

[22] NEPAD is a flagship program of the AU that was officially adopted in 2002 as the primary mechanism to coordinate the pace and impact of Africa's development in the 21st century. NEPAD established the CAADP in July 2003 to improve agriculture across Africa (AUDA-NEPAD n.d.).

[23] Put summary here about the outcome of the CAADP meeting in Kampala in Nov/December from the East African.

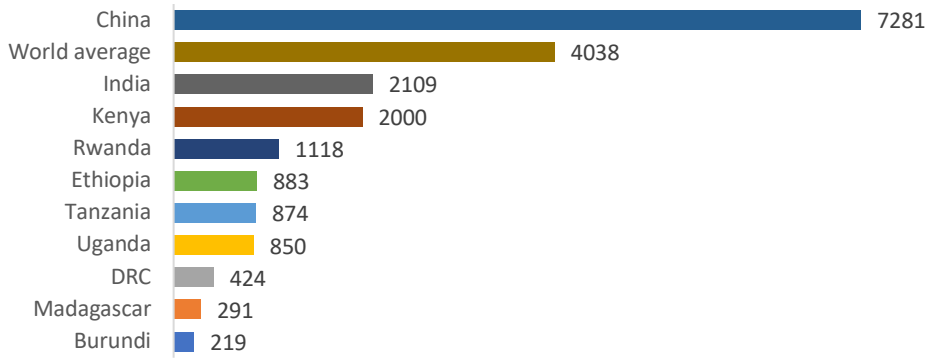
[24] Labour productivity in agriculture is a measure of the output value generated per unit of labour input.

[25] Land productivity – food per unit of land area. Land productivity for crops is measured as 'crop yields.

[26] African cereal yields rose from an average 0.81 tons per hectare (t/ha) in 1961 to 1.65 t/ha in 2020—while the average yield of cereals in the world has tripled over the same time period—from 1.35 t/ha in 1961 to 4.07 t/ha in 2020 (World Bank, October 2022).

[27] World Bank Africa's Pulse, October 2022

Figure 12: Agricultural labour productivity (USD value added per worker), 2022



Source: Our World in data (2025), (constant 2015 USD).

What are the underlying causes of these low yields? There are multiple factors contributing to low yields and the general underperformance of Africa's agricultural sector, including the excessive use of low-tech labour-intensive farming practices and the lack of access to modern farming technologies. For instance, until recently, farm mechanization in Africa has been limited. A recent survey of the uptake of mechanized farm equipment in six African countries shows that only 1 percent of farmers own a tractor, and only 12 percent used machinery services (Sheahan and Barrett, 2017). Part of the reason for this is the aforementioned prevalence of smallholder agriculture – something which squares poorly with the indivisibility of machines).[28]

A recent survey of the uptake of mechanized farm equipment in six African countries shows that only 1 percent of farmers own a tractor, and only 12 percent used machinery services.

Another major challenge is irrigation. Despite the increasing frequency of severe droughts, only 7.3 million hectares of Africa's lands are irrigated, and most of this is concentrated in four countries (Madagascar, Nigeria, South Africa, and Sudan). In fact, across the continent, an estimated 40 million hectares are suitable for irrigation (Burney, Naylor, and Postel, 2013). Again, the issue of farm size is pertinent here – as the adoption of any form of water control by smallholder farmers is extremely low so — according to a study by Sheahan and Barrett (2017), less than 2 percent of the cultivated area and less than 5 percent of households in six representative African countries. At the same time, we know that the gains from investments in irrigation are potentially high, with returns ranging from 17 percent for large-scale schemes to 43 percent for small-scale schemes (World Bank Africa's Pulse, 2022). In addition, issues such as monoculture, lack of crop rotation, and poor soil management are still prevalent across the continent. Poor infrastructure

The gains from investments in irrigation are potentially high, with returns ranging from 17 percent for large-scale schemes to 43 percent for small-scale schemes.

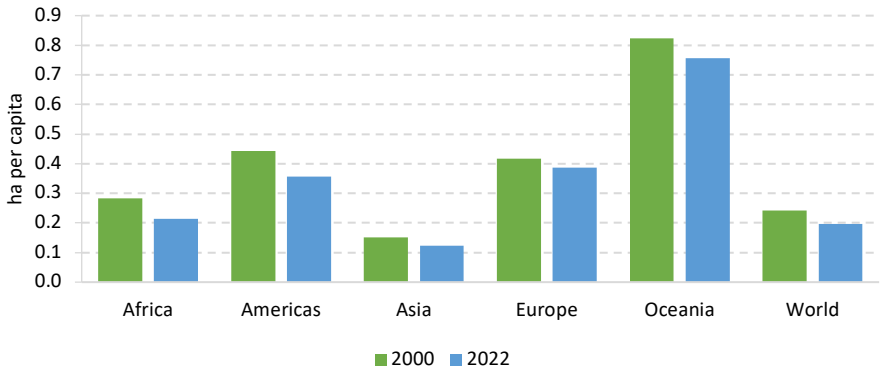
[28] The emergence of more medium-size farms would be helpful, but rural rental markets for machinery services could also help overcome the problem, with tractors rented out either by larger farmers or specialized private agents, as has been done China (Beegle et al., 2019).

in terms of roads, storage, and processing facilities limits access to markets and increases post-harvest losses.[29]

Up to 65% of Africa's productive land is degraded, highlighting the significant challenges the continent faces in terms of land degradation, which is driven by factors such as overgrazing, deforestation, and unsustainable agricultural practices.

All these challenges are compounded by the fact that African farmers have limited access to credit facilities that would enable them to invest in improved agricultural technologies and inputs. Land degradation and poor systems of land tenure, climate change, inadequate investment in agricultural research, and a weak agricultural value chain are also the key challenges to the transformation of African agriculture (AGRA 2022 and Oumou et al., 2022). According to a report by FAO (2021), up to 65% of Africa's productive land is degraded, highlighting the significant challenges the continent faces in terms of land degradation, which is driven by factors such as overgrazing, deforestation, and unsustainable agricultural practices. Finally, while is true that Africa is the continent with most uncultivated arable land, average farm sizes in land-constrained countries in Africa have shrunk by 30–40% since the 1970s, and the average available cropland per capita is only behind that of the Asian continent (**Figure 13**).

Figure 13: Cropland area per capita by region, 2000 & 2022



Source: FAO (2024). FAOSTAT: Land Use.

Some of these challenges are even more pronounced in Eastern Africa. Land availability is more constrained than the African average, and has been declining rapidly (**Figure 14**).[30] For instance, the average farm size in Uganda has fallen since the early 1960s from 3.3 hectares to just 0.9 hectares by 2008 (**Figure 14**). Uganda actually sustains one of the fastest rates of deforestation in the world, having lost 53 percent of its forested land between 1990-2014.[31] As noted in one scholarly article (Jayne et al., 2014), the list of countries with little remaining arable land includes some of Eastern Africa's most

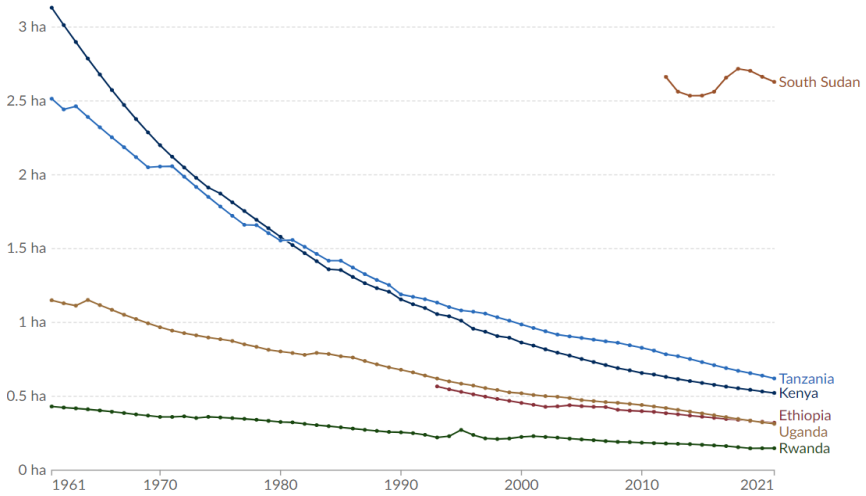
[29] It has been claimed that as much as 40% of food produced in Africa is lost or wasted each year between the farm and the fork (Gustavsson et al., 2011), although other sources put the figure closer to 16% (FAO, 2019).

[30] South Sudan is the major exception to this, with plentiful arable land, combined with a low population density.

[31] This is the third fastest rate in the world, according to the Economist 2018 Pocket World Figures, page 87, behind only Togo and Nigeria.

populous countries (Ethiopia, Uganda) as well as countries where land pressures have contributed in the past to fomenting civil conflicts (Kenya, Rwanda, Burundi).

Figure 14: Agricultural land* per capita, selected East African countries



Source: FAO (2024), extracted from OurWorldinData.org/land-use
*Agricultural land is the sum of cropland and land used as pasture for grazing livestock

Driving this decline in farm size has been the high rate of population growth, with land being divided and sub-divided into smaller and smaller plots, as successive generations claim their part of the family patrimony. Over recent decades, much of Africa's agricultural output growth has come from the expansion of cultivated land, which has been especially fast since the 1990s. This has been driven by population growth and the increase in domestic food prices and has been concentrated in land-abundant countries. But it is not a process which is sustainable over the long run (Headey, 2016). The scope for further agricultural labour productivity growth through farm-size expansion as a way out of poverty thus appears limited. Africa still has surplus farmland, but it is concentrated within relatively few (eight or so) land-abundant countries, some of which are fragile and conflict-affected states (e.g. in Eastern Africa, the Democratic Republic of Congo and South Sudan). Much of the land is also not readily available or economically viable, given poor infrastructure and the presence of human (malaria) and zoonotic diseases (Jayne et al., 2014), though it might be more suitable for large-scale, capital-intensive farming.

The list of countries with little remaining arable land includes some of Eastern Africa's most populous countries as well as countries where land pressures have contributed in the past to fomenting civil conflicts.

Thus Eastern African farming is dominated by small-holder agriculture – and the average size of those farms has been declining over time. This brings to the fore a long-standing debate among agronomists and agricultural economists about whether small-holding agriculture could ever be as efficient as large-scale farming (the famous 'inverse relationship' between farm size and productivity).[32] Some economists have argued that small farms could be more productive than large ones, by dint of the fact that small farms would be worked more intensively and diligently. However, the final consensus opinion is that in most circumstances they cannot - the advantages of large-scale agriculture are just too important – for instance, the application of machinery like tractors and combine harvesters, or infrastructure like irrigation.[33]

There is compelling evidence that a lot of the growth in agricultural production in Eastern Africa since 2000 is accounted for by the medium-scale farms rather than by small-holder agriculture.

Moreover, in Eastern Africa there is compelling evidence that a lot of the growth in agricultural production since 2000 is accounted for by the medium-scale farms rather than by small-holder agriculture (Jayne et al., 2014). In Tanzania medium-sized farms now account for roughly 40% of the country's marketed agricultural produce. By contrast, in land-constrained, densely populated areas like parts of Kenya, Burundi and Rwanda, small-scale farms still account for most of the agricultural output. Consistent with this story, Kenyan panel surveys showed that between 1997 and 2007, 'households moving out of poverty more than doubled their landholding size and cultivated 70% more land in 2007 than in 1997' (Muyanga et al., 2010).[34]

Medium-scale farms are thus on the rise mainly where there is substantial, undeveloped land. Indeed, Jayne et. al. (2014) speculate that possibly the only successful example of smallholder-led agriculture development in the region is Ethiopia, where country registered 6.0% real average annual agricultural production growth from 2000 to 2015, made possible by strong government support for smallholder farming, including improved infrastructure, agricultural R&D, extension support, diverse farmer support services such as soil testing. Reflecting these stylised facts, Collier and Dercon (2014) suggest that the solution resides in a change in policy emphasis:

> *"Development strategies need to shift emphasis and resources away from small farmer (and small trader) models and open up new forms of commercialization…it will require the creation of opportunities for serious, larger scale commercial investment in agriculture, and hybrid models in which smallholders interact with larger farmers and vertically integrated enterprises upward in the value chain. African smallholders have not chosen to be entrepreneurs, they are in this activity by default. Having the single most important sector of Africa's economies*

[32] Reference the discussion in de Janvry's textbook.

[33] It is also often claimed (including by FAO) that smallholder farmers produce 70-80% of the world's food. But the claim has been disputed, essentially on the grounds that it confuses 'family farms' with 'smallholder farms'; family farms do indeed, produce around 80% of the world's food. But these farms can be of any size and should not be conflated with smallholders. Recent research finds that smallholder farmers produce around only one-third of the world's food (Richie, 2021). On the inverse relationship, see Helfand and Levine (2004), Barrett et al. (2010), Helfand and Taylor (2021).

[34] There is an important caveat to this finding, however. Larger farm size usually go hand in hand with crop diversification and commercialisation. In a Kenyan study (Kristjanson et al., 2010), among the reasons given for graduation out of poverty, only 23% of households cited increased land under cultivation, compared to 49% who cited crop diversification or commercialisation. In the zone with low potential for crop production, one-half of the households moving out of poverty attributed this to crop diversification away from maize to higher-value crops.

> *almost exclusively run by these reluctant micro-entrepreneurs is a recipe for continued divergence of the sector from global agricultural performance, limiting growth and unlikely to help large scale poverty reduction. A renewed focus on agriculture as a dynamic sector with potential for commercialization is necessary, if only to contribute to urgently needed economic transformation and a shrinking of the labour force dependent on agriculture."*

The debate among experts has also now shifted towards creating more off-farm employment in rural areas, but not keeping people indefinitely dependent on agriculture.[35] China tried to keep part of its rural population from travelling to the cities – under the Hokou system, rural inhabitants were even issued with 'passports' that did not allow them to move freely towards the urban centres - but keeping people in the countryside has rarely worked over the long run. Surprisingly perhaps, even the most productive middle or high-income economies 'specialising' in agriculture have very low shares of the population dependent on these activities - in Brazil it is just 9% of the population, in New Zealand, 6%, and in Canada and Argentina, just 2% and 1%, respectively (Roser, 2023).

"African smallholders have not chosen to be entrepreneurs; they are in this activity by default. Having the single most important sector of Africa's economies almost exclusively run by these reluctant micro-entrepreneurs is a recipe for continued divergence of the sector from global agricultural performance." (Collier & Dercon, 2014).

In addition, in Eastern African economies, agriculture is almost invariably a lagging sector, sustaining a growth rate significantly below that of manufacturing or services. Needless to say, the sector is also highly vulnerable to climate change, droughts and flooding, and thus even with significant investments in irrigation, fertilisers and inputs, it is not going to become the 'lead sector'. So, if the ambition is for the economies in Eastern Africa to attain high rates of growth in per capita incomes, then really the only choice is to facilitate a smooth but rapid shift of the workforce out of subsistence agriculture. The fact that urban areas are not generating sufficient employment opportunities to soak up the influx of population from rural areas is a serious problem, but it is a different one – revealing the lack of dynamism in manufacturing and the inability to create higher value-added service employment.[36]

Despite these challenges, there are also many opportunities for improvement. Africa's agriculture and agribusiness are projected to be a USD1 trillion industry by 2030 (World Bank, 2013). With greater urbanization and rural income diversification, more people will be buying rather than producing food (Davis et al., 2017). Together, these trends signal favourable domestic market conditions to exploit agriculture and agribusiness to create more jobs and accelerate poverty reduction (Beegle et al., 2019). But this positive outcome is conditional on the adoption of the right policies and the necessary accompanying financial resources. In the next section, we turn to one specific but crucial element in this – trade policy.

[35] See, for instance, OECD (2018).

[36] See McMillan et al. (2014).

5: The (Complex) Links Between Food Trade and Food Security

The standard narrative on trade is that it can play a significant role in empowering African food systems through enhancing the availability, access, utilization, and stability of food supplies (World Bank, 2020; AGRA 2022). In theory, greater agri-food trade can contribute to food security in a number of ways. It can:

- Balance food deficits and surpluses across countries, improve availability of diverse foods, and contribute to price stability.
- Encourage the production of a more diverse range of crops, which can lead to improved nutrition and food security.
- Diversify food production by reducing dependence on a single crop and make food systems more resilient to shocks such as drought or disease.
- Provide an important mechanism role in pooling the risks associated with production shortfalls by moving food from surplus to deficit areas.
- Help stabilize food prices by balancing supply and demand. This is simply because demand is more elastic on the international market and production shocks average out over many dispersed areas contributing to a greater aggregate supply.
- Stimulate economic growth by enabling farmers to sell their products in wider markets, both within and beyond national borders. This can lead to increased income for farmers, which can be reinvested in farming practices to increase productivity.

Price spikes on the world market (notably in 1973-1974, 2006-2007 and, most recently, 2022-2023) have shown that openness to world markets can also generate greater, not less, price instability.

Yet the relationship between trade and food security is more complex than commonly understood (D'Odorico et al., 2014). International trade does not *automatically* support food systems to become more sustainable and can also have negative ramifications. Lending some weight to the sceptics' case, an econometric analysis by Mary (2019), using data from 52 low and middle-income developing countries between 1990 and 2013, found that a 10% increase in food trade openness increases the prevalence of undernourishment by about 6%. Moreover, food price spikes on the world market (notably in 1973-1974, 2006-2007 and, most recently, 2022-2023) have shown that trade openness can generate greater, not less, price instability (de Janvry and Sadoulet, 2021).

Recent volatility in global food markets has brought to the fore renewed interest in food security and how best to achieve it. In a seminal paper on the topic, Sen (1981) emphasized that food insecurity was not so much caused by insufficient food production but rather was dependent on people's access to food, and if their purchasing power or access to food was somehow disrupted, people could starve even in circumstances where there were no food shortages. Sen's proposition was an intriguing one, but his position was challenged vigorously by some authors (e.g. Nolan, 1993), who stressed that in the vast majority of cases localised production failures were still the main cause of food insufficiency

and famine. In consonance with this viewpoint, agronomists and economists have started to focus again on local food sufficiency and availability.[37]

Broadly speaking, two distinct strategies can be identified to achieve a country's food security. One is through pursuing **national food self-sufficiency** whereby food availability is obtained solely from domestic resources. Few countries in practice implement such a strategy in a pure sense, although of all the countries in Eastern Africa, Eritrea is probably the country which most closely adopts such an approach.[38] The other is **national food self-reliance**, whereby trade is used to access part of the food consumed, by exporting cash crops in exchange for the import of staple foods to complement domestic supply. When using trade for self-reliance, variable tariffs, taxes and subsidies are often used to stabilise domestic prices (De Janvry and Sadoulet, 2021). In this report, we propose another approach, and that is by defining food self-reliance on a regional basis – **regional food self-reliance**. As we move towards a more integrated continental economy, it makes sense to increasingly see food security in collective terms, as something to be achieved on a regional or sub-regional level.

As we move towards a more integrated continental economy, it makes sense to increasingly see food security in collective terms, as something to be achieved on a regional or sub-regional level.

Trade policy can be leveraged in different ways to achieve different objectives – albeit in ways which are not always consistent. To protect their producers, importing countries often impose import tariffs when prices fall and use the tariff revenues to subsidize consumers when prices rise. During the food crisis of 2011-12, for example, Egypt and Tunisia used this approach to keep domestic prices low.[39] Another example is Kenya's recent (September 2024) ban on imports of sugar from outside COMESA and EAC, in the face of improved domestic production. A further example from Eastern Africa is the request of Rwandan rice producers in November 2024 to restrict rice imports so that local producers can supply at least 40 percent of the market.[40]

In practice, implementing these measures is challenging. The setting of price bands can often be politically charged. Support prices may end up disconnecting producers' responses from long-term international price changes, and the significant redistributive effects can lead to rent-seeking behaviour. Additionally, the very act of reducing fluctuations in domestic markets by high-income

[37] See Foley et al. (2011); Cassidy et al. (2013); D'Odorico et al. (2014).

[38] Despite having limited resources, Eritrea has been making significant efforts to achieve food self-sufficiency. The government has implemented various agricultural initiatives, such as constructing micro-dams, investing in modern agricultural equipment, and introducing advanced farming techniques like drip-water irrigation. These efforts have shown promising results, and Eritrea is close to becoming self-sufficient in food production. See Abdisamad, 2022.

[39] An example of this are the persistent criticisms directed at the European Union's long standing 'Common Agricultural Policy'. See Mold (2007).

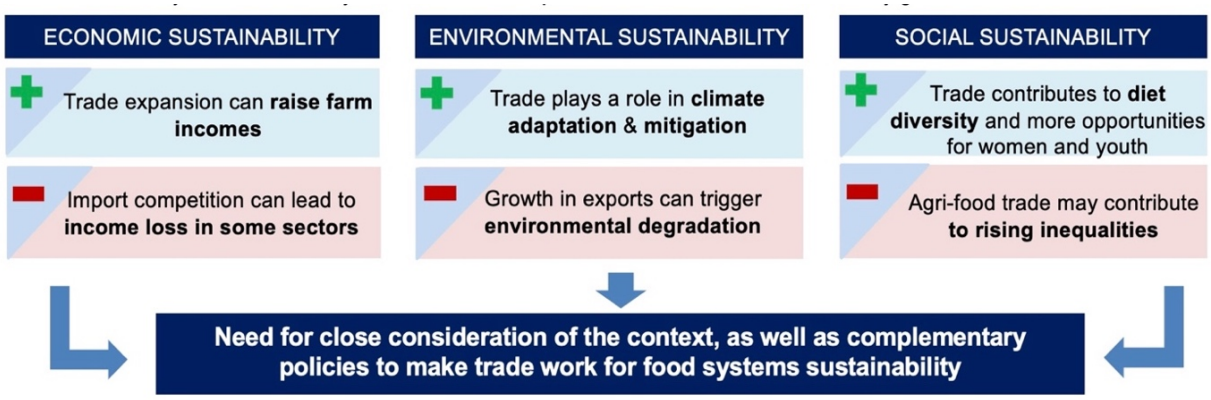
[40] Domestic rice production in Rwanda has been increasing – it went up by 63 percent under the first phase of the National Rice Development Strategy (from 2010-2018). But this still proved to be insufficient to keep up with growing demand, with consumption going up by 76 percent over the same period. So although yields are improving, rice imports from neighbouring Tanzania, Pakistan and India are still cheaper. See Gahigi (2024), The East African, 30th November-6th December, p. 5.

countries can lead to increases in volatility in the world market, which in turn can severely impact other poorer, food-dependent countries (De Janvry and Sadoulet, 2021: p. 214).[41] As shown by Gouel and Jean (2012), the most effective food price stabilization strategy for a country tends to consist in an optimum combination of better storage and trade policies.[42]

Trade can play a role in both adaptation to and mitigation of climate shocks, thus improving environmental sustainability. Under transparent and predictable trade policies, food trade can function as a reliable source of food in face of local disruptions in production.

