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# Africa in Global Agricultural Trade

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# 2 Introduction

It is commonly agreed that trade integration can contribute to the acceleration of economic growth and to poverty alleviation. This is one of the main reasons why African leaders committed at Malabo in 2014 to tripling intra-Africa trade in agricultural commodities and services by 2025. This trade commitment package includes the establishment of a continental free trade area and a continental common external tariff. Its objective is also "to increase and facilitate investment in markets and trade infrastructure" (AUC 2014, 5).

Agriculture is a key sector in African economies: it employs a major part of the labor force and could play a great role in global food markets, given Africa's rich natural resource endowments. The attractiveness of the African agricultural sector can be illustrated by two general trends: (1) in many African countries, foreign direct investment (FDI) is increasingly oriented to the emergence of large-scale farms to boost exports of agricultural commodities to developed countries (Bourgoin, Diop, Dia 2017, 2019); and (2) efforts to integrate digitalization in African agriculture are now significant (Box 2.1).

## Box 2.1 Digitalization in Agriculture in Africa

Digitalization was a focus of the last Global Forum for Food and Agriculture held in Berlin in January 2019. During that important event, the agriculture ministers of 74 nations committed to use the potential of digitalization[1] to support environmentally sound and animal welfare-oriented production, increase the quality and safety of agricultural products, reduce production costs, improve the availability of information throughout the food system, and facilitate trade.

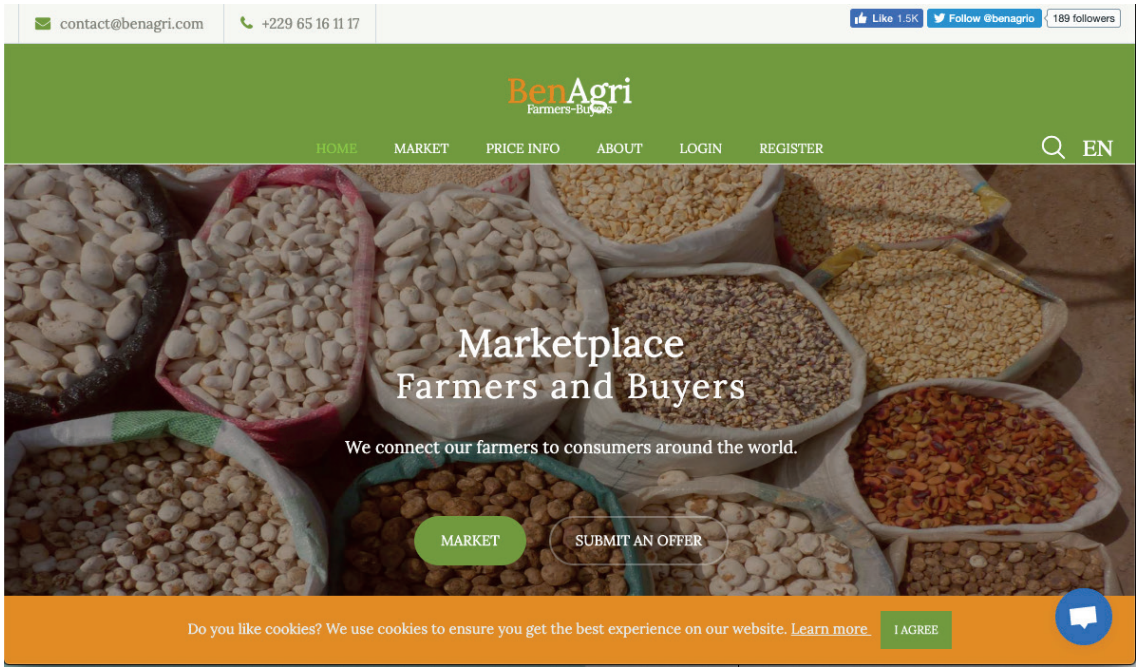
Efforts to integrate digitalization[2] into agriculture in Africa are quite recent, starting about 10 years ago. Initially the few attempts of digitalization observed there focused more on areas such as climate information, access to financial services, etc. Efforts with respect to trade in agricultural products were limited to platforms dedicated to price information systems. These have experienced substantial improvements in recent years with the rapid development of information and communication technology.

In Benin, the BenAgri[3] website and mobile platform aims to reduce this gap by providing systematic information on the local markets for agricultural products. The objective of this project is to promote local products and make them accessible to all. BenAgri has thus enabled certain actors in the Benin agricultural and agri-food value chain to trade more easily and to publicize their products all over the world.

1 Digitalization for agriculture brings together digital technologies, digital innovations, information and communications technologies, and artificial intelligence.

2 http://www.benagri.com/fr/.

3 http://www.benagri.com




Despite its high potential, the participation of African agriculture in world trade remains low. In addition, since 2013, the African region has experienced an agricultural trade deficit with all other regions. The main objective of this chapter is to assess the performance of Africa in world agricultural trade.

The issue of the participation of Africa in world trade has been well debated in the literature, which focuses on two aspects of this topic. The first is the participation of African countries in global trade. For some authors Africa's participation in world trade is low. Sachs and Warner (1997) conclude that Africa has missed out on globalization. For the World Bank (2000), Africa's loss in world trade is significant and reflects a failure to diversify into new products as well as a falling market share for traditional goods. Subramanian and Tamirisa (2001) conclude that Africa has been disintegrating from the world economy and that this trend has been particularly strong in Francophone Africa.

However, a relatively well-developed literature argues that Africa has been trading in line with predicted trade, or even overtrading. Coe and Hoffmaister (1998), using a gravity equation of trade, conclude that in the early 1990s Africa actually overtraded compared with developing countries in other regions. Rodrik (1999) shows that African trade is in line with country size, income, and average distance from other world regions.

The second aspect discussed in the literature is the level of regional (within-Africa) trade. Points of view also differ here. Many international institutions agree about Africa's relatively low level of regional trade. The United Nations Economic Commission for Africa, the African Union Commission and the African Development Bank (UNECA, AUC, AfDB 2010) consider that, over past decades, only about 10 percent–12 percent of African trade takes place among other African nations. This statistic is about 40 percent for North American trade and 63 percent for Western European trade. This conclusion is confirmed by Brenton and Isik (2012) in a World Bank publication. In an African Development Bank publication, Barka (2012) confirms this conclusion, pointing out that, in 2009, "intra-African trade (that is, trade among African countries) accounted for about 10 percent of the continent's total trade…. This is far below the

levels of intraregional trade achieved in Latin America and Asia (22 percent and 50 percent, respectively)" (Barka 2012, 2).

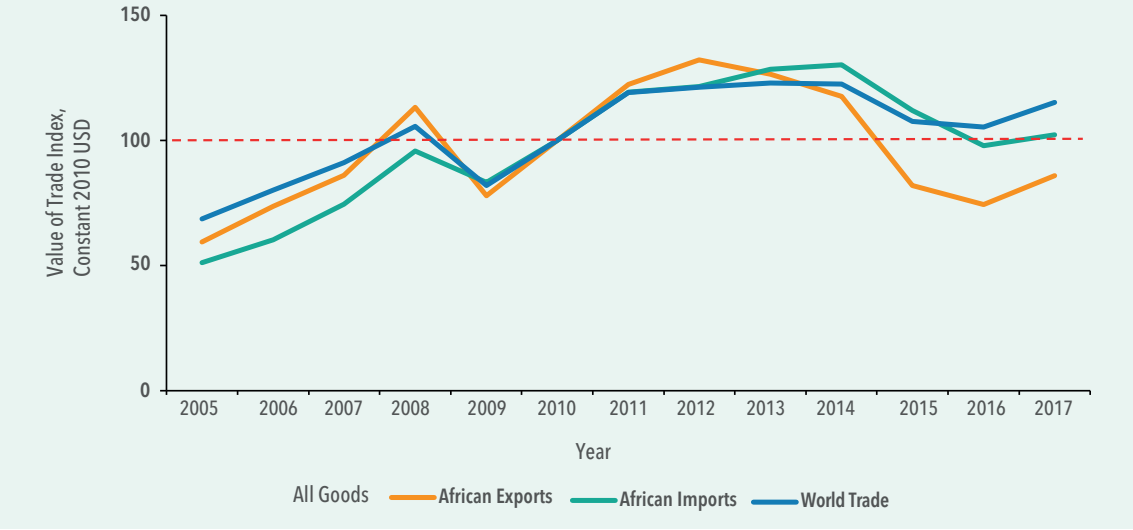
However, the academic literature comes to a different conclusion. For example, Foroutan and Pritchett (1993) conclude that flows of trade within Africa South of Sahara (SSA) are not differentially low. Yang and Gupta (2007) conclude that, even if intraregional trade in Africa is lower than in other regions, trade intensity is substantially higher among African countries than between African countries and the rest of the world. Along the same lines, Iapadre and Luchetti (2010) support the conclusion that Africa's regional trade is relatively high.

