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Competitiveness of African Agricultural Value Chains

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4. Introduction

The notion of competitiveness is regularly at the heart of economic debate and is the subject of many official reports: *The Global Competitiveness Report* (Schwab and Sala-i-Martín 2017), for example, ranks 137 countries in terms of this concept. The highest ranked African economy is 47 (Mauritius), and all other countries of the continent are ranked 67 or below. The African Development Bank recently released a report on the competitiveness of African countries, pointing to the overall stagnation in African competitiveness (AfDB 2017). To address these limitations, the Malabo Declaration aims to restore the competitiveness of African nations in the agricultural and agri-food sectors.

Economists agree that competitiveness is particularly difficult to define. Competitiveness can be understood in the narrow sense as the comparison of prices of the same commodity produced in two different places. Competitiveness can also be applied in a general way to a nation, as the "capacity of a country to sustainably improve the standard of living of its inhabitants and to provide them with a high level of employment and social cohesion" (Debonneuil and Fontagné 2003, 8; this definition is based on European treaties). Competitiveness can be studied through its microeconomic drivers (labor costs, input costs, productivity, etc.) and/or macroeconomic drivers (trade costs, exchange rates, institutions, etc.), but it can also be studied through its impact on, for example, economic variables such as the level of a country's exports of a product relative to other countries. Producers can compete on price, quality, and degree of product differentiation. Finally, while the notion of competitiveness is often related to that of productivity, it should be noted that the latter concept refers to an absolute metric (e.g., production per capita) while the former refers to a relative metric, (e.g., comparison of the prices of two commodities produced in two different countries).

This chapter uses a statistical approach to explore African agricultural competitiveness. We illustrate competitiveness through all three means mentioned above: microeconomic drivers, macroeconomic drivers, and impact. We discuss the evolution of Africa's competitiveness, comparing the competitiveness of Africa's regional economic communities (RECs) with the world and among each other. We also analyze the competitiveness of value chains by commodity for the commodity value chains that are most significant for Africa's trade. We examine the various macroeconomic factors, especially the real effective exchange rate, that affect the performance of each value chain in the world market.

The quantitative analysis is based on data from the past 13 years. Comparisons are made based on averages computed between the 3-year period 2005–2007, and the more recent period, 2015–2017.

In this year's *Africa Agriculture Trade Monitor* (AATM) report, we focus on export performance and offensive interests. Next year's report will focus on defensive interests. Several export-oriented commodity value chains that are highly significant for the African continent are selected for our analysis. Of the traditional cash crops, we include cashew nuts, cocoa, coffee, cotton, sugar, and tea. We also include citrus, grapes, legumes and pulses, sesame seeds, and tomatoes. These were selected because Africa has significant shares in the world market for these commodities, ranging from 4.4 percent for grapes to 59.4 percent for sesame seeds in 2015–2017 (Table A4.1 in Appendix).

Their shares in total African agricultural exports are also significant, rangingfrom 1 percent for legumes and pulses to 15.3 percent for cocoa in 2015–2017. Lastly, several of these commodities have become more important over the last decade. For example, the share of African cashew nuts in the world market, as well as in total agricultural exports of Africa, has nearly doubled in the last 10 years.

In our analysis of the evolution of competitiveness, we pay particular attention to the performance of the RECs and to progress in the transformation of primary commodities to higher-value products. In their analysis of the competitiveness of African agricultural exports over the 1998–2013 period, Odjo and Badiane (2018) find that Economic Community of West African States (ECOWAS) countries were the most successful in increasing competitiveness in global markets, while the Economic Community of West African States (ECCAS) and Southern African Development Community (SADC) countries tended to lose competitiveness. These key trends are confirmed in this chapter. In terms of export commodities, African exporters increased their competitiveness in global markets in most of the primary agricultural commodities considered in the study. For traditional value chain cash crops, including cocoa, coffee, cotton, and tea, they achieved either reduced competitiveness or small gains. Finally, the study also finds that African countries lost competitiveness in global markets but gained in intraregional markets, reflecting the significant growth in intraregional trade over the period.

In section 4.2 we examine the competitiveness of RECs and of primary value chains through revealed comparative advantage and through market share decomposition. In the section 4.3, we focus on how prices matter in the assessment of competitiveness, through an analysis of unit values and the evolution of the real exchange rates over the period. We trace the transformation of our selected commodity value chains through the value chain ladder in section 4.4. Section 4.5 is devoted to the examination of exports and market shares for Africa and the RECs for each of the selected commodity value chains in 2015–2017 and to more recent developments in these markets. Conclusions are offered in section 4.6. Box 4.1 presents recent developments in agricultural e-commerce in Africa and their impacts on some value chains.

Overview of African Agricultural Competitiveness

There are different ways of measuring a country's competitiveness. We start by assessing it through its impact on trade performance. Revealed comparative advantages, although imperfect indicators (discussed in Bouët, Cosnard, and Laborde 2017), are a standard approach to this issue. We then provide a useful approach to decompose the evolution of African export shares on world markets to discriminate between country performance and the dynamics of global markets.

Comparative Advantages

Measures of revealed comparative advantage (RCA) have been used to help assess a country's export potential. Comparative advantage is a theoretical concept of what a particular producer or economy is best at producing, relative to other things it could produce and to its peers. In practice, we can measure Revealed comparative advantage. It is a bi-ratio (or a ratio of two

ratios) and compares the share of one product in a country's total exports to the share of the same product in world exports. It is often used to provide information about potential trade prospects with new partners.

Countries with similar Revealed comparative advantage profiles are unlikely to have high bilateral trade intensities, unless intra-industry trade is involved. Revealed comparative advantage measures, if estimated at high levels of product disaggregation, can focus attention on products that are comparatively unique in world markets and which might, therefore, be exported successfully. While different definitions for Revealed comparative advantage are available, we use the Revealed comparative advantage index defined by Balassa (1965), the Revealed comparative advantage of country i for product j is measured by the product's share in the country's exports in relation to its share in world trade (Eqn 4.1):

$$RCA_{ij} = (X_{ij}/X_{it}) / (X_{wj}/X_{wt}) \qquad (4.1)$$

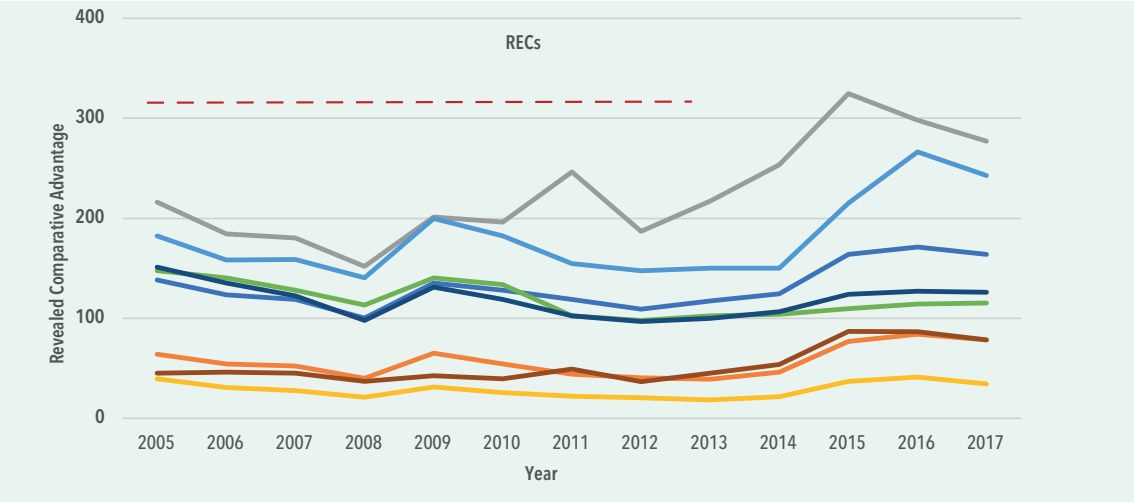
where X_{ij} and X_{wj} are the values of country i's exports of product j and world exports of product j, and where X_{it} and X_{wt} refer to the country i's total exports and world total exports. A value of less than unity implies that the country has a revealed comparative disadvantage in the product. Similarly, if the index exceeds unity, the country is said to have an Revealed comparative advantage in the product.

We note that the Revealed comparative advantage reflects the comparative advantage of a country in the current policy environment. It may be the case that a country has a strong comparative advantage in, for example, maize production, but if export bans prevent maize from being exported, maize will not be revealed as a comparative advantage. It may also be the case that a comparative advantage, as revealed by this indicator, only exists due to domestic support and/or export subsidies. Put differently, this indicator reveals a comparative advantage from observed trade flows, without consideration for an explanation: competitiveness due to either access to technology, or to access to specific endowments, or a domestic policy that gives an advantage to local producers.

Revealed Comparative Advantage: Overview

Revealed comparative advantages and specialization in agriculture have been increasing in the last decade for most of Africa's RECs (Figure 4.1). Africa, as a continent, is more specialized in agriculture compared to the rest of the world. COMESA is most specialized in agriculture among Africa's RECs, and this specialization has increased further since 2012. Similarly, ECOWAS has become more specialized in agriculture. ECCAS, Arab Maghreb Union (AMU), and Communauté Economique et Monétaire d'Afrique Centrale (CEMAC), having a large share of their exports in oil and minerals, are not specialized in agriculture compared to the world specialization pattern.

Figure 4.1 Revealed comparative advantage for agriculture for Africa's regional economic communities, 2005–2017

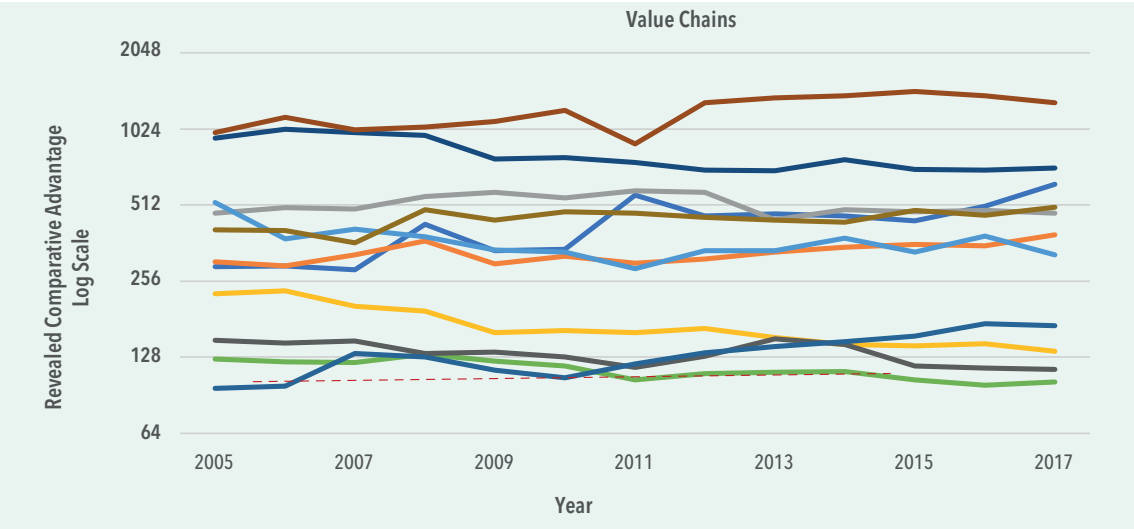


Source: COMTRADE (2019) and authors' calculation.
Note: CEMAC = Communauté Economique et Monétaire d'Afrique Centrale, COMESA = Common Market for Eastern and Southern Africa, ECCAS = Economic Community for Central African States, ECOWAS = Economic Community of Western African States, SADC = Southern African Development Community, SACU = Southern Africa Custom Union, AMU = Arab Maghreb Union.

Revealed Comparative Advantage: Focused value chains

In Figure 4.2, we examine Africa's specialization in exports of the selected commodity value chains. Africa has significant revealed comparative advantage in sesame seeds and in legumes and pulses. Its revealed comparative advantage has been fairly steady for cashew nuts, cocoa, cotton, and tea over 2005–2017. Over the same period, revealed comparative advantage is low but increasing for sugar and tomatoes, steady for grapes, and declining for coffee.

Figure 4.2 Revealed comparative advantage for Africa's value chains, 2005–2017



Source: COMTRADE (2019) and authors' calculation.

Market Share Decomposition

This subsection provides an evaluation of how Africa's competitiveness has varied between 2005–2007 and 2015–2017 using market share decomposition. We decompose the global market shares of African RECs and countries, to evaluate the performance of both, and to analyze what drives the performance: good geographical or sectoral specialization (i.e., benefiting from a pro-growth trend due to its sectoral or geographical specialization), or individual performance.