Another way of understanding the different dimensions of food security and how trade policy can affect food-system sustainability is by distinguishing between three different dimensions of the impact – the *economic*, *environmental* and *social* (**Figure 15**). While it is true that increased food trade under a liberal trade regime may raise farmer incomes (both because of new export opportunities and through productivity gains from greater access to imported inputs), at the same time, increased competition in import-competing sectors can lead to income losses for other economic actors, thus undermining economic sustainability.

Figure 15: Stylised impacts of trade on economic, environmental and social sustainability.



Source: Paracha (2024).

Conversely, trade can play a role in both adaptation to and mitigation of climate shocks, thus improving environmental sustainability. Under transparent and predictable trade policies, food trade can function as a reliable source of food in face of local disruptions in production.[43] Yet an

[41] Kenya produced about 700,000 metric tonnes of sugar annually from 16 factories over the past 4 years, with production peaking at around 800,000 metric tonnes in 2022. But production was negatively affected in 2023 by drought, and so imports were opened up from outside the EAC and COMESA regions (Xinhua, 2024)

[42] The managing of public food stocks can also be thwart with political challenges. In some cases, excessively high levels of stocks are maintained to benefit producers. In other instances, insufficient stocks are accumulated due to their fiscal costs (a common error prior to the 2006-2007 food crisis) (De Janvry and Soudalet, 2021: 219).

[43] Trade can also work as a means for the reallocation of factors of production to producers that are more efficient and produce with less GHG emissions.

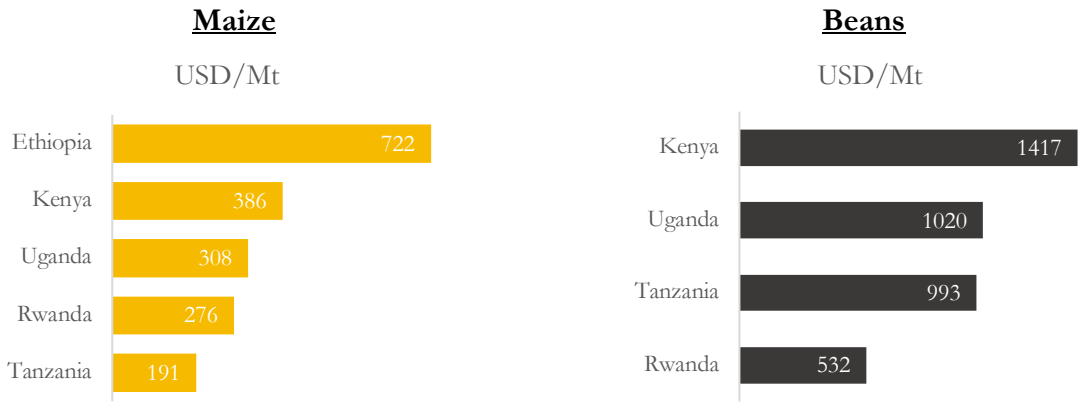
intensification of farming due to new export opportunities may also incentivize environmental and soil degradation, as well as de-forestation. Finally, while rising incomes from agri-food exports may foster desirable social outcomes (e.g. greater gender equality and more diverse diets), trade can contribute to rising inequalities within countries since some sectors win and others lose. We can conclude that the overall impact of trade and trade policy on the sustainability of food systems may be very context specific, and that complimentary policies are often necessary (Paracha, 2024).

The issues are therefore not straightforward and depend on a complex interplay of factors. But even bearing in mind these caveats, there is some *a priori* evidence that food security in East Africa could benefit from greater intra-regional food trade. To take just one aspect of the above framework, large and sustained price variations within the region for some commodities suggest a greater scope for smoothing consumption and prices through greater regional trade.

For instance, **Figure 16** presents the national average price spreads for maize across select East African Countries. Maize in Ethiopia in June 2024 was selling USD 722/ton, nearly 4 times the price in Tanzania, at USD 191/ton in the retail markets. Pointedly, Ethiopia is not a member of the East Africa Community, and nor does it fully apply COMESA tariff reductions, so imports from neighbouring countries tend to heavily taxed.[44] But even within the EAC, there seem to be considerable frictions to intra-regional trade. For instance, Kenya's beans (yellow-green) price maintains the highest price in the region at USD1,417/Mt compared to the cheapest recorded from Rwanda at USD532/Mt (**Figure 16**).

Ethiopia is not a member of the East Africa Community, and nor does it fully apply COMESA tariff reductions, so imports from neighbouring countries tend to heavily taxed…Maize in Ethiopia in June 2024 was selling USD722/ton, nearly 4 times the price in Tanzania, at USD191/ton in the retail markets.

Figure 16: National average price spreads across select East African countries, June 2024



Source: AGRA (2024), Food Security Monitor, Edition 48, June 2024

[44] Nominal rates of protection in agriculture are reported by Gebheiwot (2016:238) at over 30 percent.

Clearly, if the markets were better integrated, such large (and prolonged) price differentials would not persist. That said, there is already plenty of evidence of intra-regional trade in food stuffs buffeting the region from some of the worse effects of climate change and other food production shocks, for example the large transhipments of maize to neighbouring Kenya during the drought of 2022-23. We will delve deeper into the intensity of existing regional trade in agricultural produce in the coming sections.

Eastern Africa is very large, and rarely do the shocks impact whole countries, let alone the whole region. Reflecting the different climatic and agroecological conditions within the EAC, there is very little evidence of correlation between total agricultural production between EAC member states.

The arguments related to smoothing consumption through higher intra-regional trade are also supported by the low correlation of agricultural GDP growth rates among EAC countries (**Figure 17**). Climate- related shocks do at times hit the region's economy concurrently – witness for example the prolonged drought in the Horn of Africa referenced at the beginning of this study. But Eastern Africa is very large, and rarely do the shocks impact whole countries, let alone the whole region.[45] Reflecting the different climatic and agroecological conditions within the EAC,[46] there is very little evidence of correlation between total agricultural production between EAC member states for which quarterly data is available (**Table 2**).[47]

Figure 17: Quarterly growth rates of agricultural GDP, 2019Q1-2023Q4

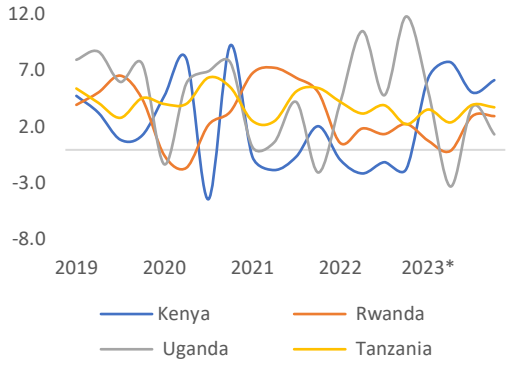


Table 2: Pearson's correlation matrix for agricultural quarterly GDP growth, 2019-2023

	Kenya	Rwanda	Uganda	Tanzania
Kenya	_	-0.37	-0.23	0.06
Rwanda	-0.37		0.00	-0.01
Uganda	-0.23	0.00		0.14
Tanzania	0.06	-0.01	-0.02	

Sources: For Kenya, KNBS (June 2024), for Rwanda, NISR, for Uganda and Tanzania, Central Banks and ECA calculations

[45] An example would be Western Equatoria in South Sudan, which in 2023 reported a 38% increase in agricultural production due to a good harvest, even while the rest of the country was struggling with extreme food insecurity. For regular assessments of food insecurity on a regional national and sub-national basis, see the AGRA Food Security Monitor reports.

[46] Including the new member states (DRC and Somalia), the EAC has a land area of 5.4 million square kilometres, and many topographic and climatic contrasts.

[47] The accuracy of the quarterly value-added data for the agricultural sector notwithstanding.

More coordinated trade strategies could thus enhance regional food security, while minimizing the risks linked to external dependences. A good step in the right direction was the announcement in June 2024 by Kenya's Treasury Cabinet Secretary, Njuguna Ndung'u, to remove the 25% excise duty on imported eggs, potatoes, and onions from EAC partner states, with the aim of promoting intra-trade within the region and addressing the high prices of these products in Kenya.[48] Before entering into the details of regional food trade, however, we begin with an overview of the patterns of food trade at a continental level. At a time of continental trade integration under the AfCFTA, it is important to see Eastern Africa's potential in food production and trade in this wider context.

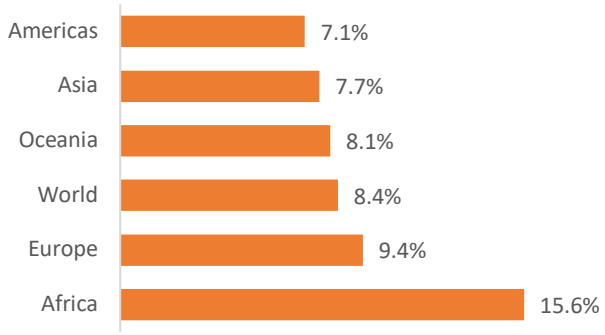
[48] The East African (2024), "Kenya to drop excise duty on eggs, onions from EAC."

6: Agri-trade Dynamics in Africa: Assessing the Current Landscape

Africa has become one of the most food-import-dependent region in the world, spending about 16% of its import expenditures on food and agricultural commodities, against the world average of 8%.

Given its abundant agricultural resources, Africa clearly has the potential to fully meet its own food demand through enhancing agricultural productivity and increasing intra-regional food trade. Yet the continent still faces multiple constraints that affect the sector's productivity, as explained in the previous sections. Consequently, the continent relies excessively on food and fertilizer imports to feed its population (UNDP, 2022). Indeed, over time Africa has become one of the most food-import-dependent regions in the world, spending about 16% of its import expenditure on food and agricultural commodities, against the world average of 8% (**Figure 18**).

Figure 18: Food imports (% of merchandise imports) average 2017-2021



Source: ECA calculations using UNCTAD database (2023)

While the continent exports large volumes of tropical commodities such as cocoa, coffee, tea, and cotton, it imports staple crops such as wheat, rice, soybeans, and meat products. Import dependence is particularly striking for basic foodstuffs such as cereals, vegetable oils, sugar, meat and dairy products.

This dependence on imports of food crops is partly attributable to the export-oriented nature of some segments of African agriculture, a legacy from colonial times (Roessler et al., 2022). Thus, while the continent exports large volumes of tropical commodities such as cocoa, coffee, tea, and cotton, it imports staple crops such as wheat, rice, soybeans, and meat products. Import dependence is particularly striking for basic foodstuffs such as cereals, vegetable oils, sugar, meat and dairy products. Most imports are sourced from outside the region (e.g. wheat, sunflower oil and dairy products from Europe; rice and palm oil from Asia; maize, poultry and beef from Latin America) (**Table 3**). The dependence on extra-regional imports of food makes African countries vulnerable to disruptions in international logistics and distribution, as was painfully evidence during

the COVID-19 pandemic and also as a consequence of the disruption to global cereal supply caused by the Russian/Ukraine conflict.

Table 3: Africa's sub-regional import dependency ratios (percentage)

	AFRICA TOTAL	NORTHERN AFRICA	EASTERN AFRICA	CENTRAL AFRICA	SOUTHERN AFRICA	WESTERN AFRICA
Vegetable oils	71	78	86	44	74	60
Cereals, excluding beer	33	54	19	34	32	24
Meat	12	8	2	34	16	13
Milk, excluding butter	9	14	2	9	10	9
Pulses	8	52	5	5	42	1
Oil crops	7	29	2	0	14	1
Vegetables	3	1	4	5	11	5
Fruits, excluding wine	3	4	2	1	15	2
Eggs	2	0	3	40	1	3
Starchy roots	0	4	0	5	5	0

Source: AUC & FAO Framework document (2021)

In assessing the impact of rising food imports on well-being and economic sustainability, the issue of price volatility on international markets comes to the fore. An excessive dependence on imports can induce vulnerability to sudden shifts in international prices. Research suggests that global price increases of staple foods brings a near one-to-one increases in the sales prices of highly imported staples, albeit often with lags. On average, the pass-through is estimated at 0.97 in countries that import at least 75 percent of their staples' consumption (e.g. Kenya, Madagascar and Tanzania) although the pass through tends to be much smaller pass through (0.19) in countries with a higher share of domestic production (IMF, 2022). Because highly imported staples account for a quarter of daily caloric consumption, a strong pass-through of global food price spikes to local staple food prices can hamper access to and consumption of nutritious staple foods for many households. Some studies (e.g. Emediegwu and Rogna, 2024) put the rate of pass-through even higher, with wheat prices having the highest total amount of pass-through effect from international price shocks (1.5.), followed by rice (1.38), and maize somewhat lower at (0.82).[49]

Global price increases of staple foods brings a near one-to-one increases in the sales prices of highly imported staples, albeit often with lags. On average, the pass-through is estimated at 0.97 in countries that import at least 75 percent of their staples' consumption (e.g. Kenya, Madagascar and Tanzania).

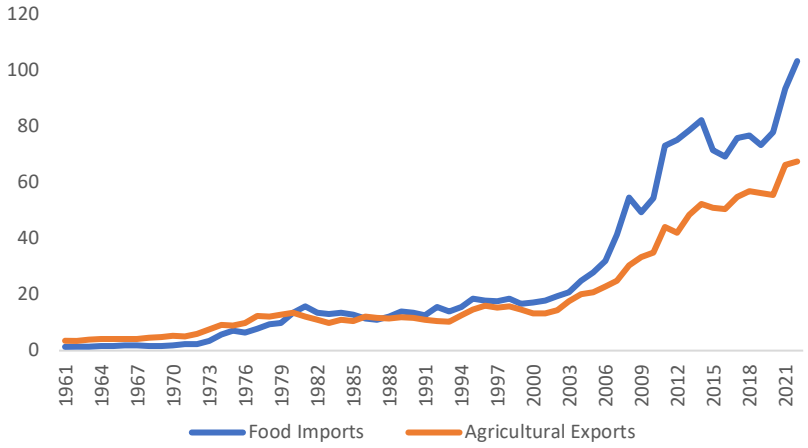
[49] Notably, the authors find that sorghum is an exception, where there is little evidence of pass-through. The authors speculate that one possible explanation for the different behaviour of the price of sorghum is due to the fact it is scarcely

Africa's rising food import bill signifies a missed opportunity for accelerating poverty reduction through food import substitution (Beegle et al., 2019). While not all African countries should become self-sufficient in staples (especially not when needed as feed grains), much scope remains for improving food security and reducing poverty by raising staple crop productivity as a first step. However, there are some important caveats to be made here, and we will unpack further the food trade balance for the continent and the East African region in the next section.

6.1 Unpacking Africa's food trade balance

Africa's food trade deficit is usually expressed in alarming terms, but often without a sense of proportionality. It is true that Africa has shifted from a net food exporter to a net food importer. This trend was first observed in the 1970s, but one that has gained momentum since the early 2000s (FAO, 2011). While exports have been growing at a compound annual growth rate of 4 percent over the last two decades (1996–2016), this has been outpaced by the annual growth in imports, which was 6 percent over the same period. Africa is thus becoming increasingly dependent on imports (AUC & FAO, 2021) (**Figure 19**).

Figure 19: African aggregate food imports, vis-à-vis agricultural exports, (billions USD) 1961-2022



Source: FAOStat (2024)

However, several countervailing trends and caveats need to be born in mind when assessing the economic implications of these statistics:

- Rapid population growth in recent decades has inevitably increased the demand for food at a continental level: the African population has increased by more than 80% since 2000.[50] Imports have risen correspondingly in response to the surge in demand.

used as food for human consumption in high- and upper-middle-income countries (except for a marginal use in gluten-free products for coeliacs). Its main use is as animal fodder in industrialized countries, whereas it is a staple food in several developing nations, where roughly 80% of world production is located (Hariprasanna and Rakshit, 2016).

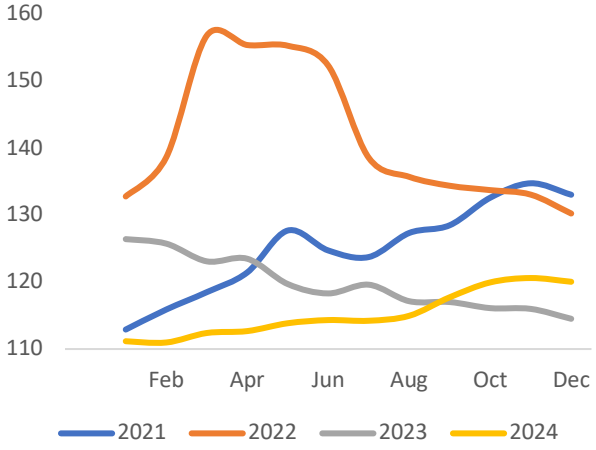
[50] In 2000, the population was approximately 819 million. By 2024, it has increased to nearly 1.5 billion. This represents a growth of about 681 million people over the past 24 years. Africa's population growth rate has consistently been over 2.3% annually since 2000, peaking at 2.6% between 2012 and 2013.

- At the same time, African GDP has also expanded considerably since 2000, expanding by 40%. Hence the affordability of imports has generally improved over the intervening time.
- Rising food imports do not have to pose an issue if they can be financed by other exports.[51] As we shall go on to explain, many Eastern African countries are heavily dependent on the export of cash crops, which can help finance food imports.
- The reported figures on aggregate food trade at a continental level are often calculated by simply aggregating the food trade balances of individual member states. But this does not take into account the intra-African trade component, and so can provide a misleading impression about food security at a continental level.
- Given the inherent differences in agro-ecological zones that affect production potential across the continent, when disaggregated by subregion, the traded volumes as well as the net trade position can differ quite substantially. In fact, there is a lot of sub-regional variability in the net food trade balance.
- Finally, prices have risen markedly for international food stuffs over the last two decades. According to the IMF's International Food Price Index, by April 2024 real food prices were nearly 2.5 times higher than they were in January 2000. FAO statistics show an increment of a similar magnitude (**Figure 20**). Thus, it is hardly surprising that the value of the food import bill has increased. Moreover, although food price rises deaccelerated markedly in 2023, in 2024, upward pressures resumed (**Figure 21**).

Figure 20: Real food price index, 2000-2024*

Source: IMF (2025) *2000=100

Figure 21: Monthly food price index, 2021-2024*



Source: FAO database (2025) *2014-1016 average =100.

[51] See Collier and Dercon (2014); Rakotoarisoa, Iafrate, and Paschali (2012).

Preliminary data for 2023 reveal a marked improvement in Africa's food trade balance, with a 40% decline in deficit (to USD 23.2 billion). Remarkably, this improvement in the food trade balance went largely unnoticed and runs counter to the standard narrative of an inexorable increase in food imports.

Revisiting the figures in light of these points, in **Figure 22** we first removed the intra-African component of African food trade, and calculated food exports, imports and deficit for the African continent with the rest of the world.[52] Imports display quite a significant degree of volatility, while the growth of exports has been more stable. Imports to the continent surged in 2021-2022, and as a result, the net deficit by 2022 stood at USD -38.6 billion. However, preliminary data for 2023 reveal a marked improvement in Africa's food trade balance, with an increase in exports by 12% while food imports declined by 9%, leading to a 40% decline in deficit (to USD 23.2 billion). Remarkably, this improvement in the food trade balance went largely unnoticed and runs counter to the standard narrative of an inexorable increase in food imports. Indeed, as reflected in **Figure 23**, when looking at the imbalance as a % of GDP, the severity of the current imbalance looks less alarming still – just -0.8% of GDP, a situation similar to where it back to the 2000s. The lesson here is that we must be careful of inferring an ever-deteriorating food trade balance from nominal values, or without making the proper adjustments.

Figure 22: Africa's food trade with Rest of World, billions USD, 2000-2023

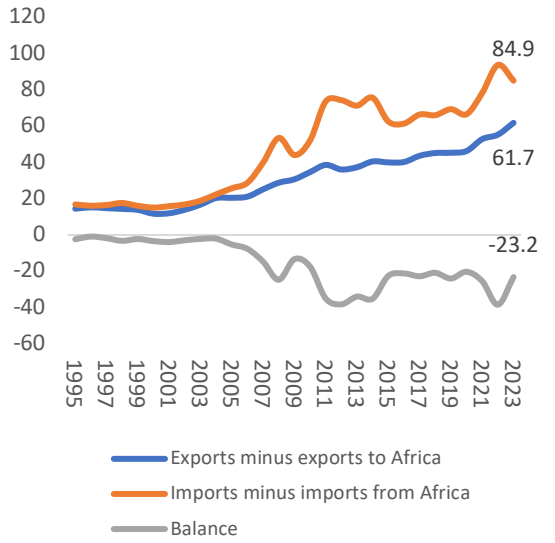
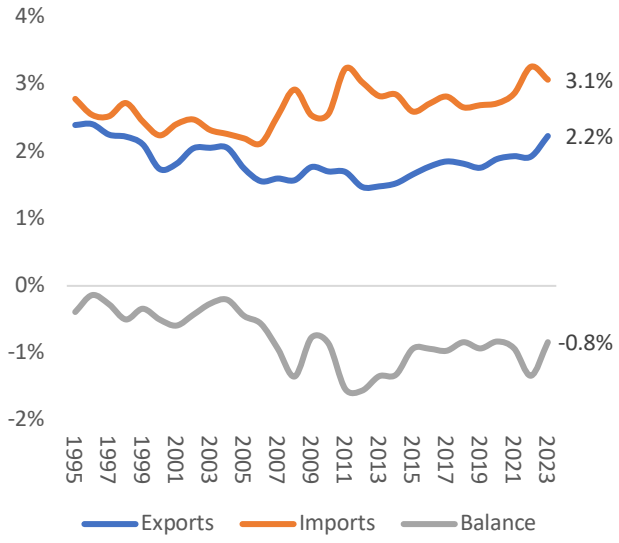


Figure 23: Africa's food trade with Rest of World, (as % of GDP), 2000-2023



Source: ECA Calculations from UNCTADStat data (2024)

[52] The definition of food trade adopted here is a comprehensive one, which includes food and live animal, beverages and tobacco, oil seeds and oleaginous fruits, and animal and vegetable oils, fats and waxes (SITC 0 + 1 + 22 + 4). See **Annex 1** for a more detailed explanation.