We examine the long-term evolution of the African share in (agricultural) world trade in section 2 and conclude that performance has been relatively poor. In section 3 we explain the divergence in the conclusions reached in the literature with respect to the level of regional integration in Africa, with a specific focus on agricultural trade. In section 4 we identify where African comparative advantages in agriculture can be found. In the last two sections we identify two potential reasons for Africa's relatively poor performance: (1) the high level of trading costs; and (2) the lack of product diversification.

# The Long-term participation of Africa in world agricultural trade

During 2005–2012, the volume of world trade had been growing continuously except during the 2008–2009 crisis. World trade then stagnated until 2014 before falling significantly until 2016.[4] African imports and exports developed in a similar way with a stronger amplitude, particularly on the export side (Figure2.1).

**Figure 2.1 Value of trade index–African exports and imports (all products) and world trade 2005-2017**



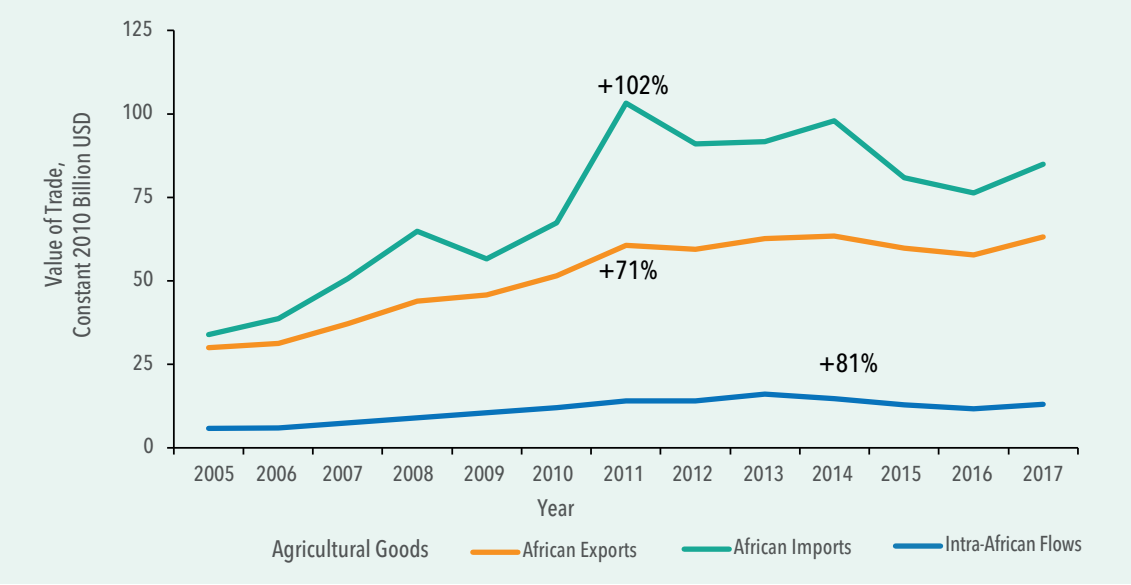

Source: COMTRADE (2019) and authors' calculations.
Note: 2010 = 100

4- This evolution has been largely documented: see for example Hoekman, 2015 or Ferrantino and Taglioni, 2014.

The value of African agricultural trade[5] between 2005 and 2017 is presented in Figure 2.2 It shows an upward trend for both imports and exports, with a more prominent increase for imports, while the agricultural trade deficit was stable between 2005 and 2009 (except for 2008). The African trade deficit in agriculture then grew until 2011. It stabilized from 2011 to 2014, then decreased significantly. Indeed, the value of agricultural exports stabilized from 2011 while the value of imports decreased from US$100 billion in 2011 to US$80 billion in 2017, reducing the trade deficit by half from roughly US$40 billion in 2011 to US$20 billion in 2017.

Globally, African agricultural imports increased by 102 percent between 2005 and 2017. This is a significant augmentation: it reflects the dynamism of the demography and of economic activity in Africa during this period. The domestic market is potentially large and should continue to increase in coming decades. This is an important element to keep in mind when considering the creation of the African continental free trade area (AfCFTA). This is all the more important as intra-African trade has increased less than extra-African trade over the 2005–2017 period (Figure 2.2).

**Figure 2.2 Value of African agricultural exports and imports (billion US$, nominal value) 2005-2017**

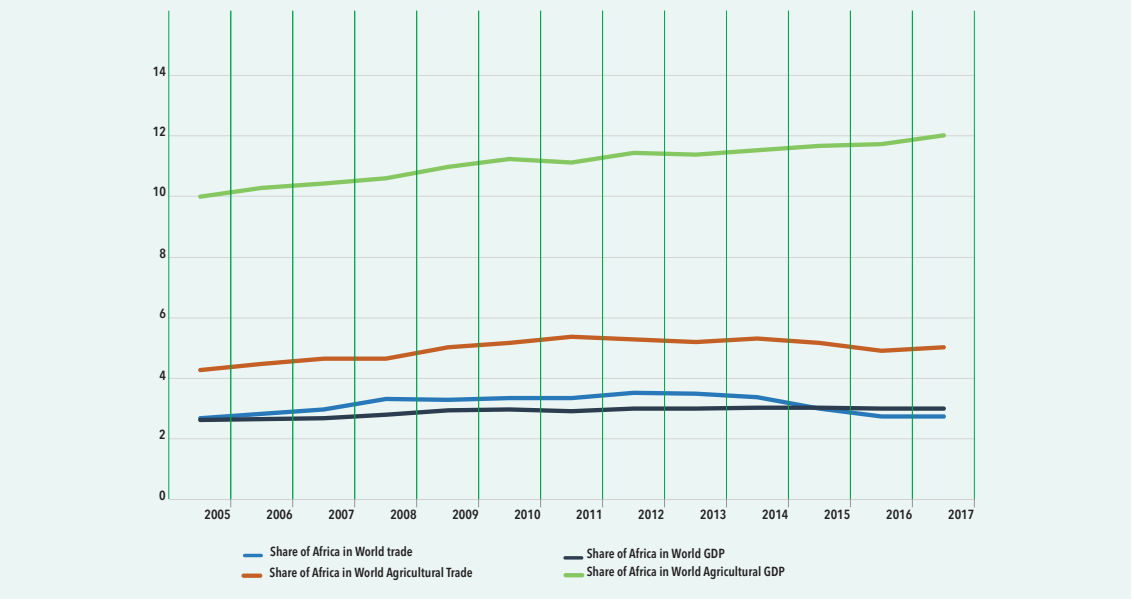



Source: COMTRADE (2019) and authors' calculations.

The share of Africa in world gross domestic product (GDP) increased slightly during the period 2005–2017 (Figure 2.3), from 2.6 percent to 3.0 percent. This positive evolution for Africa is remarkable in agriculture, where its share in world GDP increased from 10.0 percent in 2005 to 12.0 percent in 2017. However, Africa's participation in world trade increased only slightly during the period, from 2.3 percent to 2.7 percent, with its share in world agricultural trade also growing only marginally from 4.3 percent to 5.0 percent.

5 - Agriculture is defined here according to the World Trade Organization (WTO) standard: it includes raw, semi-processed, and processed agricultural goods, and excludes fish, fish products, and forestry products.

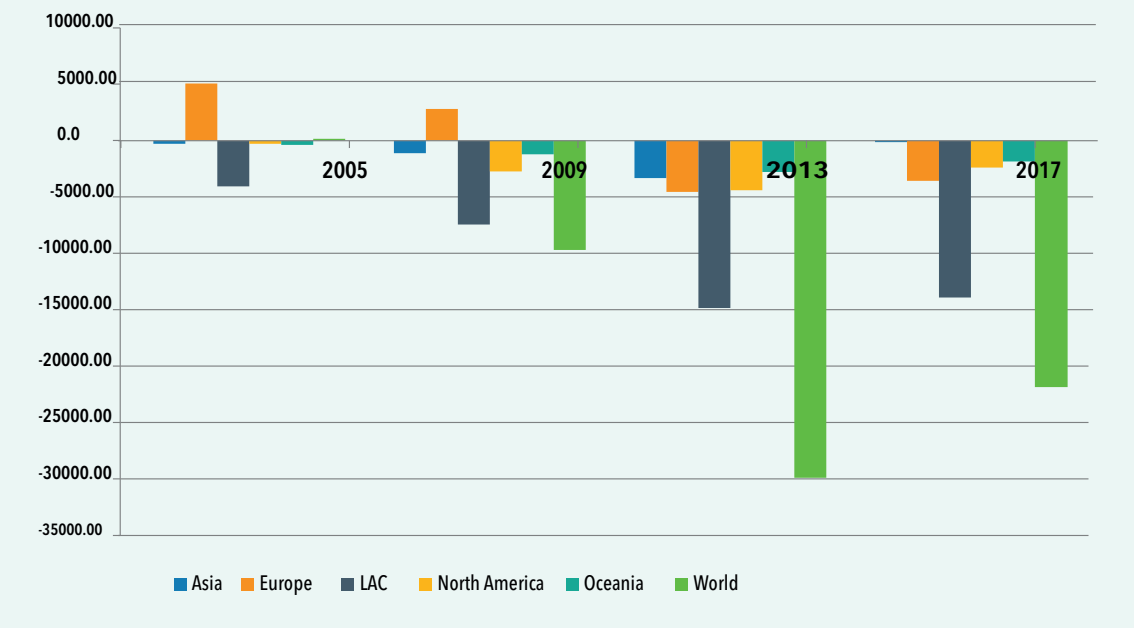
**Figure 2.3 Share of Africa in world trade and gross domestic product 2005-2017**




Source: COMTRADE (2019) and authors' calculations. GDP = gross domestic product.

