

WORKING PAPER

Potential impacts of the African Continental Free Trade Area on the welfare and adaptive capacities of smallholder farmers in East Africa

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Highlights

- East African countries are signatories to the agreement establishing the African Continental Free Trade Area (AfCFTA), which aims to promote growth and prosperity through economic integration and increased trade among African countries.
- In principle, the expansion of intraregional trade could boost farmers' incomes by opening up new markets for the crops they produce and thus enhance their climate resilience while also improving food security by introducing low-cost imports from other African countries.
- In practice, however, smallholders across the region may be unable to benefit from increased intra-African trade due to their limited market access, low productivity, and vulnerability to climate change. Moreover, farmers' income could decline due to competition from low-cost imports, while production costs could rise.
- To prevent such welfare losses, governments and their development partners should increase support to smallholders to help them adapt to climate change and boost productivity and enhance their market access and bargaining power by supporting independent farmer organizations and cooperatives.

Executive summary

The African Continental Free Trade Area was created with a vision to boost investment, job creation, and economic competitiveness by establishing a single African market with about 1.3 billion people, with significantly increased trade and regional value chains.¹ The AfCFTA agreement aims to achieve up to 97 percent liberalized trade in goods and services through a progressive reduction of tariffs and elimination of nontariff barriers. Trading under the AfCFTA began in January 2021, but full implementation of the agreement will take several more years.

The AfCFTA is expected to foster sustainable and inclusive socioeconomic development and structural transformation, with broad benefits, including for farmers. The ability to reach an expanded continental market has the potential to boost producers' incomes, and the increased availability of food grown within Africa could reduce countries' dependence on food imports from outside the continent and thus their vulnerability to global price fluctuations and supply chain disruptions.

However, several analyses have found that the welfare impacts of the AfCFTA are likely to vary across different categories of farmers, with large-scale producers in Zimbabwe, for example, expected to gain from increased output and sales, but smallholders' output projected to decrease (Nesongano 2022). In Kenya and Tanzania, trade liberalization is expected to increase the production of cash crops but reduce demand for some food crops, which could adversely affect smallholders (Nechifor et al. 2022).

This study draws on interviews with smallholders in Kenya, Tanzania, and Rwanda; staff at government agencies and nongovernmental organizations (NGOs) who work directly with farmers; trade officers; and experts, as well as a literature review, to delve deeper into the implications of the AfCFTA for smallholders in the region. In particular, it examines how trade liberalization may affect these farmers in the context of intensifying climate change impacts, and the key investments needed to enable smallholders to benefit from new opportunities created by the AfCFTA and avoid any adverse effects.

Most smallholders in the region have a weak asset base, a limited capacity to pay for inputs needed to boost productivity or to adapt to climate change, and no direct access to markets, depending instead on intermediaries who buy their crops at the farm gate. In order to benefit from the AfCFTA, the study suggests, they will need significant additional support to address their vulnerabilities and enhance their market access and bargaining power.

National strategies for implementing the AfCFTA should develop frameworks to support the bulk purchase of farm produce from smallholders through cooperatives and independent farmer organizations in order

to minimize exploitation by intermediaries in agricultural markets. Through organizations, farmers can also more easily adopt efficient aggregation models, including e-commerce and last-mile distribution hubs to access cross-border market opportunities. AfCFTA implementation strategies should also include targeted outreach and capacity building for farmers to increase their awareness of those emerging opportunities and what they need to do to seize them.

Government agencies, NGOs, and other development partners should support independent farmer associations and cooperatives, including their formation and growth. Helping smallholders band together to sell produce, acquire inputs at lower costs, access finance, and invest in storage and equipment for value addition will significantly increase both their competitiveness and climate resilience. Governments should also eliminate any barriers to cooperative development and growth.

Countries should enhance access to yield-enhancing technologies and inputs at low costs to smallholders. Regional policy should address the high cost of fertilizers and support joint research and development, ensuring that improved inputs are produced in sufficient quantities for all farmers and supplied early in the planting season.

Governments, NGOs, and other development partners should increase climate adaptation support for smallholders—for example, to enable them to install efficient irrigation systems; access timely climate information; adopt climate-smart agriculture practices such as water recycling, mulching, conservation tillage, and soil and water management practices; and diversify their livelihoods by growing new, higher-value crops and adding value by processing their existing crops. Such practices could enable farmers to reduce risks associated with climate variability. Access to affordable credit and insurance will also be crucial for effective adaptation.

Significant knowledge gaps make it difficult to predict how AfCFTA implementation will ultimately affect smallholders, or to monitor the effects to date. **This study therefore recommends that governments collect comprehensive, disaggregated data to enable them to track the impacts of trade liberalization at the national and subnational levels.** Disaggregating data by social and economic characteristics is key; otherwise, large benefits to some producers could eclipse the harm done to others, and critical opportunities to ensure more equitable outcomes might be missed.

Introduction

Forty-four of the 55 nations of the African Union have ratified the agreement establishing the African Continental Free Trade Area (AfCFTA), which would create a single market with a population of about 1.3 billion and a combined gross domestic product (GDP) of about US\$3.4 trillion.² The agreement, which entered into force in 2019, aims to promote sustainable and inclusive growth, structural transformation, job creation, and economic competitiveness by establishing regional value chains and increasing intraregional trade.

The AfCFTA agreement calls for a progressive liberalization of trade in goods and services, with parties that are least developed countries (LDCs)³ expected to remove tariffs on at least 90 percent of goods by 2031, and most of the rest (up to 7 percent of tariff lines) by 2034; non-LDCs have until 2026 and 2031, respectively, to do the same (Echandi et al. 2022). Parties are also to take steps to eliminate nontariff barriers (NTBs) on goods and services and facilitate trade, and use an online system to monitor their progress.

The AfCFTA has been hailed as a historic opportunity for Africa's development (Songwe et al. 2021), and several studies using economic modeling have found that it could boost productivity and growth across the continent and help reduce poverty. An International Monetary Fund analysis found "significant potential welfare gains" (Abrego et al. 2019). A World Bank study found that full implementation could increase real income by 7 percent by 2035, mainly through trade facilitation and the removal of NTBs—though with large differences across countries, sectors, and population groups. It also found that the AfCFTA could lift 30 million people out of extreme poverty and 68 million out of moderate poverty (Maliszewska and Ruta 2020).

Most recently, the UN Economic Commission for Africa (UNECA 2025) found that the AfCFTA will boost the continent's cumulative GDP in 2021–45 by \$1.4 trillion, and that it can support climate-resilient development at a time when climate change is posing ever-larger threats to countries' economies and people's well-being, particularly in agriculture-dependent areas.

Region- and country-specific modeling analyses have generally been less optimistic, projecting smaller gains for some and losses for others (Fouda Ekobena et al. 2021; Shinyekwa et al. 2021; Nechifor et al. 2022; Maskaeva et al. 2024). An analysis focused on East African Community members noted that they currently export mainly agricultural commodities and products and mineral ores, for which demand may be limited across Africa, while the majority of Africa's current imports come from Asia, Europe, and the United States (Shinyekwa et al. 2021).