Another important dimension to assessing the African food trade balance is the regional breakdown. Overall, Northern Africa is a significant and growing net importer (**Figure 24**): the continent's net food imports are largely dominated by three countries in Northern Africa: Egypt, Algeria, and Libya. These three countries alone account for more than 80% of the continent's net food imports on average between 2017 to 2021 (AUC & FAO, 2021). Other significant net food importers in Africa include Nigeria, Angola, and DRC. On other hand, the region's lower-middle-income countries, led by Côte d'Ivoire, South Africa, and Ghana, have become food export powerhouses, with an average net food trade surplus of USD 5 billion, 3 billion, and 2 billion, respectively, between 2017 to 2021. Other significant net food exporters in Africa include Tanzania, Uganda, and Zimbabwe (**Figure 24**). From a sub-regional perspective, Central and Western Africa are also net importers, and Southern Africa has been close to parity between imports and exports. And what of the aggregate food trade balance for Eastern Africa? It is to that topic that we now turn.

Africa's net food imports are largely dominated by three countries in Northern Africa: Egypt, Algeria, and Libya. These three countries alone account for more than 80% of the continent's net food imports.

Figure 24: Net food trade balance, average 2017- 2021 (USD Millions)

Source: ECA calculations using UNCTADStat (2023)

6.2 From Net Exporter to Net Importer? Eastern Africa's Food Trade Balance in Perspective

Eastern Africa's food trade balance[53] is captured in **Figure 25**, expressed both in per capita terms and as a % of GDP. The figures are adjusted to discount the existing intra-regional trade between the 14 Member States of Eastern Africa. So, in effect, the trade being measured is with the rest of the world, i.e. outside Eastern Africa. If we consider food security as a collective regional responsibility, it is arguably a better way of viewing the statistics.

The thing that stands out from the statistics here is that Eastern Africa has only recently become a net-deficit region. It can be appreciated that the region enjoyed a food trade surplus right up to around 2011, and thereafter there was a period of balanced and/or small deficits. Deficits became more pronounced since 2019, just before the global pandemic. The largest deficit was registered in 2022, at around USD 2.2 billion, against the backdrop of the global food price spike. But it diminished in 2023 to USD 1.3 billion. In per capita terms, food imports rose from around USD 19.5 in 2019 to nearly USD 27 in 2022. Affordability of food in a region where 9 out of the 14 countries are classified as low income is of course a key determinant of food security.

The net food trade balance for the region might be interpreted as providing some solace to regional policy makers, in the sense that with the right policy measures, it may be possible for Eastern Africa to become a net exporting region once again.

However, it is also worth stressing the extent to which Eastern African economies have grown over the last three decades, and hence in macroeconomic terms at least, the affordability of imports has improved since around 2012, when food imports cost around 3.8% of GDP. They now cost 2.5% of GDP, and the net food trade deficit represents just 0.3% of regional GDP. Eastern Africa has also experienced a large demographic expansion since the 1990s.

The figures might be interpreted as providing some solace to regional policy makers, in the sense that with the right policy measures, it may be possible for Eastern Africa to become a net exporting region once again. Buoyant preliminary agricultural export data in several countries in 2024 would lend some credence to such a statement.[54] What is clear from these statistics is the extent to which exports as a % of GDP have fallen since the mid-1990s. In other words, rather than an abnormal rise in imports, Eastern Africa's food security seems to have been undermined more by the failure of food exports to keep pace with the expansion of the rest of the economy.

[53] The food trade data here includes tropical beverages (tea and coffee) in the statistics, which are major exports of the Eastern Africa region.

[54] For example, in 2024, Uganda's coffee exports went up in 2024 by 40% and Tanzania experienced a large surplus of maize.

Figure 25: Eastern African food trade, billions USD, per capita USD and as % of GDP, 2000-2023

Source: ECA, elaborated from UNCTADStat data (2024)

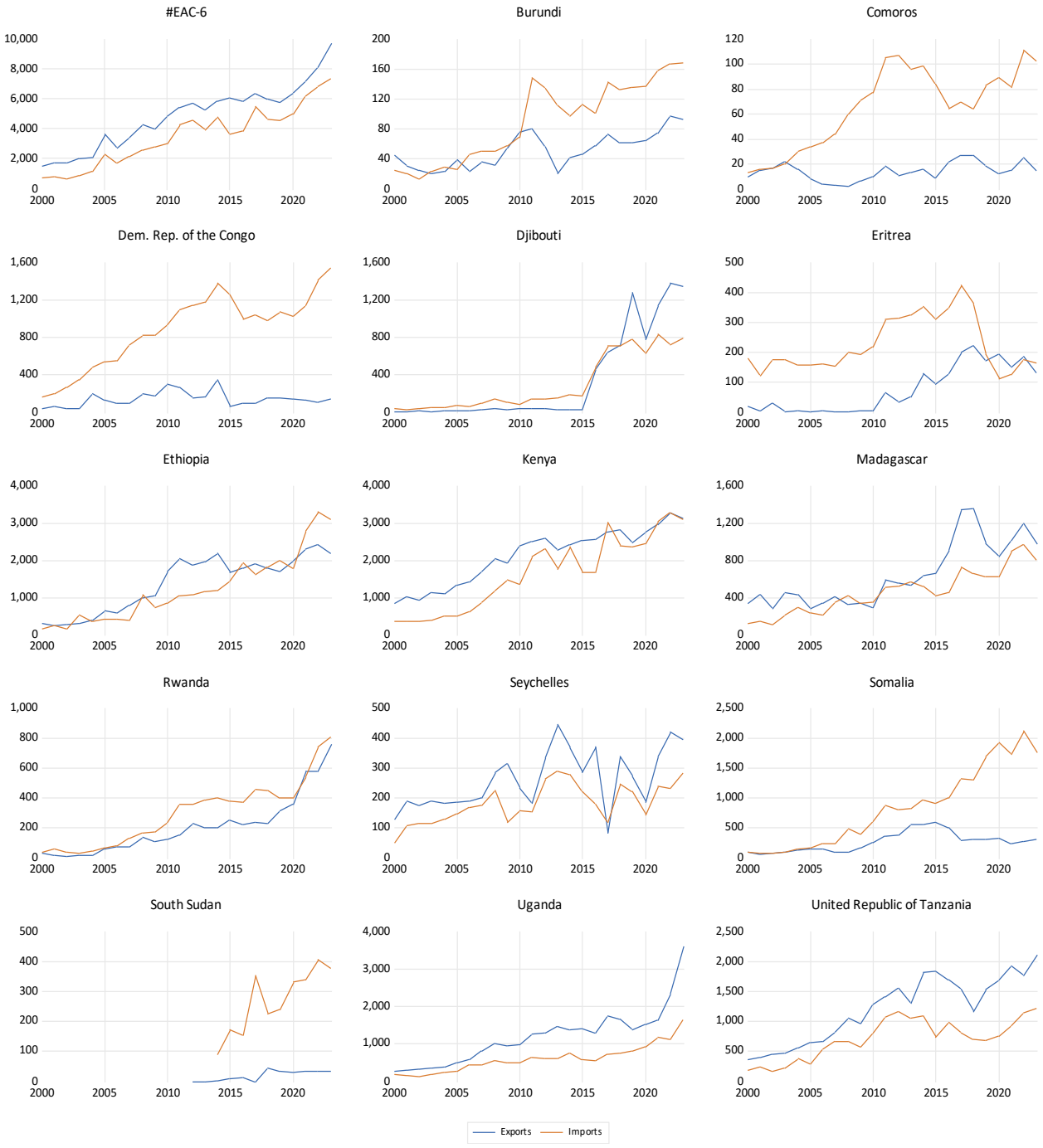
Finally, **Figure 26** shows the disaggregated statistics by country, with regard to the scale of both exports and imports. It also shows the aggregation for the East African Community (EAC-6) countries[55], duly removing the intra-EAC trade component. Notably, it is clear that the Eastern Africa deficit is driven by the two largest food importers in the region – the Democratic Republic of Congo and Somalia. It can be appreciated that in most countries in the region, the size of the food trade deficit has risen substantially since the mid-1990s. Of the 14 countries of the sub-region, 9 countries are net importers, although some of these are only marginally so. Among the net exporters are Madagascar, Seychelles,[56] Tanzania and Uganda. Djibouti is also classified as a net exporter – however,

[55] The EAC 6 include Kenya, Uganda, Tanzania, Burundi, Rwanda and South Sudan, but does not include the newest member states the Democratic Republic of Congo (2022) and Somalia (2024). This is in order to keep a constant membership of the regional bloc, so that adding new members does not distort the figures.

[56] Madagascar and Seychelles are interesting cases, because their cash-crop exports (vanilla in the case of Madagascar, and fish in the case of Seychelles) are sufficient to tip the countries into a food trade surplus, despite a heavy dependence on food imports.

this is probably due to a misrepresentation of the data – and the fact that re-exports of food to neighbouring Ethiopia are incorrectly classified as exports (see **Box 1**). Kenya and Ethiopia are two countries which have tended to have balanced food trade or small surpluses in the past, but since the period of the pandemic both countries have tipped into in the red.

Figure 26: Eastern Africa's food exports and imports, 2000-2023, millions USD



Source: ECA elaboration, from UNCTADStat data (2024).

Box 1: Dealing with data inconsistencies on food trade

An issue to raise here is the accuracy of the agricultural and food trade data that is available through both international databases (ITC TradeMap/UNCTADStat/COMTrade, etc) and also through national databases. This is even more the case when we consider directional trade data, e.g. when the data is disaggregated by destinations. One key challenge is the extent to which re-exports get mixed up with export data.

We refer in Section 6.2. to the problems with the case of Djibouti, where re-exports are clearly being misclassified as domestic exports, given a false impression of the country's comparative advantage in food crops. Another example is Seychelles. UNCTADStat data for 'all food trade' shows a balance for exports and imports in recent years, due essentially to the high value of fish exports. While the scale of fish exports is not in dispute, government sources show a heavy dependence on imported foodstuffs which is not offset by the fish exports.

To some extent, discrepancies in trade data are to be expected. There is a host of reason why such discrepancies occur – including data being misclassification of goods, deliberate under or over reporting of exports (transfer pricing), data that is collected over different time frames, the time goods spend in transit, etc. It may also reflect limited data collection capacities. But the scale of the discrepancies can lead to false conclusions and policy recommendations. Kaushik & Mitikj (2024) document the case of discrepancies in Madagascar and French bilateral trade balance, where in 2015 Madagascar reported a trade surplus of USD 253 million with France while France's accounts for the same period indicated a much smaller surplus of just USD 84 million.

One way of minimizing such discrepancies is through greater investment in data collection. Of particular relevance to this study is a proposal by McKinsey (2024), who advocate for investments in creating an African food balance sheet to improve the continent's control over food and agricultural systems. We will elaborate on this point further in the conclusions to this study.

An alternative – and more sobering - perspective on food trade balances is provided by analysing the calorific trade balance.[57] From this optic, only five countries on the whole continent – and only one in Eastern Africa- have a positive calorific trade balance: Mauritius, Côte d'Ivoire, Zambia, Malawi, and Uganda. Another Eastern African country - Djibouti - is the country with the largest deficit in kilocalories per person per day (1,593 kcal).[58] Twelve African countries import more than 10% of the recommended daily consumption. Of the 52 African countries with the

An alternative – and more sobering - perspective on food trade balances is provided by analysing the calorific trade balance. From this optic, only five countries on the whole continent – and only one in Eastern Africa- Uganda - have a positive calorific trade balance.

[57] This involves aggregating a country's food exports and imports based on their caloric content.

[58] WHO recommends consumption of an average of 2,100 kcal per person per day. In Djibouti's case, the country exports just 8 kcal per person per day, but imports 1,601 kcal, equal to 76% of the WHO's recommended intake.

necessary available data, 47 are in deficit in terms of kilocalories per person per day (Bouët et al., 2021). Finally,

Annex 2 to this report presents Eastern Africa's food trade (exports and imports) adopting a narrower definition of food trade which excludes cash crops – a definition which also provides a more sobering view of regional food security.

To sum up, at a continental level the degree of food import dependency varies across countries and regions, and has different implications depending on the socio-economic context, and the way in which 'dependence' is measured. For some countries, importing food is a strategic choice to diversify their sources of supply and reduce their exposure to shocks. For others, it is a necessity due to limited natural resources, rapid population growth, or low productivity, etc. For some oil or mineral rich countries or the relatively more industrialized countries, importing some types of food products (like fruits and vegetables) seems more beneficial than producing these products at home, especially since they have enough foreign currency reserves to pay for the food import bills. But for countries suffering repeated foreign exchange shortages (e.g., in Eastern Africa, Burundi, Ethiopia, Eritrea, South Sudan), importing food becomes a problem when the bill for rising food imports takes money away from other important development agendas.

For countries suffering repeated foreign exchange shortages (e.g., Burundi, Ethiopia, Eritrea, South Sudan), importing food becomes a problem when the bill for rising food imports takes money away from other important development agendas.

The problem can be even greater for countries where exports rely mainly on agriculture but the revenues from traditional exports such as cocoa, coffee and spices are less certain and at the mercy of volatile international market prices (Rakotoarisoa et al., 2012). This characteristic is particularly pronounced in Eastern Africa where the colonial legacy left an indelible mark on regional food systems. It is to this topic we now turn.

6.3 Striking a Balance: The Trade-off Between Cash Crops and Food Security

African agriculture trade is stereotypically characterized by export of tropical commodities such as cocoa, coffee, tea, and cotton, while importing staple crops such as wheat, rice, soybeans, and meat products. Some of the continent's most fertile and productive farmlands are used to grow crops such as coffee, cocoa, and cottonseed oil for export, while the staple crops of the African diet, cereals, mainly come from outside of the continent. In the past, one issue at the forefront of discussions on food policy revolved around the effectiveness of such cash-crops as a strategy for improving food security.

It is worth pointing out that the definition of cash-crop has expanded in recent years. Many African countries have shifted away from traditional exports (such as coffee, cocoa, tea, and spices) to non-traditional cash crops (such as flowers, semi-processed fruits and vegetables). Since 2000, the share of

traditional export products has declined, gradually giving way to fruits and vegetable exports. Indeed, there are countries (e.g., Kenya) where the non-traditional export commodities such as fruits and vegetables and flowers have become the mainstay of agricultural exports (Rakotoarisoa et al., 2012).

Africa's agricultural exports are dominated by a few product categories including both traditional and non-traditional export products, with the top three (vegetables and fruits; cocoa, coffee, tea, and spices; and fish) making up more than half of all food exports. Cereals are among Africa's other main agricultural exports. However, most of the cereal exports are for markets within Africa, while exports of fruits and vegetables, as well as coffee, cocoa, and spices, are principally for markets outside the continent. Between 2017 and 2021, the main contributor to the continent's food imports was cereals (wheat, rice, maize) with an import value of USD 26 billion, accounting for 40% of the continent's total. This followed by vegetables, fruits and sugar, accounting for 10 % of total food imports.[59]

The key is to strike a balance that maximizes the benefits of cash crops while ensuring that food security is not compromised.

The relationship between the cultivation of cash crops (crops grown primarily for sale in international markets) and food security (the availability and access to sufficient, safe, and nutritious food) has been explored extensively in the literature. In countries like Ethiopia, Tanzania, and Kenya, hundreds of thousands of workers are employed by fresh fruit and vegetable export companies.[60] Contract farming between agro-industrial exporters and smallholder producers also exist. Yet the balance of evidence is that sourcing from smallholders strongly declined in the last decade, a phenomenon often attributed to increased regulation through standards.[61]

In order to promote job creation and strengthening foreign exchange earnings, a number of countries in Eastern Africa have provided agricultural export incentives. However, little is known about the impact of these policies on domestic food security. One recent study (Aragie, et. al., 2023) on Ethiopia, Kenya and Uganda analyses the impact of agricultural export promotion schemes on the four dimensions of food security – availability, access, utilization, and stability. Supporting the contention made earlier about the complexity of the relationship between trade and food security, the authors found that agro-export promotion adversely affects all four aspects of food security in urban areas due to significant increases in food prices domestically. However, the authors also generally found benefits for households in rural areas. The food insecurity effects were stronger in Ethiopia and Kenya. The study also found that risks associated with the volatility in international markets can lead

[59] Data calculated from UNCTADStat.

[60] In Ethiopia, for example, the total number of workers employed by agribusiness in floriculture was, by 2012, already considerably larger than total employment in the manufacture of textiles or in the basic metal and engineering industries. In Kenya, 125,000 workers were employed in the cut-flower sector in 2015, which was about 3 times the number of people employed in textiles, and 20 times larger than the number of people employed in the motor vehicles subsector (Cramer et.al., 2020; p 105).

[61] See, inter alia, Maertens & Fabry (2019); Peter, Bukachi, & Olungah (2018), Feyaerts et al. (2019).

to further deterioration in access to food when countries implement outward-oriented agricultural policies.[62]

Aragie et al.'s findings at the macro-level needs to be consider alongside other studies that argue that cash cropping can enhance food security by increasing the income of smallholder farmers. For instance, research by Kuma et al. (2019) suggests that coffee income is associated with improved food security in Ethiopia. There is also evidence of technical and managerial spillovers on smallholder farms producing fresh fruits and vegetables under contract with export companies. For instance, Minten et al. (2007) (cited by Feyaerts et. al., 2019) show that farmers in Madagascar also use the soil fertility management advice they receive from export companies within a vegetable contract-farming arrangements on their rice fields, resulting in substantial increases in rice productivity.

The case of Kenya illustrates perfectly some of the tensions between an emphasis on cash crops and food staples.

Others, however, continue to argue that cash cropping can undermine food security by diverting land, labour and resources away from staple food production, exposing farmers to market fluctuations and reducing dietary diversity.[63] Dolan (2001) reports increased intra-household conflict over land and family labour as a result of export vegetable production in contract-farming schemes in Kenya. The gender dimension to this competition for resources between export and food production is also highlighted - vegetable production for local consumption by women comes under pressure because men claim horticultural land for export contract farming. In addition, research has observed heightened competition for scarce water resources: Ulrich (2014) and Zaehringer, et. al. (2018) report that Kenyan farmer's associate the expansion of fresh-fruit and vegetable exports with increased water scarcity.

Certainly, the case of Kenya illustrates perfectly some of the tensions between an emphasis on cash crops and food staples. On the face of it, Kenya's agriculture export performance has been commendable. A lot of academic attention has been devoted to its prodigious horticultural exports.[64] And the country's total food exports now exceed USD 3 billion. Yet, seen from the perspective of the relative growth of the sector, it has not managed to keep pace with growth in the rest of the economy, and as a % of GDP food exports have declined (see **Figure 27**).

[62] Synergies and trade-offs between agricultural export promotion and food security: Evidence from African economies, by E. Aragiea, J. Bali´eb, C. Moralesc, K. Pauwa, World Development (2023).

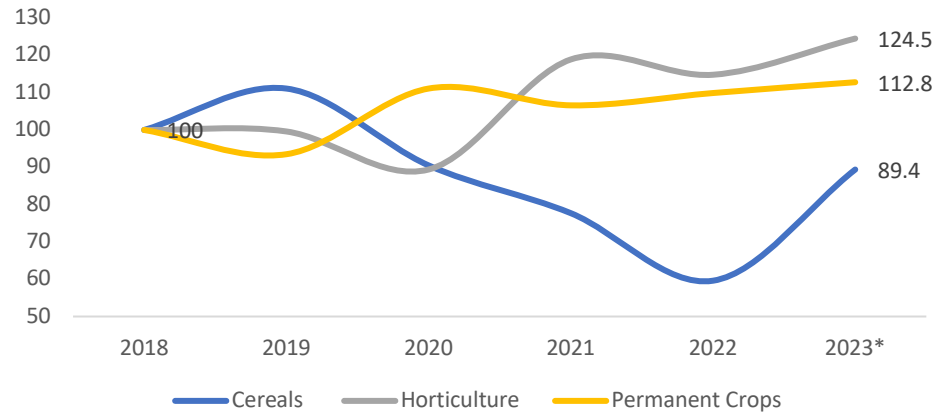
[63] See, for instance, Wood et al. (2013); Immink & Alarcon (1993)

[64] See, inter alia, Minot & Ngigi (2004); Turner & Thurlow (2020)

More worryingly still, a rapidly rising population combined with greater demand for foodstuffs has led to a situation whereby Kenya is no longer a net exporter of food to the regional market, and now often has to depend on food imports from neighbouring Uganda and Tanzania.[65] The tension between the traditional cash crops, the newer horticultural exports, and the traditional staples is evident from **Figure 27**, derived from Kenyan National Bureau of Statistics data. Despite the disruptive impact of the Covid-19 pandemic on agricultural production, the category of 'permanent crops' (which includes tea and coffee) actually experienced an increase in production over the course of 2020, and by 2023 was 13% up on its 2018 value.

Kenyan horticultural production was initially negatively impacted by the pandemic, but experienced a strong recovery, and by 2023 was up by 25% compared to 2018. Cereals, on the other hand, experienced a massive fall in production and by 2023 production was still 10% below the 2018 level.

Figure 27: Quantum indices of Kenyan agricultural production, 2018-2023



* Provisional. Data refers to fresh horticultural exports only
Source: Kenyan National Bureau of Statistics (KNBS), June 2024

Horticultural production was initially negatively impacted by the pandemic, but experienced a strong recovery in 2021, and by 2023 was up by 25% on its 2018 value. Cereals, on the other hand – the most important category from the perspective of food security – experienced a fall in production from the onset of the pandemic, and by 2022, production had fallen by a massive 40%, only recovering in 2023. This performance is ascribable to drought and repeated poor harvests. But the differentiated fortunes of food staples vis-à-vis the export oriented agricultural sectors does suggest that something else is going on here, in terms of prioritisation of different kinds of crops.