Since 2013 Africa has experienced an agricultural trade deficit with all other world regions (Figure 2.4). However, by 2017, the deficit with the rest of the world was reduced by 30 percent, while the bilateral deficit with Asia, Europe, and North America was also markedly reduced. As in 2013, the main contributor to Africa's trade deficit is Latin America. This reduction in the global deficit mainly results from a decline in the value of African agricultural imports observed from 2013 (Figure 2.4).

**Figure 2.4 African agricultural net exports, selected years (billion US$) 2005-2017**




Source: COMTRADE (2019) and authors' calculations.
Note: LAC = Latin America and the Caribbean.

# The level of African intraregional agricultural trade

Both UNECA, AUC, and AfDB (2010) and Barka (2012) conclude that, in Africa, regional integration is low, using the share of intraregional trade in the total trade of a country or of a group of countries as their indicator. Indeed, in 2016, the share of intraregional trade of African countries in their total trade was about 13 percent, while it was over 60 percent in Asia and over 67 percent in Europe. However, this indicator is flawed and a policy conclusion cannot be based on it. This is because this ratio is not benchmarked: the share of regional trade in total trade depends on trade barriers between countries, but also on other factors such as the GDP of trade partners and geography.

For example, consider the case of France and Germany on one side, and of Mali and Burkina Faso on the other. Whatever the level of integration between each pair of countries may be, the level of trade between the first pair of countries is relatively high because their GDPs are larger than those of Mali and Burkina Faso. We should remember that a comparision of shares of intraregional trade in total trade between two countries or two groups of countries at the same period of time will be flawed,[6] while the evolution over time of this indicator for a single country or a single group of countries can provide information.

This is why there is a large economic literature about the design of unflawed measurement of regional integration. There is no benchmark to evaluate if the share of regional trade in total trade is high or low: this is why, for example, Iapadre and Luchetti (2010) and Plummer, Cheong, and Hamanaka (2010) divide this share by the share in world trade. This defines a norm that allows to conclude if regional trade is high or low for a specific country or region without comparison to another country or region.

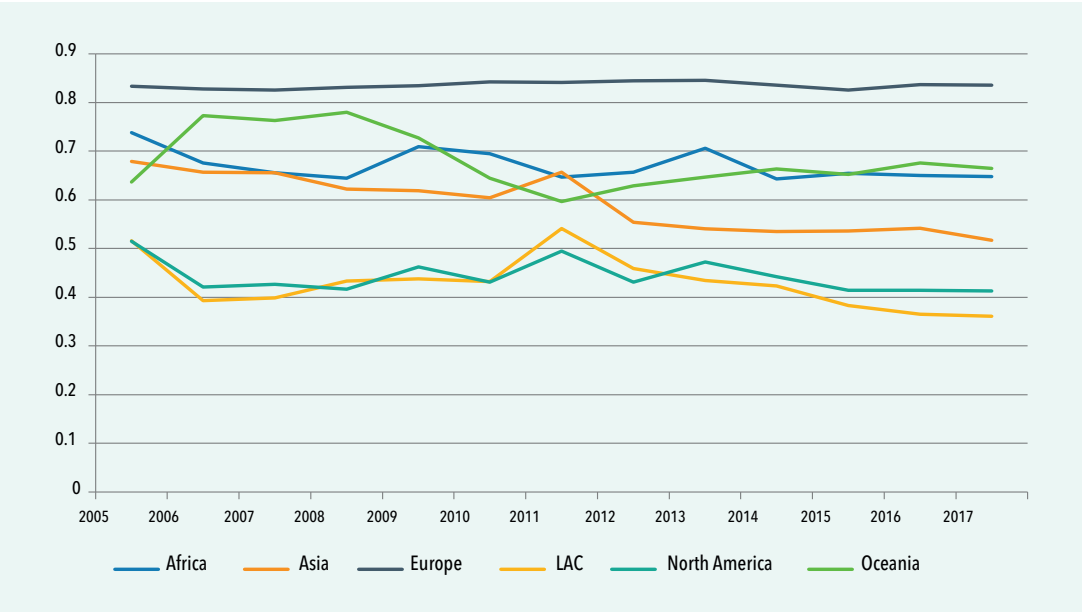
However, this last indicator has other flaws. Therefore, we use another indicator: the regional trade introversion index.[7] This indicator has many virtues: it is independent of the size of the region, and it increases only if intraregional trade grows more quickly than extraregional trade (Iapadre and Luchetti 2010; see also Chapter 3).

Figure 2.5 shows the evolution of the agricultural regional trade introversion index. We can see that Africa has a positive trade introversion in agriculture: Africa's trade appears to be relatively introverted, ranking third among the six continents in 2017 after Europe and Oceania.

6- The gravity equation is a useful and broadly recognized method for estimating trade between two countries. In its simplest form, the trade between countries i and j is the product of the GDPs of i and j divided by the distance between them. Let us suppose here a world without trade barriers and with only transportation costs; let us also suppose that all elasticities are unitary. Imagine that the world consists in only these four countries; that the GDPs of France and Germany are US$3,000 billion and those of Burkina Faso and Mali are US$20 billion; that the distance between France and Germany is 1,000 kilometers (as it is between Burkina Faso and Mali); and that the distance between either France or Germany, and either Burkina Faso or Mali, is 5,000 kilometers. Simple calculation gives a share of regional trade in total trade of 99.5 percent for Europe and 0.8 percent for Africa. So, these ratios differ considerably, whereas trade integration is as large in both continents.

7 - The idea is to start with the design of two indexes–the modified intra- and extraregional intensity indexes–for which intraregional and extraregional trade shares are compared with the region's share in trade with the rest of the world. We can then calculate a ratio of the difference in these two indexes over their sum.

**Figure 2.5 Evolution of agricultural regional trade introversion index 2005-2017**




Source: COMTRADE (2019) and authors' calculations.
Note: LAC = Latin America and the Caribbean.

Can we conclude that the level of trade integration within the African continent is high? No, because—as we will demonstrate—there are many barriers to international trade between African countries, particularly in agricultural products. In fact, African participation in international trade (both intra- and extraregional) for all products is significantly low. We can also conclude that, while improving regional trade integration is the right objective for Africa, it is wrong to set a target in terms of the share of regional trade in total trade based on a comparison with another region of the world.

Unbiased indicators based on international merchandise flows, therefore, show that regional African trade is relatively introverted. To this must be added the issue of informal trade, which is not included in official statistics. Informal trade is important in Africa, either in the form of smuggling (i.e., goods avoiding official customs posts (Bensassi, Jarreau, Mitaritonna 2016a, b), in the form of trade passing through official customs posts but being undervalued or misclassified to pay fewer taxes (Fisman and Wei 2004; Jean and Mitaritonna 2010; Bouët and Roy 2012), or in the form of trade in small quantities, tolerated by customs authorities (Uganda Bureau of Statistics and Bank of Uganda 2014).

To our knowledge there is no systematic evaluation of the size of total informal trade, but numerous surveys carried out on the continent confirm its importance, and it is sometimes higher than official trade (Bouët, Pace, and Glauber 2018). All the above surveys also show that informal trade in agricultural commodities is large. This type of trade takes place between African countries, and reinforces the view that African regional trade in agriculture is relatively introverted.

# Where in agriculture are Africa's comparative advantages?

This section focuses on Africa's comparative advantages in agriculture. Revealed comparative advantage (RCA) in 2017 has been calculated for 55 African countries.[8] The three top-ranking agricultural products for each country are indicated in , which identifies a total of 153 products. The Revealed comparative advantage indicator introduced by Balassa (1965) makes it possible to identify, based on recorded levels of trade flows, whether a product is a strength or a weakness in terms of a country's exports.[9]

Of the 153 products identified in Table 2.1, 78 percent can be grouped into eight categories of agricultural products: horticultural products (28), fish and related products (28), livestock products (18), cocoa and its derivatives (15), cotton and related products (8), sesame (8), tobacco (7), and legumes (7).

The horticultural products include fruits (15), vegetables (9), and floriculture (4). We should also note that all 55 countries have an Revealed comparative advantage in the eight main categories identified. The commodities most frequently identified are cocoa, cotton, fish and fish products, fruits, legumes, and tea.