Still, the latest analysis by the UN Economic Commission for Africa estimates that intra-African trade in agricultural and food products will be \$58.6 billion greater in 2045 than without the AfCFTA (UNECA 2025), with processed goods continuing to dominate trade within the continent but with robust growth in non-processed items as well.⁴ Similarly, the World Bank projected a 49 percent increase in intra-Africa agricultural trade by 2035 (Maliszewska and Ruta 2020). For farmers, these projections suggest significant opportunities to increase their income.

Yet across sub-Saharan Africa, the vast majority of farmers are smallholders, many of whom live in extreme poverty and have made few, if any, gains in crop productivity in recent years (Wollburg et al. 2024; Gollin 2014). Climate change poses growing threats to these farmers, but they face many barriers to adaptation (Trisos et al. 2022).

The AfCFTA agreement envisions an increase in intra-Africa trade in agrifood products and the creation of regional value chains that underpin new industries while enhancing food security (African Union 2018). Several commodities produced by smallholders are among those projected to record significant increases in intra-Africa trade as part of new regional value chains, including milk and dairy products, meat, and sugar (UNECA 2025).

To the extent that the AfCFTA creates opportunities to sell more of their produce, it could improve smallholders' incomes and welfare. However, as in all sectors, the expansion of agrifood trade is likely to favor efficient and low-cost producers who are already well connected to markets. Smallholders will have to compete with large commercial producers—not just to access export markets but also at home, where free trade is likely to bring relatively cheaper imports from other regions or countries. It is thus not obvious at all whether smallholders will be able to survive, much less thrive, under the AfCFTA.

This study examines how implementation of the AfCFTA agreement is likely to impact the welfare of smallholders in East Africa, including their capacity to adapt to climate change. It draws on a literature review as well as interviews with stakeholders in Kenya, Tanzania, and Rwanda. In particular, it assesses the different ways the AfCFTA may affect smallholders' livelihoods and household expenditures; the main challenges they face in accessing markets, including due to unmet climate change adaptation needs; and priority investments that can help these farmers to take advantage of potential opportunities created by the AfCFTA and reduce the risk of adverse effects.

The next section describes the methodology used in the study, including the conceptual framework that guided the interviews. “East African Farmers, the AfCFTA, and a changing climate” provides an overview of agriculture in East Africa in the context of climate change, then presents key findings from the interviews. The “Conclusions and recommendations” for policymakers also offers suggestions for additional research. Appendices A–C provide more details on the stakeholders interviewed, the questions asked, and key services that are already being provided to farmers and could serve as a foundation for additional support.

Conceptual framework: The AfCFTA and smallholder economics

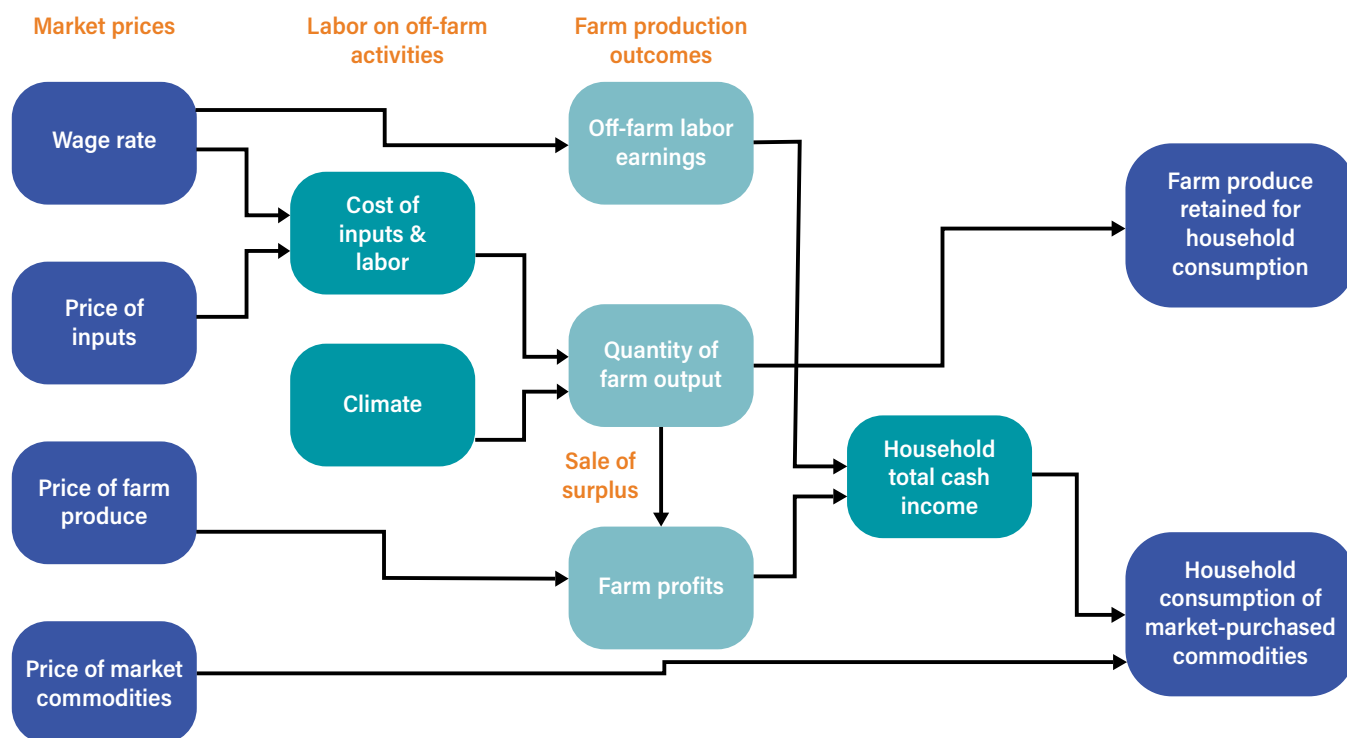
This study combined a literature review with semistructured interviews with smallholder farmers; experts in trade policy, food trade, and adaptation in agriculture; and staff at government agencies and nongovernmental organizations (NGOs) who work directly with farmers, including agricultural extension workers, trade officers, and production and marketing officers.

A key concern for this study’s authors was that the general equilibrium models used in economic analyses of the potential impacts of the AfCFTA did not fully account for the realities of smallholder farmer households. In particular, agricultural households have a dual character as both producers and

consumers of farm outputs, even if they also sell some of their produce to generate income. Market prices similarly affect them on multiple levels: as purchasers of farm inputs and of food and other items for their households, and as sellers. With little or no empirical data yet available on household-level impacts of the AfCFTA, the survey was designed to begin to explore those complexities.

The conceptual framework that underpins the survey is based on a model of agricultural households developed by World Bank researchers (Singh et al. 1986). In short, the model shows that households use available resources of land, labor, and other variable inputs such as seeds, fertilizers, hired labor, mechanization services, and farm chemicals to maximize their income. The total output from a given area of land depends on the labor and inputs used. In rainfed agriculture, which prevails in East Africa, climatic conditions, especially the amount and patterns of rainfall, are also important. Farmers’ cash income is determined by the prices obtained for any produce sold, net of wages paid for any outside labor and the cost of inputs. Some farmers will earn wages from off-farm labor as well. Market prices further affect household welfare in that they determine what they can afford to purchase for household consumption. Figure 1 provides an overview of the link between the key elements.