Recent household survey evidence from Tanzania (Tschirley et al., 2015) also vividly illustrates the trade-offs between production of crops for export and staples. The study showed that the income elasticities for staples are still high among both rural populations and the poorer segments of the urban

[65] For an historical overview of Kenya's agricultural performance, and some thoughtful reflections on the policy shifts in the sector, see Ochieng (2006).

population (close to 1 or above), and their food expenditure share is still large. As a result, the authors conclude, the bulk of the additional agricultural labour needed to meet the additional food demand from income growth remains concentrated in staples. While the growing demand for vegetables offers new employment opportunities and the highest returns per grower, relatively few growers can actually benefit (Christiaensen and Vandercasteelen, 2019).

Nonetheless, it is important to note that the impact of cash crop production on food security can vary considerably depending on a host of specific factors, including the specific crops grown, government policies, and market dynamics. For instance, a study by Herforth et al. (2012) finds that the effect of income changes from cash crop production from a household perspective is influenced not only by the *amount* of income change but also by the composition of the income, the flow of the income over time, and who in the household controls the income. Sustainable and balanced approaches to both cash crop production and food security are often recommended,[66] such as policies to incentivise crop diversification, value addition, and improve farmers' access to markets while safeguarding food production capacity. The key is often considered to be striking a balance that maximizes the benefits of cash crops while ensuring that food security is not compromised.

6.4 The Landscape of Intra-African Agricultural Trade: Current Realities

Africa has been overdependent on extra-regional markets, with only 25% of African food exports destined for the continental market, and with 80% of food imports originating from outside the continent.

Under the Malabo[67] Declaration of 2014, African governments committed themselves to boosting intra-African trade in agricultural goods. Reflecting the commitment of African governments to promote economic cooperation and trade within the continent, leading to greater agricultural productivity and food security, the specific target set in the declaration is to triple intra-African trade in agricultural goods by the year 2025 (AUDA-NEPAD, 2014).

As Africa's population expands and the continent experiences economic growth, the demand for food and livestock products will continue to increase. The rapidly rising demand for food provides considerable potential for the expansion of intra-African trade. However, as noted in Section (the continent has been overdependent on extra-regional markets, with only 25% of African food exports destined for the continental market, and with 81% of food imports originating from outside the continent (**Figure 28**). The intensity of Africa's intra-regional agricultural trade compares poorly with Asia, the Americas and Europe (48%, 51% and 74%, respectively) (Morsy et al., 2021) although, as

[66] See Bouis and Haddad (1990), as well as the aforementioned study by Herforth et al. (2012).

[67] The Malabo Declaration refers to a commitment made by African Union (AU) member states during the AU Summit held in Malabo, Equatorial Guinea, in June 2014. It represents a renewed commitment by African leaders to prioritize agriculture and rural development as key drivers of economic growth and poverty reduction.

stressed by Mold (2022), this is often because the comparisons are not made on a like-to-like basis.[68] Moreover, the share of intra-African agricultural imports has not significantly increased over the last decade (AUC & FAO, 2021).

Figure 28: Intra-Africa vis-à-vis extra-African food trade average 2017- 2021 (USD Millions)

	Africa(USD Millions)	Rest of World (USD Millions)	Intra Africa Share (%)
Export	15,177	46,291	25
Import	16,046	69,572	19

Source: ECA calculations using UNCTADStat, 2023

Yet we need to be careful about the interpretation of aggregate figures for the whole continent. Just as in geographical terms food imports into the continent are highly concentrated, so too is intra-African food trade. One country—South Africa—accounts for over a third of intra-African food trade, both as a supplier and an importer (Louise & Thomas, 2020). Egypt, Kenya, Uganda and Zimbabwe are also major suppliers of food to the African market. For Eastern Africa, the net positive position of food trade of Uganda and Tanzania are especially important for the region's food security. Moreover, it is positive to see that their food trade surpluses have grown over the last decade, and remain large, even in the face of the considerable climatic challenges and external shocks.[69]

Traditional exports (coffee cocoa, tea, and the spices along with fruits vegetable and the beverage) still account for the bulk of agricultural exports.

There is a consensus in the literature that the development of more regional value chains in food products provide great opportunities for the African economy. Pointedly, intra-African trade shares are larger for processed agricultural products - 23% for semi-processed products and 53% for fully processed products - compared to only 10% for unprocessed products (Goundan and Tadesse, 2021). As we shall see in the following sections, recent ECA simulation results suggest that the full implementation of the AfCFTA will lead to large increases of intra-African trade of processed foods. The patterns of existing intra-African food trade are revealing. Cereals are among the continent's leading agricultural exports, most of which (78%) are destined for markets within Africa, while exports of fruit, vegetables, coffee, cocoa, spices and fish are mostly for markets outside the continent (**Figure 29**).

[68] He argues this on the grounds of 3 interrelated factors which are prevalent in intra-African trade: i) the higher proportion of informal cross-border trade on the African continent ii) an unrepresentative average for Africa, due to the prevalence of a few large countries skewing downwards the intra-African trade figures and iii) the large share of unprocessed commodities in total African trade, leading to a large denominator on intra-African totals.

[69] The earlier example of Tanzanian maize exports in 2024, when farmers produced an excedent of more than 1.2 million tonnes, is a good example. See Tairo (2024).

Figure 29: Destination of Africa food exports, (%) average 2017-2021

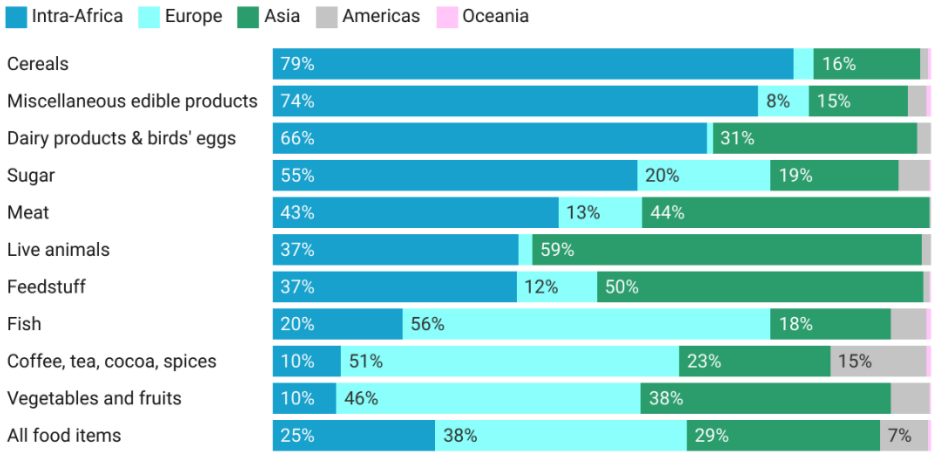
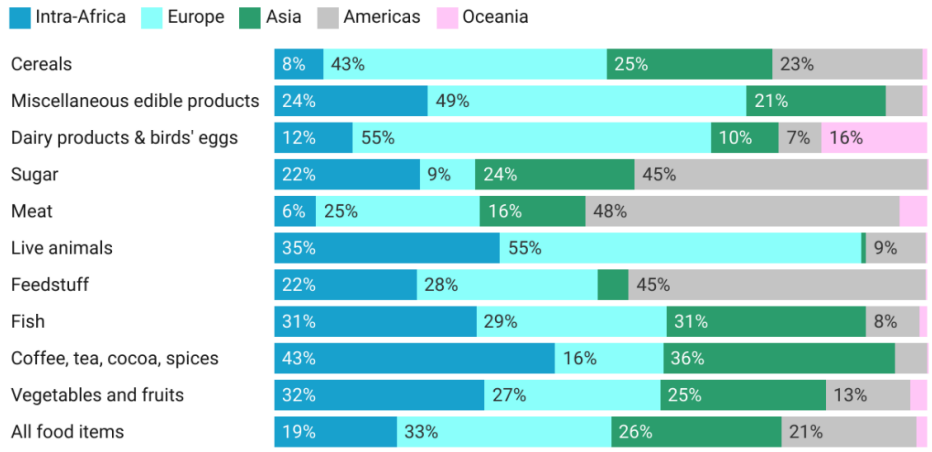


Figure 30: Source of African food imports, (%) average 2017-2021



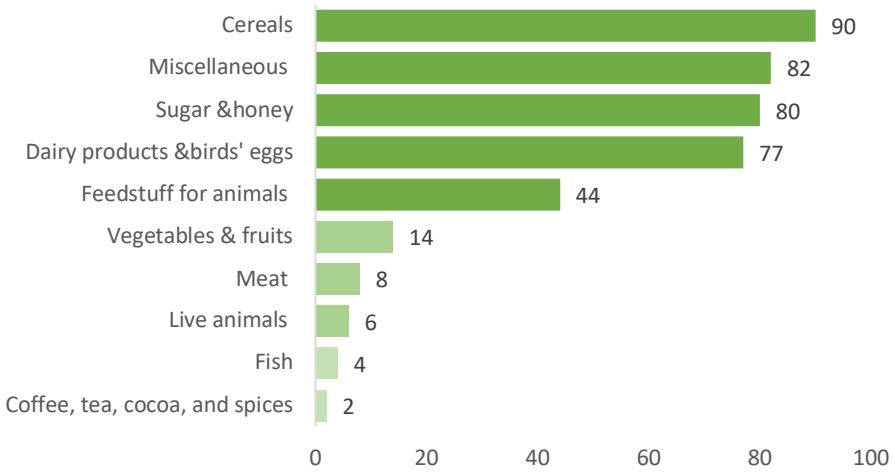
Source: ECA calculations using UNCTADStat (2024)

Other products traded intensely within African markets include dairy products, sugar, meat, and live animals. Interestingly, in terms of nutritional content - calories, fats, and proteins - rather than in monetary value,[70] intra-continental trade accounts for a larger share of total African food trade, reflecting the fact that higher-value products with lower caloric content (for example, coffee, cotton, tea, and cut flowers) are typically exported to outside of Africa. Thus, trade in calories is mostly intraregional (Bouët, 2022). Europe is Africa's largest source of food imports, followed by Asia. (**Figure 30**).

[70] When expressed in terms of calories, fats, and proteins, intra-African trade accounts for a larger share of Africa's total agricultural trade. Assessment of the nutritional content of intra-African food and agricultural trade shows that, between 2003–2005 and 2018–2020, trade in calories increased by an average of 4.4% each year, trade in fats by 4.9%, and trade in proteins by 4.6% (Bouët, 2022).

Eastern Africa broadly follows these patterns of continental food trade: the largest share of food exports (69%) is sold outside the continent, with only 31% of food exports from the region finding a market within Africa. Uganda is the leading intra-regional food exporter in Eastern Africa, with half of its export going to the regional market, the main recipients being Kenya, South Sudan, and DRC. Kenya is another important exporter of food within the region.

Figure 31: Intra-regional food exports by product (as % of total exports), Eastern African, 2017-2021



Source: ECA calculations using UNCTAD database (2023)

From the import perspective, Eastern African still relies heavily on extra-African sources for food imports. About 75% of its food imports originate from outside the continent and only 15% come from within Eastern Africa (the remaining 10% from elsewhere in Africa). Kenya is the main importer of food from the region, with 17% of its food imports sourced from the Eastern African market, mostly from Uganda and Tanzania. By contrast, although Ethiopia one of the major importers of food in the region, only 2% of its food import comes from the regional market (UNCTADStat, 2023). The most traded food items within the region are cereals, sugar, and dairy products, while 90% of exports of cash crops (coffee, cocoa, tea and spice), as well as meat, live animals, and fish, are destined for extra Africa market (**Figure 31**).

Some of the most traded food items within the region are cereals, sugar, and dairy products.

7: Exploring African Food Production

Given the large variation in climatic conditions and soils, Africa produces a wide variety of food products. The continent's food production is heavily reliant on staple crops such as maize, rice, wheat, sorghum, millet, cassava, yams, and potatoes. These crops form the basis of the diet for many African countries. This section will provide an overview of the main food crops produced in Africa.

Table 4: Main African food producers by products (production in million tonnes) 2021

Cereals		Veg & Fruits		Diary		Meat	
Ethiopia	30	Egypt	30	Kenya	6	South Africa	4
Nigeria	30	Nigeria	28	Egypt	5	Egypt	3
Egypt	22	Algeria	14	Sudan	5	Nigeria	1
South Africa	20	Morocco	11	Ethiopia	4	Morocco	1
Tanzania	11	South Africa	11	South Africa	4	Sudan	1

Source: ECA calculations using FAOStat (2023)

7.1 Cereals Production

Cereals continue to serve as the main energy source for the majority of Africa, constituting 50% of the average daily caloric intake on the continent.

Cereals contribute to food security and livelihoods for millions of people in Africa, accounting for 50% of both the average daily caloric intake and total crop area (Wood-Sichra, 2014). Africa is the origin and a major producer of cereals like sorghum, pearl millet, finger millet, teff and African rice. One interesting development is the way in which maize – endemic to Central America and was not even present on the continent 500 years ago - has become the most important staple crop for Africa south of the Sahara. More than 300 million Africans[71] now depend on maize as the main staple food crop, and it is estimated that over 30% of the caloric intake of people comes from maize (IITA, n.d.). Sorghum is the second most important cereal after maize, accounting for 22% of land area dedicated to cereal production.

[71] The central role of maize as a staple food in Africa is comparable to that of rice or wheat in Asia, with consumption rates being the highest in eastern and southern Africa. Maize accounts for 30−50% of low-income household expenditures in Africa.

Due to a combination of rapid population growth and dietary changes, cereals are likely to become even more dominant, with one study[72]projecting that cereal demand will nearly triple between 2015 and 2050. Yet cereal yields have only grown slowly in most Africa countries and agricultural area expansion is still an important means to keep up with the growing demand. Such trends cannot be sustained indefinitely, and we have already witnessed a marked decline in the amount of arable land per capita in parts of Eastern Africa, both in land constrained countries like Burundi and Rwanda, and also in larger countries like Kenya.

Rice is another non-endemic crop that has rapidly become a priority commodity for food security, particularly in West Africa where it has become the most important source of dietary energy. Rice consumption is expanding quickly owing to rapid urbanization and changes in eating habits. Likewise, wheat consumption has steadily increased during the past 20 years as a result of growing population, changing food preferences and socioeconomic change associated with urbanization.[73] Wheat is widely cultivated in North Africa and in Sudan and Ethiopia, but production has generally not kept pace with consumption, with the result that some African countries are among the world's biggest wheat importers, with North African countries having the highest per capita wheat consumption on the continent, providing up to 50% of daily calories and protein (Macauley & Ramadjita, 2015).

Eastern African diets are dominated by cereals, contributing over half of total dietary calorie intake, with Ethiopia (71%) having the highest dependency and DRC (17%) the lowest (**Figure 32)**. Ethiopia's per capita cereal consumption amounts to an average consumption of 188 kg per person per year, followed by Djibouti (171 kg), and Tanzania's (91 kg), while the lowest consumers of cereals are Rwanda (16.2 kg), and Uganda (28.1 kg) (FAO, 2023). These regional variations in per capita cereal consumption reflect the fact that some countries are more dependent on staples other than maize, rice and wheat, including starchy roots (yams, cassava, sweet potato, potato, etc), plantains and bananas. Indeed, starchy roots represent the second major source of dietary energy in the sub-region. For, example, plantains, roots and tubers are especially important for Uganda, parts of Rwanda and Tanzania (Mkumbwa, 2011).

Africa produced 216 million tonnes of cereals in 2021, accounting for 7% of the global production.

In terms of production, Africa produced 216 million tonnes of cereals in 2021, accounting for 7% of the global production. [74] The main cereal producers in Africa are Ethiopia, Nigeria, Egypt, South Africa, and Tanzania, which together produced more than half of the continent's cereals. Ethiopia alone produces 30 million tons of cereals, representing 50% of the Eastern Africa's cereal production, followed by Tanzania which produces around 20% of the total (FAOStat, 2023). Indeed, alongside its traditional teff production, in Ethiopia a combination of government-led policies and innovative

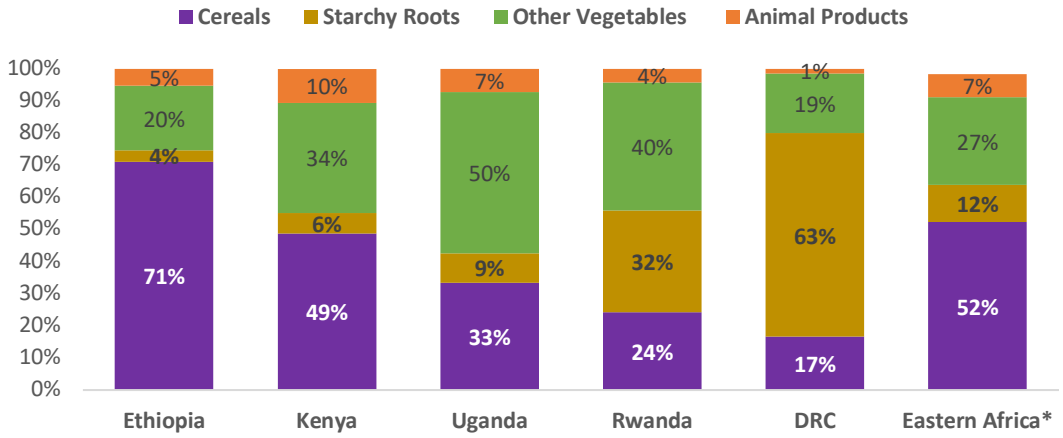
[72] (Van et al., 2019). The study was based on analysis of cereal demand for ten countries (Burkina Faso, Ethiopia, Ghana, Kenya, Mali, Niger, Nigeria, Tanzania, Uganda, and Zambia).

[73] Considering the growing importance wheat has for food security in Africa, the African Union Heads of State endorsed their Agriculture Ministers' decision in January 2013 to add wheat to the list of strategic crops for Africa.

[74] Asia was the leading region in cereals production in 2021, with 48% of the world's total output followed by America (25%) and Europe (18%).

farming techniques - including the introduction of high-yield varieties, improved access to fertilizers, and a focus on mechanised farming - have led to a remarkable shift whereby country is now reportedly a net exporter of wheat (Chilamphuma, 2024).[75] Domestic maize production plays a vital role in Eastern Africa. In Burundi, Rwanda, Kenya, Tanzania, and Uganda, domestic maize production contributes over 50% of the national grain supply (FEWS NET, 2021).

Figure 32: Eastern Africa dietary energy source



Source: ECA calculations using FAOStat database, 2023*[76]

To sum up, Africa's cereal production is currently insufficient to meet the growing demand of its population. Challenges to cereal productivity in Africa include climatic variability, the looming threat of higher temperatures and more vicious droughts, the high incidence of diseases, insect-pests and parasitic plants, low levels of mechanization, rapid population growth and a weak policy environment (Raheem et al., 2021). Yet, as the Ethiopian example of wheat shows, the right set of policies, none of these problems are insurmountable and the situation can be quickly turned around. We will speak more about what some of those policies should be in the final sections of this report.

7.2 Other Main Food Products

Africa is not only a major producer of cereals, but also of other important food products including vegetables and fruits, which provide essential vitamins and minerals for a balanced diet. The continent's diverse climatic conditions and rich biodiversity enable the cultivation of a wide range of crops, from tropical fruits such as mango, pineapple, avocado and papaya, to roots and tubers such as cassava, potato, yams and sweet potato. As a producer of vegetables and fruits, Africa ranks third, after Asia and the Americas. In 2021 Africa's production of vegetables and fruits amounted to 212 million tonnes, representing 10% of the global output. These crops play a significant role in food

[75] Note that this interpretation of the data has been disputed by the Economist (March 13th 2025).

[76] FAOStat Eastern Africa includes Burundi, Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Rwanda, Somalia, South Sudan, Uganda, Tanzania, Zambia and Zimbabwe.

security, nutrition, income generation and rural development for millions of Africans. The main sources of vegetables and fruits are South Africa and Egypt, accounting for 14% and 13% of the continent's output respectively (**Table 4**). Uganda, Tanzania, Kenya, and DRC are the leading producers in Eastern Africa, with a combined share of over 70% of the regional production (FAOStat, 2023).

Africa also has a large and diverse livestock sector, which provides meat, dairy and other animal products. The continent ranks second in the world in terms of animal population, after Asia, with about 1.3 billion ruminants (cattle, sheep and goats) in 2021, accounting for 32% of the world's livestock population. Some of the countries with the highest livestock densities are in Eastern Africa, such as Ethiopia, Kenya, Tanzania, South Sudan, and Uganda. The continent produces about 22 million tonnes of meat yearly, representing around 6% of the world's total. South Africa and Egypt are the largest producers (**Table 4**), and the main types of meat production are chicken and beef. Ethiopia, Tanzania and Kenya are the main producers of meat in Eastern Africa. Regarding dairy products, Africa produced 54 million tonnes of milk in 2021, again representing around 6% of the global production.[77] Eastern Africa was the dominant region in terms of milk production, with Kenya, Ethiopia, South Sudan, Tanzania, and Somalia being the leading producers (FAOStat, 2023).

In summary, Africa has a great diversity of foods and rich agricultural lands. Leveraging this agricultural potential better could not only feed millions of Africans but also contribute to export markets, boosting the continents economic growth and stability. We will elaborate on these points in the following sections, focusing on the potential to improve food security through greater intra African food trade.

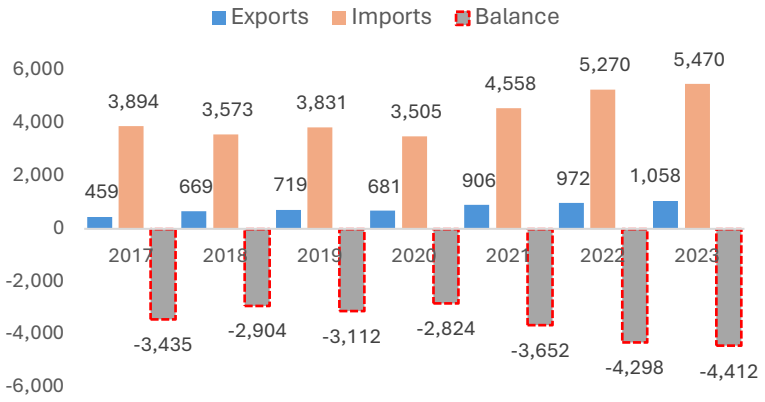
[77] The main sources of milk in Africa were cows (79%), goats (8%), camels (5%), sheep (4%), and buffaloes (3%).