**Table 2.1 Top three agricultural products in terms of revealed comparative advantage by African country (2017)**

| Country | Top 3 Revealed comparative advantage products | Country | Top 3 Revealed comparative advantage products |
|---|---|---|---|
| Algeria | Dates (fresh or dried)<br>Locust beans, locust seeds<br>Refined sugar (in solid form, nes, pure sucrose) | Madagascar | Vanilla beans<br>Cloves (whole fruit, cloves, and stems)<br>Fruits and nuts, provisionally preserved nes |
| Angola | Sardines, brisling, sprats (frozen, whole)<br>Fish oils except liver, not chemically modified<br>Fish nes (frozen, whole) | Malawi | Tobacco refuse<br>Tobacco (unmanufactured, stemmed, or stripped )<br>Tea, black (fermented or partly) in packages > 3 kg) |
| Benin | Cotton-seed oil crude<br>Cotton seed oil-cake and other solid residues<br>Cotton-seed or fractions simply refined | Mali | Cotton (carded or combed)<br>Bovine animals (live, for pure-bred breeding)<br>Sheep (live) |
| Burkina Faso | Sesamum seeds<br>Cotton (not carded or combed combed)<br>Vegetable fats, oils nes (fractions, not chemically modified) | Mauritania | Salmonidae, nes (frozen, whole)<br>Octopus (frozen, dried, salted, or in brine)<br>Fish-liver oils (fractions, not chemically modified) |

8 - That is, 50 countries and the South Africa Custom Union (SACU). The SACU is composed of five countries: Botswana, Eswatini (former Kingdom of Swaziland), Lesotho, Namibia, and South Africa.

9- The Revealed comparative advantage is calculated by dividing the share of a product's exports in a country's total exports by the share of exports of the same product in world exports or in a reference group's exports (here we use the world reference). If the Revealed comparative advantage is greater than (or less than) 1, it is concluded that this country has a comparative advantage (or disadvantage) in this product.

| Country | Top 3 Revealed comparative advantage products | Country | Top 3 Revealed comparative advantage products |
|---|---|---|---|
| Burundi | Bovine skins (whole, raw)<br>Coffee substitutes containing coffee<br>Tea, black (fermented or partly) in packages > 3 kg) | Mauritius | Tuna, skipjack, bonito (prepared/ preserved, not minced)<br>True hemp fiber (not spun but otherwise processed)<br>Fish, shellfish, and crustaceans (non-food) |
| Cabo Verde | Mackerel (prepared or preserved, not minced)<br>Skipjack, stripe Skipjack, stripe-bellied bonito (frozen, whole)<br>Tunas nes (frozen, whole) | Morocco | Anchovies (prepared or preserved, not minced)<br>Sardine, brisling, sprat (prepared/ preserved, not minced)<br>Beans (shelled or unshelled, fresh or chilled) |
| Cameroon | Cocoa paste (wholly or partly defatted)<br>Cocoa beans (whole or broken, raw or roasted)<br>Cocoa shells, husks, skins and waste | Mozambique | Leguminous vegetables (dried, shelled)<br>Tobacco (unmanufactured, stemmed or stripped)<br>Tobacco (refuse) |
| Central African Republic | Beeswax, other insect waxes, and spermaceti<br>Carrots and turnips (fresh or chilled)<br>Beans (shelled or unshelled, fresh or chilled) | Niger | Sesamum seeds<br>Arrowroot, salep, etc. ( fresh or dried), and sago pith<br>Bovine hides (whole, fresh, or wet-salted) |
| Chad | Gum arabic<br>Sesamum seeds<br>Groundnut oil-cake and other solid residues | Nigeria | Raw hide/skins except bovine/equine/sheep/goat/reptile<br>Sesamum seeds<br>Cocoa beans (whole or broken, raw or roasted) |
| Comoros | Cloves (whole fruit, cloves and stems)<br>Vanilla beans<br>Essential oils, nes | Rwanda | Bovine hides, raw, nes<br>Bovine skins (whole, raw)<br>Bran, sharps, and other residues of leguminous plants |
| Congo D R | Plants & plant parts, pharmacy, perfume, insecticide use ne<br>Wheat bran, sharps, other residues<br>Cocoa beans (whole or broken, raw or roasted) | Saint Helena, Ascension and Tristan da Cunha | Rock lobster and other sea crawfish (frozen)<br>Fish nes (frozen, whole)<br>Tuna (yellowfin) (frozen, whole) |
| Congo, Rep. | Flatfish, (fresh/chilled) not halibut/ plaice/sole, whol<br>Cereal bran, sharps, residue except maize, wheat, ric rice<br>Natural gum, resin, gum-resin, balsam, not gum arabic | Sao Tome and Principe | Cocoa beans, (whole or broken, raw or roasted)<br>Coconuts (fresh or dried)<br>Pepper of the genus Piper (whole) |

| Country | Top 3 Revealed comparative advantage products | Country | Top 3 Revealed comparative advantage products |
|---|---|---|---|
| Côte d'Ivoire | Cocoa beans (whole or broken, raw or roasted)<br>Cocoa paste (not defatted)<br>Cocoa paste (wholly or partly de-fatted) | Senegal | Fish liver and roe (fresh or chilled)<br>Groundnut oil (crude)<br>Groundnut (in shell, not roasted or cooked) |
| Djibouti | Cane molasses<br>Ornamental fish (live)<br>Oil seeds and oleaginous fruits, nes | Seychelles | Tuna (yellowfin) (frozen, whole)<br>Skipjack, stripe-bellied bonito (frozen, whole)<br>Tuna nes (frozen, whole) |
| Egypt, Arab Rep. | Globe artichokes (fresh or chilled)<br>Truffles (fresh or chilled)<br>Olives (provisionally preserved) | Sierra Leone | Cocoa (shells, husks, skins, and waste)<br>Sardine, brisling, sprat (frozen, whole)<br>Coffee substitutes containing coffee |
| Equatorial Guinea | Cocoa beans (whole or broken, raw or roasted)<br>Animal products and domestic animal carcass (non-food)<br>Guavas, mangoes, and mango-steens (fresh or dried) | Somalia | Goats (live)<br>Natural gum, resin, gum-resin, balsam, not gum arabic<br>Sheep (live) |
| Eritrea | Pepper of the genus Piper (whole)<br>Cloves (whole fruit, cloves, and stems)<br>Kidney beans and white pea beans (dried, shelled) | South African Custom Union | Grapefruit (fresh or dried)<br>Custom Union<br>Sheep or lamb skins (pickled, without wool)<br>Oranges (fresh or dried) |
| Ethiopia | Castor oil seeds<br>Sesamum seeds<br>Cuttings and slips, not rooted | South Sudan | Gum arabic<br>Sesamum seeds<br>Oats |
| Gabon | Cod dried (salted or not, but not smoked)<br>Palm kernel or babassu oil (crude)<br>Rattan (primarily for plaiting) | Sudan | Groundnut (oil-cake and other solid residues)<br>Gum arabic<br>Sheep (live) |
| Gambia, The | Cashew nuts (fresh or dried)<br>Sole (frozen, whole)<br>Guavas, mangoes, and mangosteens (fresh or dried) | Tanzania | Coffee substitutes containing coffee<br>Onions (dried, not further prepared)<br>Cashew nuts (fresh or dried) |
| Ghana | Cocoa paste (wholly or partly de-fatted)<br>Cocoa beans (whole or broken, raw or roasted)<br>Cocoa paste (not defatted) | Togo | Cotton seeds<br>Sesamum seeds<br>Milk and cream nes (sweetened or concentrated) |
| Guinea | Eggplant (fresh or chilled)<br>Coffee substitutes containing coffee<br>Peaches, nectarines (fresh) | Tunisia | Globe artichokes (fresh or chilled)<br>Dates (fresh or dried)<br>Hair, human (un<br>worked, human hair waste) |
| Guinea-Bissau | Cashew nuts (fresh or dried)<br>Salmonidae, nes (frozen, whole)<br>Sardines, brisling, sprats (frozen, whole) | Uganda | Roses<br>Beans (dried,<br>shelled, nes)<br>Cotton (carded or combed) |

| Country | Top 3 Revealed comparative advantage products | Country | Top 3 Revealed comparative advantage products |
|---|---|---|---|
| Kenya | Tea, black (fermented or partly, in packages > 3 kg)<br>Cigars, cheroots, cigarettes, with tobacco substitute<br>Legumes except peas & beans (fresh or chilled) | Zambia | Maize bran, sharps, other residues<br>Reptile skins (raw )<br>Cottonseed oil-cake and other solid residues |
| Liberia | Cocoa beans (whole or broken, raw or roasted)<br>Cereal bran, sharps, residue except maize, wheat, rice<br>Greasy wool (other than shorn, not carded or combed) | Zimbabwe | Reptile skins (raw)<br>Tobacco (unmanufactured, stemmed, or stripped)<br>Tobacco refuse |
| Libya | Sheep or lamb skins (pickled, without wool)<br>Greasy wool (other than shorn; not carded or combed)<br>Fish (live), except trout, eel, or carp | | |

Source: COMTRADE (2019) and authors' calculations, computed at the HS6 level of classification.
Note: RCA = revealed comparative advantage nes = not elsewhere specified.

# Trading costs in agriculture

Table2.2 presents an overview of worldwide protection with the average import duty for six different regions of the world in 2016, for all products and for only agricultural products. It shows the average *ad valorem* equivalent of customs duties applied on imports (the two columns on the right) and the average *ad valorem* equivalent of customs duties faced by exports (the two columns on the left). "Average import duty" estimates the average level of protectionism that countries apply on their imports, while "Average duty on exports" estimates the average duty faced by countries on their exports worldwide.