This approach defines a benchmark for a country's progress, and assesses if it has over- or underperformed. Here, the domestic performance is the portion of the market share growth that is not attributable to increases in sectoral or geographic demand. This residual is assumed to be the result of increased competitiveness if positive and decreased competitiveness if negative (Cheptea, Fontagné, and Zignago 2014).

We use a methodology that is similar to that used in Bouët, Laborde Debucquet, and Deason (2014) and in Odjo and Badiane (2018). With this methodology we provide a decomposition of African countries' global market shares over the 2005–2017 period to evaluate each country's performance and the underlying factors. The main differences compared with previous exercises come from the use of an updated and improved trade database, the focus on a more recent period, and the focus on the adaptation capacity of African economies to a moving international landscape. Indeed, Badiane and Makombe (2016) focused on the 1995–2007 evolution, while our analysis starts at the end of this period. Therefore, it includes a very tumultuous period associated with two food price crises (the 2007–2008 and 2010–2011 episodes), the 2008 financial crisis triggering the Great Recession, and various trade policy responses that have disrupted world markets. These events led to two reductions in the level of global trade, in constant US dollars, in 2008 and in 2015–2016. For this reason, we focus our analysis on how African countries have adjusted their export strategy, both in terms of products and destination markets, to cope with these changes.

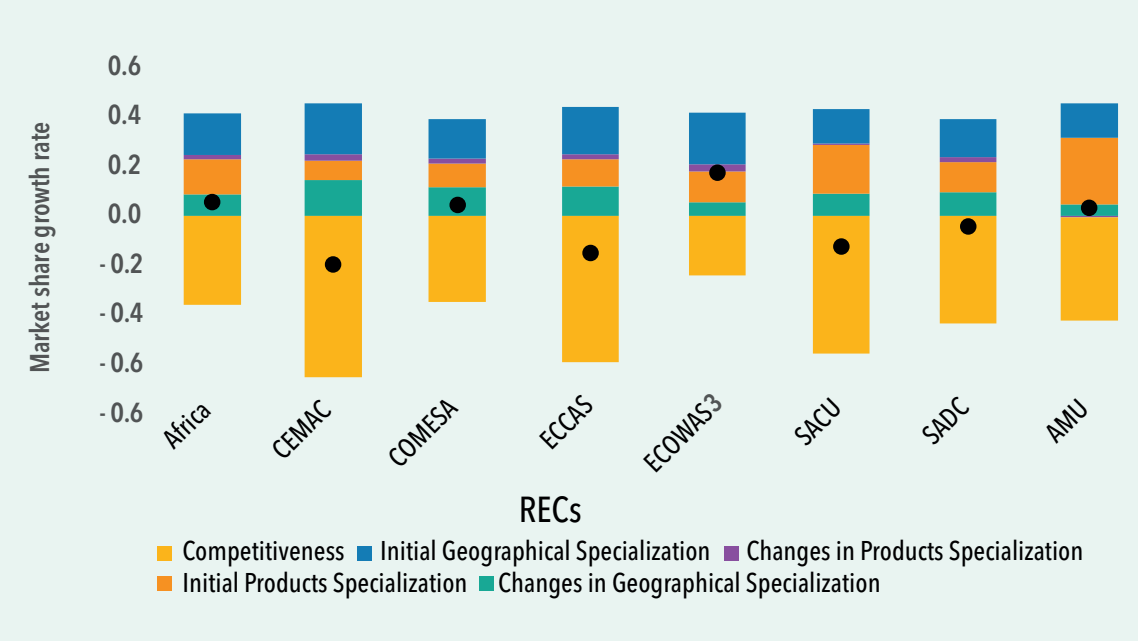
Evolution of African market shares

During this period, Africa has slightly improved its global market share, from 4 percent to 4.3 percent (Table A 4.1). While this is a notable increase, it is more limited than the evolution in the previous decade that was associated with a strong rebound after the very weak performance of the early 1990s. Figure 4.3 shows the decomposition of global market share of agricultural products for Africa and African RECs over the period 2005–2017. The vertical axis measures the percentage change in world market share and each bar indicates the decomposition by the five drivers: two for geographical specialization (initial and evolutive), two for sectoral specialization (initial and evolutive), and competitiveness. Black dots indicate the net effects of these different drivers. Figure 4.4 shows the same decomposition for African countries over the same period.

This average performance hides variation in outcomes across RECs and across countries. COMESA and UMA have seen minor increases in their global shares (relative increases of 3 percent to 5 percent, below the continental average; Figure 4.3), while ECOWAS has seen a relative increase of 18 percent, boosted by the strong performance of smaller countries (Gambia, Guinea-Bissau, and Sierra Leone) and the good performance of key exporters (Côte d'Ivoire, Ghana, and Senegal).

In contrast, the other regions (SADC, Southern Africa Custom Union (SACU), and Central Africa, especially the CEMAC block), have seen a slight deterioration in their export positions. These evolutions are consistent with the evolution of the revealed comparative advantages discussed earlier in this chapter (see subsection 4.2.1).

Figure 4.3 Decomposition of market share changes 2005-2017–regional economic communities (RECs)



Source: COMTRADE (2019) and authors' computation.
Note: Black dots indicate the net effect; that is, the relative changes in market share of an REC on world markets over the period.

CEMAC = Communauté Economique et Monétaire d'Afrique Centrale, COMESA = Common Market for Eastern and Southern Africa, ECCAS = Economic Community for Central African States, ECOWAS = Economic Community of Western African States, SADC = Southern African Development Community, SACU = Southern Africa Custom Union, AMU = Arab Maghreb Union.

Overall, 31 African countries have increased their global market shares (indicated by the location of black dots on Figure 4.4), with the largest absolute gains of 0.05 percent of the world market for Algeria, Benin, Côte d'Ivoire, Egypt, Ethiopia, Ghana, Guinea-Bissau, Madagascar, Morocco, Mozambique, Nigeria, Rwanda, Senegal, Somalia, Tanzania, and Uganda. Other large relative increases in market shares are notable for smaller exporters such as Mauritius. Other countries have suffered some minor setbacks, such as South Africa (which lost 0.057 percent of world markets), but in relative terms the worst performers are Gabon, Djibouti, Cabo Verde, Republic of Congo, Equatorial Guinea, Chad, Namibia, Central African Republic, and Botswana.

We explain these market share changes with five drivers:

1. The initial geographical pattern of exports. This driver shows how the initial (2005–2007) geographical export market specialization has contributed to the export dynamics. Being initially specialized in markets with strong growth could explain an increase in global market share without an actual gain in competitiveness. Markets with strong growth include numerous Asian countries such as Cambodia, China, Malaysia, Myanmar, Nepal, the Philippines, Thailand, and Viet Nam); and medium-sized Latin American countries such as Bolivia, Chile, Paraguay, Peru, and Uruguay. Increasing demand also originated in

the Arab Gulf, especially from Saudi Arabia and Qatar. African markets currently display limited growth, except for some SADC countries. On the other side of the spectrum we find countries with stagnant or decreasing import demand, such as Syria and Venezuela (political crises), North Korea (embargo), Cuba (external account constraints), and several African economies (Burundi, Chad, Eritrea, Gambia, and Liberia). The limited demand growth from some African countries will be a challenge for their regional partners.

2. The initial sectoral pattern of exports. This driver shows how the initial (2005–2007) sectoral specialization has contributed to export growth. Sectors in high demand include horticultural products (various fruits and vegetables). Avocados, in particular, have had high demand growth, followed by nuts (pine, pecans), spices (ginger, turmeric, cloves, cardamom, and others), and vanilla. With respect to the processed sectors, we see higher demand in the last decade for specific cocoa products (e.g., cocoa spreads) and beer. In terms of traditional African production, the sweet potato and groundnut (processed or shelled) markets have been among the strongest. Demand for wool products, processed tobacco products, and salted poultry meats, on the other hand, has declined. For traditional African exports, the cotton sector faces the most adverse demand conditions.

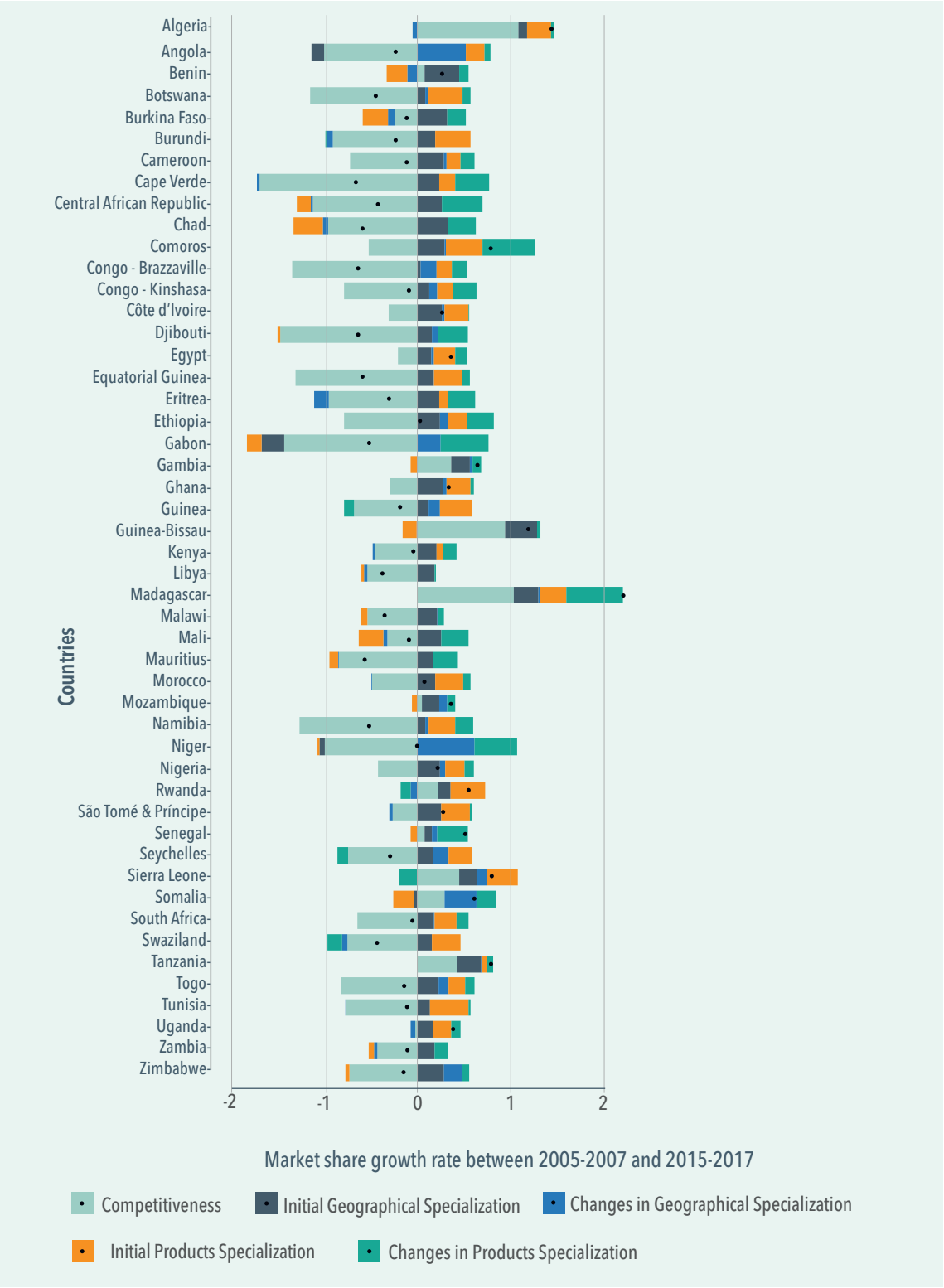
3. The changes in geographical pattern over the period. This allows us to detect if exporters have shifted from traditional markets to growing ones (for example, by increasing the share of China in their exports).

4. The changes in product specialization over the period. This factor captures both the changes in intensive margins (increased specialization in products of high demand) as well as the extensive margin (the export of new products at the end of the period that were not exported initially).

5. The residual of an exporter's performance is attributed to domestic performance (competitiveness).

Thus, the domestic performance factor is defined as the portion of market share growth that is not attributable to increases in either sectoral or geographic demand and that is assumed to be the result of increased competitiveness.

Figure 4.4 Decomposition of market share changes–countries 2005-2017



Source: Authors' computation.