Figure 1 | Conceptual model for the economics of smallholder farmer households



Source: Authors' conceptualization, based on Singh et al. 1986.

The model measures the welfare level of a household in terms of goods and services consumed, including both farm produce retained for household use and market-purchased commodities. Market prices affect smallholders' welfare in multiple ways: through the affordability of inputs, which affects productivity; the net profits earned from selling produce; and the purchasing power associated with the household's cash income.

This sheds light on how the AfCFTA could affect smallholders' welfare. The two primary impacts of tariff reduction in an economy are the changes in prices of traded goods, which, in turn, can affect the prices of nontraded goods,⁵ and changes in income earned from different activities due to changes in the relative prices of commodities produced through those activities (Porto 2006). Both could have significant impacts on household welfare.

Changes in off-farm wage income could arise from the fluctuations in wage rates as trade creates more demand for labor in some sectors and reduces it in others, household members' choice to allocate more or less time to off-farm activities, or a combination of both (Porto 2006). As noted above,

the AfCFTA is expected to drive structural change, with job creation expected mainly in manufacturing and services (Maliszewska and Ruta 2020).

The AfCFTA could affect farm profits through changes in produce and input prices. Opportunities to sell produce at better prices due to trade can encourage farmers to increase the use of inputs to boost productivity, especially if trade increases the availability of low-cost yield-enhancing inputs such as fertilizers and livestock feed. From the increased output, farmers can retain more food for household consumption and also secure large surpluses for sale to increase their incomes.

Trade liberalization could also make imported goods available at lower prices. Smallholders, like any other consumers, would benefit from lower prices in that they would be able to purchase more goods. However, smallholders could also find themselves competing with lower-cost imports, which could reduce their income. Conversely, some market goods could become more expensive (Simola et al. 2022), as producers choose to target export markets rather than sell locally, and/or change the crops they grow to seize more export opportunities.

The welfare outcomes from trade liberalization can thus vary significantly, depending on what farmers grow, the sensitivity of prices to changes in tariffs and trade volumes, and the price elasticity of demand for specific goods. For smallholders these effects also depend on the extent of participation in their domestic, regional, and international markets, and whether they are net buyers, net sellers, or mainly consuming what they produce. At the same time, the growing impact of climate change on farm productivity highlights the importance of effective adaptation in the context of AfCFTA implementation.

A quantitative assessment of the impact of the AfCFTA on smallholder households' welfare would require a comprehensive dataset including the makeup of households (number of members, age, employment); nutrition; budget shares of household consumption spending on tradable and nontradable goods purchased from the market; prices and applicable tax rates on different commodities; sources of income for each household member (including industry or sector); share of income of each member in household income; and adequate data for determining the required elasticity estimates. Data on agricultural production would also be needed, disaggregated by type of farmer (small- or large-scale), including prices of inputs, use of different inputs, and sources. Currently available agricultural data are generally aggregated at the country level and lack important information on prices as well as input usage.

Such extensive data compilation and analysis is beyond the scope of this study. Instead, interviews have been used to gather qualitative information from different groups of stakeholders, supplemented by a review of simulation studies on the impacts of market liberalization under the AfCFTA on welfare indicators, impacts of climate on smallholder production and adaptation practices, and responses of smallholder production to changes in output and input prices.

The interviewees were selected from institutions involved in trade policy research, agricultural transformation, and climate adaptation in East Africa, as well as those directly supporting smallholders in production and marketing. A total of 26 individuals voluntarily participated in the interviews, which were conducted in July and August 2022.

The interviews explored how the AfCFTA may impact the welfare of smallholder farmers, given the constraints they currently face in production, marketing, and climate adaptation.

Stakeholders were also asked about existing support services for smallholders (Appendix C) and the public investments that should be prioritized to enable smallholders to overcome their challenges and benefit from increased trade under the AfCFTA. Participants were granted anonymity, but Appendix A provides a list of their occupations and the institutions with which they are affiliated, as applicable. The questionnaires that guided the interviews are provided in Appendix B.

Unlike the modeling studies of the AfCFTA's potential impacts, which are basically simulations based on a set of assumptions, the interviews provide perspectives from stakeholders with direct lived experience, including knowledge of the behavior of smallholders and how they interact with markets. These perspectives are critical for corroborating findings from the quantitative simulations for effective policies and strategies to harness benefits from the AfCFTA.

Farmers, the AfCFTA, and a changing climate

Agriculture plays a central role in East African economies. More than 70 percent of industries in East African Community countries rely on agricultural products, and agricultural commodities make up about 65 percent of the volume of intraregional trade (EAC 2020). Smallholders grow cash crops such as tea, coffee, sugarcane, tobacco, and cashew nuts, as well as food crops consumed by households, such as maize, rice, potatoes, vegetables, and pulses. Some also raise livestock or fish.

According to a 2010 analysis by the African Development Bank (AfDB) focused on Ethiopia, Kenya, Tanzania, and Uganda, more than 75 percent of the countries' agricultural output was produced on farms averaging just 2.5 hectares, and it was mainly grown for home consumption, using traditional techniques (Salami et al. 2010). Persistently low productivity, attributed to farmers' limited resources, kept them from accessing key inputs and adopting useful technologies. The farmers also face limited access to credit and limited extension services, among other factors. More recent studies have found that farmers in the region continue to be severely constrained by the lack of credit and lack of resources, perpetuating low productivity and deep poverty (Kinuthia 2018; Hammond et al. 2023).

Smallholder agriculture in East Africa is mainly rainfed, and already in 2010, the AfDB analysis had identified climate change as a further stress on farmers, as both droughts and floods had increased, leading to crop failures and the loss of livestock (Salami et al. 2010). Worsening land degradation exacerbated the impacts and reduced farmers' resilience. Climate change is intensifying the region's significant weather variability, as shown in Figure 2. Seasonal rainfall patterns are also changing, with the main rainy season shortening in parts of East Africa, but also with more rain falling at other times, and heavy rainfall occurring more frequently (Trisos et al. 2022).

As climate change continues to progress, the shifts in seasonal patterns, rainfall, and temperatures are expected to pose growing challenges to farmers in East Africa and across the continent, affecting rural livelihoods and food security due to communities' low adaptive capacity (Trisos et al. 2022). The EAC's Food and Nutrition Security Action Plan, 2019–2023, notes that, without adaptation, yields of food staple crops such as maize, beans, rice, cassava, sorghum, millet, and bananas, as well as cash crops such as tea, coffee, and cotton, could decline by 30–50 percent (EAC 2019).