We should note that: (1) agricultural products still face significantly higher tariff barriers than other types of products, and this is true for all origins and all destinations;[10] (2) Africa is the region that applies the highest levels of protection, globally and in the agricultural sector; and (3) Africa is the region that faces the lowest tariffs in the world on products it exports worldwide.

10 This point is well documented in the literature. See Jean et al. 2019; Guimbard et al. 2009.

**Table 2.2 Average ad valorem equivalent of import duties applied to imports, and duties faced on exports, for all products and for agricultural products, by region, 2016**

| | Average duty faced on exports | | Average import duty | |
|---|---|---|---|---|
| Region | All | Agric. | All | Agric. |
| Africa | 3.09% | 9.07% | 9.03% | 18.01% |
| Asia | 3.74% | 9.16% | 4.68% | 13.34% |
| Europe | 3.94% | 11.19% | 2.53% | 7.74% |
| LAC | 4.66% | 11.87% | 5.81% | 12.23% |
| North America | 3.74% | 9.16% | 4.68% | 13.34% |
| Oceania | 4.77% | 14.08% | 2.28% | 2.36% |

Source: Authors' calculations from MAcMapHS6, 2016 (CEPII 2011).

Note: Tariffs are weighted from the HS6 level according to the reference group method (see Bouët et al. 2008).

LAC = Latin American countries. Agric. = Agriculture

Table 2.3 provides an overview of the level of protection in agriculture and in all products for 57 African countries. Taxes faced by African exports are relatively low, on average, at around 3 percent. Several countries (Angola, Chad, Equatorial Guinea, Eritrea, Gabon, Libya, and the Republic of Congo) face an average tariff of less than 1 percent on their exports. Most of these countries are mainly exporters of natural resources such as oil, gas, gold, and copper. Of the 57 listed, only three countries (Guinea-Bissau, Kenya, and Malawi) are subject to relatively high tariffs on their exports. This is specifically owing to the concentration of their exports on products that are highly protected elsewhere in the world: Guinea-Bissau mainly exports cashew nuts, while Kenya and Malawi have an Revealed comparative advantage in tobacco and tobacco products.

Average tariffs faced on agricultural exports by African countries are around 9 percent, lower than the world average of around 11 percent. Nearly 33 percent of African countries are subject to average customs tariffs of 10 percent or more on their agricultural exports. For three countries it is above 16 percent: Guinea-Bissau (16.82 percent), Mozambique (18.19 percent), and Algeria (38.54 percent).

**Table 2.3 Average ad valorem equivalent of import duties applied to imports and duties faced on exports, for all products and for agricultural products, by African country (percent) 2016**

| | Average duty faced on exports | | Average import duty | |
|---|---|---|---|---|
| Country | All | Agriculture | All | Agriculture |
| Algeria | 1.26 | 38.54 | 11 | 17.01 |
| Angola | 0.68 | 7.95 | 9 | 18.45 |
| Benin | 3.22 | 5.01 | 10.61 | 14.39 |
| Botswana | 7.85 | 11.91 | 7.43 | 8.7 |
| Burkina Faso | 1.34 | 3.74 | 10.6 | 14.39 |
| Burundi | 6.11 | 14.56 | 11.42 | 22.61 |
| Cabo Verde | 2.75 | 2.95 | 7.68 | 11.3 |

| | Average duty faced on exports | | Average import duty | |
|---|---|---|---|---|
| Country | All | Agriculture | All | Agriculture |
| Cameroon | 2.49 | 3.72 | 15.4 | 23.09 |
| Cent. Afr. Rep. | 3.93 | 8.78 | 15.18 | 20.75 |
| Chad | 0.57 | 1.46 | 15.58 | 19.1 |
| Comoros | 4.13 | 4.91 | 14.75 | 8.58 |
| Congo DR | 2.12 | 6.23 | 10.39 | 12.02 |
| Congo, Rep. | 0.75 | 4.21 | 10.44 | 13.87 |
| Côte d'Ivoire | 4.36 | 4.57 | 8.76 | 14.81 |
| Djibouti | 3.01 | 3.83 | 20.44 | 12.61 |
| Egypt | 5.42 | 12.73 | 9.81 | 36.71 |
| Equ. Guinea | 0.89 | 4.47 | 14.52 | 19.79 |
| Eritrea | 0.92 | 5.03 | 6.78 | 9.38 |
| Ethiopia | 2.47 | 3.52 | 13.55 | 17.1 |
| Gabon | 0.89 | 8.78 | 14.26 | 18.81 |
| Gambia | 3.11 | 5.06 | 14.09 | 17.34 |
| Ghana | 2.89 | 5.1 | 8.79 | 15.37 |
| Guinea | 2.63 | 9.47 | 9.38 | 13.88 |
| Guinea-Biss. | 15.88 | 16.82 | 10.61 | 13.1 |
| Kenya | 11.63 | 15.25 | 12.23 | 26.37 |
| Lesotho | 7.53 | 11.12 | 7.43 | 8.7 |
| Liberia | 1.07 | 2.41 | 9.92 | 12.56 |
| Libya | 0.59 | 9.79 | 0 | 0 |
| Madagascar | 2.01 | 3.17 | 7.99 | 9.63 |
| Malawi | 13.38 | 15.62 | 9.85 | 14.01 |
| Mali | 1.68 | 4.22 | 10.61 | 14.4 |
| Mauritania | 3.3 | 7.85 | 9.43 | 10.58 |
| Mauritius | 5.48 | 7.85 | 0.85 | 2.83 |
| Mayotte | 8.85 | 12.56 | 6.94 | 6.16 |
| Morocco | 4.37 | 7.57 | 5.95 | 20.61 |
| Mozambique | 4.81 | 18.19 | 7.68 | 10.79 |
| Namibia | 7.88 | 11.96 | 7.43 | 8.7 |
| Niger | 3.25 | 10.09 | 10.61 | 14.38 |
| Nigeria | 1.27 | 7.79 | 10.93 | 14.16 |
| Rwanda | 6.27 | 12.76 | 9.78 | 18.61 |
| Saint Helena | 2.18 | 1.88 | NA | NA |
| S. Tome & Pr. | 3.16 | 1.97 | 10.43 | 10.66 |
| Senegal | 5.5 | 8.24 | 8.75 | 14.72 |

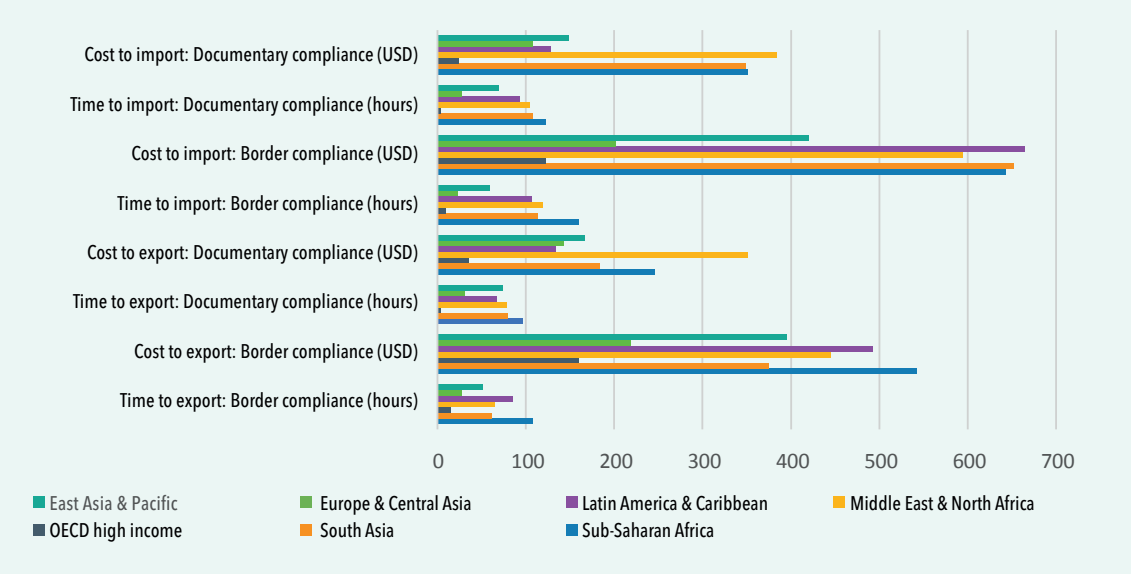
| | Average duty faced on exports | | Average import duty | |
|---|---|---|---|---|
| Country | All | Agriculture | All | Agriculture |
| Seychelles | 4.18 | 4.18 | 2.64 | 5.96 |
| Sierra Leone | 2.12 | 7.26 | 13.64 | 16.45 |
| Somalia | 3.34 | 3.72 | NA | NA |
| South Africa | 3.93 | 12.75 | 5.68 | 8.8 |
| South Sudan | 8.08 | 11.33 | NA | NA |
| Sudan | 6.79 | 9.9 | 18.54 | 27.88 |
| Swaziland | 7.89 | 11.97 | 7.43 | 8.7 |
| Tanzania | 4.87 | 8.2 | 11.98 | 27.01 |
| Togo | 4.25 | 7.16 | 8.75 | 14.69 |
| Tunisia | 3.58 | 8.31 | 7.12 | 18.5 |
| Uganda | 5.82 | 7.47 | 10.06 | 21.78 |
| West. Sahara | 9.63 | 14.88 | NA | NA |
| Zambia | 2.22 | 13.01 | 11.13 | 15.81 |
| Zimbabwe | 7.19 | 15.97 | 12.32 | 18.74 |

Source: Authors' calculations from MAcMapHS6, 2016 (CEPII 2011).
Note: NA = data not available. Tariffs are weighted from the HS6 level according to the reference group method (see Bouët et al. 2008). Cent. Afr. Rep. = Central African Republic; Congo DR = Congo Democratic Republic; Congo, Rep. = Congo Republic; Equ. Guinea = Equatorial Guinea; Guinea-Biss. = Guinea-Bissau; S. Tome & Pr. = Sao Tome and Principe; West. Sahara = Western Sahara.