Note: Lesotho, Liberia and Mauritania are excluded from the graph owing to a very large increase in market share, potentially because of under-measurement in the base period. For these three countries, the competitiveness driver is the main explanation (an export-specific story). Black dots indicate the net effect (i.e., the relative changes in market share of a regional economic community on world markets over the period).

The results are computed for each exporter in the world, at the country level, and are also presented in Figure 4.3 for each African REC. The vertical axis measures the percentage change in world market share, and each bar shows the decomposition along our five drivers: initial geographical and sectoral specialization (dark blue and dark green), changes geographical and sectoral specialization (light blue and light green), and the competitiveness factor (ochre).

For ECOWAS, for instance, while its global market share has increased by 18 percent in 10 years, its initial good specialization in terms of products (demand for these products has increased by 13 percent) and markets (the initial pattern will have led to a mechanical increase of 20 percent) has been reinforced by positive sectoral readjustment (+5 percent) and some minor reallocation in destination markets (+2 percent). However, instead of growing its export share by this full potential of 40 percent (13+ 20 + 5 + 2), its actual performance of +18 percent shows a loss of "competitiveness" of 22 percent. This loss of competitiveness must be interpreted with care, since it captures a large number of elements: changes in productivity and price competitiveness (including real exchange rate effects discussed in section 4.3.2) and increases in domestic absorption (domestic demand limiting potential export surplus, or redirection of productive resources to replace imports, not monitored here).

Similarly, Figure 4.4 shows the decomposition of the global market shares of agricultural products of individual African countries between 2005–2007 and 2015–2017. In section 4.2.2.2, we discuss the best and worst performers, and also focus our analysis on which countries and RECs have managed to reshuffle their product specialization and/or destination markets to seize better opportunities in a changing world.

Pure performance and adaptation capacity

Favorable specialization in terms of products and markets in the 2005–2007 base period led to expectations that Africa and its RECs would outpace the average growth in world markets. However, they did not achieve their expected potential, leading to a negative competitiveness measure for all RECs. In particular, UMA and SACU benefited from promising initial product specialization, while CEMAC and ECOWAS had favorable initial geographical specializations. Indeed, because demand growth in African markets has remained relatively limited compared to other markets around the world, being extraverted was actually a structural advantage (there was stronger effect for CEMAC).

Overall, we see very limited geographical reallocation across the period at the REC level. However, this hides greater changes at the country level. While the export of a REC to specific countries (China, India, and European partners, especially Germany and the Netherlands) may have remained stable, the actual member states delivering to individual markets have changed (e.g., Niger has increased its relative trade with China, while Burkina Faso has decreased it).

On the other hand, changing the product mix of exports has been very favorable for all RECS. This was the case for CEMAC, which was able to phase out growth-adverse specialization, especially in cotton. This demonstrates that new markets can emerge (extensive trade margins; a point confirmed by Carrère, 2013) and that good initial specialization can be strengthened (intensive margins). Being flexible in the product space is essential to promote growth, especially in a dynamic environment. Product flexibility has been a traditional strength of Asian countries, allowing them to integrate into world markets. This dynamic behavior must be properly taken into account when discussing the concept of competitiveness. In our quantitative framework, while the RECs (and their members) display higher adaptation capacity for a given market share increase, this leads to a reduction in their structural competitiveness.

Nevertheless, we could consider that good adaptation capacity is a positive feature of structural changes and part of the agricultural transformation process. Indeed, for a long time, poor African performance on world markets was considered the result of suboptimal specialization, inherited from the colonial era and worsened by the trade policy preferences of developed economies (in particular Europe), which were reducing the incentives of African exporters to diversify and innovate. At the same time, we also should acknowledge that changing the pattern of specialization in a market has domestic adjustment costs: a change in specialization forces local value chains to adapt, and sometimes to disappear. Farmers face sunk costs, including knowledge and machinery that is no longer relevant to the new or altered markets. REC aggregates may hide heterogeneity at the country level. The results for our 55 African economies are reviewed in Figure 4.4.

Most of the 48 African countries benefited from pro-export growth geographical specialization in the base period. Two channels explain this effect: strong demand from global re-export platforms or processing centers, especially in Europe (the Netherlands); and continuous demand in Asia, especially from China, India, and Malaysia. Chad and West African countries (Benin, Burkina Faso, and Guinea-Bissau) benefited the most from this effect. However, four African countries had disadvantageous initial geographical specialization: Angola, Gabon, Niger, and Somalia. Specific exports to Yemen and Syria negatively impacted the export growth of Somalia. Limited demand from other African economies (e.g., Chad) negatively impacted export growth in the Central and West African economies.

While remaining limited, geographical reallocation has been beneficial for 27 countries, but is notable for Niger (increased export shares to China, Malaysia, and Thailand), Angola (exports to Chile, China, and Peru), Somalia (exports to Gulf countries, especially Oman and Saudi Arabia, and to China), Liberia (exports to the Malaysia and Netherlands), Gabon (exports to Canada and Switzerland), and Zimbabwe (exports to China). On the other hand, 16 countries have seen their export performance undermined by negative reallocation. This effect is still limited and has noticeable impact mainly for Eritrea (reduction in exports share to Europe and the United States in favor of Egypt); Benin and Burkina Faso (reallocation within Asian partners from China and Thailand to India and Viet Nam, which had weak import demand growth); and East African countries such as Rwanda and Burundi (which have strengthened trade with regional partners with limited import demand, especially Kenya, in their overall export pattern).

Regarding sectoral specialization, 33 African economies had a pro-agricultural trade growth specialization pattern, especially Tunisia (olive oil, dates), the Comoros (spices, essential oils), Botswana (bovine meat), Burundi (coffee, tea, beer), Rwanda (coffee and tea), and Guinea (cocoa and coffee). We find that 19 economies were in the reverse situation, and those most impacted were the "cotton" economies (Chad, Burkina Faso, Benin, and Mali). Chad was also negatively impacted by its initial specialization in gum arabic, and Benin was negatively impacted by its specialization in cashew nuts. Somalia also faced adverse initial specialization owing to the role of exports of goat and goat-related products, which were less attractive to world markets than other livestock products.

However, drawn by growing demand, the vast majority of African economies (44) have increased their export shares in pro-growth products. This effect is particularly true for Madagascar (spices, vanilla), the Comoros (strengthening exports in spices and developing vanilla production), Gabon (reducing exports of tobacco-related products while expanding various processed items, including "niche" products such as communion wafers), Niger (sesame seeds), Central African Republic (expansion of fresh fruits while phasing out cotton), Cabo Verde (rum), Senegal (expanding fresh or chilled vegetables and groundnuts, while reducing cotton exports). Only 7 countries faced counter-current changes in product specialization: Lesotho (increasing role of

wool); Sierra Leone (relative decrease in cocoa exports); Swaziland (increasing export shares of sugarcane while the role of processed cocoa products has decreased); Seychelles (reduction in export shares of fruits); and Rwanda, Burundi, and Guinea (decrease in the relative role of coffee and/or cocoa).

The residual competitiveness measure is positive for 10 countries that have managed to outperform their structural advantage or disadvantage (Algeria, Benin, Gambia, Guinea-Bissau, Madagascar, Rwanda, Senegal, Sierra Leone, Somalia, and Tanzania), while 38 other countries have underperformed compared to the expected outcomes of their trade pattern (Angola, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Republic of Congo, Democratic Republic of Congo, Côte d'Ivoire, Djibouti, Egypt, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Ghana, Guinea, Kenya, Libya, Malawi, Mali, Mauritius, Morocco, Namibia, Niger, Nigeria, Sao Tome and Principe, Seychelles, South Africa, Swaziland, Togo, Tunisia, Uganda, Zambia, and Zimbabwe).

The countries in this last category are not always bad performers in absolute terms, but they have operated below their export potential. This is the case for Ethiopia, for instance, which has managed to increase its world market share slightly (from 0.155 percent to 0.16 percent) but has increased it below its potential: this country is well positioned on the coffee and horticultural markets, with significant export links with both the Netherlands and China. These are strong growth engines on agri-food markets.

The period between 2005–2007 and 2015–2017 differ markedly with the previous decade (documented in Badiane and Makombe 2016), with a slowdown in the performance of many countries (Ethiopia, Malawi, and Gabon, and of Africa as a whole). Still, the broad picture remains the same, with a minority of African countries managing to beat the average market performance and their benchmark. Some countries have managed to stay on this top-performer list for the last 20 years (e.g., Rwanda and Tanzania), but there have also been many newcomers in the last decade, even including economies recovering from traumatic events (Somalia); or from West Africa, with numerous countries from this region represented in our performing country list. Many countries of West Africa have moved from negative to positive competitiveness measures. In contrast, Central African countries have remained structurally associated with a negative competitiveness trend.

This last result was also confirmed by the AATM 2017 report (Badiane, Odjo and Collins 2018). Compared to it, we find that Djibouti, Egypt, Ethiopia, Ghana, and Nigeria have had lower performance and experienced overall export slowdown. These results, however, also originated in our split between the effects of pure competitiveness and the adaptation strategy in the product and country spaces.

Indeed, while our assessment is slightly more pessimistic in terms of pure performance, we confirm the capacity of adaptation of African economies, especially in the product space. Africa is not lagging behind and is on a par with the rest of the world. The average sectoral adjustment contribution is 0.1 for Africa and 0.11 for the rest of the world, while the regional adjustment contribution is 0.2 for Africa and 0.3 for the rest of the world. The geographical reallocation driver is particularly important for the future of African export strategy, dynamics, and the pro-integration policy forces at stake. Indeed, the political will to increase intraregional trade, and the role of regional markets for local producers, will make sense only if the import demand dynamics of the region outpace the growth of the rest of the world. Otherwise, reshaping the agricultural export strategy of African economies toward intra-Africa trade will lead to slow growth. In this context, the African Continental Free Trade Area (AfCFTA) negotiations should make sure that African markets are open and growing (not stagnant and protected) to be beneficial for African exports and to be a source of trade creation rather than trade diversion.

Prices Matter

In this section we examine the price competitiveness of African economies in several agricultural value chains. An economy's competitiveness is determined by the comparison between prices of its traded goods and the prices of competitors' goods (section 4.3.1). It can also be affected by macroeconomic factors such as the exchange rate. To address the exchange rate as a factor, we construct and analyze real effective exchange rates in section 4.3.2.

Unit Values (in US dollars)

Let us start by comparing the prices of agricultural goods produced by African economies with the prices of the same goods produced by non-African economies.

Price series for all traded goods for all world economies are not available. In addition, we need to capture the value of traded items into an harmonized nomenclature. For this reason, economic analysis rely on unit value: the ratio between the value of trade flows divided by the recorded quantities. These unit values are expressed in monetary unit per physical units (e.g., tons) when the goods are reasonably similar (e.g., maize) or as an index when goods are heterogenous.

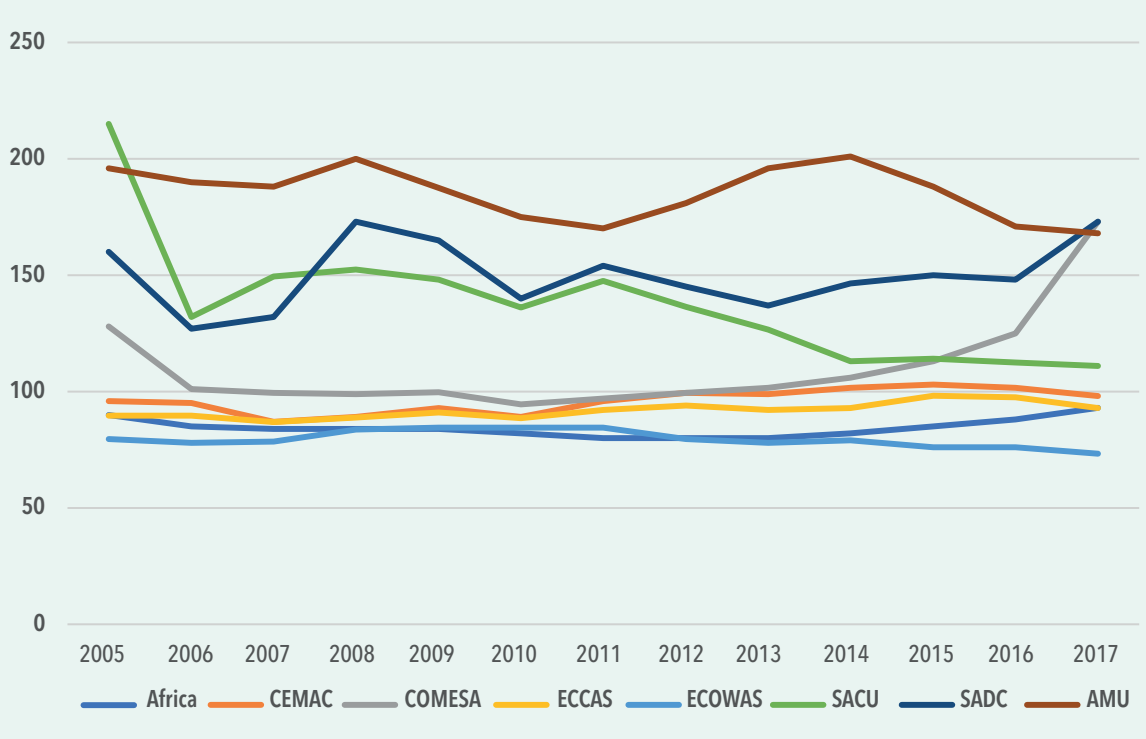
How to interpret price differences for the same good between two countries remains to be seen. These differences may reflect either a price competitiveness of one economy in relation to another on the good in question or differences in quality. Economic analysis shows that if two goods have exactly the same quality and are offered on the market at different prices, the lowest-priced good should win the entire market. We can, therefore, conclude that persistent price differences may reflect differences in quality, while temporary differences reflect differences in price competitiveness. It should be noted, however, that we are studying agricultural goods, so this issue of quality differentiation is less influential. This is especially true when we compare average unit values for specific value chains such as tomatoes, cotton, and cashews. Beyond quality differentiation, higher unit values may also be associated with actual capture of preferential rents by exporters, for goods sold on market with high tariffs, and preferences given to African countries.