8: Food Trade: A Product-Driven Analysis

8.1 Cereals Trade

One of the most striking aspects of continental food insecurity in recent decades is the way in which all African sub-regions have become major net cereal importers (Feyaerts et al., 2019). Eastern Africa is illustrative of these trends - prior to the 1980s, the region was self-sufficient in cereal; however, since the 1980s, production has persistently fallen short of consumption, the gap being filled by increasing volumes of imports and food aid (Mkumbwa, 2011). The average value of cereal imports is now about five times higher than the value of cereal exports (**Figure 33**), reflecting a high dependence on external sources of cereals for domestic consumption and food security. Yet 78% of the continent's cereal exports are destined for the African market. In Eastern Africa, cereal exports to other African countries have increased considerably in the last decade (Feyaerts et al., 2019), the main exporters being Tanzania and Uganda.[78] Approximately 90% of their exports go to other Eastern African countries.

Figure 33: Eastern Africa cereals trade balance (USD million) 2017-2023



Source: ECA calculations using UNCTAD database (2023)

According to the AATM database only 12 African countries have a revealed comparative advantage[79] in the cereals value chain. The results are strongest for Eastern African countries such as Uganda, Burundi, Rwanda, and Tanzania, along with Niger, Gambia, Sierra Leone and Senegal in West Africa. But a large portion of trade in this value chain involves unprocessed commodities (crops). In fact, the comparative advantage of unprocessed products is higher than that of

Only 12 African countries have a revealed comparative advantage in the cereals value chain. The results are strongest for Eastern African countries such as Uganda, Burundi, Rwanda, and Tanzania.

[78] Djibouti also appears as a major exporter, but this is mainly due to reexports. At the continental level, South Africa is the top cereal exporter in Africa, accounting for 32% of the continent's cereal exports on average from 2017 to 2021.

[79] Comparative advantage is a theoretical concept regarding what an economy is best at producing, relative to other things it could produce and to what other economies produce. Revealed comparative advantage (RCA) compares the share of one product in a country's total exports to the share of the same product in world exports.

semi-processed and processed ones, revealing the lack of competitiveness of many African countries in the cereals value chains. Many domestic factors explain this lack of competitiveness[80], but it does also highlight the huge economic opportunities from moving up the value-chain. We will come back to this point when discussing the simulation results.

8.2 Other Main Food Products Trade

As noted above, Africa has a diverse range of agricultural commodities that are traded domestically, regionally and internationally. Eastern African exports are dominated by a few traditional cash crops, such as coffee, tea, and spices. Besides cash products, the region also exports vegetables and fruits, fish, and live animals. Tanzania, Kenya, Ethiopia, and Uganda are the leading exporters of these food products (**Table 5**).

Eastern African exports are dominated by cash crops.

Table 5: Main Eastern African food exporter by products (USD million) Annual Average 2017-2021

Coffee, cocoa,tea& spices		Veg & Fruits		Fish		Live Animals		Sugar	
Kenya	1,497	Kenya	622	Seychelles	275	Somalia	189	Uganda	91
Ethiopia	1,140	Tanzania	504	Madagascar	142	Djibouti	107	Kenya	50
Madagascar	848	Ethiopia	394	Uganda	140	Ethiopia	27	Djibouti	35
Uganda	753	Eritrea	126	Tanzania	139	Tanzania	13	Ethiopia	8
Tanzania	263	Djibouti	111	Eritrea	119	Kenya	9	Rwanda	8

Created with Datawrapper

Source: ECA calculations using UNCTAD database (2023)

Coffee, cocoa and tea are still some of the most important agricultural commodities for the continent, both in terms of export earnings and domestic consumption. According to the data from 2017 to 2021, Africa accounted for 13% of the world's exports of these products (UNCTADStat, 2023). As noted in Section 6, cash crops such as coffee and tea represent a very important component of agricultural export revenue in Eastern Africa. The region largely dominates coffee production on the continent, accounting for over 80% of the continental production. Ethiopia, Uganda, Tanzania and Kenya are the largest producers and exporters (**Table 5**) - Ethiopia and Uganda rank 8th and 11th, respectively, among the largest coffee producers in the world (UNCTAD, 2018). Kenya is the largest

[80] Bouët (2022) cites the following constraints: low agricultural productivity; poor access to credit markets; insufficient investment in research and development; insufficient access to fertilizers, new technology, and irrigation; high costs related to logistics, transportation, and customs procedures; and relatively high import duties that continue to impede the development of regional value chains (Bouët et al., 2020).

tea exporter. Most of the region's cash crops are destined for international markets (**Figure 33**), with only 2% of region's exports going to the regional market. The notable exception here is Ethiopian coffee, where approximately half of its production is sold on the domestic market.

Kenya, Tanzania, and Ethiopia dominate the export market for vegetables and fruits in the region. However, the intra-regional trade in fruits and vegetables is a small fraction of total production.

Notwithstanding its significant production, Africa's participation in the global vegetables and fruits market is relatively low. The continent is responsible for only 6% of the global vegetables and fruits trade, while importing just 2% of the total global imports (UNCTADStat, 2023). The main African exporters are South Africa, Morocco, and Egypt. In Eastern Africa, Kenya, Tanzania, and Ethiopia dominate the export market (**Table 5**). However, the intra-regional trade volume of fruits and vegetables is a small fraction of the total production, with only 14% of the region's exports destined to the Eastern African (**Figure 33**).

Despite high regional demand for the commodity, Africa accounts for only 5% of global sugar exports and 14% of sugar imports (UNCTAD, 2023), the main exporters being South Africa, Eswatini, Egypt and Mauritius. At an aggregate level, the continent is a net importer. Yet several countries in Eastern and Southern Africa rank among the lowest cost producers in the world. In Eastern Africa, raw sugar exports are complimented by refined sugar imports, suggesting that preferential access to the EU market has rendered raw sugar exports more profitable than domestic refinement (OECD & FAO, 2016). Uganda, Kenya, Djibouti, Ethiopia and Rwanda are the top exporters of sugar in Eastern Africa (**Table 5**). Both at the continental and regional level there is a marked intra-regional trade of sugar, with 80% of exports being intra-regional.[81]

Africa's contribution to the global fish trade is also still low, despite its abundant resources and potential for growth.[82] The main fish exporting countries at a continental level are Morocco, Namibia, Mauritania, and South Africa, which together represent 60% of the continent's exports of fish. In Eastern Africa, fish is a major source of animal protein, and is often the cheapest source of animal protein, particularly within the Great Lakes Region. Seychelles, Madagascar, Uganda, and Tanzania are the major exporters of fish (**Table 5**). The major regional net importers are DRC, Kenya[83], Rwanda, and Burundi. Overall, intra-regional trade in fish in Eastern Africa is low, with only 4% of

[81] Uganda, Rwanda and Kenya have a strong presence in the regional market, as they export more than 90% of their sugar to other Eastern African and the continent countries.

[82] On average between 2017 and 2021, Africa was responsible only for 5% of fish exports. In the same years, 3% of global fish exports destined to Africa.

[83] Kenya produces an average of 135,000 tons of fish per annum against an annual demand of half a million tons. This deficit necessitates the importation of around 365,000 tons to complement local production. The bulk of imports, around 70 percent, are from China and mainly comprise tilapia, which is produced at scale and at a lower cost. Kenya's per capita fish consumption is still low (4.7kg/person/year) at less than half the average on the African continent (10kg/person/year) and far below the global average (20kg/person/year). Kenya's fisheries sector directly and indirectly supports about 2 million people including fishers, traders, processors, input suppliers, merchants of fishing accessories and related service providers (Agra Report, 2024).

the fish products exported from the region going to other countries in the region. This is related to the fact that average per capita fish consumption remains limited, something that has been attributed to poor transportation infrastructure and declining fish catches due to overfishing (Kirema-Mukasa, 2012).

Africa is a net importer of meat, dairy, and poultry, importing far more than it exports in all animal products except live animals, hides and skins (Kurtz et al., 2021). In fact, the formal livestock trade data tell only part of story, given that informal cross-border trade in livestock is widespread within Africa.[84] Sudan and Somalia have a prominent position in the global live animal trade, ranking 10th and 25th respectively among the largest exporters of live animals in the world respectively (UNCTADStat, 2023). However, most of their exports are destined to the Middle East and Asia. Ethiopia, Djibouti and Tanzania are also important exporters of livestock in Eastern Africa (**Table 5**). Albeit in a partial fashion, informal trade data reveals that Somalia, Tanzania, and Rwanda appear to dominate the informal export market, each exporting several hundred thousand live animals annually.

Africa is a net importer of meat, dairy and poultry, importing far more than it exports in all animal products except live animals, hides and skins.

Africa's meat trade is characterized by a low share of global exports accounting for less than 1% of the world's meat exports and 3% of the world's meat imports (UNCTADStat, 2023). However, within the continent, there are significant variations in the production, consumption, and trade patterns of different types of meat. Per capita meat consumption in Africa remains low compared to the global average, yet significant regional differences are evident both in levels and composition. Meat consumption in Southern Africa is four times higher than any other region. Accounting for population, however, meat consumption is higher in Eastern Africa. Growth in the consumption of beef is strong across Africa and is particularly marked in Eastern and Western Africa. Within Eastern Africa, consumption growth is mainly driven by Kenya, Tanzania, Ethiopia, all of which increase consumption by an annual average of at least 3%. Moreover, growth of goat consumption is significantly faster in Eastern Africa relative to the rest of African, where it is produced in an extensive, pasture-based system (OECD & FAO, 2016).

[84] According to UNCTAD data, Africa was responsible for 6% of live animal's exports and 5% of global live animal's imports on average between 2017 and 2021.

Zambeef – a Zambian company - operates in-house butcheries in Nigeria and Ghana, which allows them to manage the entire supply chain from production to retail in their meat products…None of this would have been possible without Zambeef's partnership with the South African supermarket chain Shoprite.

South Africa is the largest exporter of meat on the continent, accounting for more than 40% of the continent's exports. Abundant grazing resources make extensive beef production an attractive prospect in parts of the Eastern Africa region. Ethiopia and Kenya are the other top exporters of meat in the region (**Table 5**). Despite being one of the top exporters, Ethiopia's meat exports are destined to markets outside Africa, mainly in the Middle East, especially Saudi Arabia, United Arab Emirates and Qatar. The same is true for Somalia's exports of sheep, with the vast majority of exports are destined to the Middle East. Hence, the regional market for meat is small in eastern Africa, whereas only 8% of its exports remain within the region. There are, nonetheless, some interesting examples of pan-African meat value chains that have emerged. For instance, Zambeef Products Plc, a leading agribusiness company in Zambia, has been actively involved in exporting fresh meat to West Africa.

Box 2: Zambeef products plc – exporting fresh meat to West Africa

Zambeef – a Zambian company - operates in-house butcheries in Nigeria and Ghana, which allows them to manage the entire supply chain from production to retail. This vertical integration helps ensure quality and reliability in their meat products. Their operations include the production, processing, distribution, and retailing of beef, pork, chicken, and other meat products. By leveraging their extensive logistics network, including one of the largest transport fleets in Zambia, Zambeef can efficiently manage exports and maintain a steady supply to their West African markets.

None of this would have been possible without Zambeef's partnership with the South African supermarket chain Shoprite. This collaboration began in 1995 when the company was asked to operate Shoprite's in-store butcheries in Zambia. The partnership allowed Zambeef to expand its retail presence rapidly and meet growing consumer demand. Subsequently, between 2005 and 2007, the company extended its operations to Nigeria and Ghana in partnership with Shoprite, a strategic alliance which has been crucial for Zambeef's growth and market penetration in West Africa.[85]

[85] Harding (2011).

9: Revealing Eastern Africa's Agricultural Comparative Advantage

The diversity of Africa's agriculture and climate provides major opportunities for regional trade, yet the proportion of African countries' food imports originating from other African countries is currently low on average.

The diversity of Africa's agriculture and climate provides major opportunities for regional trade, yet the proportion of African countries' food imports originating from other African countries is currently low on average (at about 20% over recent decades), with South Africa alone accounting for over one third of all intra-African food trade. Greater regional trade could help to smooth the impacts of extreme climatic events on production and prices, since production and rainfall are often weakly correlated even within regions (Weeks, 1996). Many of the same food crops are grown throughout large parts of Africa, yet clear differences between countries in climate and patterns of comparative advantage provide opportunities for regional trade.

In this sense, an important piece of *a priori* evidence is through looking at similarities in both production and trading structures to determine whether there are complementaries or in competition with one another. Paracha (2024) uses a **production similarity index** measuring the total variation between production structures. **Table 6** shows the results, with perhaps somewhat surprising results. It might be anticipated that the cultivated food crops are too similar across the continent to allow for much potential for intra-African food trade. But that would be a wrong assessment: For Eastern Africa, for instance, the pattern of agricultural production is most similar with Central Africa, but a much greater disparity with Southern, Western and Northern Africa. Broadly speaking, the analysis reveals the strong complementarity of food production within Africa, suggesting a large continental intra-trade potential, provided there is better infrastructure and lower trade barriers driven by the AfCFTA.

Table 6: Similarities in production structure, by sub-region

Region	Eastern Africa	Central Africa	Northern Africa	Southern Africa	Western Africa
Eastern Africa	100%	58%	43%	49%	46%
Central Africa	58%	100%	28%	31%	63%
Northern Africa	43%	28%	100%	52%	25%
Southern Africa	49%	31%	52%	100%	23%
Western Africa	46%	63%	25%	23%	100%

Source: Paracha et al. (2024)

A complimentary analysis is to use an **export similarity index.**[86] This shows similarities in exports structures to determine complementaries and/or competition in trade. The findings again suggest there is space on the continental market for Eastern Africa food exports, as its exporters do not compete much with other regions at all. Overall, the results suggest a low level of competition between agricultural exports within Africa. These findings are underpinned by Diao et al. (2007) who, using a revealed comparative advantage analysis, identify 29 food commodities exported in significant quantities by some African countries alongside other countries that import significant quantities, providing the potential for intra-regional trade.

Table 7: Similarities in export structures, by sub-region

Region	Eastern Africa	Central Africa	Northern Africa	Southern Africa	Western Africa
Eastern Africa	100%	14%	24%	16%	15%
Central Africa	14%	100%	6%	4%	61%
Northern Africa	24%	6%	100%	35%	12%
Southern Africa	16%	4%	35%	100%	4%
Western Africa	15%	61%	12%	4%	100%

Source: Paracha et al. (2024)

Analysis by ECA reveals the extent to which Eastern Africa holds significant potential in various food products: **Figure 34** represents the Revealed Comparative Advantage (RCA) index for various food products in different East African countries in 2022. RCA is a measure that indicates the relative advantage or disadvantage of a country in producing a particular good compared to other countries. It helps identify the extent to which a country specializes in producing and exporting specific goods. A higher index value (RCA > 1) suggests a comparative advantage in the production of that specific product.

Figure 35 represents the RCA of various East African countries in the production of cereals, maize, rice, milk, and wheat. East Africa has prioritized the development of rice, beans, and dairy products for the advancement of regional value chains (USAID, 2023). Uganda and Tanzania show high RCA values for various products. Uganda has a strong comparative advantage in producing un-milled cereals, with an RCA value of 20.4. This is much higher than the regional average RCA value of 5.0 for all countries. Kenya, Ethiopia, Djibouti, and Tanzania also have considerable comparative advantages. DRC, Madagascar, Rwanda, and Somalia do not have any comparative advantage in producing un-milled cereals, with RCA values of 0. Rwanda is the most competitive producer and exporter of cereal preparations among the region countries with an RCA value of 3. Djibouti and Ethiopia also have a

Uganda has a strong comparative advantage in producing un-milled cereals.

[86] See Finger and Kreinin (1979).

moderate comparative advantage. DRC, Somalia, South Sudan, Eritrea, and Seychelles do not have any comparative advantage in this sector.

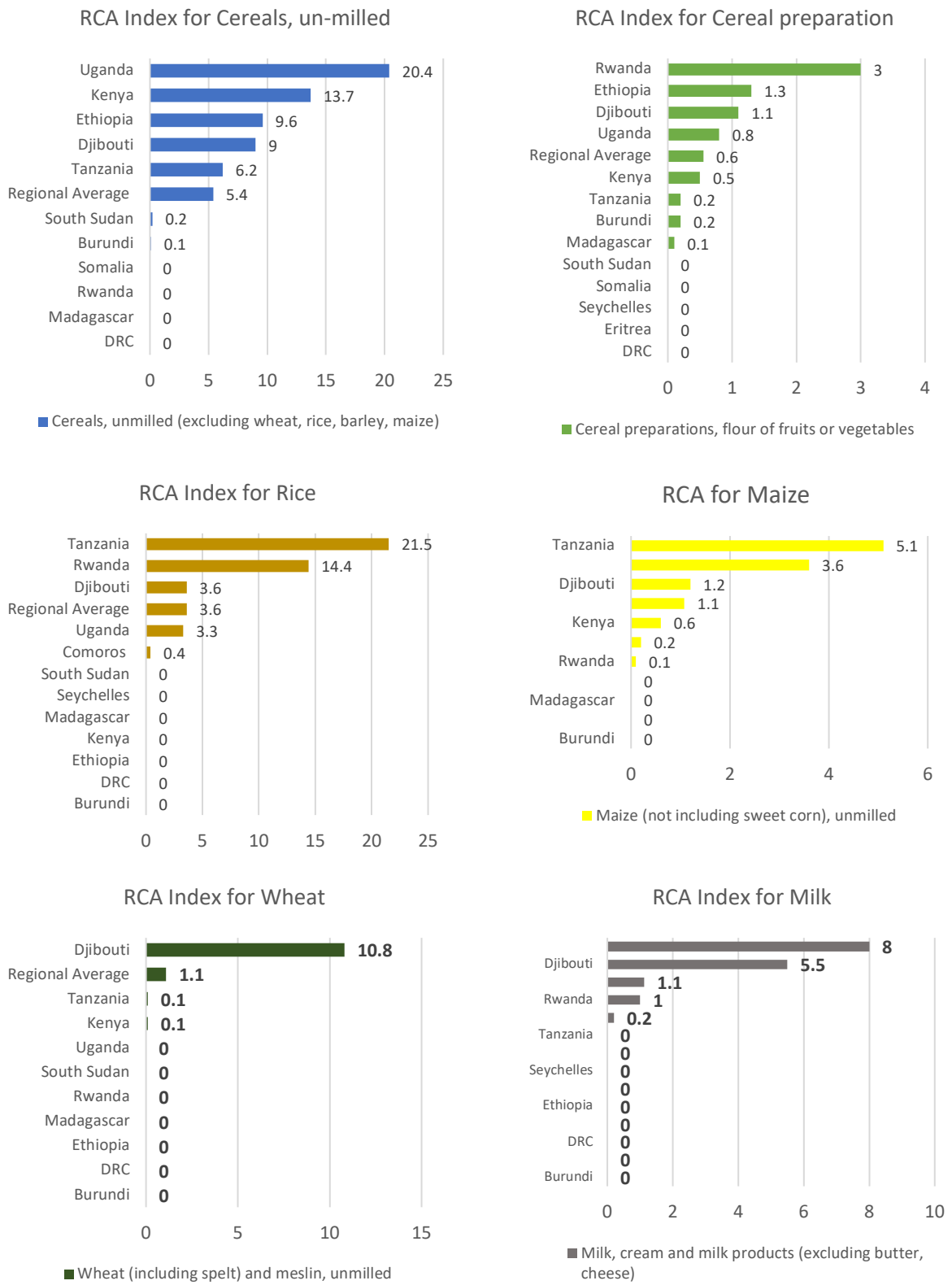
According to Raheem et al. (2021), some of the most important native cereals for food security in Africa are rice, finger millet, fonio (acha), pearl millet, sorghum, and teff.[87] Among these, rice has varying levels of comparative advantage across different countries. Tanzania has a strong comparative advantage in rice production, with an RCA value of 21.5. Rwanda also has a significant RCA value of 14.4, indicating high competitiveness. Uganda has a moderate comparative advantage in rice production.

Maize is a vital crop in Africa playing a crucial role in ensuring food security for over 300 million Africans (Badu-Apraku & Fakorede, 2017). The region's comparative advantage in maize production varies across countries. According to the RCA index, Tanzania has a high comparative advantage (5.1), followed by Uganda (3.6) in maize production. As for wheat, beyond Djibouti (which simply reflects reexports of wheat to Ethiopia), wheat production has no strong comparative advantage in the region.[88] Regarding dairy products, Uganda has a significant and strong comparative advantage respectively in producing milk, cream, and milk products, as shown by its RCA values of 8. Rwanda and Kenya have a minor comparative advantage in this sector, while other countries lag behind.

[87] Teff is the most important crop in Ethiopia, as measured by a number of indicators. In 2011/12, it was estimated that teff made up 20 percent of all the cultivated area in Ethiopia, covering about 2.7 million hectares and grown by 6.3 million farmers. The second most important crop was maize at 15 percent of all cultivated area. If we use the commercial surplus data for the period 2011/12, teff value was estimated to be 464 million USD or one quarter lower than coffee (599 million USD), Ethiopia's most important export product. The value of commercial surplus of teff is equal to the commercial surplus of the three other main cereals combined in the country (sorghum, maize, and wheat). By any standards, teff is an important crop, for farm income as well as food security (Minten et al., 2015).