As far as imports are concerned, African countries have relatively high levels of protection compared to the world average (around 5 percent). Indeed, among the 53 countries for which data are available, only three (Libya, Mauritius, and Seychelles) apply an average customs tariff at less than 5 percent. On the other hand, only Djibouti taxes its imports at an average of more than 20 percent.

In terms of agricultural imports, the world average is around 12 percent. About 65 percent of African countries tax agricultural imports at more than 12 percent. In addition, eight countries (Burundi, Cameroon, Central African Republic, Kenya, Morocco, Sudan, Tanzania, and Uganda) protect their agriculture with an average applied duty on imports in the 20 percent–30 percent range. Egypt is the only country in Africa that protects its agriculture with an average applied duty on imports greater than 30 percent.

**Figure 2.6 Time and cost to export and to import by region, 2018**




Source: Doing Business 2019 (World Bank 2019).
Note: OECD = Organisation for Economic Co-operation and Development; USD = US dollars.

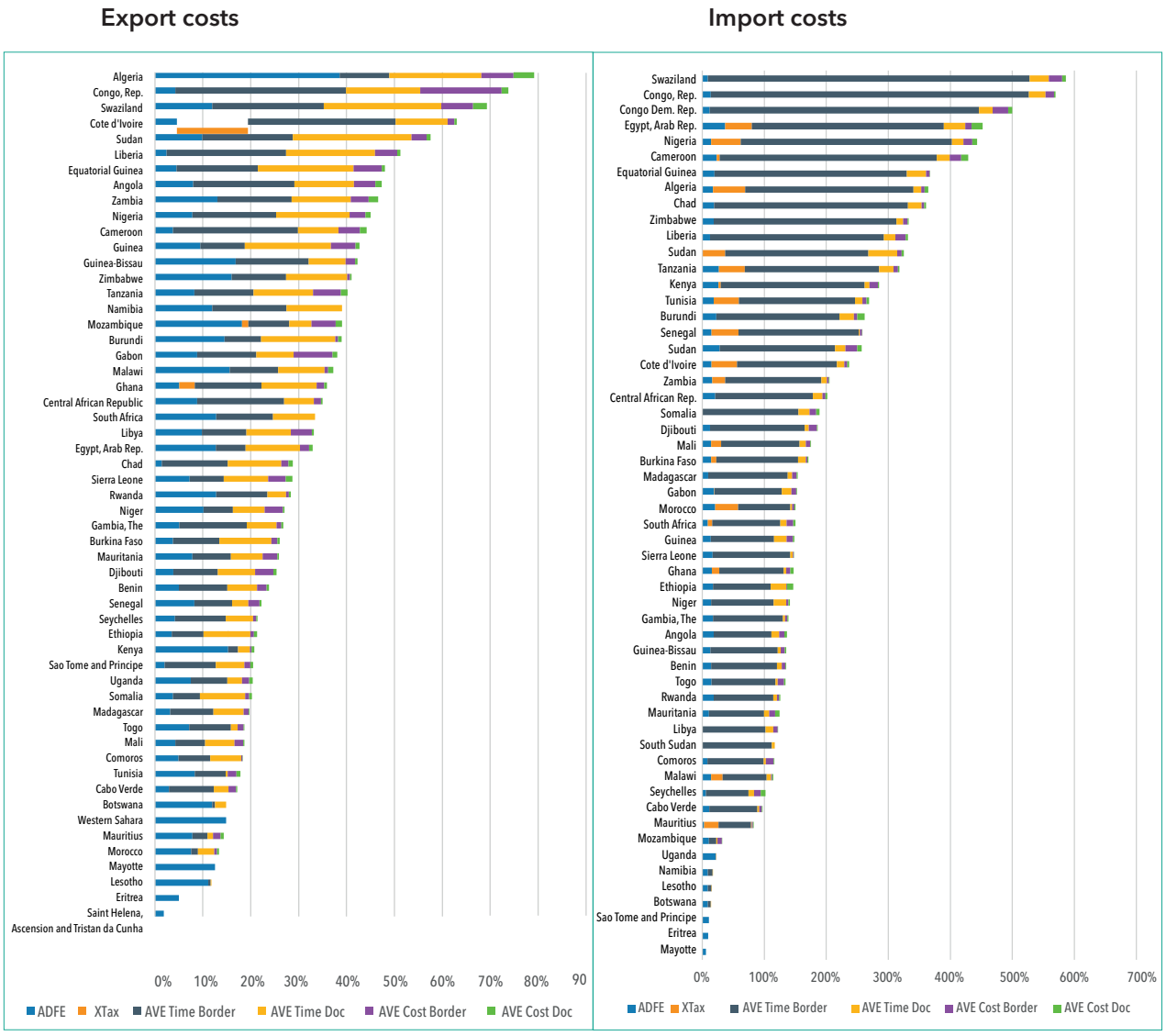
Figure 2.6 provides information on the cost and time needed to export and import goods in different regions of the world in 2018. These two elements include, among others:

1. documentary compliance (obtaining, preparing, and submitting documents required for transport; administrative authorizations in both the country of origin and the country of destination);
2. customs compliance (inspections and obtaining authorizations from customs); and
3. domestic transport (transport time from the capital to the main port, road congestion, administrative harassment by police or gendarmerie, etc.).[11]

Figure 2.6 shows that costs related to border compliance remain higher than those related to documentary compliance, for both imports and exports. It also shows that border compliance costs are higher for imports than they are for exports in all regions, except for Europe and Central Asia, and in Organisation for Economic Co-operation and Development (OECD) high-income countries. Documentary compliance costs are higher in Africa for exporters than they are in East Asia and in the Pacific, Europe and Central Asia, Latin America, and Caribbean, and in OECD high-income countries. On the other hand, they are much higher for importers in Africa than they are for importers in East Asia and Pacific, Europe and Central Asia, Latin America and the Caribbean, and OECD high income countries.

11 - Based on interviews of specialists in the area, Doing Business 2019 (World Bank 2019) constructs indicators to measure the cost in both time and money of exporting and importing a specific shipment of goods to and from the economy's main trading partner. This excludes tariffs and border taxes. For all countries, imports are shipments of containerized auto parts from that country's natural partner. For exports, a product that represents comparative advantage is identified and the country of destination is the largest purchaser of this product.

**Figure 2.7 Combination of all available export and import costs in ad valorem equivalents –agricultural products only**




Source: Authors' calculations using data from BACI (Gaulier et Zignago 2010), Doing Business 2019 (World Bank 2019); MacMapHS6 (2016) ; Kee, Nicita, Olarreaga (2009); and Laborde, Estrades, Bouët (2013).
Note: ADFE = Average duty faced on exports, XTax = Ad valorem average taxation on exports, AVE Time Border = Ad valorem equivalent of time for border compliance, AVE Time Doc = Ad valorem equivalent of time for documentation compliance, AVE Cost Border = Ad valorem equivalent of time for border cost, AVE Cost Doc = Ad valorem equivalent of time for documentation cost, ADAI = Average duty applied on imports, AVE_NTB = Ad valorem equivalent non-tariff barriers on imports.

Figure 2.7 gathers all available trading costs as *ad valorem* equivalents for the agricultural products of 55 African countries.[12]

12 - The methodology is presented in detail in Bouët, Cosnard, and Laborde (2017). The most difficult element to calculate is the conversion of the results from Doing Business 2016 (World Bank 2016) on the costs and time of border and documentary compliance into ad valorem equivalents. Because these costs for border and documentary compliance are computed for the equivalent of a 15-metric-ton container, we compute the total quantity of products exported and imported in a "container equivalent" unit, using the BACI (Base pour l'Analyse du Commerce International) database. We then multiply those quantities by the costs per container available in Doing Business 2016 (World Bank 2016) and divide the whole by the corresponding value for total exports and imports from BACI to get an ad valorem equivalent. To evaluate the costs associated with the time for border and documentary compliance, as given in Doing Business 2016 (World Bank 2016), we refer to Hummels and Schaur (2012), who evaluate the cost associated with the time a product spends in transit. Each day in transit is equivalent to an ad valorem tariff of between 0.6 percent and 2.1 percent, and this figure can go up to as much as 3.1 percent for agricultural products.