Unit values: overview

We built a trade database where trade flows have been harmonized. All flow values include cost of insurance and freight (CIF). When bundles are composed for regions and compared to the rest of the world, they are harmonized in such a way that differences between unit value averages cannot result from composition effects (that is, in differences in the weights used for aggregation) but only from differences in prices. For example, when the ratio of the CEMAC unit value to the Rest of the World unit value is calculated, the Rest of the World unit value is calculated using the weights of the CEMAC bundle.

Figure 4.5 shows the evolution of relative unit values for all agricultural commodities for Africa and by REC. For each of them, the average unit value is compared to the average unit value of the same bundle exported by the Rest of the World. We assume that "100" means that the bundle of goods is as expensive in Africa or in an African REC as it is in the rest of the world. An index of 110 means that the bundle of agricultural goods is 10 percent more expensive in Africa or in an African REC than in the rest of the world.

Figure 4.5 Evolution of unit values per regional economic community 2005-2017



Source: COMTRADE (2019) and authors' calculation.

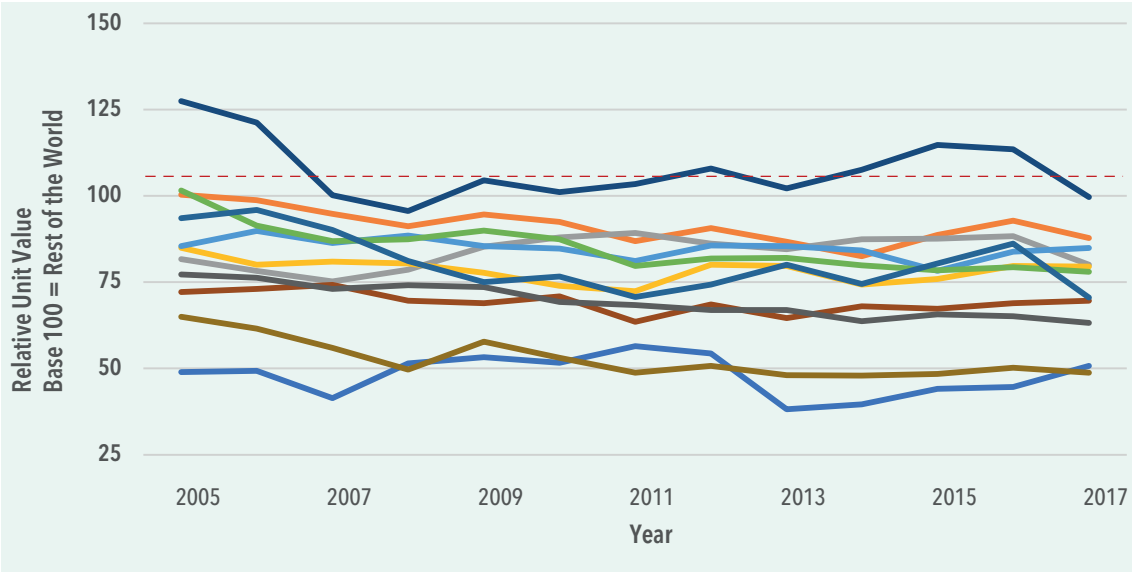
Note: CEMAC = Communauté Economique et Monétaire d'Afrique Centrale, COMESA = Common Market for Eastern and Southern Africa, ECCAS = Economic Community for Central African States, ECOWAS = Economic Community of Western African States, SADC = Southern African Development Community, SACU = Southern Africa Customs Union, AMU = Arab Maghreb Union.

At this very aggregate level, Africa appears to be competitive in terms of the price of agricultural goods compared to the rest of the world (Figure 4.5): the gap in average prices varies between 10 percent and 25 percent. The most price-competitive RECs are ECOWAS and ECCAS. In contrast, UMA, SADC, and SACU appear to be not competitive: in particular, the gap in price competitiveness between UMA and the rest of the world is systematically larger than 50 percent, reflecting higher costs but also the lack of capacity to sell on the EU markets through preferential schemes.

Unit values: specific value chains

Figure 4.6 compares the average unit value per commodity in Africa to that of the rest of the world. Africa appears to be very competitive in terms of price in the value chains of cotton, tea, sugar, sesame seeds, and cocoa. Over the 13-year period, the trend decreases globally, reflecting a general gain in price competitiveness in agriculture.

Figure 4.6 Evolution of unit values per commodity 2005-2017



Source: COMTRADE (2019) and authors' calculation.

Real Effective Exchange Rate

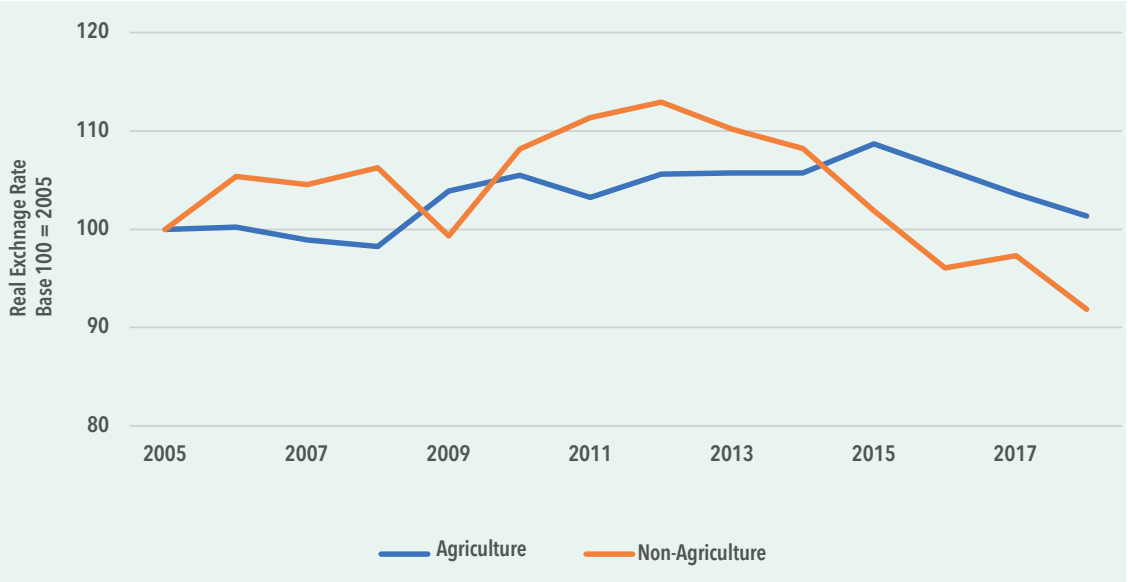
This subsection accounts for macroeconomic factors that can affect the price competitiveness of African economies.

The real effective exchange rate: overview

The real effective exchange rate (REER) is often viewed as a measure of a country's competitiveness. Here, "effective" means that the value of African currencies is calculated relative to a basket of currencies, while "real" means that differences in price inflation are accounted for. Thus, the The real effective exchange rate is defined as the weighted sum of the bilateral real exchange rates of a country or group of countries, the weights being the exports (in value and for the relevant products) of each exporter to the world, and the inflation being accounted for by the gross domestic product (GDP) deflator. With an increase or appreciation in the The real effective exchange rate, exports become more expensive and imports become cheaper, signifying a loss in competitiveness. With a decrease or depreciation in the The real effective exchange rate, exports become cheaper and imports become more expensive, signifying a gain in competitiveness.

Figure 4.7 shows the evolution of the real exchange rate for agriculture versus non-agriculture in Africa from 2005 to 2017. Overall, African economies experienced an appreciation of the real exchange rate compared to other exporters of agricultural products from 2008 to 2015. The steady depreciation observed since 2015 has contributed to the increased competitiveness of African agriculture. However, this is tempered by the deterioration in the currencies of some large agricultural exporters, such as Argentina and Brazil. The real exchange rate for non-agriculture in Africa has exhibited greater volatility during the period but has declined sharply since 2012. This indicates a much greater improvement in the competitiveness of Africa's non-agriculture sectors than in its agriculture sectors in recent years.

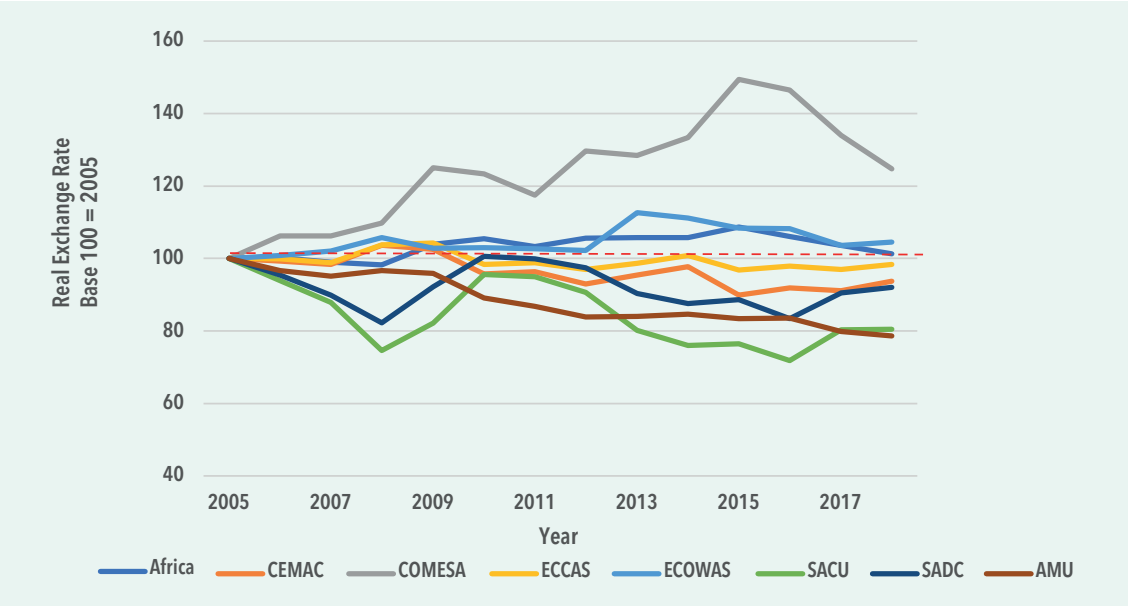
Figure 4.7 Evolution of real exchange rate for Africa, agriculture and non-agriculture 2005-2017



Source: COMTRADE (2019) and authors' calculation.

Figure 4.8 shows differences among RECs in the evolution of the real exchange rate for agriculture from 2005 to 2017. COMESA experienced strong real appreciation of the The real effective exchange rate of more than 50 percent from 2005 to 2015, as the currencies of several countries in the region appreciated, including Egypt and Sudan up to 2012 and Ethiopia until 2010. The The real effective exchange rate depreciation in COMESA beginning in 2015 has contributed to its improved competitiveness in agriculture. The The real effective exchange rate in SACU exhibited significant fluctuation during the period, due largely to the evolution of South Africa's rand, which appreciated until 2010 then collapsed in 2011. UMA has also experienced a real depreciation, by about 20 percent. At this aggregated level, most RECS have consistent evolution of their The real effective exchange rates and revealed comparative advantage, meaning that the The real effective exchange rate appreciation is associated with declining revealed comparative advantage: CEMAC, ECCAS, ECOWAS, SADC and UMA. Only COMESA has a non-consistent pattern, perhaps due to the size and diversity of this group.