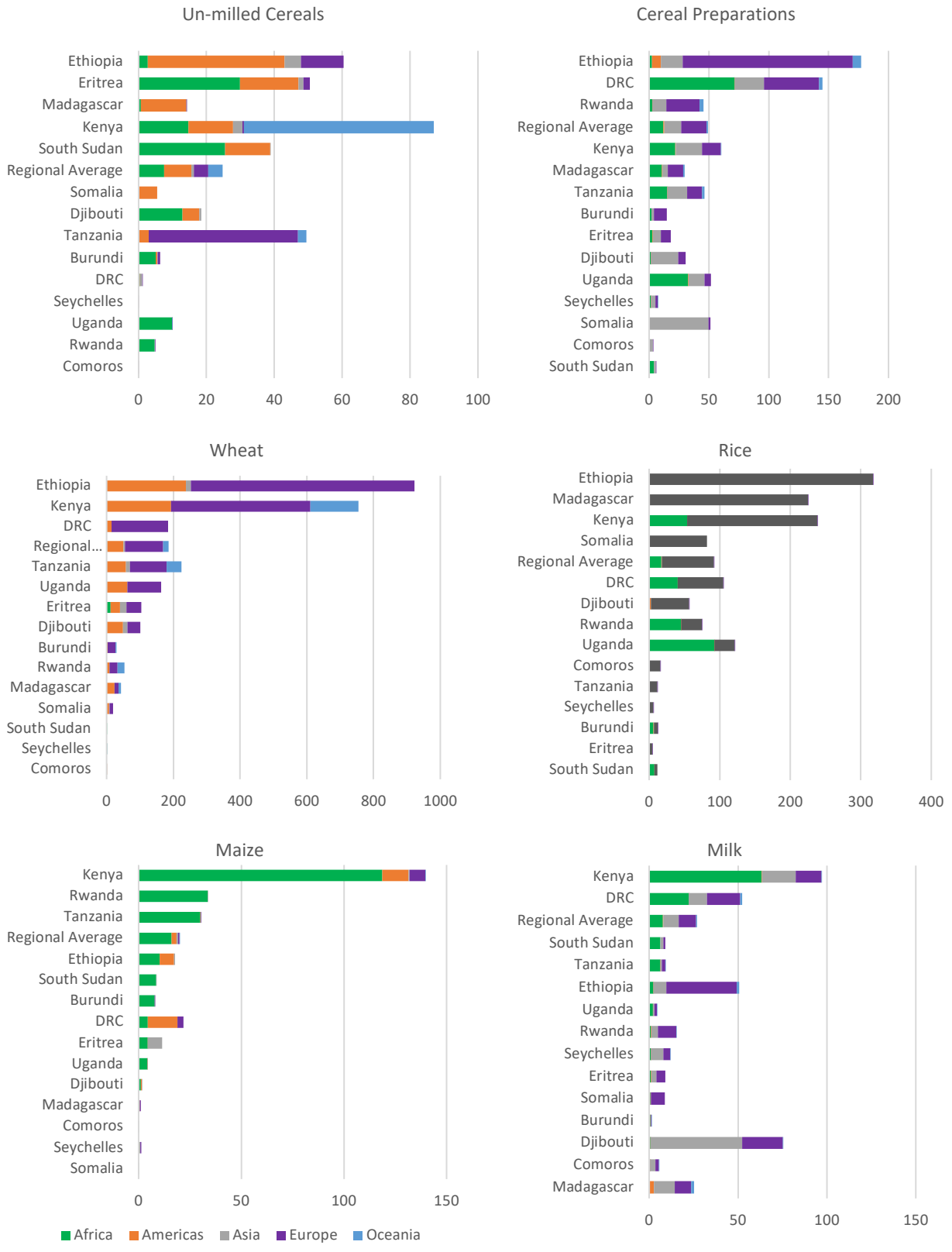
[88] Notwithstanding Ethiopia's recent (disputed) shift from a net wheat importer to a net exporter. See The Economist, March 13th 2025.

Figure 34: RCA index for food products (2022)



Source: ECA calculations using UNCTAD database (2023)

Figure 35 : Imports of food products in million USD, by geographic origin (2022)



Source: ECA calculations using UNCTADStat database (2023)

In **Figure 35**, we illustrate the import patterns of food products by East African countries from five distinct continents, namely Africa, America, Asia, Europe, and Oceania. Imports of un-milled cereals in East African countries highlighted diverse preferences across the region in terms of sourcing. Burundi, Djibouti, Eritrea, Rwanda, South Sudan, and Uganda primarily relied on imports from Africa for un-milled cereals[89]. The region's cereal preparations were mainly imported from Europe and Asia, which represented 72% of its total supply. Several countries - including Ethiopia, Rwanda, Madagascar, Burundi, Congo, and Eritrea - primarily relied on imports from Europe for this commodity. Eastern African countries relied heavily on Europe market for their imports of wheat and meslin, which accounted for 62% of the total.[90]

The main supplier of rice for Eastern Africa is the Asian market, which accounts for more than 80% of total imports[91]. The region relies on intra-regional trade for maize, as most of it (80%) comes from Africa. Kenya, Burundi, Djibouti, Ethiopia, Rwanda, South Sudan, Tanzania, and Uganda primarily relied on imports from Africa for this food product.[92] Imports of milk in East African countries highlighted diverse preferences across the region. The imports of milk were dominated by Asian sources for countries such as Comoros, Djibouti, Madagascar, and Seychelles[93].

Despite improvements in logistic performance in the EAC, the region still lags behind the global average in terms of clearance time, infrastructure quality, and customs efficiency.

There exists a considerable potential for countries currently sourcing imports from outside of Africa to transition towards intra-African imports. However, this shift must consider the possible challenges in supply chain management and transportation costs. For instance, the improvement in intraregional trade within the EAC can be attributed to the absence of customs duties on intraregional flows. These costs remain relatively high for extra-regional trade, excluding the Democratic Republic of the Congo. Despite improvements in logistic performance in the EAC, the region still lags behind the global average in terms of clearance time, infrastructure quality, and customs efficiency. Notably, EAC countries heavily rely on imports for essential food security products, such as wheat, rice, maize, vegetable oils, and sugar (Odjo et al., 2023).

To summarise, countries with higher RCA values for essential food items might have a comparative advantage in ensuring food security within the region. They could potentially focus on boosting

[89] Ethiopia and Madagascar demonstrated a preference for imports from the Americas. Tanzania showed a preference for imports from Europe for un-milled cereals. Kenya imports un-milled cereals from Oceania.

[90] Burundi, DRC, Kenya, Eritrea, Ethiopia, and Rwanda rely on European imports for wheat and meslin. Djibouti, Madagascar, Somalia, and Tanzania leaned towards a mix of imports from the Americas and Europe.

[91] Comoros, DRC, Kenya, Djibouti, Eritrea, Ethiopia, Madagascar, Tanzania, Seychelles, and Somalia import rice from Asia. Uganda, Rwanda, and South Sudan import from Africa.

[92] Madagascar imports principally from Europe. Eritrea, on the other hand, displays a preference for imports from both Asia and Europe. DRC imports maize from the Americas.

[93] Meanwhile, Eritrea, Ethiopia, and Rwanda depended on European imports for Milk products. Notably, Burundi and South Sudan relied on African sources for Milk imports. DRC depends on importing Milk products from both Africa and Europe.

production in these specific food categories to enhance domestic food availability and potentially engage in export activities to contribute to regional food security. Uganda and Tanzania demonstrate strong comparative advantages in the production of various food items. Specifically, Uganda excels in the production of cereals, including maize, while also displaying a notable advantage in the production of milk and its products. Tanzania stands out with a strong advantage in the production of rice.

Uganda's comparative advantage in the production of cereals, especially maize and milk products, positions it to potentially export these items to countries like Ethiopia and Madagascar as they currently import from the Americas. As for cereal preparations, Kenya, Ethiopia, Rwanda, Madagascar, Burundi, DRC, and Eritrea, could rely more on imports from Uganda instead of Europe and other regions.

Similarly, Tanzania's notable advantage in rice production makes it a potential exporter to countries such as Comoros, DRC, Kenya, Djibouti, Eritrea, Madagascar, Seychelles, Somalia, and Uganda, which import rice primarily from Asia. By aligning export opportunities with the import preferences of neighbouring countries, these eastern African nations can foster mutually beneficial trade relationships. This can help improve food security and stability in the region. However, some challenges remain, such as improving farm productivity, coping with shocks, and increasing regional trade. As we shall see in the following sections, the AfCFTA could play a pivotal role in mitigating tariff expenses and trade costs and fostering smoother trade within the continent.

By aligning export opportunities with the import preferences of neighbouring countries, Eastern African nations can foster mutually beneficial trade relationships.

10: Impact of Existing Regional Trade Agreements on African Agricultural Exports

The previous section provided an overview of some of the most salient trends in intra-African and intra-regional food trade. In this section, we will look at how existing preferential trade agreements on the continent have impacted on agricultural flows. Some important insights into the potential impact on food trade of deeper integration under the AfCFTA can be gleaned from the past experience of regional trade agreements (RTAs) such as the East African Community, or COMESA.

Until fairly recently a lot of published research found that RTAs in Africa had had a small or negligible impact on trade flows.[94] Partly as a consequence of such studies, pessimism on the prospects for African trade integration became commonplace. However, due to a series of methodological and econometric errors, this earlier generation of empirical studies did not always provide credible estimates. More reliable statistical methods have since become available. In particular, a new econometric technique, using the Poisson Pseudo-Maximum-Likelihood (PPML) estimator, has become the workhorse of trade economists in modelling RTAs. Afesorgbor (2016) carried out a careful meta-analysis combining 14 previous studies covering the period from 1980–2006; and found that, on average, the formation of African regional blocs boosted bilateral trade by about 27–32%.

On average, according to a study by Afesorgbor (2016), the formation of African regional blocs has boosted bilateral trade by about 27–32%.

But what about the specific impact of forming regional trade blocs specifically on intra-African agricultural trade? This is a topic which is hitherto under-researched. Following Anderson and Yotov (2011), we estimate the following structural gravity model.

$$X_{ijt} = exp(\beta_1 RTA_{ijt} + \beta_2 \ lnDIST_{ij} + \beta_3 BRDR_{ij} + \beta_4 LANG_{ij} + \beta_5 CLNY_{ij} + EX_{it} + M_{it}) + e_{ijt} \ldots\ldots\ldots (1)$$

where, i, j and t represent country i, country j and time respectively. Xijt are agricultural exports from 45 African countries between 1990 and 2019, RTAijt is an indicator variable for a regional trade agreement between two African countries i and j at time t. RTAijt is equal to one if there is a regional trade agreement between African countries i and j at time t, and it is equal to zero otherwise. lnDISTij is the logarithm of bilateral distance. BRDRij, LANGij and CLNYij capture the presence of contiguous borders, common language and colonial ties, respectively. EXit are exporter time fixed effects, which control for the outward multilateral resistances, while *Mit* are importer time fixed effects that capture the inward multilateral resistances.

Following Baier and Bergstrand (2007), the value of the RTA effect (β1) is specified as uniform across African countries (as opposed to calculating the impact of each African RTA). Anderson and Yotov (2011) maintained that, because of the extensive fixed effects structure of the econometric specification of the model and the small variability in any individual RTA indicators, it is not possible to identify the effects of specific RTAs separately. Anderson and van Wincoop (2003) argued that all

[94] See Mangeni and Mold (2024, Chapter 11) for a summary of those studies.

else equal, regions that are more isolated from the rest of the world would trade more with each other (something they termed 'multilateral resistances'). Exporter-time fixed effects (EXit) and importer-time fixed effects (Mit) which control for multilateral resistances are included in Equation (1). Following Silva and Tenreyro (2006) equation (1) was estimated using both the OLS and the PPML estimators for comparative purposes and the results reported in column 1 and column 2 in **Table 8**.

Table 8: Effects of African regional trade agreements on agricultural exports

	(1)	(2)
	OLS(FE)	**PPML(FE)**
log GDP Exporter	0.381***	
	(0.044)	
log GDP Importer	0.456***	
	(0.049)	
Log distance	-0.833***	-0.061***
	(0.070)	(0.005)
Common border	2.176***	0.155***
	(0.173)	(0.012)
Common language	0.737***	0.062***
	(0.080)	(0.006)
Colony	1.333***	0.077***
	(0.266)	(0.018)
WTO Member	0.519***	0.056***
	(0.168)	(0.014)
African RTA	1.469***	0.138***
	(0.122)	(0.010)
Constant	4.494***	3.001***
	(0.815)	(0.047)
Exporter- FE	Yes	
Importer-FE	Yes	
Exporter-year FE	No	Yes
Importer-year FE	No	Yes
Number of Obs	68193	71759
R-squared	0.464	
Pseudo R-Squared		0.0824

Source: Authors' calculations

Notes. Column (1) applies the OLS estimator and Column (2) uses the PPML estimator. Standard errors are clustered by country pair and are reported in parentheses. All estimates of the PPML model are obtained using exporter-time and Importer-time fixed effects. The estimates of the fixed effects are omitted for brevity. The p-values read as follows: *p < 0.10; ** p < 0.05; and ***p < 0.01. See text for further details

Table 8 provides panel coefficient estimates of the gravity model on the impact of African RTAs on agricultural trade. The equation in column 1 includes all standard gravity variables including the logarithm of GDP-exporter, GDP-Importer, bilateral distance, and the dummy variables for common borders, common official language, colonial ties and a dummy variable African RTA that accounts for

African regional trade agreements and a dummy variable for WTO membership between the countries in our sample. The equation in column (1) is estimated, using the OLS estimator with importer and exporter fixed effects. The coefficients on GDP are significant and positive, distance is significant and negative as expected. These results confirm the finding that proximity matters for trade flows – and the greatest intensity of trade flows in agricultural produce is likely to occur being neighbouring countries or countries within the same sub-region. The other covariates, the common border, language as expected, and colony dummies are all positive and significant as expected. The estimated coefficient of the variable African RTA reported in column (1) suggests that the formation of African RTAs leads to an average increase of [exp(1.45) - 1] × 100 = 326 percent in intra-regional agricultural exports. However, as discussed the OLS model is affected by heteroscedasticity.

In column (2) we estimate the gravity model using the PPML estimator which controls for heteroscedasticity and allows for the presence of zero trade flows in the data. Importer-time and exporter-time fixed effects are included to control for multilateral resistance. The results show that all the coefficients are significant with the expected signs. However, there changes in the magnitudes of the coefficients, which decrease in value. The estimated coefficent on African RTA effect show's that the formation of RTAs leads to an average increase of [exp (0.14) - 1] × 100 = 15 percent in intra-regional agricultural exports.

The results from this econometric exercise suggest that on average existing African RTAs led to a 15% increase in intra-regional agricultural exports. The impact has therefore been significant, but more modest than for intra-African trade in general.

In other words, the results from this econometric exercise suggest that on average existing African RTAs led to a 15% increase in intra-regional agricultural exports. The impact has therefore been significant, but more modest than for intra-African trade in general. The reason for the weaker results is probably related to a number of factors, including i) a greater number of exclusions from tariff liberalisations in sensitive sectors ii) the excessive use of Phytosanitary Standards and other technical barriers on food trade.

The question is, under a broader, more ambitious framework of continental integration under the AfCFTA, will the impact on intra-African food trade be more pronounced? We venture an answer to that question in the following sections.

11: The AFCFTA: A Catalyst for Greater Food Security

The AfCFTA constitutes the world's largest free trade area, bringing together the 55 countries of the African Union (AU) and eight (8) RECs. The overall mandate of the AfCFTA is to create a single continental market with a population of 1.5 billion people and a combined GDP of approximately USD 3.0 trillion. It is one of the flagship projects of AU Agenda 2063.[95] The agreement entered into force on 30 May 2019, covering 54 of the 55 AU Member States, 48 of which have ratified the agreement as of February 2025. The associated protocols cover trade in goods, trade in services, investment, and dispute settlement, and other disciplines, including tariffs, rules of origin, the movement of persons, trade facilitation, standards, NTBs, trade remedies, technical assistance, special export zones and capacity-building and cooperation. So, the agreement is a very comprehensive one, with some potential profound impacts on African economies (Mangeni and Mold, 2024).

Under the AfCFTA, African countries have undertaken commitments to remove tariffs on 97% of over 5000 tariff lines, with the remaining 3% being "excluded items", as well as liberalize services such as transport, communication, tourism, financial services, and business services. The agreement includes the mutual recognition of standards and licenses and the harmonization of import requirements and SPS measures to reduce NTBs and facilitate trade (UNECA, 2024).

The AfCFTA could play a pivotal role in enhancing food security in Africa by fostering greater trade, investment, and collaboration in the agricultural sector, which, in turn, contributes to more stable and accessible food supplies on the continent.

The AfCFTA thus has the potential to significantly transform food systems in Africa in various ways: i) by reducing trade barriers and tariffs among African nations, it will promote the movement of food across borders, making it easier for countries to source and distribute food from surplus regions to those in need; ii) by stimulating the development of regional value chains, leading to more processing and value addition within Africa. This could help to reduce post-harvest losses and increase the availability of processed and value-added food products; iii) by creating a larger and more integrated market for agricultural products within Africa, it will increase access to a wider consumer base and provide incentives for increasingly diversified food production. This will reduce dependence on a single crop or food source and will enhance food security by providing a variety of options.

Several Computable General Equilibrium studies have assessed the potential impact of the AfCFTA indicating that it could have a moderate effect on GDP and a substantial impact on intra-African trade. A study by World Bank (2020) estimates that the tariff cuts alone would generate 0.13% GDP increase by 2035, and 22% increase in the volume of the intra-African trade. When reductions in NTMs are

[95] Agenda 2063 is a long-term development framework established by the African Union (AU). It outlines the vision and aspirations of the African continent for the next 50 years, with the goal of achieving an integrated, prosperous, and peaceful Africa. The agenda is structured around ten-year implementation plans, and progress is regularly assessed and reviewed (AU, n.d.).

included in the simulation, the figures are 2.2% and 52%, respectively. The study considers trade facilitation on top of the tariff cuts and NTMs reductions, and in this way the simulation foresees a 4.2% increase in GDP and 92% increase in intra-African trade by 2035 compared with the baseline year of 2014. While the main beneficiary of the increase in intra-African trade will be the manufacturing sector, intra-African exports of agricultural products would increase by 49%. However, partly reflecting higher demand for services as the African economy grows, due to limited factors of production, overall output in agriculture would contract by 0.5%.

A CGE study specifically on the food trade impacts of AfCFTA implementation, by Simola et. al. (2022), finds that the AfCFTA lifts 1 million people (or 0.38% of the African population) from risk of hunger while increasing national incomes. The authors report that 64% of the labour force would experience purchasing power improvements thanks to the AfCFTA. However, a rise in food prices could offset the increase in household income in a few regions. Food production increases in total, but several regions reduce production due to higher imports. The ambiguous nature of their findings is highlighted in their results for Eastern Africa: On one hand, the study finds that Kenya and Tanzania would benefit the most from AfCFTA due to their export-oriented economies and the fact that they would experience improved purchasing power. On the other hand, Ethiopia and the rest of East Africa become worse off from their worsening household purchasing power. The paper also mentions that Ethiopia and Rwanda could face food security risks, as food price increases may outweigh income gains for the poorest households. Unfortunately, the paper does not specify quantitively the results for individual countries.

A more recent study by ECA and CEPII (forthcoming) predicts that the successful implementation of the AfCFTA would significantly boost intraregional trade, particularly in agri-food, estimating that intra-African trade in agri-food would increase by around 60% by 2045 relative to the baseline (**Table 9**).

Table 9: Changes in intra-African trade following implementation of the AfCFTA Agreement, as compared to baseline (i.e., without AfCFTA), %, 2045

Sector	Consumption type	Variation	
		USD billion	%
Agri-food (non-processed)	Final	7.1	81.6
	Intermediate	3.9	30.6
Agri-food (processed)	Final	35.2	62.8
	Intermediate	12.4	59.7

Source: ECA and CEPII (2024a)

The subsectors in which there is the greatest potential for an increase in intra-African trade are milk and dairy products; processed food; cereals and crops; and sugar. By removing the barriers to intra-African trade, trade in agri-food sectors—both processed and unprocessed—is expected to increase significantly for both intermediate and final consumption. The rise in intra-African agri-food trade for intermediate consumption in particular is expected to contribute to the development of intra-African agri-food value chains, in turn, contributing to an increase in agri-food trade for final consumption. The employment implications of these results are likely to be impressive. Despite experiencing a declining trend, the agricultural sector still accounts for 48% of all employment: Once a wider definition of the agri-sector is included, that figure rises to 64.5% (FAO Statistical Yearbook 2024).

A recent study by ECA and CEPII finds that intra-African trade in agri-food would increase by around 60% once the AfCFTA is fully implemented. The sub-sectors with the greatest potential for increased intra-African trade include milk and dairy products, processed food, cereals and crops and sugar.

Another recent simulation study undertaken by the Africa Agriculture Trade Monitor (AATM) concludes that for the AfCFTA to be successful, it must be ambitious, both for tariff liberalization (important for boosting trade) and NTMs (important for raising GDP). The AfCFTA tariff agreement alone increases African exports of agri-food goods by only 1.6% in volume, whereas a complete elimination of tariffs on intra-African trade would increase these exports by 6.2% (Bouët et al., 2022). This study notes that the sensitive and excluded products section reduces the potential trade impact of the AfCFTA. Unfortunately, these sensitive and excluded products are primarily agricultural products, including live animals, meat, fish, milk and dairy products, fruit and vegetables, coffee, tea, spices, oilseeds, and sugars. However, one positive sign is that this list is determined on a case-by-case basis and is subject to notification and review in five years (Odjo et al., 2023). Finally, Fusacchia et al. (2022) found that the AfCFTA would deepen the agricultural and food value chains at the regional level and increase the value-added shares of trade. African countries will become less dependent on exporting agricultural intermediates.

The sensitive and excluded products reduce the potential trade impact of the AfCFTA. Unfortunately, these sensitive and excluded products are primarily agricultural products, including live animals, meat, fish, milk and dairy products, fruit and vegetables, coffee, tea, spices, oilseeds, and sugars

12: Challenges to Boosting Intra-African Agricultural Trade

The major obstacles to intra-African trade are tariff-related trade costs, associated with the slow implementation of the tariff liberalization schedules underpinning free trade agreements; and high non-tariff-related trade costs that hamper the competitiveness of firms and economies in Africa.

What are the obstacles that the AfCFTA must confront? As noted in earlier sections, Africa's trade performance is generally perceived as having been disappointing, despite the adoption of various trade agreements, including the regional economic communities (RECs) aiming to enhance trade. Moreover, despite some progress, most of the subregions – including Eastern Africa, are lagging in fulfilling the CAADP/Malabo commitments, which include Commitment 5 on Intra-African Trade in Agricultural Commodities and Services[96] (AUC & FAO, 2021).

The underperformance of agricultural trade can be attributed to a combination of supply-side and demand-side factors. On the supply side, the agricultural sector suffers from low productivity, due in part to the limited use of irrigation and dependence on rainfed agriculture. It is also negatively impacted by low public and private spending in agriculture, which affects investment and infrastructure, especially for farm equipment, machinery, and such. In fact, Africa spends less per capita on agriculture relative to other regions in the world, and most countries have still to reach the target of allocating 10% of national budgets to agriculture, an African-wide commitment under both the 2003 Maputo Declaration and the 2014 Malabo Declaration[97] (Pernechele et al., 2021). Moreover, inadequate use of modern technologies affects the sector's performance. On the demand side, African exporters face numerous trade barriers (both tariffs and nontariff measures) in regional and global markets. Moreover, African products often do not meet the quality standards of world markets (Bouët et al., 2020). Recurring exogenous shocks, such as the Ukraine war and the Covid-19 pandemic also affect the sector's trade performance.