On the import side, these costs are the average applied duty on imports, the average cost to import (border compliance and documentary compliance), the cost associated with the time taken to import (border compliance and documentary compliance), and the *ad valorem* equivalent of non-tariff barriers on imports. On the export side, these costs are the average duty faced by exports, the average export tax, the average cost to export (border compliance and documentary compliance), and the cost associated with the time taken to export (border compliance and documentary compliance).

In general, import costs are much higher than export costs. Indeed, for more than 40 of the countries presented in Figure 2.7, we note a total import cost of more than 100 percent. This high cost of imports seems to be driven by the *ad valorem* equivalent of time for border compliance, which appears to be a major hindrance to the import of agricultural products.

The total cost of exports does not exceed 40 percent for at least 41 of the 55 countries presented. The decomposition of the cost structure indicates that the largest components are the average duty faced on exports (ADFE), the ad valorem equivalent of time for border compliance, and the ad valorem equivalent of time for documentation compliance. When comparing Figure 2.7 and Table 2.3, we can see that the gap between tariff barriers and non-tariff barriers is high. Some may argue that political effort should be spent in facilitating trade and reducing the impact of non-tariff barriers, as these appear to be an important explanation of the weak performance of Africa in agricultural trade.

# A lack of product diversification

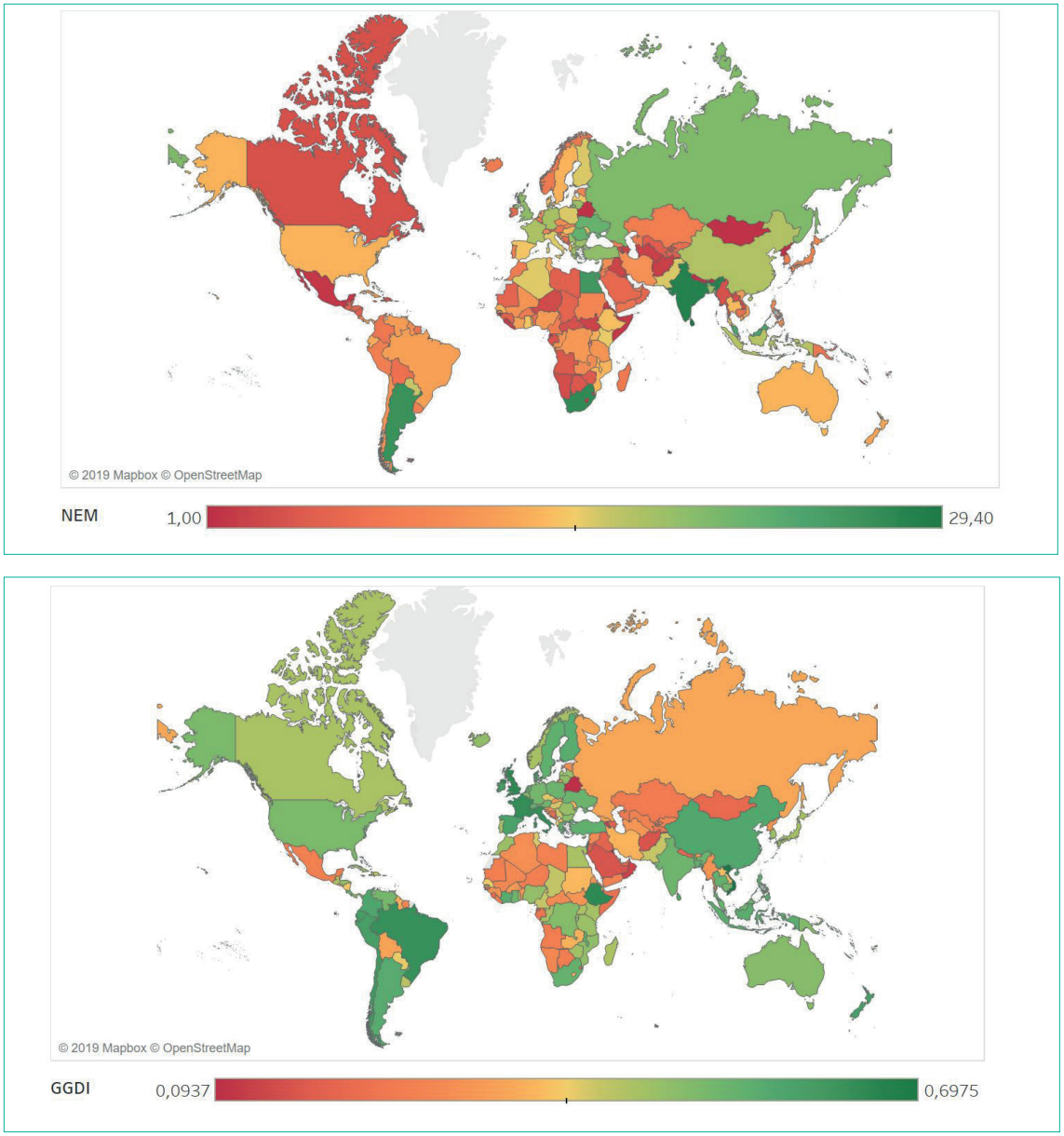
The quality of a country's trade integration depends on its degree of diversification. Indeed, having more diversification in the number of partners and in the number of products traded can mean better integration and greater resilience. The concentration of a country's exports on one or a few products has long been associated with a risk of volatility in export earnings and therefore in domestic activity. Such concentration is even associated with lower growth and per capita income. This relationship has been empirically verified: Imbs and Wacziarg (2003), Cadot et al. (2011), Carrère (2013), Funke and Ruhwedel (2001). The issue of product diversification of exports is, therefore, a fundamental issue.

In this section, we illustrate both dimensions of diversification—geographic and sectoral—for agricultural trade. For each dimension we calculate two indicators of diversification on the export side, considered as the best indicators in the academic literature (De Lombaerde and Iapadre, 2012): the number of equivalent markets and the global geographic diversification index (GGDI).[13]

The top graphic in Figure 2.8 is the world map of average number of equivalent markets; the bottom graphic is the world map of average GGDI between 2016 and 2017. The picture is contrasting between on one side, countries with a high (Egypt, South Africa) or a relatively high (Algeria, Ethiopia, Ghana, Kenya) diversification of their agricultural exports in terms of partners and on the other side, countries with a low diversification (Eritrea, Namibia, Niger, Somalia, South Sudan).

13 - The number of equivalent markets is the inverse of the Herfindahl index (HH index). The HH index is the sum of the squares of the market shares and varies from close to 0 (an infinity of destinations or products, each in small quantity) to 1 (a unique destination or product). So, the number of equivalent markets computes the number of markets of the same size that would give the same degree of diversification as the one observed. However, one limitation with this indicator is that it compares the actual distribution of trade flows with a benchmark that does not account for the actual size of every potential partner. Thus, there is no difference between a situation in which a country trades intensively with a major trading country and one in which a country is closely linked to a small trading country. The GGDI indicator assesses the distance between the distribution of one country's trade and the distribution of trade in the rest of the world. In other words, the more different a country's geographic allocation of trade is from the worldwide distribution of trade, the smaller the index is.

**Figure 2.8 Geographic diversification of agricultural exports: number of equivalent markets and global geographic diversification index, average 2016–2017**




Source: COMTRADE (2019) and authors' calculations.
Note: NEM= Number of Equivalent Markets; GGDI = global geographic diversification index..

Table 2.4 shows the ranking and the share of the 10 most important trading partners for Africa. The 10 main importers of African agricultural products represent around 51 percent of total African agricultural exports, 7 of which are from the European Union (with 28 countries). The 3 others are China, the USA, and India. The 10 main exporters of agricultural products to Africa represent around 52 percent of total African agricultural imports: here, the significance of the European Union is less, since only France appears in the list.