Figure 4.8 Evolution of real exchange rate for African regional economic communities 2005-2017



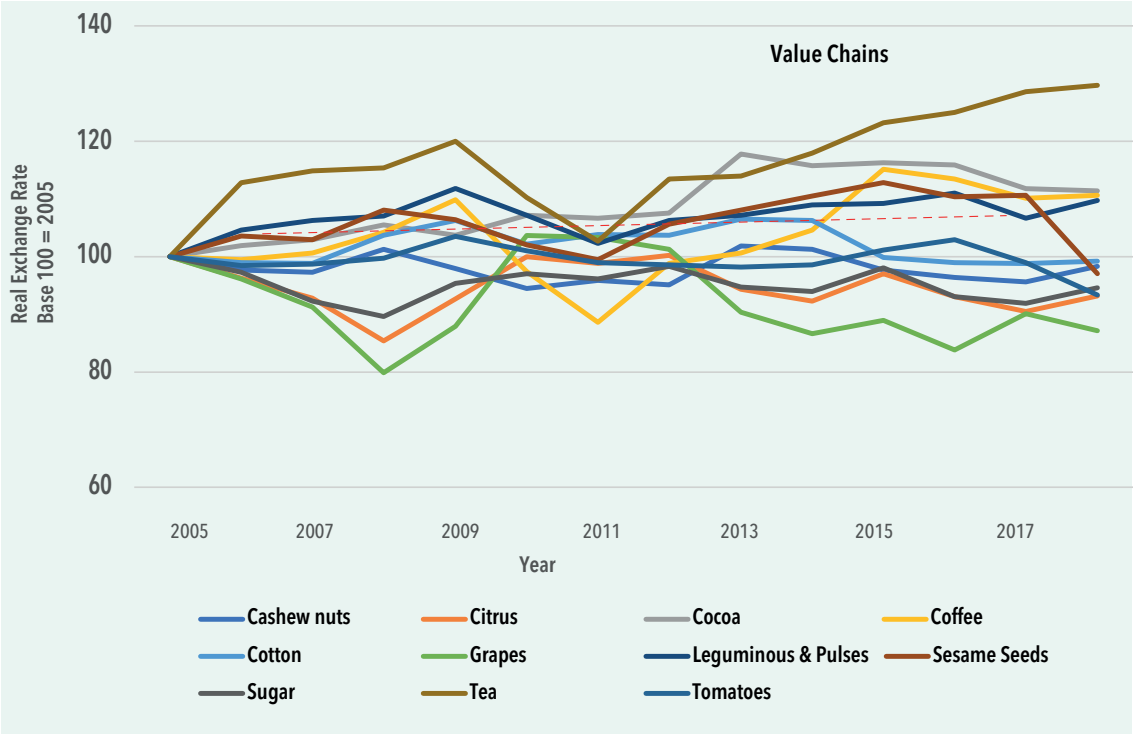
Source: COMTRADE (2019) and authors' calculation.

Note: CEMAC = Communauté Economique et Monétaire d'Afrique Centrale, COMESA = Common Market for Eastern and Southern Africa, ECCAS = Economic Community for Central African States, ECOWAS = Economic Community of Western African States, SADC = Southern African Development Community, SACU = Southern Africa Custom Union, AMU= Arab Maghreb Union.

The real effective exchange rate: focused value chains

Moving to a more granular level, we see greater differences in the evolution of the real exchange rate for Africa's major value chain commodities from 2005 to 2017 than is observed at the aggregated level for the whole agricultural sector. The The real effective exchange rates for each of these commodities are influenced by which countries are the main exporters in Africa and which are its main competing exporters abroad. The real exchange rates for tea, coffee, and cocoa have appreciated over the period, signifying a decline in Africa's competitiveness in these traditional cash crops, and perhaps contributing to the decline in continental revealed comparative advantage for some of them (section 4.2.1). From Figure 4.9, we conclude that legumes and pulses have also become less competitive during the period. The The real effective exchange rates for cotton, cashew, and sugar, on the other hand, have been relatively stable over the period. Citrus, which is exported mostly by southern and North Africa, and grapes, which come primarily from southern Africa, have become more competitive, benefiting from real depreciation in these regions.

Figure 4.9 Evolution of real effective exchange rate for selected value chains 2005-2017

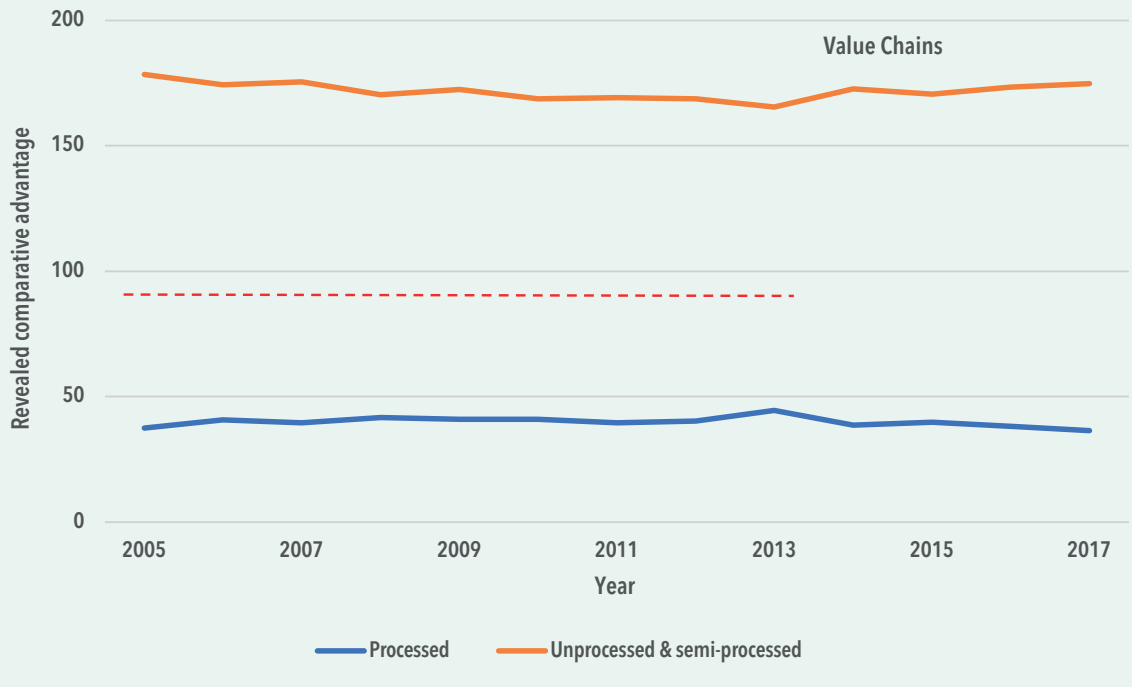


Source: COMTRADE (2019) and authors' calculation.

Climbing the value chain ladder

To foster agricultural transformation, and to use the African comparative advantages in agriculture discussed in subsection 4.2.1 as a growth and job-creation engine, it is essential that African countries develop their agri-business sectors. Indeed, increasing labor productivity at the farm level will displace the labor force, which could be used in farm downstream activities. However, Africa appears to struggle to diversify its exports and develop comparative advantages beyond the primary stage of production (Figure 4.10).

Figure 4.10 African revealed comparative advantages by stage of processing 2005-2017



Source: COMTRADE (2019) and authors' calculation.

African Exports Remain Dominated by Primary Exports

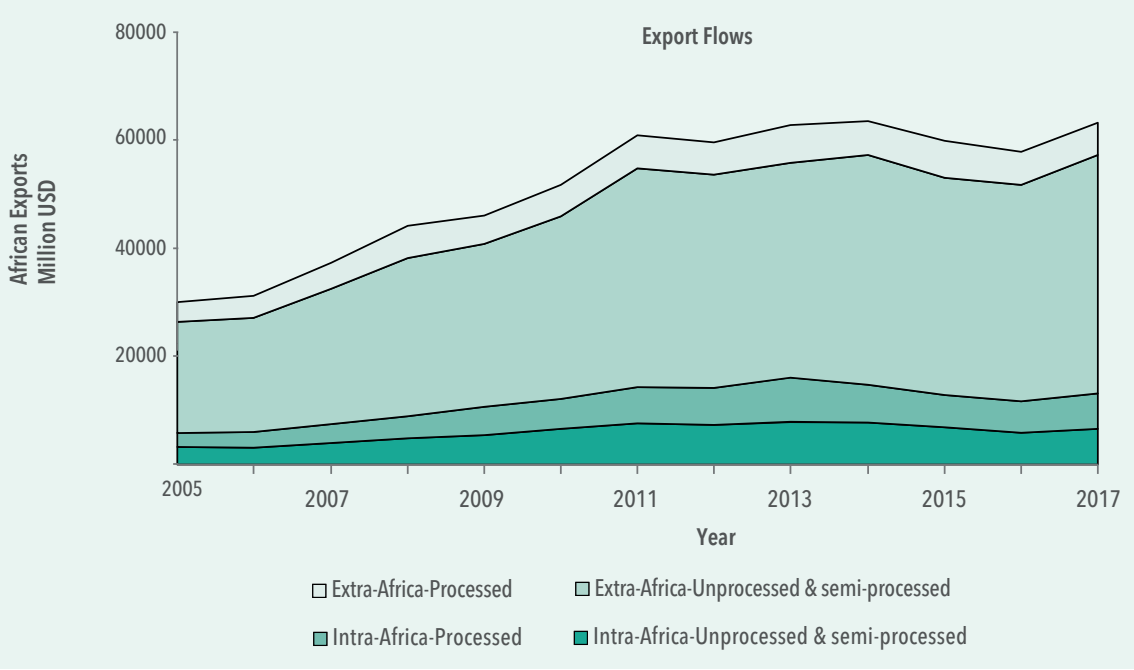
The current export structure of African countries (Figure 4.11) illustrates the lack of progress along the value chains. Of the 62 US$ billion of agricultural products exported by Africa in 2017, only 12 US$ billion are classified as processed goods. While total exports have indeed increased between 2005 and 2017, the relative role of processed and unprocessed products has not evolved. However, we see a very distinct pattern between intra-Africa trade and extra-Africa trade.

While African exports to non-African markets are dominated (90 percent) by primary or semi-processed products, the situation with respect to regional markets is balanced: half of intraregional trade is associated with processed products (Figure 4.11). This feature is relatively important in the context of increased regional trade following the Malabo Declaration (which commits to tripling intra-Africa trade) and the implementation of the AfCFTA. Increasing regional exports will lead to a higher dividend than traditional export patterns in term of diversification and progress along the value chain. It also implies that the policy framework should not limit this potential: in the agri-business sector, protectionist pressures within the AfCFTA negotiations through lists of products excluded from the liberalization scheme and limiting rules of origin should be limited.

There are multiple reasons for this highly differentiated pattern. Unprocessed agricultural goods are likely more impacted than other products by measurement error and unregistered trade. Informal and unregistered trade are an important issue (see the case of COMESA in Chapter 6). Staple agricultural products are often liberalized within regional agreements, and therefore poorly registered. In contrast, primary products targeting world markets are mainly cash crops, and registered fully both by exporting countries (where potential taxation and commodity boards have an incentive to track) and by destination countries (which tend to have

good statistical systems). While this statistical bias should not be neglected, we still observe a very significant pattern. The available estimates of unregistered trade will increase the share of intra-Africa trade in primary products but will not make the observed bias vanish. The demand drivers are actually quite important. Consumers in advanced economies currently have limited appetite for, or limited access to, African processed products. On the other hand, regional markets within Africa tend to have many similarities in terms of consumer preferences and legislation, and are easier markets to penetrate, especially for small and medium enterprises. Finally, demand for primary cash crops within Africa remains limited owing to similar production patterns and the lack of large-scale processing facilities, so most primary commodities (such as cocoa, coffee, cotton, and tea) are produced only for world markets.

Figure 4.11 African agricultural exports by destination market and stage of processing 2005-2017



Source: COMTRADE (2019) and authors' calculation.