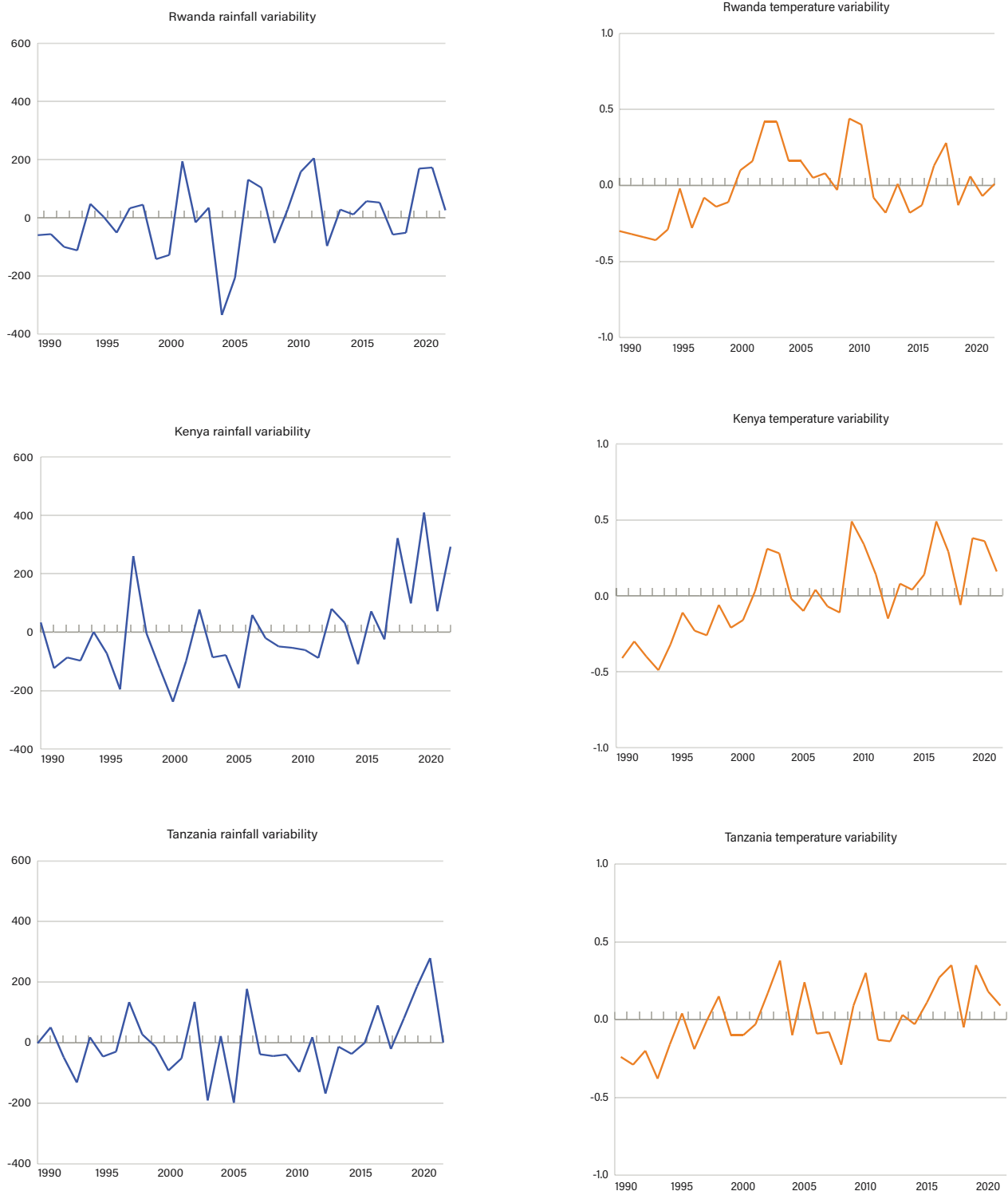
Climate change is also creating more favorable conditions for pests and diseases, which already take a significant toll on crop yields and livestock productivity in the region (EAC 2019; Trisos et al. 2022). For example, a major desert locust infesta-

tion in East Africa in 2019 has been linked to the effects of Indian Ocean warming on cyclone activity (Bezner Kerr et al. 2022, Box 5.9).

Without effective adaptation, the disruptive effects of climate change and variability are likely to hinder East African farmers' ability to seize opportunities created by the AfCFTA, as crop yields could vary significantly from year to year, and productivity is expected to decline, especially for rainfed agriculture (Trisos et al. 2022). Lower yields, in turn, would reduce farmers' net income. In places where the AfCFTA drives an influx of low-cost food imports, smallholders could also see the prices of their produce drop.

Some researchers have found that free trade could help to mitigate the adverse effects of climate change on agriculture by allowing farmers to adjust production and specialize along evolving comparative advantages (Costinot et al. 2016). This means that an important factor shaping the welfare effects of trade liberalization is the extent to which food producers, especially smallholders, can adapt their production activities, including by shifting to more climate-resilient crops and by accessing export markets. Identification of capacity constraints in adaptation and market access can help governments and their development partners to prioritize programs to prevent potential welfare losses among smallholders—and ripple effects on poverty and inequality.

Figure 2 | **Variations in annual rainfall (left) and mean annual temperature (right) in Rwanda, Kenya, and Tanzania, 1991-2021**



Source: World Bank Climate Change Knowledge Portal.

Expected impacts of trade liberalization on smallholders

Studies have shown that regional trade agreements in Africa and beyond have had significant positive impacts on intraregional agricultural trade (Tegebu and Seid 2019; Afesorgbor et al. 2024). A study of the common external tariff in the East African Community found significant pass-through effects for Kenya, of 0.84 percent for every 1 percent tariff change, but for agricultural goods, the pass-through effects were incomplete (Mogendi et al. 2023). Price changes were also not found to have had a significant effect on labor incomes in Kenya.

As we noted in the introduction, AfCFTA implementation is expected to increase trade in agricultural commodities. Studies on the potential impacts of the AfCFTA in Africa give compelling evidence that price changes in agricultural commodities under the AfCFTA will not be uniform across countries and will vary for different commodities and types of production.

For example, both Tiba (2023) and Simola et al. (2022) found that increased agrifood trade would raise the prices of some commodities, driven by increased demand to supply wider markets created under the AfCFTA. However, in some countries, competition from cheaper imports could drive prices down and bring changes in wage rates due to shifts in demand for labor in different sectors.

Looking at Nigeria's agricultural sector, Akighir and Kpoghul (2022) predicted increases in the prices of agricultural commodities in the domestic market driven by higher demand from export markets. The increase in prices could benefit rural communities where agriculture is the primary source of livelihood. For the Zimbabwean economy, Nesongano (2022) predicts price decreases of 9.4 percent for livestock products, and of 0.1–8 percent for other agricultural products, due to a decrease in the price of imports.

Looking at Kenya, Nechifor et al. (2022) predicted that the AfCFTA would result in price increases for primary food crops (except for wheat and rice), livestock, and fish products. They projected a 0.1–0.3 percent increase in the price of maize, and a reduction of 0.6–0.9 percent in the price of wheat. The increase in the price of primary food crops was due to increased costs of production. The latter would be driven by a push to expand cash crops for export markets, which would heighten competition for limited production resources. Cash crop producers in Kenya would see their incomes rise by 0.4–2.4 percent, but primary food crop production would decline. The effects on smallholders would thus depend on the crops they grow and what they purchase for household consumption.

In interviews, trade policy experts said the AfCFTA could have positive or negative effects on smallholders, depending on how the resulting price changes are distributed within domestic markets. In their view, the distribution will depend largely on national policies and whether targeted investments are made to address agricultural productivity problems.