The major obstacles to intra-African trade are both high tariff and non-tariff-related trade costs that hamper the competitiveness of firms and economies in Africa. Such high trade costs, related to business and trade facilitation, can be explained in terms of the hard and soft infrastructure deficits in Africa that have an impact on transport and transit costs. Moreover, weak productive capacities and limited economic diversification constrict the range of intermediate and final goods that can be traded and potentially inhibits the fuller development of regional value chains (UNCTAD, 2019).

[96] Commitment to Boosting Intra-African Trade in Agricultural commodities and services—to triple, by the year 2025, intra-African trade in agricultural commodities and services.

[97] In an attempt to increase funding for agriculture, African leaders and heads of state signed the Maputo Declaration on Agriculture and Food Security in 2003, in which they pledged to allocate 10 percent of their budgets to agriculture. A recommitment to this spending threshold was made in 2014 in the Malabo Declaration.

12.1 Tariffs

Past efforts to promote regional integration on the continent have reduced tariff protection but despite significant progress, intra-regional traders still often face high tariffs. Average applied tariffs in sub-Saharan Africa are already relatively low. The effectively applied tariff weighted average (customs duty) for sub-Saharan Africa for all merchandise was 5.67 percent in 2017 while the most favoured nation (MFN) weighted average tariff was 7.85 percent. In comparison, the effectively applied agricultural tariff weighted average (customs duty) for sub-Saharan Africa in 2019 was 9.54 percent while the MFN weighted average tariff was 13.23 percent (AUC & FAO, 2021). There are significant variations among the RECs[98] in the degree of tariff liberalization they have achieved among Member States. For instance, agricultural tariffs on intraregional imports are minimal within the EAC (0.1%) and IGAD (1.3%), but as high as 12.5% within ECCAS and 16.6% within AMU.

Table 10: Simple average tariff rates on agricultural products, 2016 (%)

	Exporter										
Importer	World	EU	Africa	AMU	CEN-SAD	COMESA	EAC	ECCAS	ECOWAS	IGAD	SADC
Africa	15.1	18.3	6.9	17.4	8.6	5.5	2.3	9.3	6.8	4.2	5.9
AMU	18.7	17.7	15.8	16.6	14.8	15.4	16.9	18.4	13.3	14.7	20.0
CEN-SAD	20.0	23.2	11.6	18.6	9.0	13.8	6.8	9.3	5.3	14.0	18.1
COMESA	14.7	20.8	5.0	7.9	3.5	2.6	0.7	6.8	14.8	1.6	5.8
EAC	18.3	23.3	6.9	41.9	2.3	2.1	0.1	6.7	20.9	0.5	11.8
ECCAS	21.2	23.5	14.5	22.1	10.4	5.7	0.4	12.5	22.8	0.8	22.0
ECOWAS	16.9	19.3	10.7	19.6	8.4	18.6	19.4	13.5	5.0	19.9	17.9
IGAD	19.0	22.6	10.2	44.3	1.3	0.9	0.4	3.1	19.4	1.3	16.3
SADC	10.2	11.5	3.9	13.2	9.5	4.5	4.2	9.4	11.5	6.4	2.7

Source: AATM 2020

On the world market, maize, wheat and potatoes from Africa are subject to tariff rates above the global average, so there may be important commercial reasons for placing a larger share of African exports on the continental market.

However, outside of their respective regional blocks, tariff protection against imports from other African countries often far exceeds that imposed on imports from the rest of the world. For instance, although the volumes of trade are low, IGAD and EAC countries impose 44.3% and 41.9%, respectively, on imports from AMU countries. Regarding tariffs on the most traded agricultural products, for maize African countries apply slightly higher tariff rates on intra-African trade (5.7%) than on maize imported from world markets (5.5%). On the world market, maize from Africa is subject to tariff rates above the global average (11.3% vs. 8.9 percent). Similar results are observed for

[98] The AU recognizes eight RECs, the: Arab Maghreb Union (UMA); Common Market for Eastern and Southern Africa (COMESA); Community of Sahel–Saharan States (CEN–SAD); East African Community (EAC); Economic Community of Central African States (ECCAS); Economic Community of West African States (ECOWAS); Intergovernmental Authority on Development (IGAD) and Southern African Development Community (SADC) (AU,n.d.).

wheat and potatoes (Bouët et al., 2021), so there may be important commercial reasons for placing a larger share of African exports on the continental market. Trade within RECs will continue according to the trading regimes they have in place and new tariff liberalisation under AfCFTA will only occur among Member States that do not have an existing agreement with one another. There are considerable differences among the RECs in the degree of tariff liberalisation they have achieved among Member States. According to UNECA (2016), the intraregional economic community tariffs (tariffs applied by REC members on imports from other members of the same REC) are as follows: CEN-SAD (7 percent), ECOWAS (6 percent), SADC (4 percent), AMU (3 percent), ECCAS (2 percent), COMESA (2 percent), IGAD (2 percent) and EAC (0 percent) (AUC & FAO, 2021).

With implementation of the AfCFTA still at its nascent stages, tariffs imposed by African countries remain a significant barrier to intra-African agricultural trade. Agricultural and food products often feature predominantly in the list of sensitive products for the African Union's regional economic communities (RECs) with common external tariffs, subjecting them to higher tariffs that undermine intra-African agricultural trade. Furthermore, the RECs exhibit varying levels of protectionism, which impacts the flow of agricultural products among the various RECs and consequently the overall level of intra-African agricultural trade. For instance, there is a notable disparity on the average protection imposed by the Economic Community for West African States (ECOWAS) and the East African Community (EAC) on their imports of agricultural and food products.

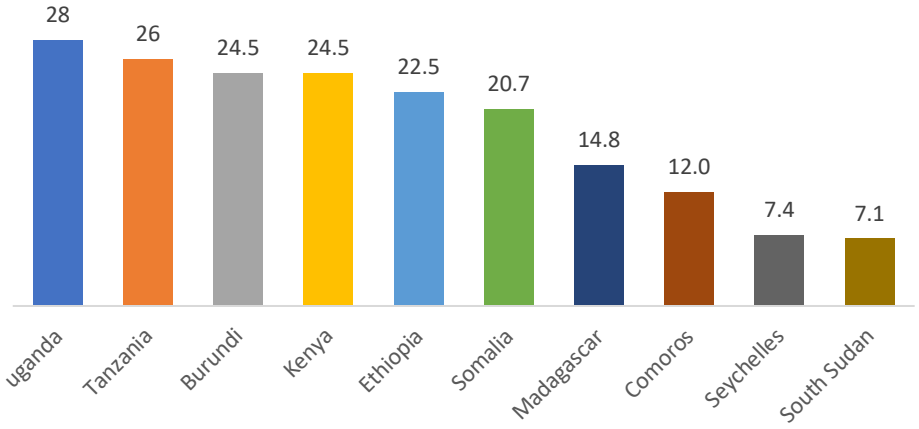
Approximately two-thirds of the products identified as sensitive by EAC countries are in the agricultural sector, with tariffs ranging between 50% and 100%. It is therefore not surprising that intra-African agricultural trade largely occurs within RECs, as tariffs within most RECs are either low or zero

Approximately two-thirds (30 out of 50) of the products identified as sensitive by EAC countries are in the agricultural sector, with tariffs ranging between 50% and 100%[99] (ECA and CEPII, 2024b). It is therefore not surprising that intra-African agricultural trade largely occurs within RECs as tariffs within most RECs are either low or zero (AGRA, 2023; Bouët et al., 2021). **Figure 36** shows the MFN tariff rates on agriculture products for Eastern Africa countries. The figure suggests that there is a wide variation in the trade policy across eastern African countries regarding agriculture products. Overall, these tariffs reflect the trade policies of the region countries. Higher tariffs may indicate protectionism, aiming to shield domestic agriculture, while lower tariffs suggest a more open trade policy, possibly aimed at encouraging imports and international trade. It is important to note that these tariffs can impact the food trade dynamics

[99] Notably, dairy products such as milk, cream, yogurt, and cheese have an external tariff of 60%, cereals like rice and maize face tariffs between 50% and 75%, and beet and cane sugar have a tariff of 100%. The reality of EAC food trade is more complex and constantly shifting. For instance, in May 2024, the government of Kenya imposed a 10% import duty on crude palm oil and 25% on other refined oils such as soybean oil, RDB Palm Olein, Sunflower oil, and refined corn oil. But at the same time, the government proposed removing excise duty on eggs, potatoes and onions from the East African Community (EAC) to promote intra-EAC trade (Food Security Monitor, June 2024).

in the region, including the cost of imported agricultural goods, market accessibility, and the competitiveness of domestic products as well as the regional trade dynamics.

Figure 36: Eastern Africa, simple average tariff rates on agricultural products, 2022 (%)



Source: WTO (2024)

12.2 Non-tariff measures (NTMs)

In addition to tariffs, trade protection is also operationalised through nontariff measures (NTMs), such as sanitary and phytosanitary measures (SPS), technical barriers to trade (TBT), price and quantity controls and export-related measures. There is a consensus that these pose some of the biggest constraints on Africa's agricultural exports and are even more damaging than tariffs for intra-African trade (AATM 2022). According to Africa Agriculture Trade Monitor, average ad valorem equivalents (AVE) of NTMs across Africa can be as high as a tariff rate of 21%. Among African countries, Ethiopia has adopted the most NTMs. In Ethiopia, 95 percent of products and 98 percent of the value of imports are affected by at least one NTM (Bouët and Sall, 2021).

Estimates shows that domestic food prices in Sub-Saharan Africa are 13% higher on average due to SPS measures (AUC & FAO, 2021).

It is worth highlighting that SPS measures have the legitimate and critical function to protect public health, animal and plant life. However, weak national capacity to comply with SPS requirements can result in a country's exclusion from key markets, while poorly applied procedures can increase the cost of trade. Estimates shows that domestic food prices in Sub-Saharan Africa are 13% higher on average due to SPS measures (AUC & FAO, 2021). Promoting intraregional trade will require the reduction of such barriers to trade.

Beyond SPS measures, other NTMs such as the costs and time required for border and documentary compliance are also significantly higher in Africa than in other regions. The quality of roads and efficiencies at ports can also raise the cost of trade. For instance, time to import was around 126 hours for border compliance and 96 hours for documentary compliance in 2019. The same pattern holds on

the export side, where time to export is estimated at 97 and 72 hours for border and documentary compliance, respectively. The associated costs related to documentary compliance for exports range from an average of USD173 to nearly USD 700 for imports (Bouët et al., 2021). African exporters face challenges related to the time it takes to cross borders and the high transaction costs of shipped products. According to the World Bank, the time required to export or to import is still very high in most African countries. For example, the time to export (border requirements) is estimated at 296 hours in the Democratic Republic of the Congo and 239 hours in Côte d'Ivoire, while it is less than four hours in Eswatini and Lesotho. The time to export (documentation requirements) is estimated at 192 hours in the Democratic Republic of the Congo and South Sudan, while it is two hours in Eswatini and three hours in Tunisia (AUC & FAO, 2021).

12.3 Underinvestment in Regional Agriculture

By missing out on the Green Revolution, average cereal yields in Africa have changed little since 1960 while those in Asia and other developing regions have nearly tripled.

By missing out on the Green Revolution, average cereal yields in Africa have changed little since 1960 while those in Asia and other developing regions have nearly tripled. This has been a major factor underlying the trend decline in per capita food availability in Africa, and for worsening poverty and malnutrition (World Bank, 2008). The experience with hybrid maize in Eastern and Southern Africa is salutary. Initial success was based on the Asian model with improved varieties that originated from regional plant breeding efforts, subsidized inputs, and grain marketing boards that bought up maize at guaranteed minimum prices. But inefficient and corrupt marketing boards, escalating fiscal costs that could not be sustained, and soil degradation due to specialized maize cultivation on fragile lands led to eventual collapse of the system (Smale and Jayne, 2003; Hazell, 2009).

Why did the Green Revolution fail in Africa? An important reason is the nature of Africa's farming systems. Irrigation and rice and wheat play much smaller roles in Africa than Asia, hence Africa simply could not benefit much from the first round of Green Revolution technologies and had to wait for improvements in crops like maize, sorghum, millets, and cassava grown under rainfed conditions. But even then, the scale of success with second -round technologies has been disappointing.

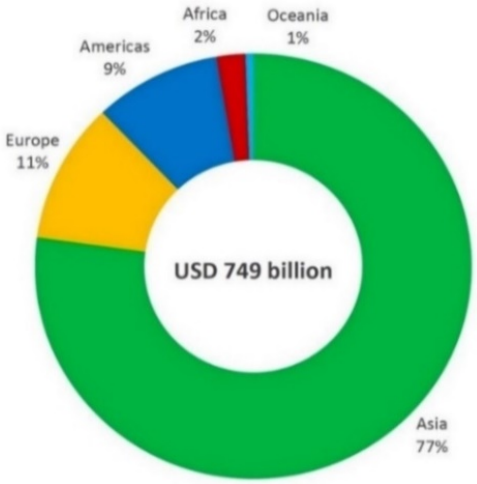
Meeting the growing demand for finance in the agricultural sector in Africa remains a major challenge and is a symptom of market failure. It is estimated that only 10 percent of African farmers have access to credit (Inter-Réseaux and S.O.S Faim, 2019) while commercial bank lending for agriculture represented 4.8 percent of annual lending in 2016 (AfDB, 2016), often forcing farmers to borrow at exorbitant interest rates from informal moneylenders (AUC & FAO, 2021).

What about public spending in support of agriculture? In 2022, out of the total government expenditures of 36 trillion US dollars, the amount that went to agriculture reached an all-time high

USD 749 billion. In line with the overall upward trend in total government expenditure, spending on agriculture increased over time. Its overall share in the total expenditure in 2022 (2.1 percent) reflects a recovery from the pandemic and is only marginally below the 2019 level. Asia recorded the highest percentage of government expenditure allocated to agriculture (reaching 5.0 percent in 2022), with Eastern Asia and Southern Asia driving the increase (FAOStat, 2023) (**Figure 37**). On average, public spending on agriculture as a share of total government spending has been consistently low at 5 to 6 percent in Africa for over 40 years, whereas Asian countries spent 15 percent or more of their total budget on agriculture during the Green Revolution era (Fan and Rao, 2003). However, it is also the case that since the early 1980s average spending on agriculture, as a percentage of GDP, has been persistently higher than in the rest of the continent (**Figure 38**).

Meeting the growing demand for finance in the agricultural sector in Africa remains a major challenge and is a symptom of market failure.

Figure 37: Government expenditures on agriculture by region 2022 (USD current prices & share)



Source: ReSAKSS (2024) (Regional Strategic Analysts and Knowledge Support System). Data compiled for tracking implementation of the Comprehensive Africa Agriculture Development Programme (CAADP). http://www.resakss.org/

Donor support for African agriculture also fell sharply after the 1980s. Data from 2002-2021 shows that spending hit a minimum for the continent in 2006, when it amounted to just 1.6% of GDP. But it experienced a strong recovery in the 2010s, rising to around 6-7% of GDP. Perversely, however, just as the global Covid-19 pandemic hit, donor funding to agriculture suffered a sharp contraction, falling to around 4.5% in 2021 (**Figure 39**). This is particularly pertinent for a number of East African countries which are heavily dependent on donor financing. For instance, low and declining investment in African agriculture has weakened already low levels of rural infrastructure, stifled agricultural research and the generation of new technologies for African farmers, and reduced public services in rural areas to the point where there has been widespread migration to low-paying jobs in the cities.

Figure 38: Agricultural as a % of all government spending

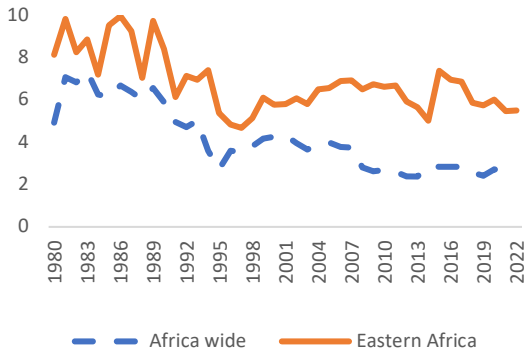
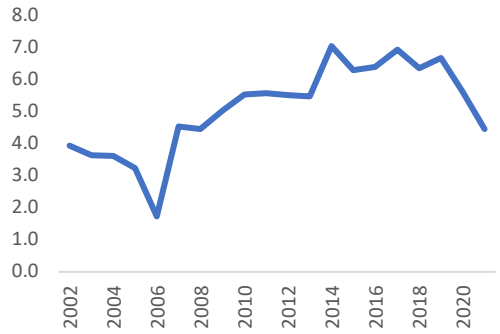


Figure 39: Agricultural ODA as % of GDP



Source: ReSAKSS (2023) (see above).

Total annual climate finance flows in Africa are estimated at USD30 billion, compared to an estimated need of USD250 billion to implement Africa's nationally determined contributions.

Total annual climate finance flows in Africa are estimated at USD30 billion, compared to an estimated need of USD250 billion to implement Africa's nationally determined contributions. Approximately 7 percent of the flows were tracked to adaptation of the agriculture sector in Africa, a strikingly low share compared to the sector's needs and economic weight. Yet, opportunities and innovations to make climate finance work for agriculture are well documented.

It is pertinent to ask why agriculture has been neglected by governments and donors over the last 25 years, with such heavy economic, social and environmental costs. The issue is complex,[100] but a number of factors have been identified as playing a role, including the low international commodity prices (due in part to extensive OECD farm subsidies), leading to excess production and subsidized exports, thereby discouraging investment in developing country agriculture; the fallout from the Structural Adjustment policies of the 1980s and 1990s, when state support for agriculture was often withdrawn, despite extensive market failures and the need for strong state support for agriculture to grow; and a low success rate of agriculture for development projects, which discouraged investment and foreign aid support for agriculture.[101]

Yet the need very much remains to provide complementary public goods to help poor smallholders raise their staple crop and livestock productivity, given limited private sector interest and the importance for poverty reduction. This requires increased public spending in agriculture, which has started to falter, as well as a shift in its composition to supporting mostly public goods (as opposed to

[100] See the discussion in de Janvry and Sadoulet (2021; p. 458-459).

[101] Pernenche et al. (2021) track public expenditure on food and agriculture in Benin, Burkina Faso, Burundi, Ethiopia, Ghana, Kenya, Malawi, Mali, Mozambique, Rwanda, Senegal, Uganda and the United Republic of Tanzania, and found that on average, 21 percent of budgets devoted to food and agriculture were not spent, suggesting that large financial commitments are not sufficient to enable a country to transform its agricultural sector. Implementation is equally important. This is particularly true for donor-funded expenditures, where the share of unspent funds is substantially higher (at around 40 percent).

private) including agricultural research and development (R&D) and extension for not only staples but also livestock, as well as investment in irrigation and rural infrastructure (Christiaensen and Vandercastelen, 2019).

Baaxnano, the Somalian government-led safety net program supported by the World Bank, WFP and UNICEF, was scaled up in 2022 to support almost 500,000 households.

Recent country experience from Africa supports the importance of spending on rural public goods. Ethiopia and Rwanda, for example, have invested more intensively in the provision of rural public goods like extension and agricultural infrastructure as well as, in the case of Ethiopia, productive rural safety nets. Malawi and Zambia, on the other hand, have focused on private goods instead, most notably input subsidies (and maize floor prices above the market price in Zambia). Aggregate cereal output (and yields) increased substantially in all four countries. In Ethiopia and Rwanda, this increase has come along with a substantial decline in poverty, but not in Malawi and Zambia, where most of the subsidies are captured by the larger farmers. The policies are also fiscally unsustainable or only affordable during times of high commodity prices, as in Zambia (World Bank 2014) (Beegle & Christiaenses, 2019). Perhaps one of the most interesting lessons in remedial measures to combat the impacts of climate change on food security can be gleaned from the recent Somali experience. Baaxnano, the Somalian government-led safety net program supported by the World Bank, World Food Programme and UNICEF, aims to support the poorest and most vulnerable households via direct cash transfers, through the Shock Responsive Safety Net for Human Capital Project. The project was scaled up in 2022 to support almost 500,000 households. It is part of the broader Famine Action Mechanism, a global partnership dedicated to scaling up anticipatory and early action to protect lives and livelihoods from emerging food security crises (World Bank, 2022).

12.4 Insufficient R&D in Agriculture

Empirical evidence shows that investments in agricultural research and development (R&D) have tremendously enhanced agricultural productivity in Africa: one dollar invested in agricultural research creates, on average, (a net present value of) future benefits equivalent to USD 10 (World Bank, Africa Pulse, 2022).

Output could increase by 70% if all countries reached the yield frontier, which they defined as the highest actual yield in each club.

Raising crop yield per unit land area remains a key to eliminating food shortages given limited land resources. However, Africa still falls far behind other continents in crop yield and there is major variation across regions within Africa. Tian et. al., (2019) analysed regional yield gaps and yield convergence in Africa for four major crops: maize, millets, sorghum, and cassava. The club convergence test was employed to test whether yields are converging in Africa, and their results found no evidence of convergence as a whole for any of the crops. However, they did find that crop yields were converging into several clubs or groups of countries, implying successful technology diffusion and use within, but not between, specific regions. Output could

increase by 70% if all countries reached the yield frontier, which they defined as the highest actual yield in each club. Tian et. al suggest policies aiming to end hunger in Africa should thus focus on eliminating barriers to technology diffusion and use of agricultural support mechanisms between countries, particularly those in the same sub-region (Tian et. al, 2019).

Wiebe et al. (2001) examined trends in agricultural productivity in Africa and found that for Africa to continue meet its food security needs would require one to two percent greater agricultural production per year. Education of the rural labour force as well as agricultural research would improve the future prospects for productivity growth in Africa. In addition, policy reforms to improve physical infrastructure, political stability and the institutional environment were needed to facilitate increased to high yielding inputs.