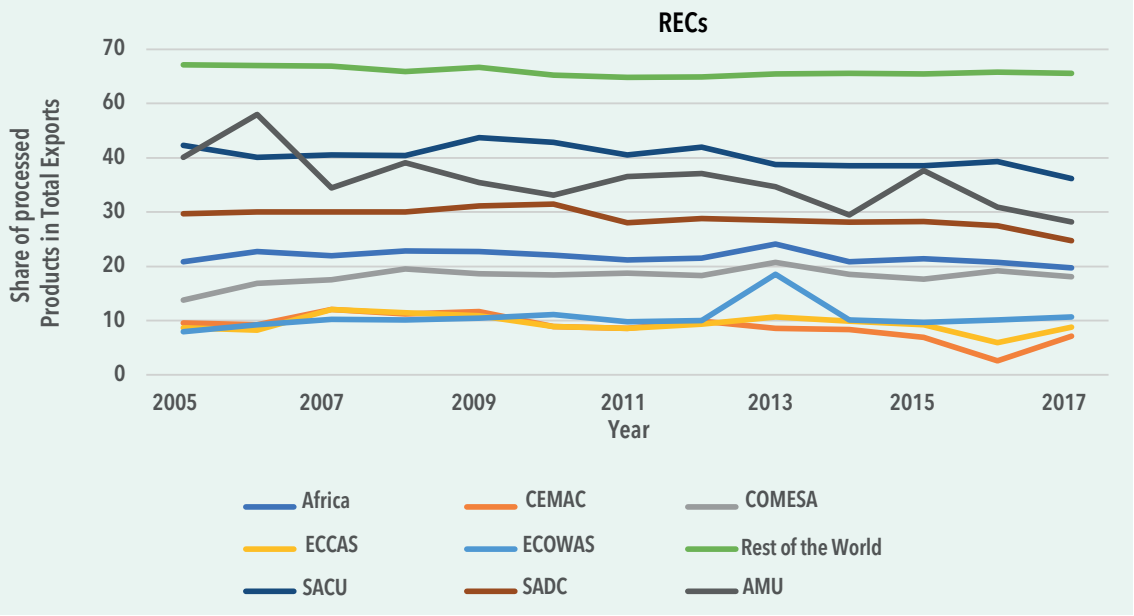
Tariff escalation is often cited to explain the lack of progress in diversification along the value chain. While this is still an important feature of the most favored nation (MFN) tariff structure in most world economies, African exporters (through unilateral or bilateral preferences) do not suffer from this problem, at least in OECD markets. However, other non-tariff measures (NTMs), such as sanitary and phytosanitary regulations, technical regulations (e.g., package labelling), and specific rules of origin may remain barriers to diversification. Since these issues are key elements of the AfCFTA negotiations, we expect that these barriers may be removed at the continental level relatively soon, strengthening the case for expanding the share of processed products in regional trade.

Differentiated Patterns Across RECs and Value Chains

Figure 4.12 displays the share of processed products to all destinations for the different RECs, the continental aggregate, and the Rest of the World (all non-African countries). For Africa, the share of processed products was relatively stable over the 2005-07/2015-17 period, at about

20 percent, a little more than one-third of the Rest of the World's share (55 percent). While this justifies the concerns raised in subsection 4.4.1, we can also observe a well-differentiated pattern across regions within Africa.

Figure 4.12 Shares of processed products by exporters 2005-2017



Source: COMTRADE (2019) and authors' calculation.

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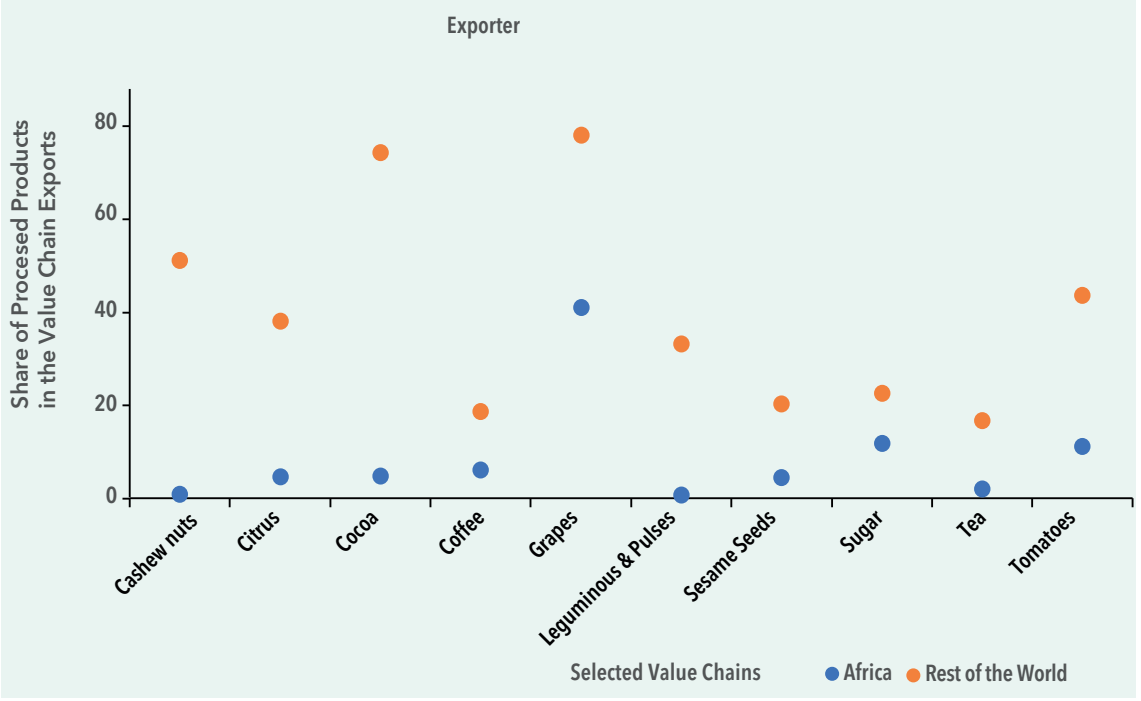
SACU countries have a much higher share of processed exports than the rest of the continent, at about 40 percent. This region is boosted by South African food processing industries, which also contribute to the expansion of its distribution and supermarket networks (Campbell 2016). While UMA (the second most advanced bloc in terms of economic structure) was initially at a similar level as SACU, it saw a large reduction in its share of processed products over this period, falling below 30 percent in 2017. This is the result of major changes for Tunisia, which had strong expansion in primary exports, from 25 percent in 2005 to 42 percent in 2017, and to some extent, in Morocco. This declining trend has also impacted SADC. In contrast, the situation of COMESA has improved, and the bloc has caught up with the continental average. The other regions, West and Central Africa, have not registered major changes and are the most dominated by primary products with a processing share below 10 percent. Key cash crops such as cocoa (West Africa), cotton (Central Africa), and numerous fruits (e.g., banana) weigh heavily in these aggregates.

Any aggregate numbers may hide differentiation at the value chain level but may also reflect strong composition effects. In other words, the high share of unprocessed products could reflect the specialization in value chains that are structurally more limited in terms of processing stage, rather than a structural inaptitude in processing the primary production. For instance, the vanilla value chain is more limited in processing opportunities than is the dairy value chain. Figure 4.13 shows for each value chain, the share of exports, by either Africa or the Rest of the World, of products classified as processed in total exports in this value chain for 2015-2017 on average".

We can see that, for our 11 value chains of interest, the share of processed products varies significantly at the world level. It reaches 80 percent for cocoa products and derivatives and for grapes (including juices and wines), while it is limited to 20 percent for coffee and tea. However, Africa systematically displays a low rate of processing in its exports for all value chains. Only that for grapes, thanks in particular to South African juice and wine industries, exceeds 40 percent. Several value chains, including cashew nuts and cocoa, display extreme gaps between the world structure and the African structure. It is relatively difficult to develop large agri-businesses in cocoa, since the later stages of processing require various inputs (including sugar and dairy products). Processing appears to be a more realistic target for cashew nuts, assuming the adoption of the more efficient technologies of Asian processors.

Figure 4.13 Shares of processed products for selected value chains: Africa versus the rest of the world average 2015-2017



Source: COMTRADE (2019) and authors' calculation.

Major market events for key value chains in 2016–2018

While long-term trends of African economies' competitiveness have been analyzed in sections 4.2, 4.3, and 4.4, in this section we provide additional narratives for our selected value chains. This provides the opportunity to point to recent market developments that are relevant for African exporters. In addition, quantitative information is provided for the RECs in appendix.

Cocoa and Related Products

Africa corners 21 percent of the cocoa world market, owing largely to cocoa exports from ECOWAS, where cocoa represents 48 percent of total agricultural exports (Table A4.4). Cocoa is also a significant agricultural export for CEMAC and ECCAS, accounting for 42 percent and 34 percent of agricultural exports, respectively. Favorable weather conditions in the 2016/17 season helped crops across the main cocoa-growing countries in the West African region. Mild seasonal harmattan winds helped increased cocoa output for Côte d'Ivoire in 2016/17, compared to the previous season. However, the prospects of a large production for the 2018/19 season, coupled with low international prices, have created some difficulties in commercialization of the cocoa. In Ghana, the government aims to revamp the cocoa industry by investing in disease-control measures and providing incentives to farmers to adhere to practices that will not only boost production, but also enhance their livelihoods (International Cocoa Organization, 2017).

Coffee and Related Products

Africa supplies 6 percent of world exports of coffee, largely driven by exports from COMESA (Table A4.5). Coffee is a significant agricultural export product, not only for COMESA (8 percent), but also for ECCAS (11 percent) and CEMAC (5 percent). In 2018, world coffee prices (as measured by the International Coffee Organization (ICO) composite price index) had fallen about 14 percent from 2017 and had lost close to half their value since 2011. Among the potential reasons for this decline are the rapid expansion of production capacity in the main producing countries; slow growth of global consumption, especially in developed countries; technological advances in coffee processing; excess market power held by the major coffee roasters; and depreciation of the Brazilian real against the US dollar. In an effort to alleviate the effects of the current crisis, several countries have taken measures targeting the coffee subsector. For example, Kenya is implementing a series of legislative actions, including a US$15 million subsidy program, to support affected farmers. Coffee exports in Ethiopia are projected to increase in 2019 owing to a combination of factors, including the recent government reforms to the coffee marketing system, devaluation of the local currency, and ongoing marketing efforts (USDA 2018a).

Tea and Related Products

Africa captured one-fifth of the world market for tea exports in 2015–2017 (Table A4.6). Most of this is contributed by COMESA, for which tea accounts for 7.8 percent of total agricultural exports. Aside from COMESA and ECCAS (6.4 percent), tea is not a significant export for other RECs. In more recent developments, tea exports from COMESA and ECOWAS declined between 2017 and 2018 while those from ECCAS declined from 2016 to 2017 and remained steady in 2018. A steady increase was observed for SADC, which captured 2.5 percent of the world tea market, throughout 2016–2018. According to FAO (2015) forecasts, black tea exports are projected to reach 1.67 million metric tons in 2023, with similar growth rates projected for both Africa and Asia. However, by 2023, export volumes for Asia are projected to reach 820,921 tons compared to 743,384 tons for Africa. The major exporting countries are expected to remain the same, with Kenya being the largest exporter followed by Sri Lanka, India, Viet Nam, Indonesia, Malawi, Uganda, and Tanzania.

Sugar and Related Products

Sugar exports account for more than 5 percent of agricultural exports of several RECs for 2015–2017 (Table A4.7). This includes COMESA (7.4 percent), UMA (6.9 percent), SADC (6.8), and SACU (5.1). These RECs contribute to Africa's ability to capture 4.9 percent of the world market for sugar during the period. More recently, sugar exports from COMESA and SADC increased in 2018. In Ethiopia, the significant boost in sugar output is the result of substantial expansion projects undertaken by the government, with a declared strategy of achieving self-sufficiency. Six sugar mills are now operational in the country, with plans to expand their current capacity and to build new factories. Sugar output in South Africa has expanded at a moderate rate recently, as labor disputes and land reform challenges have limited any significant increase. In Mozambique, sugar production has expanded by an annual average rate of 10 percent over the past 10 years, driven by investment in irrigation and price incentives offered by trade opportunities in the region. Sugar production is forecast to increase further in 2018/19. Egypt, South Africa, Ethiopia, and Mozambique are anticipated to harvest larger crops, while output is expected to fall in Mauritius due to less-than-ideal weather conditions (FAO 2019).