The experts noted that most smallholders are upstream in the supply chain and that their direct participation in trade is not international but local, by selling small quantities of unprocessed produce to aggregators or traders at the farm gate or in local markets. Therefore, these experts said, the impacts of the AfCFTA on smallholders' activities could be minimal.

However, stakeholders see the potential for the AfCFTA to give undue advantages to large-scale commercial farmers using advanced technologies who can export large quantities to other countries. This view is consistent with the findings of Nesongano (2022), who projects that large-scale producers in Zimbabwe will increase their output by 5.3 percent, gaining in real income, while smallholders' output could drop by 2 percent.

Large-scale producers are better able than smallholders to seize market opportunities created by large free-trade areas for multiple reasons. Not only do they have the capacity to deliver larger quantities of agricultural commodities to begin with, but new export markets may motivate them to invest in technology and further improve efficiency, reducing per-unit production costs and making them more competitive (Tybout 1992). Large producers also have much greater access to credit, which is critical for accessing inputs, financing operational improvements, and setting up storage and distribution facilities, all of which enable them to scale up production.

The projected drop in smallholder outputs in Zimbabwe under the AfCFTA (Nesongano 2022) indicates that irrespective of their position upstream, smallholders are sensitive to changes in market conditions and could suffer income losses. Nechifor et al. (2022) indicated that an influx of imports in Kenya could reorient aggregate household food consumption away from maize, other roots, and vegetables, and toward processed products, wheat, rice, oil seeds, and fruits, bakery, milled grains, and beverages. Given that smallholders are the main producers of the primary food crops in Kenya, shifts away from consumption of their produce will have significant negative impacts on their incomes, even with higher prices.

Trade officers said in interviews that under the AfCFTA, smallholders in East Africa will earn more from their produce due to increased demand, and they could boost their incomes by increasing production. Noting that countries in the region are now heavily reliant on food imports from outside Africa,

the trade officers and experts said that free access to African markets will provide a great opportunity for farmers to substitute these imports.

However, other interviewees, especially those from farmer organizations and institutions working closely with farmers, said that the benefits from free trade and higher prices may not accrue to smallholder farmers unless efforts are made to address the challenges created by the high costs of agricultural inputs, the impacts of climate change and variability, and limited market access.

Interviewees who work with smallholders in Kenya, Rwanda, and Tanzania said most of these farmers do not use adequate quantities of inputs, including improved seeds, livestock feed, and fertilizers, due to their high cost—and this is one of the main reasons for low productivity. A farmer interviewed in Tanzania noted that he had rented land over the past several years to grow maize, “but because of the cost of seeds and fertilizers, the benefits from farming are very low.” He added that the price of fertilizer had doubled year over year, and high fuel prices made it expensive to hire tractors for his land.

The Tanzanian farmer also spoke about the challenges of accessing finance. “Farmers lack access to loans,” he said. “The people offering loans charge very high rates, and the requirements to get the financing are very complex and require collateral. Most of the farmers here do not have title deeds.”

The ways smallholders currently sell their excess produce are a particularly large obstacle to benefiting from the AfCFTA, interviewees said, as farmers are now exploited by traders. They said most smallholders in Kenya and Tanzania sell their surplus produce at harvest time, when prices are low, and mainly at the farm gate. This is due to pressing financial needs that lead them to sell as quickly as possible, as well as a lack of adequate storage facilities and challenges in transporting produce to markets. They added that farmers might get better prices if they took the produce to the market on their own, but existing modes of transport, such as motorcycles, are expensive.

The farmers able to store produce to sell later get better prices, but they must incur additional costs to secure produce from postharvest losses from pests or rotting. For these reasons, interviewees said, expectations of better prices do not play a major role in the production choices made by smallholders, and expected higher prices under the AfCFTA may not translate to increased income for producers. These perspec-

tives contrast with the expectations of trade officers and the findings of Akighir and Kpoghul (2022) for Nigeria. Other studies, such as Alemu et al. (2003) for Ethiopia on production of maize, and Onono et al. (2013) on maize in Kenya, have found the effects of price changes on smallholder production to be minimal.

Interviewees in Kenya and Tanzania highlighted one strategy that could help smallholders benefit more from free trade: forming cooperatives. This would protect them from exploitation from buyers at the farm gate, enabling them to collectively demand higher prices, reduce transaction costs, purchase inputs in bulk, and access finance. This perspective is supported by the literature (Bernard et al. 2010). A banana grower in Kenya said that her farmers’ group had been able to receive government funds to buy equipment and establish a nursery: “If farmers are able to form cooperatives, they can be guided and be able to sell to the external market, because cooperatives enable farmers to have one voice. Through it, farmers are also able to work with banks and gain access to credit.”

Another example cited in interviews is the “commercial village” model used for linking smallholder farmers with large retailers. Farm Concern International has used that approach to bring together many smallholders who produce the same commodity, linking them to a large retailer or processor who would buy the produce when harvested. The model has also enabled smallholders in Kenya, Tanzania, Rwanda, and Malawi to learn about quality standards and how to meet them, and to sell produce at better prices, reducing their dependence on middlemen. Both cooperatives and group contracts with buyers could be useful instruments for the structured sale of produce and for enhancing commercialization, which would enable small producers to benefit from trade.

In summary, the AfCFTA could have both positive and negative effects on smallholder food producers in East Africa. There are prospects of increased market access and higher prices for agricultural commodities, and thus higher incomes and welfare improvements. However, there are also many obstacles that need to be overcome through targeted policies and interventions. The third subsection below, “Priority investments to support smallholders,” will outline some priority investments, but first we should delve deeper into the effects of climate change and the unmet adaptation needs of smallholders in East Africa.

Adapting to climate change amid AfCFTA implementation

As we saw at the start of this section, climate change is already posing serious challenges to farmers in East Africa and across the continent (EAC 2019; Trisos et al. 2022; Bezner Kerr et al. 2022). Without effective adaptation, yields of many important food crops and cash crops are projected to decline significantly, harming food security and deepening rural poverty.

Indeed, UNECA's (2025, 18) recent review of AfCFTA implementation highlighted the urgent need for adaptation, particularly in countries that depend on exports of agricultural products, warning that climate change impacts pose "profound risks that threaten to undermine decades of development progress and exacerbate poverty and inequality," with "severe macroeconomic impacts on African economies as early as 2030, with the effects expected to intensify over time."

The interviews confirmed that climate change is already having adverse effects on farmers in East Africa, with implications for their ability to benefit from the AfCFTA. The Kenyan banana farmer noted that many smallholders like her depend on rainwater for their crops, "and when there is a delay in rainfall, the bananas dry up." The county government should help farmers access water for irrigation, she added, because bananas are grown by many households.

Stakeholders also noted challenges from flood damage to crops, pests such as armyworms and maize stalk borers, and postharvest losses caused by weevils and by aflatoxin, which causes poorly dried produce to rot. As noted above, there is evidence that climate change is driving the proliferation of pests and diseases. Rising temperatures have been found to help armyworms multiply exponentially, for instance (Adunola et al. 2022). Climate-related yield reductions and postharvest losses could hinder farmers from harnessing the benefits of the AfCFTA and weaken price signals from trade policy effects.