Alene and Coulibaly (2009) investigated the aggregate impacts of R&D on productivity growth and poverty reduction in Sub-Saharan Africa. Using a polynomial distributed lag structure for agricultural research within a simultaneous system of equations, they demonstrated that agricultural research contributed significantly to productivity growth. They also found an aggregate rate of return of 55%, to agricultural research and that agricultural research reduced the number of poor by 2.3 million or 0.8% annually. The results showed that doubling research investments in Africa south of the Sahara would reduce poverty by 9% annually. However, this would not be realized without more efficient extension, credit, and input supply systems.

The results of Alene and Coulibaly (2009) show that doubling research investments in Africa south of the Sahara would reduce poverty by 9% annually.

Dias and Evenson, (2010) computed measures of total factor productivity (TFP) growth in developing countries for crop production, livestock production, and aggregate agricultural production for two periods, 1961–1980 and 1981–2001. They found that highest TFP growth rates were achieved in East Asia, followed by South Asia and the countries in Latin America. The lowest TFP growth rates were in East and Central Africa. They also found a positive correlation between TFP and investment in industrial R&D, extension systems and in the schooling of farmers. Alene (2010) focused on the contributions of R&D expenditures to productivity growth in African agriculture for the periods 1970-2004. He found an average TFP growth rate of 1.8% per year for the period 1970- 2004 and a 33% annual rate of return on investments in agricultural R&D in Africa. He argued that rapid growth in R&D expenditures during the 1970s helped to explain strong productivity growth after the mid-1980s, while slower growth of R&D expenditures in the 1980s and early 1990s led to slower productivity growth since 2000.

Despite the positive effect of R&D in Africa, the long-term rates of return of agricultural R&D in Africa have been lower than in developed regions (Alston et al., 2000). In addition, Africa has benefited less from spillovers of agricultural technologies developed elsewhere. Johnson and Evenson (2000) argue that foreign research is less applicable in Africa south of the Sahara, and thus has lower impacts than in other regions. If the continent had enjoyed even the average level of foreign spillovers, growth would have been much faster. They also argue that if Africa south of the Sahara had performed domestic research at a level comparable with Southeast Asia, growth would have been at least another

0.25% higher in each year (an important effect in an area where the actual growth rate averaged only 0.6% per year).

Box 3: The potential of improved varieties of African staples such as teff and cassava to improve food security

While billions of dollars and decades of work have gone into developing higher-yielding, more climate-resilient varieties of wheat and corn in the exporting countries of Europe and North America, the staples of Africa — such as millet, cassava and sweet potato — have been largely neglected. For example, teff is a staple cereal that is grown across Ethiopia, Eritrea, Somalia and parts of Kenya, where it feeds some 150mn people. Despite the large importance of teff in the local food sector of Ethiopia, investments in research towards the development of improved agronomic practices have not been at appropriate levels. The neglect of teff in research and development illustrates the importance of demand analysis and priority setting for the future. Given consumption patterns in Ethiopia as well as high economic growth, it was and is expected that there is a rapidly increasing demand for teff and, thus, there are likely high pay-offs to public investments in research and development to improve teff production in Ethiopia (Minten et. al. 2015).

Teff tends to grow tall and thin, though — which makes it fragile. And, once the spindly grain is knocked over, yields plunge by up to 30 per cent. The Gates Foundation is funding the Ethiopian Institute of Agricultural Research to carry out research into teff. Standard teff can reach about 140cm in height, but the EIAR's new gene-edited varieties are only about 80cm tall, making them less prone to falling over or breaking. The next challenge for researchers is increasing the size of the grain itself. In Nigeria, the International Institute of Tropical Agriculture (IITA), one of CGIAR's research centres, has developed six new varieties of cassava that can produce between 25 and 30 tonnes per hectare — a big advance on the current six tonnes. According to the UN's Food and Agriculture Organization, the root is a primary food source for 70mn Africans.

Climate change is also driving farmers to reconsider old staples. For instance, the sweet potato is making a comeback in African countries, because increasingly unpredictable seasons are making "traditional crops" more attractive. Farmers usually grow maize for export, but tuber crops such as sweet potato have characteristics [that can help] them to deal with climate stresses — such as an unusually prolonged rainy season in Kenya, at a time when farmers would typically expect sunshine to dry their crops. Although the sweet potato is both "very nutritious" and versatile — as well as the root, the leaves are edible, and it can be consumed by livestock as well as people — the International Potato Center (CIP), another CGIAR research hub is working on new varieties that are better able to meet the demands of African farmers. Traits they are looking for include greater drought resistance, higher yields and earlier maturity, at three months instead of five.

Governments are taking a keen interest in such innovations. Nigeria, for example, the world's largest producer and consumer of cowpea, has embraced genetically modified versions of the legume as it seeks to meet ever-growing local demand, with an estimated 3.6mn tonnes consumed annually. In 2019, a variety developed by scientists at the Institute for Agricultural Research at Ahmadu Bello University in Zaria, northern Nigeria, won government approval, making it the country's first genetically modified crop. It is resistant to the legume pod borer, an insect that can reduce yields by up to 80 per cent.

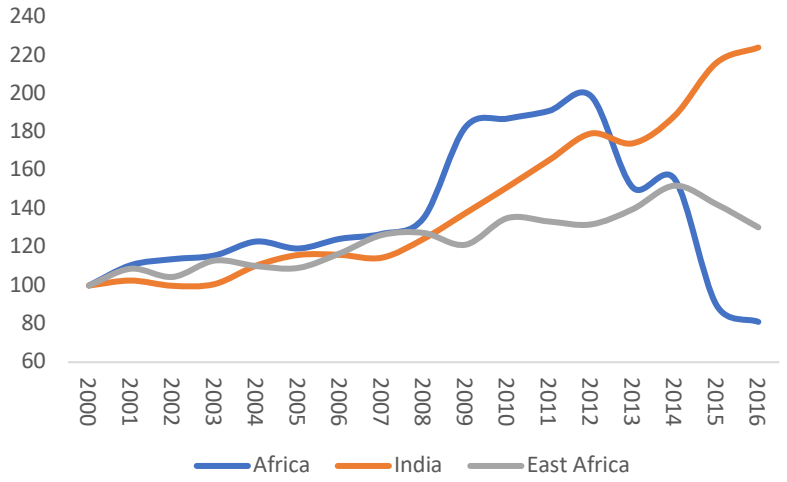
Source: Adapted from Savage and Adeoye (2024); Minten et al. (2015).

While billions of dollars and decades of work have gone into developing higher-yielding, more climate-resilient varieties of wheat and corn in the exporting countries of Europe and North America, the staples of Africa — such as millet, cassava and sweet potato — have been largely neglected.

Even though the evidence shows that the payoffs to agricultural research are considerable, many countries in the region continue to underinvest in agricultural research. Stads and Beintema (2015) argue that overall investment levels in most African countries is well below the levels required to sustain agricultural R&D needs. In 2011, SSA invested just 0.51 per cent of agricultural output in agricultural R&D, far below the UN's and NEPAD's 1 per cent minimum national R&D investment target. Agricultural R&D spending for the region as a whole also shows much higher volatility compared with spending in other developing regions of the world. Low levels of government funding, coupled with a much higher dependence on donor and development bank funding compared with other regions, are the main driver of Africa's high volatility in agricultural R&D expenditures.

According to Fuglie and Rada (2013), the significance of agricultural R&D is underscored by the fact that the recovery in productivity gains in Africa in the 1990s has been due to increased spending on agricultural R&D and extension services. They examined the long-term performance of agriculture in African countries and the roles of agricultural research, economic policy reform, labour force education and the presence of armed conflict. They found that agricultural productivity in Africa remained low and was falling farther behind other regions of the world. They showed that increased productivity was correlated with investments in agricultural research, wider adoption of new technologies, and policy reforms that have strengthened economic incentives to farmers. Returns to national agricultural research were robust although investment in agricultural research remained low and increases in research capacity will likely be necessary to significantly accelerate agricultural growth in the region.

Figure 40: Growth in total agricultural R&D expenditure (in 2011 PPP dollars)



Source: Data for from ASTI & IFRPI (2024) *index year 2000=100

Regarding knowledge spillovers generated from agricultural research and development (R&D) in Africa, studies have found evidence of positive spillovers. Maredia & Byerlee, (2000), examined the issue of research efficiency in 35 developing countries using a global model that incorporated direct research spill-ins and found positive spillover effects. Abdulai et al. (2006), use a partial equilibrium model to investigate the potential for spillovers from greater cooperation in agricultural research, and from trade liberalization. Their results show that permitting greater cross-border transfers and adopting improved technologies could have large spillover multiplier effects on overall economic welfare in the region. The data on agricultural research and development expenditure shows an improvement for East African countries since 2000 although the spending has not kept pace with countries like India. Total public spending on agricultural R&D in East Africa increased by 30% from 2000 to 2016 (USD 461 million in 2001 to USD 600 million in 2016, in 2005 PPP dollars), by comparison spending in India increased by 124% in the same period (**Figure 40**). The African Union recommended spending at least 1% of agriculture GDP on R&D. However median spending in Eastern Africa and other African regions remains less than 1%.

Permitting greater cross-border transfers and adopting improved technologies could have large spillover multiplier effects on overall economic welfare in the region.

13: Conclusions and Recommendations

Eastern Africa confronts a wide array of challenges in order to ensure better food security. But this report has argued that the AfCFTA offers a unique opportunity to help address food insecurity in the region through improving market integration and boosting intra-African food trade, in line with the CAADP/Malabo commitments. However, the AfCFTA's success depends ultimately on the effective and timely implementation of its provisions by the member states. Achieving this also requires broader support measures, including accelerating the harmonization of standards and regulations, removing tariff and non-tariff barriers, and facilitating cross-border movement of agricultural inputs.

While the AfCFTA presents a unique opportunity to integrate regional food markets, its success hinges on effective implementation, the reduction of trade barriers, and complementary investments in infrastructure and agricultural productivity.

These arguments are all the more true because the regional food system has recently been under increasing pressures that have threatened the food security and nutrition of millions of people. Africa is the region worst affected by hunger, with about one in five people chronically under-nourished and nearly half of all the undernourished people on the continent living in Eastern Africa. Yet with its fertile soils and youthful population, Eastern Africa holds huge agricultural potential to not only ensure food security for its people but also play a crucial role in the continental food system.

Beyond the rapid implementation of the AfCFTA, there is a pressing need for more investment in the agricultural sector. The evidence reviewed in this study on this point is resounding. For instance, reported gains from investments in irrigation are large, with returns ranging from 17 percent for large-scale schemes to 43 percent for smaller schemes. Similarly, greater investment in research and development (R&D) is crucial, given that the evidence shows that doubling agricultural R&D spending has the potential to reduce poverty by 9% annually. Expanding agro-industrialisation, particularly through more investments in food processing and storage, can also enhance food self-sufficiency and reduce post-harvest losses.

Yet meeting the growing demand for finance in the African agricultural sector remains a major challenge. Despite all the past efforts at improving financial inclusion, only 10% of African farmers currently have access to credit, while commercial bank lending for agriculture represents less than 5 percent of their total loan portfolio. This is a clear symptom of market failure and is severely constraining the ability of farmers to invest in productivity-enhancing technologies. In this context, there are four areas that, in our opinion, require greater attention by policymakers:

- **Greater Public Sector Investment.** Our analysis reveals that public funding in support of agriculture has clearly been insufficient to catalyse the kind of transformation the sector requires. In particular, greater public sector support is needed to scale up climate-smart, irrigation and regenerative agricultural practices. An example is Tanzania, where due to lack

of public funding climate-smart agriculture plans were reportedly having a negligible impact, with the cost of inaction being conservatively projected at USD 1.4 billion by 2040. Fortunately, the government has reacted to this challenge, and from the fiscal year 2021/22 to 2023/24, the budget for agriculture was increased nearly fourfold, from USD 127 million in 2020/21 to USD 629 million in 2022/23.[102] This proves that the mobilisation of greater resources within a short timeframe is possible.

In Tanzania, from the fiscal year 2021/22 to 2023/24, the budget for agriculture increased nearly fourfold, from USD 127 million in 2020/21 to USD 629 million in 2022/23, thus proving that the mobilisation of greater resources within a short timeframe is possible.

- **Better Regional Coordination.** The gravity of the climate crisis requires heightened coordination at the regional level. Eastern Africa, with its fertile land and diverse agricultural potential, must strengthen regional coordination to mitigate external shocks and reduce dependence on global food markets. Countries in the region should enhance cooperation in research, technology adoption, and climate-smart agricultural practices. Existing regional communities (IGAD, EAC and COMESA) offer important platforms for countries to collaborate across borders, pool resources, share knowledge, and carry out joint projects in infrastructure, research and regulatory harmonisation. But further measures are required. For instance, the late Professor Calestous Juma (2011) proposed that regional centres of excellence be established to concentrate top talent and resources on key priorities like drought-resistant seeds, precision agriculture for small farms, and post-harvest loss technologies.

- **More Investment in Data.** Understanding better the regional food system is crucial for evidence-based decisions on consumption, production, and trade. By using data from government and private stakeholders, *food balance sheets* provide accurate information for informed decision-making, benefiting policymakers, consumers, farmers, producers, and development partners. Detailed data on local crop production, prices, and yields can also help governments target subsidies effectively.[103] McKinsey claims that establishing a regional food balance sheet for Eastern and Southern Africa could improve food security for over 20 million people, save USD 60 million in public spending on emergency food reserves, boost intra-Africa trade by USD 1 billion, and create over 50,000 jobs.

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[102] See UNECA (2023; p.36).

[103] Kenya is already publishing its Food Balance Sheets (see KNBS, 2019) and according to McKinsey, the better information has already resulted in a 3% saving in government spending on food reserves.

- **Scaling Up Digital Solutions**. Digital solutions must also be rolled out more rapidly.[104] More than 400 digital agriculture solutions are already in use on the continent, and 20 have achieved scale at more than one million farmers.[105] An example is the 8028 Farmer Hotline, a government-run advisory service in Ethiopia which provides advice on best practices for crop production, livestock management, and other relevant agricultural topics. Another example is the way in which since 2020 Kenyan farmers, with the support of FAO, have used machine-learning combined with satellite connections to help fight severe locust swarms. In 2020, advice was disseminated to nearly 14 million farmers on a weekly basis.[106]

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In conclusion, the AfCFTA presents an unprecedented opportunity to transform Eastern Africa's agricultural landscape and ensure food security for millions. However, this potential can only be realized through the concerted efforts of member states to implement its provisions effectively and support measures that address market failures. By investing in climate-smart agriculture, enhancing regional coordination, leveraging data, and scaling up digital solutions, Eastern Africa can harness its vast agricultural potential. The time to act is now, to build a resilient and self-sufficient food system that can withstand future challenges and uplift the lives of its people.

[104] UNECA's Subregional Office for Eastern Africa is currently providing technical support to five African countries - Comoros, Congo Brazzaville, Côte d'Ivoire, Malawi and Uganda - to better leverage digital trade tools so as reinforce food security. ECA's technical assistance trains farmers, agribusinesses and governments to use digital platforms for supply-chain management, real-time market data and e-commerce. The goal is to connect surplus food producing areas with deficit areas, stabilise food prices and strengthen regional food systems.

[105] McKinsey (2024).

[106] FAO estimates these efforts may have saved as many as 34 million livelihoods and averted losses amounting to USD 1.5 billion throughout the region (Baptista et al., 2022).

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Annexes

Annex 1: Definitions of 'Food Trade'

There are various alternatives in the way that food trade is defined. In this study, we analyse food trade patterns in the region principally using a definition of 'All Food Items'. The definition is a comprehensive one, which includes food and live animals, beverages and tobacco, oil seeds and oleaginous fruits, and animal and vegetable oils, fats and waxes (SITC 0 + 1 + 22 + 4). This classification is in line with our definition of food security.

Figure 41: Classification of Food Categories

A01	All food items (SITC 0 + 1 + 22 + 4)
0	Food and live animals
1	Beverages and tobacco
22	Oil seeds and oleaginous fruits
4	Animal and vegetable oils, fats and waxes
A14	Food, basic (SITC 0 + 22 + 4)
0	Food and live animals
22	Oil seeds and oleaginous fruits
4	Animal and vegetable oils, fats and waxes
A15	Food, basic excluding tea, coffee, cocoa and spices (SITC 0 + 22 + 4 less 07)
0	Food and live animals
07	Coffee, tea, cocoa, spices, and manufactures thereof
22	Oil seeds and oleaginous fruits
4	Animal and vegetable oils, fats and waxes
A16	Beverages and tobacco (SITC 1)
1	Beverages and tobacco
A02	Agricultural raw materials (SITC 2 less 22, 27 and 28)
2	Crude materials, inedible, except fuels
22	Oil seeds and oleaginous fruits
27	Crude fertilizers other than division 56, and crude minerals
28	Metalliferous ores and metal scrap

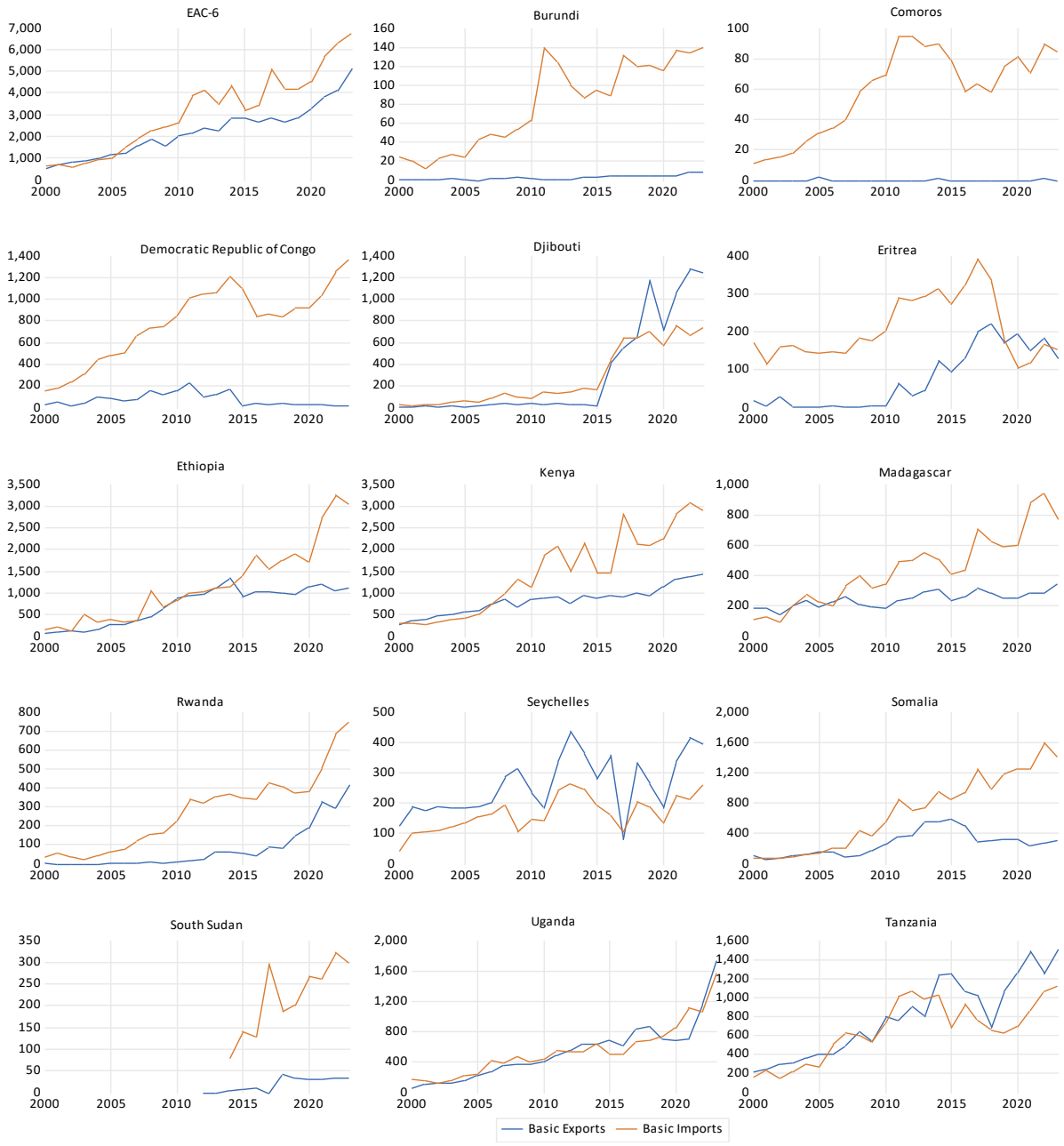
Source: UNCTAD (2025).

There are two main alternatives to this definition that are also referred to in this report. If we were to adopt an approach to food security based on *food self-reliance*, it would be more appropriate to exclude the traditional cash crop component – beverages & tobacco and spices, including coffee, tea, cocoa, spices, and manufactures thereof. A second alternative would be to include all agricultural exports, including raw materials and products like cotton, as reflected in **Figure 41**. This is appropriate from the perspective of whether total agriculture export earnings are sufficient to cover the food import bill.

Annex 2: Comparing Eastern Africa According to Different Definitions of Food Security

We noted in **Annex 1** the different definitions of food trade. **Figure 26** shows Eastern Africa's Food Exports and Imports from the perspective of 'All food items (SITC 0 + 1 + 22 + 4)'. Here we provide the figures for the EA-14 member states using the alternative definition of 'Basic Food excluding tea, coffee, cocoa and spices (SITC 0 + 22 + 4 less 07).

Figure 42: Eastern Africa's Food Trade Using Basic Food (excluding cash crops).



Source: UNECA Elaboration from UNCTADStat (2025)

The difference is quite pronounced. The EAC-6 no longer has a surplus in food trade, but actually a deficit of USD 1.6 billion in 2023. The deficit in basic food has been a persistent characteristic of EAC food trade since 2006. The food trade balances of all the countries where cash crops take up an important share of total agricultural exports deteriorate quite significantly compared with the picture presented in **Figure 42**. Kenya, for instance, sees a very marked deterioration in its food trade balance, rising to USD 1.48 billion in 2023 (compared with a small surplus of 14 million on an 'all food' basis). Ethiopia and Madagascar, previously approximately balanced in their food trade, sustain an important deficit once their key respective cash crops (coffee and vanilla) are removed from the data. Finally, although their positive food balances are reduced, Uganda and Tanzania remain net food exporters. Globally, then, using a narrower definition of food trade, it is clear that food security in Eastern Africa is more fragile from this perspective.

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