Cotton and Related Products

Africa captured 14.9 percent of the world export market for cotton in 2015–2017, led by ECOWAS which accounted for 10 percent of world trade (Table A4.8). Cotton represents a sizable share of agricultural exports for several RECs, including CEMAC (13 percent), ECCAS (10 percent), and ECOWAS (7.8 percent). Cotton exports from ECCAS and ECOWAS declined from 2016 to 2018. According to the USDA Foreign Agricultural Service website "Cotton: World Markets and Trade" (2018), nearly all West African cotton is exported, as there are few mills in the region, signifying the pivotal role that foreign demand plays for West African producers and merchants. South and Southeast Asia are the predominant destinations because of robust growth in consumption for both regions. Bangladesh, the world's largest importer, has recently opted for greater supplies from West Africa over Central Asia. West Africa exports for 2018/19 are projected to surpass the previous year's record, driven by record production. Mali and Burkina Faso are the largest producers and are forecast to have record crops, driven by an expanding cropped area.

Grapes and Related Products

SACU and SADC each captured 3.8 percent of the world market for grapes in 2015–2017 (Table A4.9). Grapes represent 14.8 percent and 8.8 percent of SACU's and SADC's agricultural exports, respectively. South Africa leads the continent in production and exports of grapes and related products. In 2016, the European Union accounted for 95 percent of total South African exports of fresh grapes to Europe. This may be owing to the long trading relationship between South Africa and Europe, which spans over a century. South Africa also has preferential market access to the European Union through the Trade Development and Cooperation Agreement (TDCA) between South Africa and the European Union. South Africa is the tenth-largest producer of table grapes in the world, with an estimated share of 4.1 percent in 2017/18.

Tomatoes and Related Products

UMA leads the RECs in exports of tomatoes, with a 5.7 percent share of the world market

(Table A4.10). Tomatoes account for 13 percent of all agricultural exports for the region. Morocco, Egypt, and Tunisia are the top three African exporters, contributing the most to this trend.

Legumes and Pulses

COMESA and UMA are Africa's largest exporters of legumes and pulses, accounting for 13.3 percent and 14.7 percent of the world market, respectively (Table A4.11). Africa as a whole accounts for 30.5 percent of world exports. While legumes and pulses are a negligible proportion (less than 1 percent) of total agricultural exports in other RECs, they account for 1.3 percent and 4.8 percent of the agricultural exports of COMESA and UMA, respectively.

Cashew Nuts

Africa accounted for between 20 and 25 percent of the world market for cashew nuts. This was due largely to exports from ECOWAS and SADC, which captured 15.6 and 4.2 percent of the world market in 2015–2017, respectively (Table A4.12). Cashew nuts comprise a significant share of exports of agricultural products in these RECs, at 11.3 percent in ECOWAS and 2.6 percent in SADC. More recently, exports to Viet Nam (the world's largest processor) from Côte d'Ivoire (the main ECOWAS exporter) fell by 12 percent from 2017 to 2018. At the same time, Viet Nam's cashew nut imports from Cambodia rose 64 percent. This evolution is in line with the desire of Viet Nam to reduce its dependence on the African continent, which involves the development of trade with its Asian neighbors, especially Cambodia, where the Vietnamese invest in plantations (COMMODAFRICA 2019). In contrast to West Africa, East African raw cashew exports fell by 40 percent from 2017 to 2018. This was due to the poor harvest in 2017/18, and the new policy of Tanzania (the main exporter in SADC), which increased the price of cashews by 94 percent (COMMODAFRICA 2018).

Citrus

Citrus exports from Africa account for almost 16 percent of the world market, coming primarily from COMESA, SADC, SACU, and UMA (Table A4.13). SADC, with South Africa as the top citrus exporter in the region, accounts for 9 percent of the world market share. Oranges contributed the most to total citrus product exports in South Africa; the European Union remained the top market, accounting for over 40 percent in 2018. The increase in exports of oranges is attributable to an increase in South Africa's production from the main growing regions that recovered from the drought conditions of 2015/16, as well as to favorable weather and an expanded area (USDA 2019).

Sesame Seeds

Africa accounted for nearly 60 percent of world exports of sesame seeds in 2015–2017, driven largely by ECOWAS, COMESA, and SADC, which capture 21 percent, 28 percent, and 9 percent of the world market, respectively (Table A4.14). Although India is traditionally the largest supplier of sesame seeds to Europe, both Sudan and Nigeria became significant exporters in 2017. Ethiopia and Mozambique are also important suppliers of sesame seeds to the European market. Ethiopian supplies to Europe have experienced significant annual growth of 8 percent in volume and 3 percent in value since 2013, and Mozambican supplies have increased sharply by 82 percent since 2013. Prices of sesame seeds in the international market strongly depend

on the annual volumes produced in India and China. Any delay or failure in Chinese crops puts a constraint on the global availability of sesame seeds, which puts pressure on world prices. Unfavorable climate conditions in Asia since 2015 decreased sesame production and led to high crop prices. However, production increased in Africa, stabilizing prices, while allowing African countries to capture a larger share of the export market (Okeke 2018).

Box 4.1 New trend in value chain integration: e-commerce

Electronic commerce (e-commerce) is trade using information and communication technology (ICT) facilities. It is defined by the World Trade Organization (WTO) as the "production, distribution, marketing, sale or delivery of goods and services by electronic means." By adopting digitalization, the complexity of international trade is alleviated through the minimization of the transaction costs, easier connection between businesses and consumers, and facilitation of the coordination of global value chains (OECD 2019).

The integration of ICT facilities is important in agricultural trade because of the complexity of agricultural supply chains involving products that are sensitive to time and temperature. Virtualization enables supply chain actors to manage business processes remotely and in real time. It is expected that this improves support for food companies in dealing with perishable products, unpredictable supply variations, and stringent food safety and sustainability requirements (Verdouw et al. 2016).

Management of agricultural value chains is challenging in Africa, particularly when dealing with perishable products and the exchange and processing of large amounts of strategic information. Although it is progressing rather slowly, digitalization of agricultural value chains to overcome the constraints that smallholder farmers face is becoming a reality. The following list includes some examples of companies using mobile technology to address challenges in the value chain (Kariuki 2018):

- Lack of agri-related information such as weather forecasts, market demand, pest-related information: startups are using messaging apps to convey the needed information to farmers. For example, Techno Brain and the Microsoft Corporation launched a Digital Agriculture Platform in Africa to help farmers improve crop yields and increase income. Farmers receive insights on mobile phones via short message service (SMS) and voice platforms, including information on the best crops to plant, pest growth alerts, adverse weather notices, preferred harvesting time, market information, and farming tips developed in collaboration with African governments and other knowledge partners. WeFarm is a free peer-to-peer service that enables farmers to share information via SMS, without the internet and without having to leave their farms. Digifarm is a Safaricom platform that provides smallholder farmers with access to a suite of information and financial services, including discounted products, customized information on best farming practices, and access to credit and other financial facilities.

- Lack of access to fair, trusted, and modern markets: M-Farm matches farmers with local buyers across Kenya. It also offers important information to determine the best time to plant crops, using price trends. Once the produce is ready, M-Farm connects farmers with thousands of ready buyers for the best price. Twiga Foods is linking farmers and vendors to fair, trusted, and modern markets. Its mobile platform brings together food producers, pack houses, and vehicles to supply and deliver produce directly from farmers to urban retailers.

- Lack of access to inputs and modern machinery: Hello Tractor is an Uber-like tractor service that allows farmers to conveniently request, schedule, and prepay for tractor services from nearby smart tractor owners through text messaging and mobile money.

Conclusions

This chapter examines the evolution of competitiveness in key commodity value chains in Africa, using comparisons of the periods 2005–2007 and 2015–2017. We use different indicators and methods to do this: Revealed comparative advantage, The real effective exchange rates, average unit value ratios, and market share decomposition.

We find that Africa's comparative advantage in agriculture has strengthened in very recent years, but several remarks must be made about this:

1. This comparative advantage is not a feature of the whole of Africa. Primarily, RECs such as ECOWAS, SADC, or COMESA have a comparative advantage. Other regions with strong extractive sectors (UMA, CEMAC, or ECCAS) do not display this trend.

2. Africa is competitive mainly in unprocessed or semi-processed products and not in processed products. This is especially true for CEMAC and ECCAS, although much less so for SACU, where countries like South Africa have made significant progress along the value chain. However, intra-Africa trade is quite different, and processed and unprocessed products exports are balanced within the continent.

3. We also note a very high African competitiveness in some value chains, including sesame seeds, and legumes and pulses, while the African comparative advantage in coffee and grapes is declining.

4. A striking finding in our analysis is that the increase in African agricultural exports is mainly driven by non-African demand for unprocessed and semi-processed products.

5. African exporters have the capacity to shift their product mix and to move to new markets.

All this analysis, therefore, leads to interesting conclusions for economic policy. For AfCFTA to be a success, it must allow the development of an important and dynamic local market. Removing tariffs and non-tariff barriers, including proper rules of origin,[1] will be key to guaranteeing that strong regional import demand will allow African exporters to benefit from the regional integration agenda. This is a prerequisite for African economies to diversify their productive base and so make agricultural transformation a strong job-creation engine, by allowing African producers to move up value chains. Some products appear more promising than others in the medium term: these are strategic choices that African actors will have to make quickly.

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1- According to the WTO definition (https://www.wto.org/english/tratop_e/roi_e/roi_info_e.htm), „Rules of origin are the criteria needed to determine the national source of a product. Their importance is derived from the fact that duties and restrictions in several cases depend upon the source of imports."

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APPENDIX

Table A4.1 Exports and export shares of selected commodities, 2005–2007 and 2015–2017

	2005–2007			2015–2017		
Commodities	Value millions US$	Africa Share in world markets	Product share (%) in African agricultural exports	Value millions US$	Africa share in world markets	Product share (%) in African agricultural exports
All agricultural goods	32870	4	100	60369	4.3	100
Cashew nuts	464	11.7	1.4	2458	22.8	4.1
Citrus	1819	12.4	5.5	3493	15.8	5.8
Cocoa	4776	19.7	14.5	9265	20.7	15.3
Coffee	1742	8.9	5.3	2307	6	3.8
Cotton	2179	17.5	6.6	1993	14.9	3.3
Grapes	1617	5	4.9	2032	4.4	3.4
Legumes & pulses	513	39.6	1.6	622	30.5	1
Sesame seeds	477	42.1	1.5	1803	59.4	3
Sugar	1859	6	5.7	2408	5	4
Tea	746	15.7	2.3	1697	20.8	2.8
Tomatoes	438	4.4	1.3	1079	7.2	1.8

Source: COMTRADE (2019) and authors' calculation.

Table A4.2 Correspondence between value chain and HS6 (Harmonized System 6-digit) lines

Value chains	Processed	Unprocessed & semi-processed
Cashew nuts	200819	080131, 080132
Citrus	200911, 200912, 200919, 200921, 200929, 200931, 200939	080510, 080520, 080540, 080550, 080590, 081400
Cocoa	180610, 180620, 180631, 180632, 180690	180100, 180200, 180400, 180500
Coffee	210111, 210112	090111, 090112, 090121, 090122, 090190
Cotton	na	520100, 520210, 520291, 520299, 520300
Grapes	200969, 220410, 220421, 220429, 220430	080610, 080620
Legumes & Pulses	110610, 230250	070810, 070820, 070890
Sesame Seeds	151550	120740
Sugar	170410, 170490	170112, 170113, 170114, 170191, 170199, 170211, 170219, 170220, 170230, 170240, 170250, 170260, 170290, 170310, 170390
Tea	210120	090210, 090220, 090230, 090240
Tomatoes	200210, 200290, 200950, 210320	70200

Note: na for not available.