The interviews explored how smallholders are adapting to climate change. The strategies mentioned include shifting to crops that perform relatively better under unfavorable climatic conditions, and using crop varieties that are more climate-resilient (for example, more drought-resistant). Smallholder farmers in western Kenya and in central Tanzania are reportedly shifting from maize to cassava and sorghum, which do better in water-scarce conditions. However, most households still strongly prefer maize over other available foods, such as rice, sorghum, cassava, potatoes, and bananas, so maize remains a common crop on smallholder farms.

Diversification through intercropping of maize with legumes and potatoes was also cited as a common farming practice across Kenya, Tanzania and Rwanda. The aim is to maximize output from the land. Smallholders also grow other crops

(mainly horticultural crops and vegetables) for sale to local consumers and traders for income. Interviewees indicated that vegetables are becoming the main cash crops among smallholders in Tanzania. Chilies and chia are new crops that farmers are taking up in western Kenya, along with growing tomatoes, onions, and other vegetables. In the semiarid areas of Kitui and Makeuni Counties, there is also increased production of mangoes, oranges, and green grams (mung beans), while production of onions, tomatoes, and beans is becoming more popular in Kajiado County, as farmers find these more adaptable to the local climate.

The use of crop varieties that mature early was also cited as useful in realizing good maize yields in Tanzania. This is consistent with earlier research in Tanzania that showed the use of short-season and drought-resistant crops was a common adaptation practice among smallholders (Comba and Muchapondwa 2012). Other adaptation practices used included irrigation, changing planting dates, and enriching soil with compost and manure, which also enhances soil water storage and thus climate resilience. Again, this is consistent with findings in the literature (Kabara et al. 2022; MacCarthy et al. 2021).

Asked to describe challenges encountered by smallholders in adapting to climate change, interviewees cited the high cost of inputs—particularly seed and fertilizer—and market-access problems. Along with the year-over-year doubling of fertilizer prices in Tanzania noted above, interviewees reported that Kenya's government fertilizer subsidy program had been ineffective in 2022 because the subsidized fertilizer was not available in the designated distribution stores, forcing farmers to buy fertilizer at a higher price from commercial retailers. Farmers also noted that without fertilizer, it is not possible to achieve a good maize harvest.

Farmers also spoke about the benefits of hybrid seeds, especially for maize, which have increased yields, even though the prices are high. However, they said there is an insufficient supply of the seeds in local retail stores at planting time. This means many farmers must delay planting or recycle seeds from previous harvests. Instances of counterfeit seeds were also cited.

The county government of Busia, in Kenya, through its Directorate of Agriculture, Livestock, and Fisheries Development, has been encouraging farmers to practice conservation agriculture, including by growing cover crops. However, interviewees said this approach can be very expensive for smallholders. In Tanzania, mechanization services, which farmers require for early preparation of land to enable early planting, are also costly due to high fuel prices and the availability of only a few

tractors. The use of hand hoes and ox plows by the majority of smallholders affects the timeliness of farm operations and limits the efficacy of essential operations such as cultivation and weeding (Msangya and Yihuan 2016).

In Tanzania and Rwanda, limited access to credit was cited as a barrier to adaptation. This is consistent with the literature (Comba and Muchapondwa 2012). Furthermore, inadequate access to information and extension services has contributed to inappropriate application of fertilizers, improper timing, inaccurate forecasting of the start of rain, and ineffective adaptation practices.

In Kenya, extension services tend to be demand-driven and expensive for most smallholders, and the number of extension officers employed—for example, in Nyandarua County—is not adequate to reach all the farmers. Extension services play a critical role in enhancing the adaptive capacities of Kenyan smallholders (Kabara et al. 2022). Proper agronomic advice and adequate climate information are critical for farmers to plan their activities and maximize on available rain (Sauti East Africa 2023).

The lack of markets for produce also limits the extent to which farmers take up some opportunities to diversify production as an adaptation strategy, and thus enhance household incomes, interviewees said. Some NGOs, such as the Momentum Trust, whose Kenya country operations officer was interviewed for this study, are promoting high-value crops such as chia and chilies (which tend to be drought-tolerant and do well in soils of low fertility) to farmers in western Kenya. However, farmers are increasingly hesitant to grow these crops because those who have were not able to sell them at the anticipated prices, and few buyers were available.

Similarly, in Kitui County, in Kenya, the governor launched green gram production in 2017 as a poverty reduction strategy with a promise of the good markets abroad, especially in India and the Middle East. However, in 2018, when there was a glut in green grams, prices fell significantly, and the international market was not available either, as imports into India were banned. Farmers are therefore disillusioned and averse to making further ventures into these new crops, preferring to grow the traditional crops such as maize, which they can easily sell.

A key takeaway is that it is crucial to provide market information and support services to farmers to help them access larger markets if they are to adopt new and high-value crops as an adaptation strategy. This is also relevant to efforts to integrate smallholders into the regional value chains to enhance incomes with implementation of the AfCFTA.

Priority investments to help smallholders adapt to climate change and seize opportunities from the AfCFTA

Smallholders in East Africa clearly face significant barriers as they seek to boost productivity, adapt to climate change, and seize new opportunities from trade liberalization. It is essential to address these issues to mitigate potential risks and disparities in agricultural markets and achieve inclusive and sustainable trade policies.

Farmer cooperatives could play a vital role in building collective bargaining power in the sale of produce, facilitating access to credit and inputs at lower costs. Strengthening value chains, market linkages, and capacity-building initiatives to help smallholder farmers benefit from trade opportunities will also be critical. Infrastructural investments to improve roads and transport logistics, as well as programs that promote effective adaptation practices, are also vital.

Studies on the potential impacts of the AfCFTA on African economies have emphasized the need to provide support to small and mid-size enterprises (SMEs) through complementary policies and programs (Maliszewska and Ruta 2020; Echandi et al. 2022; UNECA 2025). Smallholder farmers, many of whom are among the poorest and most vulnerable people in Africa, require particular attention. Skills training programs, access to finance, support for cooperatives, price stabilization mechanisms such as commodity price stabilization funds and insurance schemes, social safety nets, and investments in infrastructure are some commonly cited interventions.

To contextualize the required support programs, interviewees were asked to provide information on existing support services offered to smallholders to help them overcome the challenges in production, produce marketing, and adaptation to climate change. Appendix C summarizes their responses. The services provided include offering training on good agricultural practices and quality measures, supporting the adoption of these practices, providing market information, linking farmers to buyers through contracts, building new infrastructure, providing support with inputs, and developing specific value chains.

Interviewees were also asked to indicate public investments that should be prioritized to help smallholders in East Africa adapt to climate change and seize opportunities from the AfCFTA. They cited these main measures for supporting farmers to increase productivity and strengthen adaptation:

- Enhance access to finance for smallholders.
- Increase access to improved inputs, fertilizers, and irrigation systems, including through subsidies.
- Expand extension and market support services and train smallholders on market intelligence and climate-smart production.
- Produce more inputs within Africa (fertilizers, seeds, pesticides, etc.) to reduce dependence on imports.
- Set up storage facilities that farmers can use for their crops.
- Develop more knowledge on optimal crops for different agroecological zones and share it with farmers, along with promoting agroforestry and crop diversification.
- Work to build functional and coordinated agricultural markets within each country.
- Help smallholders access technologies to obtain timely and relevant climate and market information.
- Empower farmer cooperatives and independent farmer associations, and support them in accessing resources to buy equipment for value addition, accessing land for production, and building storage and processing facilities.
- Lower energy prices, especially electricity, which is needed to safely store perishable produce, process crops, and add value.