**Table 2.4 Top African agricultural imports and exports (2017)**

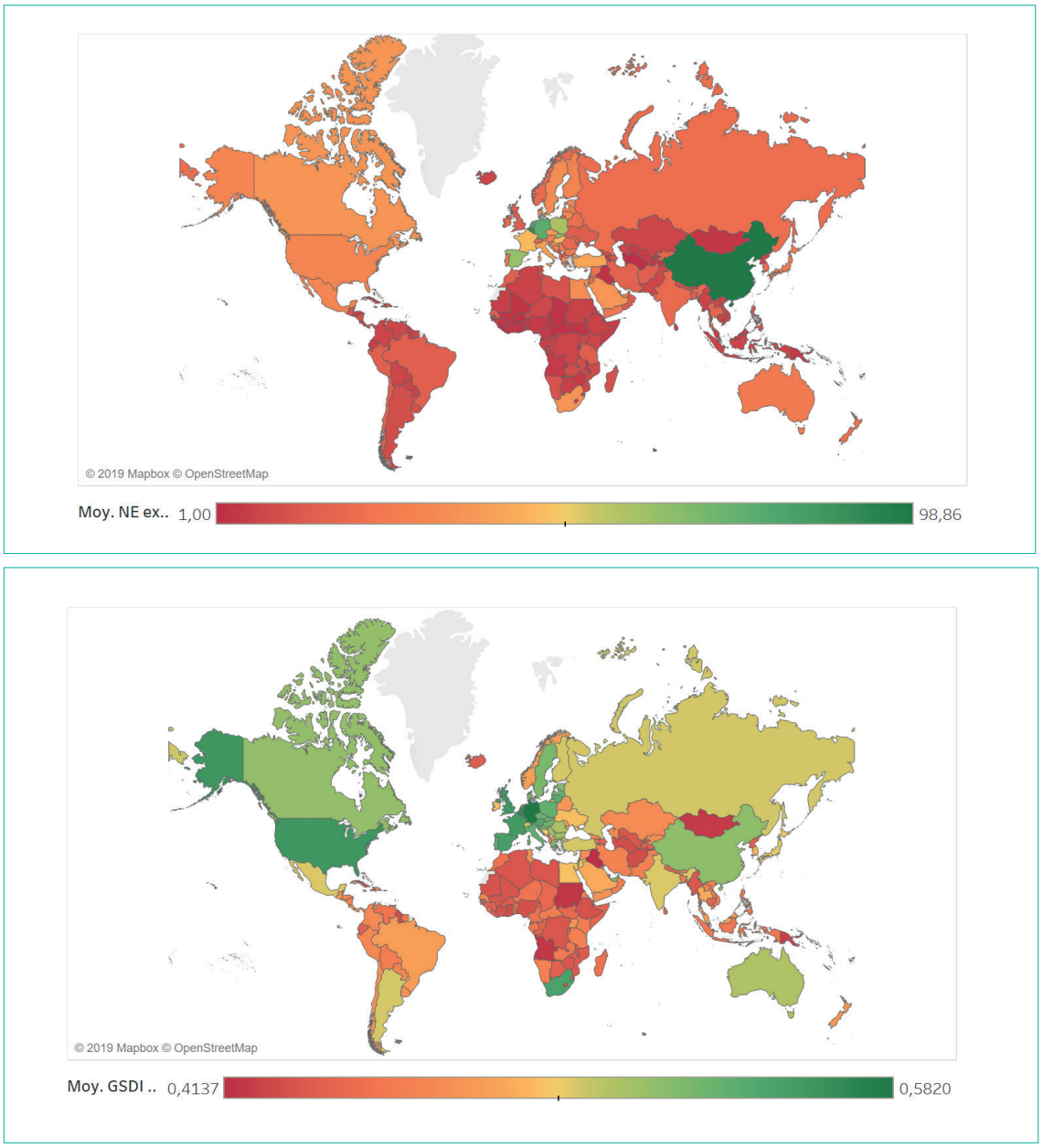
| Top importer of African agricultural products | Share of African agricultural exports (%) | Top agricultural exporter to Africa | Share of African agricultural imports (%) |
|---|---|---|---|
| Netherlands | 8.58 | Brazil | 9.24 |
| France | 6.98 | Russian Federation | 7.04 |
| Spain | 5.66 | Argentina | 5.87 |
| United States | 5.28 | France | 5.77 |
| Germany | 4.65 | India | 4.77 |
| China | 4.49 | United States | 4.39 |
| United Kingdom | 4.38 | Indonesia | 4.19 |
| India | 3.96 | China | 3.73 |
| Italy | 3.52 | Malaysia | 3.44 |
| Belgium | 3.26 | Ukraine | 3.33 |

Source: COMTRADE (2019) and authors' calculations.

We present the same indicators with respect to sectoral diversification: on the export side, the indicator of number of equivalent sectoral markets measures the number of products of the same size that would give the same degree of diversification in products as the one actually observed. The global sectoral diversification index (GSDI) measures the distance between the sectoral distribution of a country's exports and the sectoral distribution of exports in the rest of the world.

The top graphic in Figure 2.9 displays the world map of average number of equivalent sectoral markets, and the bottom graphic displays the world map of average GSDI between 2016 and 2017. We can see the low level of diversification of agricultural exports in all African countries that are dependent on a small number of commodities. The low GSDI of African exports shows that most African countries export some commodities that are not exported much by the rest of the world.

**Figure 2.9 Sectoral diversification of agricultural exports, number of equivalent markets and global sectoral diversification index, average 2016–2017**




Source: COMTRADE (2019) and authors' calculations.
Note: Moy. NE ex. = number of equivalent markets; Moy. GSDI = global sectoral diversification index.

Table 2.5 highlights the ranking and the share of the 10 most important traded African agricultural products. The 10 most imported agricultural products account for around 42 percent of total agricultural imports, with a concentration in cereals (23.75 percent), vegetable oil and related products (8.33 percent), sugar (7.83 percent), and milk and dairy products (2.03 percent). The 10 most exported products represent around 21 percent of all exports, with a more diversified content: processed food, cereals, fruits, milk and dairy products, vegetable oils and related products, sugar, tobacco, livestock products, and fish and related products.

**Table 2.5 Top African agricultural imports and exports (2017)**

| Top 10 agricultural products imported | Share of agricultural imports (%) | Top 10 agricultural products exported | Share of agricultural exports (%) |
|---|---|---|---|
| Wheat except durum wheat and meslin | 10.1 | Food preparations nec | 3.61 |
| Durum wheat | 5.2 | Maize except seed corn | 2.66 |
| Palm oil or fractions (simply refined) | 4.78 | Bananas, including plantains, fresh or dried | 2.39 |
| Maize except seed corn | 4.4 | Cheese except fresh, grated, processed, or blue-veined | 2.1 |
| Raw sugar, cane | 4.07 | Soybean oil-cake and other solid residues | 2.03 |
| Rice, semi-milled or wholly milled | 4.05 | Raw sugar, cane | 1.76 |
| Refined sugar (in solid form, nec), pure sucrose | 3.76 | Cigarettes containing tobacco | 1.65 |
| Milk and cream powder un-sweetened < 1.5% fat | 2.03 | Fowl cuts & offal, domestic, except livers (frozen) | 1.62 |
| Soybean oil crude, whether or not degummed | 1.82 | Fowl, duck, goose, offal, pre-pared (preserved not live) | 1.5 |
| Soybean oil-cake and other solid residues | 1.73 | Shrimps and prawns (frozen) | 1.44 |

Source: COMTRADE (2019) and authors' calculations
Note: nec = not elsewhere classified.

# Conclusion

This chapter has attempted to characterize Africa's place in world agricultural trade. Despite natural resources that are particularly favorable to agriculture, Africa has a trade deficit in this sector. This deficit has, however, been significantly reduced since 2012, and Africa's share of global agricultural GDP has been steadily increasing since 1995.

This deficit has to be linked to the demographic and economic situation: Africa's population is growing faster than that of the rest of the world and economic growth is steadily higher on that continent. It is, therefore, not surprising that African imports of agricultural goods are increasing rapidly. The prospect of creating a free trade area throughout the continent and tripling intraregional agricultural trade makes sense when we are aware of the dynamism of the local market.

On the export side Africa has comparative advantages in traditional agricultural products, but these are generally raw or unprocessed: cocoa, coffee, cotton, fish and fish products, fruits, legumes, and tea. Many African countries also have a comparative advantage in energy and mining commodities.

So, a striking feature of African trade is a high concentration of exports in a relatively small number of products, which are often raw or semi-processed. This may imply volatility in export revenues; and the early stages of value chains, in which African countries appear to be specialized, are often low-value-added stages. By creating a large domestic market, characterized by low barriers to international trade, AfCFTA could remedy these weaknesses by diversifying production bases (involving a rise along value chains) and stabilizing export earnings.

We also showed that the level of intra-African trade appears relatively high: this is a conclusion identical to that reached in several academic studies (Iapadre, 2006; Bouët, Cosnard, Laborde, 2017), but contrary to those of institutional publications (UNECA, AUC, and AfDB, 2010; Barka, 2012; Brenton and Isik, 2012). This is essentially due to the benchmark used in each study. The second group of studies compares the share of intraregional trade in total trade of different continents, while the first group of studies defines a benchmark that considers all world trade. We demonstrate that the share of intraregional trade in total trade depends not only on trade barriers, but also on geography, economic activity, and so on. This is why a benchmark is required, and confirms that African trade is more introverted than extraverted.

This does not mean that trade is well integrated within Africa. Africa performs poorly in terms of participation in world trade, whether intra- or extraregional. This poor performance is related to the multiplication of barriers to trade. The main obstacle to improving Africa's trade integration is non-tariff barriers, with an important role played by administrative barriers: the time and cost spent on customs formalities is clearly excessive for African importers and exporters. In comparison, tariff barriers are relatively low. This means that the AfCFTA will be successful only if it addresses the issue of these non-tariff barriers. If these are addressed, then Africa will be able to participate fully in world trade, in a way that reflects the richness of its natural resources.

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