Table A4.3 Composition of each regional economic community (REC)

RECs	ISO3 CODE	Country Name
Africa	SAC, AGO, BDI, BEN, BFA, BWA, CAF, CIV, CMR, COD, COG, COM, CPV, DJI, DZA, EGY, ERI, XAF, ETH, GAB, GHA, GIN, GMB, GNB, GNQ, KEN, LBR, LBY, LSO, MAR, MDG, MLI, MOZ, MRT, MUS, MWI, NAM, NER, NGA, RWA, SDN, SEN, XAF, SLE, SOM, SSD, STP, SWZ, SYC, TCD, TGO, TUN, TZA, UGA, ZAF, ZMB, ZWE	South African Customs Union, Angola, Burundi, Benin, Burkina Faso, Botswana, Central African Republic, Côte d'Ivoire, Cameroon, Congo, Dem. Rep., Congo, Rep., Comoros, Cabo Verde, Djibouti, Algeria, Egypt, Arab Rep., Eritrea, Western Sahara, Ethiopia, Gabon, Ghana, Guinea, Gambia, Guinea-Bissau, Equatorial Guinea, Kenya, Liberia, Libya, Lesotho, Morocco, Madagascar, Mali, Mozambique, Mauritania, Mauritius, Malawi, Namibia, Niger, Nigeria, Rwanda, Sudan, Senegal, Saint Helena, Ascension and Tristan da Cunha, Sierra Leone, Somalia, South Sudan, São Tomé and Principe, Swaziland, Seychelles, Chad, Togo, Tunisia, Tanzania, Uganda, South Africa, Zambia, Zimbabwe
ECOWAS	BEN, BFA, CIV, CPV, GHA, GIN, GMB, GNB, LBR, MLI, NER, NGA, SEN, SLE, TGO	Benin, Burkina Faso, Côte d'Ivoire, Cabo Verde, Ghana, Guinea, Gambia, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Togo

COMESA	BDI, COD, COM, DJI, EGY, ERI, ETH, KEN, LBY, MDG, MUS, MWI, RWA, SDN, SSD, SWZ, SYC, UGA, ZMB, ZWE	Burundi, Congo, Dem. Rep., Comoros, Djibouti, Egypt, Arab Rep., Eritrea, Ethiopia, Kenya, Libya, Madagascar, Mauritius, Malawi, Rwanda, Sudan, South Sudan, Swaziland, Seychelles, Uganda, Zambia, Zimbabwe
ECCAS	AGO, BDI, CAF, CMR, COD, COG, GAB, GNQ, RWA, STP, TCD	Angola, Burundi, Central African Republic, Cameroon, Congo, Dem. Rep., Congo, Rep., Gabon, Equatorial Guinea, Rwanda, São Tomé and Principe, Chad
CEMAC	CAF, CMR, COG, GAB, GNQ, TCD	Central African Republic, Cameroon, Congo, Rep., Gabon, Equatorial Guinea, Chad
SACU	SAC, BWA, LSO, NAM, SWZ, ZAF	South African Custom Union, Botswana, Lesotho, Namibia, Swaziland, South Africa
SADC	SAC, AGO, BWA, COD, LSO, MDG, MOZ, MUS, MWI, NAM, SWZ, SYC, TZA, ZAF, ZMB, ZWE	South African Custom Union, Angola, Botswana, Congo, Dem. Rep., Lesotho, Madagascar, Mozambique, Mauritius, Malawi, Namibia, Swaziland, Seychelles, Tanzania, South Africa, Zambia, Zimbabwe
UMA	DZA, LBY, MAR, MRT, TUN	Algeria, Libya, Morocco, Mauritania, Tunisia

Table A4.4 Cocoa exports values and shares in African regional economic communities (RECs), 2015–2017

Exporter	Value US$ million	REC share in world markets (%)	Product share in total agricultural exports (%)
Africa	9,265.1	20.7	15.3
CEMAC	621.8	1.4	41.7
COMESA	270.4	0.6	1.3
ECCAS	656.2	1.5	34.0
ECOWAS	8,212.5	18.3	47.4
SACU	73.4	0.2	0.6
SADC	167.7	0.4	0.8
UMA	34.2	0.1	0.5

Source: COMTRADE (2019) and authors' calculation.

Note: CEMAC = Communauté Economique et Monétaire d'Afrique Centrale, COMESA = Common Market for Eastern and Southern Africa, ECCAS = Economic Community for Central African States, ECOWAS = Economic Community of Western African States, SADC = Southern African Development Community, SACU = Southern Africa Customs Union, AMU = Arab Maghreb Union.

Table A4.5 Coffee exports values and shares in African regional economic communities (RECs), 2015–2017

Exporter	Value US$ million	REC share in world markets (%)	Product share in total agricultural exports (%)
Africa	2,306.7	6.0	3.8
CEMAC	78.6	0.2	5.3
COMESA	1,687.7	4.4	8.2
ECCAS	204.1	0.5	10.6
ECOWAS	302.6	0.8	1.7

Exporter	Value US$ million	REC share in world markets (%)	Product share in total agricultural exports (%)
SACU	30.7	0.1	0.3
SADC	242.9	0.6	1.2
UMA	30.4	0.1	0.5

Source: COMTRADE (2019) and authors' calculation.

Note: CEMAC = Communauté Economique et Monétaire d'Afrique Centrale, COMESA = Common Market for Eastern and Southern Africa, ECCAS = Economic Community for Central African States, ECOWAS = Economic Community of Western African States, SADC = Southern African Development Community, SACU = Southern Africa Customs Union, AMU = Arab Maghreb Union.

Table A4.6 Tea exports values and shares in African regional economic communities (RECs), 2015–2017

Exporter	Value US$ million	REC share in world markets (%)	Product share in total agricultural exports (%)
Africa	1697.2	20.8	2.8
CEMAC	0.3	0	0
COMESA	1580.1	19.4	7.7
ECCAS	121.7	1.5	6.3
ECOWAS	6.3	0.1	0
SACU	37.8	0.5	0.3
SADC	202.7	2.5	1
UMA	15.4	0.2	0.2

Source: COMTRADE (2019) and authors' calculation.

Note: CEMAC = Communauté Economique et Monétaire d'Afrique Centrale, COMESA = Common Market for Eastern and Southern Africa, ECCAS = Economic Community for Central African States, ECOWAS = Economic Community of Western African States, SADC = Southern African Development Community, SACU = Southern Africa Customs Union, AMU = Arab Maghreb Union.

Table A4.7 Sugar exports values and shares in African regional economic communities (RECs), 2015–2017

Exporter	Value US$ million	REC share in world markets (%)	Product share in total agricultural exports (%)
Africa	2,408.0	5.0	4.0
CEMAC	6.5	0.0	0.4
COMESA	1,500.0	3.1	7.3
ECCAS	8.1	0.0	0.4
ECOWAS	40.2	0.1	0.2
SACU	611.2	1.3	5.2
SADC	1,376.5	2.9	6.9
UMA	447.0	0.9	7.1

Source: COMTRADE (2019) and authors' calculation.

Note: CEMAC = Communauté Economique et Monétaire d'Afrique Centrale, COMESA = Common Market for Eastern and Southern Africa, ECCAS = Economic Community for Central African States, ECOWAS = Economic Community of Western African States, SADC = Southern African Development Community, SACU = Southern Africa Customs Union, AMU = Arab Maghreb Union.

Table A4.8 Cotton exports values and shares in African regional economic communities (RECs), 2015–2017

Exporter	Value US$ million	REC share in world markets (%)	Product share in total agricultural exports (%)
Africa	1,992.5	14.9	3.3
CEMAC	194.2	1.4	13.0
COMESA	305.9	2.3	1.5
ECCAS	194.4	1.4	10.1
ECOWAS	1,349.0	10.1	7.8
SACU	55.1	0.4	0.5
SADC	235.0	1.8	1.2
UMA	0.8	0.0	0.0

Source: COMTRADE (2019) and authors' calculation.

Note: CEMAC = Communauté Economique et Monétaire d'Afrique Centrale, COMESA = Common Market for Eastern and Southern Africa, ECCAS = Economic Community for Central African States, ECOWAS = Economic Community of Western African States, SADC = Southern African Development Community, SACU = Southern Africa Customs Union, AMU = Arab Maghreb Union.

Table A4.9 Grapes exports values and shares in African regional economic communities (RECs), 2015–2017

Exporter	Value US$ million	REC share in world markets (%)	Product share in total agricultural exports (%)
Africa	2,032.3	4.4	3.4
CEMAC	1.4	0.0	0.1
COMESA	233.5	0.5	1.1
ECCAS	1.7	0.0	0.1
ECOWAS	6.5	0.0	0.0
SACU	1,736.9	3.7	14.8
SADC	1,749.3	3.8	8.8
UMA	43.6	0.1	0.7

Source: COMTRADE (2019) and authors' calculation.

Note: CEMAC = Communauté Economique et Monétaire d'Afrique Centrale, COMESA = Common Market for Eastern and Southern Africa, ECCAS = Economic Community for Central African States, ECOWAS = Economic Community of Western African States, SADC = Southern African Development Community, SACU = Southern Africa Customs Union, AMU= Arab Maghreb Union.

Table A4.10 Tomatoes exports values and shares in African regional economic communities (RECs), 2015–2017

Exporter	Value US$ million	REC share in world markets (%)	Product share in total agricultural exports (%)
Africa	1078.8	7.2	1.8
CEMAC	3.6	0	0.2
COMESA	134.8	0.9	0.7
ECCAS	5.1	0	0.3
ECOWAS	55.4	0.4	0.3
SACU	31.0	0.2	0.3
SADC	33.1	0.2	0.2

Exporter	Value US$ million	REC share in world markets (%)	Product share in total agricultural exports (%)
UMA	854.3	5.7	13.6

Source: COMTRADE (2019) and authors' calculation.
Note: CEMAC = Communauté Economique et Monétaire d'Afrique Centrale, COMESA = Common Market for Eastern and Southern Africa, ECCAS = Economic Community for Central African States, ECOWAS = Economic Community of Western African States, SADC = Southern African Development Community, SACU = Southern Africa Customs Union, AMU = Arab Maghreb Union.

Table A4.11 Legumes and pulses exports values and shares in African regional economic communities (RECs), 2015–2017

Exporter	Value US$ million	REC share in world markets (%)	Product share total agricultural exports (%)
Africa	621.9	30.5	1.0
CEMAC	0.8	0.0	0.1
COMESA	270.9	13.3	1.3
ECCAS	4.7	0.2	0.2
ECOWAS	32.2	1.6	0.2
SACU	6.0	0.3	0.1
SADC	49.8	2.4	0.3
UMA	299.5	14.7	4.8

Source: COMTRADE (2019) and authors' calculation.
Note: CEMAC = Communauté Economique et Monétaire d'Afrique Centrale, COMESA = Common Market for Eastern and Southern Africa, ECCAS = Economic Community for Central African States, ECOWAS = Economic Community of Western African States, SADC = Southern African Development Community, SACU = Southern Africa Customs Union, AMU = Arab Maghreb Union.

Table A4.12 Cashew nuts exports values and shares in African regional economic communities (RECs), 2015–2017

Exporter	Value US$ million	REC share in world markets (%)	Product share total agricultural exports (%)
Africa	2,457.5	22.8	4.1
CEMAC	0.3	0.0	0.0
COMESA	14.7	0.1	0.1
ECCAS	0.3	0.0	0.0
ECOWAS	1,927.1	17.8	11.1
SACU	7.3	0.1	0.1
SADC	518.1	4.8	2.6
UMA	2.7	0.0	0.0

Source: COMTRADE (2019) and authors' calculation.
Note: CEMAC = Communauté Economique et Monétaire d'Afrique Centrale, COMESA = Common Market for Eastern and Southern Africa, ECCAS = Economic Community for Central African States, ECOWAS = Economic Community of Western African States, SADC = Southern African Development Community, SACU = Southern Africa Customs Union, AMU = Arab Maghreb Union.

@Table A4.13 Citrus nuts exports values and shares in African regional economic communities (RECs), 2015–2017

Exporter	Value US$ million	REC share in world markets (%)	Product share total agricultural exports (%)
Africa	3,493.1	15.8	5.8
CEMAC	1.4	0.0	0.1
COMESA	832.4	3.8	4.1
ECCAS	1.8	0.0	0.1
ECOWAS	18.1	0.1	0.1
SACU	1,975.8	8.9	16.9
SADC	2,037.3	9.2	10.3
UMA	649.7	2.9	10.3

Source: COMTRADE (2019) and authors' calculation
Note: CEMAC = Communauté Economique et Monétaire d'Afrique Centrale, COMESA = Common Market for Eastern and Southern Africa, ECCAS = Economic Community for Central African States, ECOWAS = Economic Community of Western African States, SADC = Southern African Development Community, SACU = Southern Africa Customs Union, AMU = Arab Maghreb Union.

Table A4.14 Sesame seeds exports values and shares in African regional economic communities (RECs), 2015–2017

Exporter	Value US$ million	REC share in world markets (%)	Product share total agricultural exports (%)
Africa	1,803.0	59.4	3.0
CEMAC	24.2	0.8	1.6
COMESA	842.5	27.8	4.1
ECCAS	24.2	0.8	1.3
ECOWAS	633.4	20.9	3.7
SACU	0.7	0.0	0.0
SADC	282.9	9.3	1.4
UMA	0.9	0.0	0.0

Source: COMTRADE (2019) and authors' calculation.
Note: CEMAC = Communauté Economique et Monétaire d'Afrique Centrale, COMESA = Common Market for Eastern and Southern Africa, ECCAS = Economic Community for Central African States, ECOWAS = Economic Community of Western African States, SADC = Southern African Development Community, SACU = Southern Africa Customs Union, AMU = Arab Maghreb Union.