Food trade experts believed that investments in implementation of trade facilitation measures will be key to help farmers access and benefit from export opportunities. Farmers will also need incentives to encourage them to sell produce to international markets rather than to buyers at the farm gate, and training and information to understand markets and learn to meet the demands of export-oriented buyers. Stakeholders also emphasized the need for organized purchase of smallholder produce to avoid exploitation, engagement with farmer organizations and cooperatives (and not just individual farmers), and value addition and certification schemes to increase prices while also ensuring quality.

Conclusions and recommendations

This study has explored ways that tariff reductions, the removal of NTBs, and trade facilitation measures under the AfCFTA may impact the welfare of smallholder farmers in East Africa, particularly given the challenges they already face due to poverty, climate change impacts, and other factors.

Trade liberalization under the AfCFTA could expand opportunities for smallholder farmers by increasing market access and commodity prices. However, the realization of these benefits is contingent on addressing several critical challenges, including price volatility, high input costs, and the unstructured way farmers sell their produce.

The importance of independent farmer organizations and cooperatives to provide collective bargaining power, facilitate access to inputs and credit, and empower farmers to participate more effectively in the market cannot be overstated. Targeted policies and interventions are also essential to enhance value chains and market linkages. Capacity-building initiatives are key to ensure that smallholder farmers can fully capitalize on trade opportunities.

As countries implement the AfCFTA agreement, national strategies should also acknowledge the importance of enhancing smallholders' capacities to adapt to climate change. Without effective adaptation, crop productivity is likely to decline, and smallholders will be increasingly unable to deliver the amounts and quality of produce that export-oriented buyers expect. This would deepen existing disparities between small and large producers, increasing inequality instead of achieving broad-based benefits from expanded trade.

With all this in mind, this study offers the following recommendations:

National strategies for implementing the AfCFTA should develop frameworks to support the bulk purchase of farm produce from smallholders through cooperatives and independent farmer organizations in order to minimize exploitation by intermediaries in agricultural markets. Through organizations, farmers can also more easily adopt efficient

aggregation models, including e-commerce and last-mile distribution hubs to access cross-border market opportunities. AfCFTA implementation strategies should also include targeted outreach and capacity building for farmers to increase their awareness of these emerging opportunities and what they need to do to seize them.

Government agencies, NGOs, and other development partners should support independent farmer associations and cooperatives, including their formation and growth.

Helping smallholders to band together to sell produce, acquire inputs at lower costs, access finance, and invest in storage and in equipment for value addition will significantly increase both their competitiveness and climate resilience. Governments should also eliminate any barriers to cooperative development and growth.

Countries should enhance access to yield-enhancing technologies and inputs at low costs to the smallholders.

Regional policy should address the high cost of fertilizers and support joint research and development to ensure that improved inputs are produced in sufficient quantities for all farmers and supplied early in the planting season.

Governments, NGOs, and other development partners should increase climate adaptation support for smallholders—for example, to enable them to install efficient irrigation systems; access timely climate information; adopt climate-

smart agriculture practices such as water recycling, mulching, conservation tillage, and soil and water management practices; and diversify their livelihoods by growing new, higher-value crops and adding value by processing their existing crops. These practices could enable farmers to reduce risks associated with climate variability. Access to affordable credit and insurance will also be crucial for effective adaptation.

Significant knowledge gaps make it difficult to predict how AfCFTA implementation will ultimately affect smallholders, or to monitor the effects to date. **This study therefore recommends that governments collect comprehensive, disaggregated data to enable them to track the impacts of trade liberalization at the national and subnational levels.** Disaggregating data by social and economic characteristics is key, as otherwise, large benefits to some producers could eclipse the harm done to others, and critical opportunities to ensure more equitable outcomes might be missed.

Governments should survey smallholders directly to learn about production variables such as allocation of land and other inputs to different crops, use of different inputs and their sources, choice of farming systems, participation in farmer associations, and sale of surplus produce. It is also important to understand household dynamics, including nonfarm income sources and household expenditures on food and other commodities purchased in markets.

Appendix A. | Categories of key informants and their institutions

S. NO.	RESPONDENT CATEGORY	INSTITUTION
1	Trade policy research (think tanks)	UN Economic Commission for Africa (UNECA)—Ethiopia
2		UNECA—Rwanda
3		UNECA—Kenya
4	Food trade researcher	Alliance for Green Revolution in Africa (AGRA)
5	Food trade expert	AGRA
6	Expert in climate change and adaptation	AGRA
7	Agriculture and food security expert	CARE International—Tanzania
8	Trade officer	Tanzania
9	Trade officer	Uganda
10	Trade officer	Rwanda
11	Trade officer	Tanzania
12	Trade officer	Tanzania
13	Trade officer	Tanzania
14	Trade officer	Busia County Government, Kenya
15	Trade network officer	KENTRADE, Kenya
16	Smallholder farmer	Officer with Rural Farm Commercialization, Farm Concern International, Tanzania
17	Smallholder farmer	Potato value chain, Nyandarua, Kenya
18	Smallholder farmer	Banana value chain, Murang'a, Kenya
19	Agriculture researcher	Centre for Behavioural Change and Communication, Tanzania
20	Production and marketing officer	Farm Concern International—Rwanda
21	Production and marketing officer	Farm Concern International—Malawi
22	Production and marketing officer	Farm Concern International—Malawi
23	Agricultural extension officer	Busia County Government
24	Agricultural officer	Fisheries Department, Busia County Government
25	Agricultural NGO staff	Momentum Trust, Country Operations Officer, Kenya
26	Agriculture monitoring and evaluation officer	Busia County Government

Appendix B. | Interview tools for key informants and experts

INTERVIEW TOOL FOR INDIVIDUALS INVOLVED IN TRADE RESEARCH AND POLICY

Trade officials, trade researchers, county trade officers, trade agencies

How are the trade rules under the AfCFTA and market liberalization likely to affect the welfare of smallholder farmers?

- Are changes possible in production, incomes, and consequently household health and nutrition?
- What kind of public investment should countries focus on to enable smallholders to benefit from the trade opportunities?

What are the main climate change adaptation practices used by smallholder farmers? *Probe for alternatives such as expansion of cultivated areas versus use of intensive inputs, adjustments in production and consumption.*

In your view, how would trade liberalization affect adaptive capacity among food producers?

In your view, what public investments are required to support smallholder farmers' adoption of environmentally sustainable practices for

- increased food production?
- taking advantage of potential export opportunities?

INTERVIEW TOOL FOR INDIVIDUALS FROM INSTITUTIONS SUPPORTING SMALLHOLDERS IN PRODUCTION AND PRODUCE MARKETING

Agricultural extension officers, county government departments of agriculture, farmer associations, cooperatives, agricultural marketing institutions, civil society organizations involved in climate adaptation

What are the main challenges faced by smallholder farmers in

- production?
- accessing markets for inputs and their produce?

How have climate change events in the region affected

- food production?
- access to markets?

How are farming households adapting to the impacts of climate change?

- Adjustments in production—substituting crops with more climate-resilient (provide examples), use of technology, smart agriculture, and so on?
- Adjustments in consumption—any changes in patterns of consumption?
- Increased reliance on markets for food products?

What major challenges do farmers encounter in adapting to climate change, adopting climate smart agriculture? *Probe also for access to information, technology, resources, and markets.*

Are there any existing support systems or services to farmers to overcome the production, marketing, and climate change challenges, and which institutions are involved? *Probe for both government and nongovernment programs.*

Are there any trade-related laws and policies that promote smallholder agriculture?

- What are some of the laws that govern trade in agriculture within and between countries?
- Are there any trade restrictions (taxes, quotas, standards, and embargoes) on the trade of food goods like maize, sugar, cassava, potatoes, vegetables, and so on, between countries that benefit farmers? Probe for how.
- Are there any trade restrictions (taxes, quotas, standards, embargoes) on the trade of food like maize, sugar, cassava, potatoes, vegetables, and so on, between countries that disadvantage farmers? Probe for how.
- Are there any trade restrictions that hinder free flow of food across borders? Probe for how.

In your view, what are the likely impacts of the removal of trade restrictions on the welfare of smallholder farmers? *Probe for the channels, such as price changes, income changes, exit from farming activities, and so on.*

- Production
- Incomes
- Food security and health

How has international trade played a role in mitigating the impacts of climate change in the country? *Probe for stabilization of food supply and prices, as well as access to technology and improved inputs.*

Appendix B. | Interview tools for key informants and experts (cont.)

INTERVIEW TOOL FOR INDIVIDUALS FROM INSTITUTIONS SUPPORTING SMALLHOLDERS IN PRODUCTION AND PRODUCE MARKETING

Agricultural extension officers, county government departments of agriculture, farmer associations, cooperatives, agricultural marketing institutions, civil society organizations involved in climate adaptation

How has international trade increased exposure to climate impacts, weakened adaptation efforts, or presented challenges in climate adaptation?

- In production methods to supply increased demand for exports?
- In cost of inputs—increased demand for costly inputs?

What do you think countries should prioritize in trade negotiations to prevent adverse effects on

- smallholders' welfare; and
- environmental degradation.

Appendix C. | Support services to farmers to overcome production, marketing, and climate change challenges

COUNTRY	SUPPORT SERVICES FROM INSTITUTIONS AND ORGANIZATIONS
Tanzania	<i>CARE International</i>—provides market information to farmers and links buyers and farmers. <i>Farm Concern International (FCI)</i>—organizes smallholders into commercial villages to ensure mass production and aggregation to attract buyers who require large quantities. FCI hears farmers are able to bargain for their prices; their extension officers train the farmers in production techniques and quality measures to meet expectations of contract buyers. <i>Government</i>—encourages farmers to join the Agro-Marketing Competitive Society to enhance bargaining and price setting.
Kenya	<i>GROOTS Kenya</i>—offers extension and training to farmers to support good agricultural practices and commercialization by linking farmers to processors under contracts, and by providing a cooling store for produce. <i>AGRICO in Nyandarua</i>—produces and sells seeds to farmers. <i>Government's National Agricultural and Rural Inclusive Growth Project</i>—provided funding to farmer groups. Under this project the Muranga banana farmers were granted funds that enabled them to acquire and set up a banana miller for value addition, and a nursery where they prepare seedlings and sell for income. <i>County departments of agriculture</i>—are responsible for extension services to farmers. In Busia County, the department offers training to farmers on improved technology, minimum tillage requirements, use of manure, water harvesting for irrigation, and adoption of climate-resilient crops. The county government also buys fertilizers and seeds and distributes them to resource-poor farmers to increase productivity. <i>Potato Farmers Association in Nyandarua County</i>—helps farmers get information on production and markets. <i>Nongovernmental organizations</i>—Momentum Trust is promoting agro-Climatica, a climate-based technology that guides farmers on the best production choices, as well as commercialization and production contracting for chia, chillies, and cassava in western Kenya to cushion farmers against price fluctuations. Self-Help Africa is contracting for growing cassava and for processing and marketing cassava products. SunCulture provides irrigation advisory services and access to irrigation equipment. <i>Kenya Climate Smart Agriculture Project (KCSAP)</i>—strengthens and supports climate-smart agricultural research and seed systems.
Rwanda	<i>Government</i>—subsidizes fertilizers, pesticides, and irrigation systems; sets up irrigation infrastructure, employs technical staff to help farmers in the marshland areas; offers loans and technical support through saving and credit cooperative societies to help farmers modernize production; establishes bulking centers where farmers not in cooperatives can sell produce; exempts primary producers from taxes when selling their produce; provides price information for some value chains, including maize, Irish potatoes, and cassava, at the end of every season to avoid lower produce prices from informal brokers.
Africa	<i>Food Trade Coalition for Africa</i> (formed in 2019; under Alliance for Green Revolution in Africa [AGRA])—helps in trade financing and identifying value chains necessary for food safety; coordinates food trade policy and investment around trade. <i>AGRA</i>—works to develop a regional food balance sheet to give timely and trustworthy data to help the private sector understand areas where farmers have comparative advantage, where there is regional demand, and where there is a surplus or deficit. It also looks at the production systems and agrifood taxation logistical issues and works with governments to identify policy gaps and advise on priorities to help in food trade; helps farmers make investments and decide what to grow; engages in talks with the national government, and regional economic communities to get more support for smallholder farmers, make the infrastructure address farmers' need for storage facilities, warehouses, and certification that farmers meet safety standards.

Source: Key informant interviews.

Endnotes

1. See "About the AfCFTA," <https://au-afcfta.org/about/>.
2. See "About the AfCFTA" and, for details about the parties, "State Parties," <https://au-afcfta.org/state-parties/>, accessed June 16, 2025.
3. Thirty-two African nations, including a majority of parties to the AfCFTA, were classified as LDCs as of December 2024; see UNCTAD n.d.
4. The analysis distinguishes between intermediate and final trade and looks at two agrifood categories: processed and nonprocessed (UNECA 2025). Compared with a baseline scenario, it finds that, by 2045, the AfCFTA will result in \$7.1 billion more in final nonprocessed agrifood exports (an 81.6 percent increase); \$3.9 billion more in intermediate nonprocessed agrifood exports (a 30.6 percent increase); \$35.2 billion more in final processed agrifood exports (a 62.8 percent increase); and \$12.4 billion more in intermediate processed agrifood exports (a 59.7 percent increase).
5. The effects will depend on the level of substitutability between traded and nontraded goods, and their price elasticity. The price changes, in turn, affect households' purchasing power and welfare levels.

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About the Food System Economics Commission

The Food System Economics Commission (FSEC) is an independent academic commission set up to equip political and economic decision-makers with tools and evidence to shift food and land-use systems. It is a joint initiative of the Potsdam Institute for Climate Impact Research, the Food and Land Use Coalition, and EAT. The Potsdam Institute for Climate Impact Research and the Food and Land Use Coalition are lead research partners and EAT is the lead communications and engagement partner.

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