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# Deepening Regional Integration in Africa: A Computable General Equilibrium Assessment of the Establishment of a Continental Free Trade Area followed by a Continental Customs Union

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**Stephen Karingi & Simon Mevel**[1]

[1] Stephen Karingi is the Director of the Regional Integration, Infrastructure and Trade Division (RITD) at the United Nations Economic Commission for Africa (UNECA); Simon Mevel is an Economic Affairs Officer in RITD at the UNECA. Person contact: Dr. Stephen N. Karingi, Director, Regional Integration, Infrastructure and Trade Division, UN Economic Commission for Africa, P.O. BOX 3001, Addis Ababa, Ethiopia, Tel: +251-11-544 5443, Fax: +251-11-515 3005. The views expressed in this paper are the authors' own and may not necessarily reflect the position of the United Nations Economic Commission for Africa. Any mistakes or omissions are the sole responsibility of the authors.

**Abstract**

In January 2012, the 18th African Union (AU) Summit of African Heads of States and Governments was held in Addis Ababa. At this occasion, a major decision was taken with the adoption of the AU Action Plan for "Boosting Intra-African Trade and the Establishment of a Continental Free Trade Area (CFTA)". This attests of a strong desire to deepen regional integration in Africa. Moreover, the AU Member States expressed the wish to see the share of intra-African trade doubling within the next 10 years.

While a tentative date of 2017 has been agreed for the formation of a CFTA, the Abuja Treaty, signed in 1993, specifically states the requirement for establishing a continent-wide Customs Union by 2019.

This paper first reviews the main trade-related constraints faced by Africa today. Then, it explores in what extent the formation of a CFTA followed by a Continental Customs Union (CCU) would help Africa to overcome these limitations and to fulfill AU Member States' objective in terms of intra-African trade stimulation.

The analysis is conducted using the MIRAGE Computable General Equilibrium model.

Our findings show that, although a CFTA would significantly contribute to increasing trade and its sophistication within the African continent, the removal of strictly tariff barriers would not be sufficient to double the share of intra-African trade at the horizon 2022. This goal could only be achieved if complementary non-tariff measures aiming at easing trade, such as, decreasing the length of customs procedures and port handling, are adopted. While the formation of a CCU would not result in any additional increase of the share of intra-African trade, as compared to a CFTA, it would, however, significantly promote African exports to third countries.

**Keywords:** Regional integration, Free Trade Areas, Customs Union, Trade facilitation, Computable General Equilibrium model, GTAP database, African trade policies

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## I. Introduction

The Abuja Treaty, signed on 3 June 1991 in Nigeria, shapes the road towards the African Economic Community (AEC), to be established by 2028[2]. However, the regional integration process is not necessarily smooth and linear. For example, progresses have been uneven, so far, among the eight Regional Economic Communities (RECs) recognized by the African Union Commission (AUC)[3] and supposed to be the building block of regional integration in Africa. Nevertheless, there have also been significant commitments taken lately aiming at accelerating the integration of African economies within the continent. In that respect, three RECs, namely, the Common Market for Eastern and Southern Africa (COMESA), the East African Community (EAC) and the Southern African Development Community (SADC), have decided to join efforts for setting up a "Tripartite" Free Trade Area (TFTA). Moreover, in 2010, in Kigali, the African Ministers of Trade recommended to fast-track the regional integration agenda. In that sense, they proposed to establish a Continental Free Trade Area (CFTA) by 2017. This was recently reaffirmed at the 18th African Union Summit held in Addis Ababa last January, as the Heads of States and Governments have endorsed a declaration on "Boosting Intra-African Trade and the Establishment of a Continental Free Trade Area". At this occasion, the AU member States also expressed the desire to see the share of intra-African trade doubling within the next 10 years.

African economies face noteworthy trade constraints today. Both tariff and non-tariff barriers to exchanges of goods and services hinder economic and social development. Indeed, the relatively poor trade performances of Africa, and especially its very low intra-trade as compared to that of other regions of the world, may partly be explained by such obstacles limiting spillovers associated to exchanges within the continent. In this context, opening African economies within themselves is expected to generate great benefits to Africa. Therefore, the creation of a CFTA could be seen has a step towards helping African economies overcoming at least part of their weaknesses. Consequently, there is an urgent need for evaluating to what extent these expectations from accrued regional integration are justified.

For this purpose, the analysis relies on a Computable General Equilibrium (CGE) model, MIRAGE, which is especially well-built for assessing trade policies. This paper not only attempts to assess the economic impacts of the establishment of an African FTA but it also goes beyond looking at the economic effects associated with the formation of a Continental Customs Union

[2] From the date the Abuja Treaty entered into force, on 12 May 1994, African countries were expected to complete six consecutive regional integration steps, in not more than a 34 years period. Article 6 of the treaty provides a clear agenda of the different steps leading to a fully integrated market at the continent level.

[3] The eight RECs recognized by the African Union are: the Common Market for Eastern and Southern Africa (COMESA), the East African Community (EAC), the Southern African Development Community (SADC), the Intergovernmental Authority on Development (IGAD), the Economic Community Of West African States (ECOWAS), the Community of Sahel-Saharan States (CEN-SAD), the Economic Community of Central African States (ECCAS), and the Arab Maghreb Union (AMU).

(CCU). Indeed, the Abuja Treaty indicates that a CCU should be established by 2019 which is supposed to be shortly after CFTA as African leaders have tentatively set its creation to 2017. Moreover, the impacts of complementary measures, such as trade facilitation, are considered in addition to tariff reforms.

The second and next section gives an overview of the main trade-related constraints faced by Africa today; the third section describes the methodology used for conducting the analysis as well as the implemented trade reforms; the fourth section indicates the results from the simulations; the fifth and last section concludes by providing a summary of the main findings and policy recommendations.

## II. Main trade constraints in Africa today

Africa as a whole imposes relatively high tariffs to imports from the rest of the world (with an average applied protection of 13.6%[4]). However, the continent benefits from a relatively good access when exporting to its partners from outside the continent (facing an average protection equivalent to 2.5%); thanks to preferential agreements such as: the various Generalized System of Preferences (GSP)[5], the Everything But Arms (EBA) initiative[6], and the African Growth and Opportunity Act (AGOA)[7]. This statement remains generally true at the country level with a few exceptions: Madagascar imposes an average tariff inferior to 5% on its imports from the rest of the world; Malawi, Mauritius, Somalia and Swaziland face average tariffs superior to 10% when exporting to the rest of the world (see Map 1[8]).

Despite these export opportunities with economies located outside the continent, Africa's trade performances are relatively poor; Africa's share in total world trade being only about 4% in 2010[9]. In fact, Africa's trade potential is strongly limited by relatively high tariff barriers within the continent, with an average applied protection of 8.7%. Nevertheless, African economies are extremely heterogeneous in terms of protection structures. Figure 1 compares the average applied and faced protections for each African country with the average protection of the

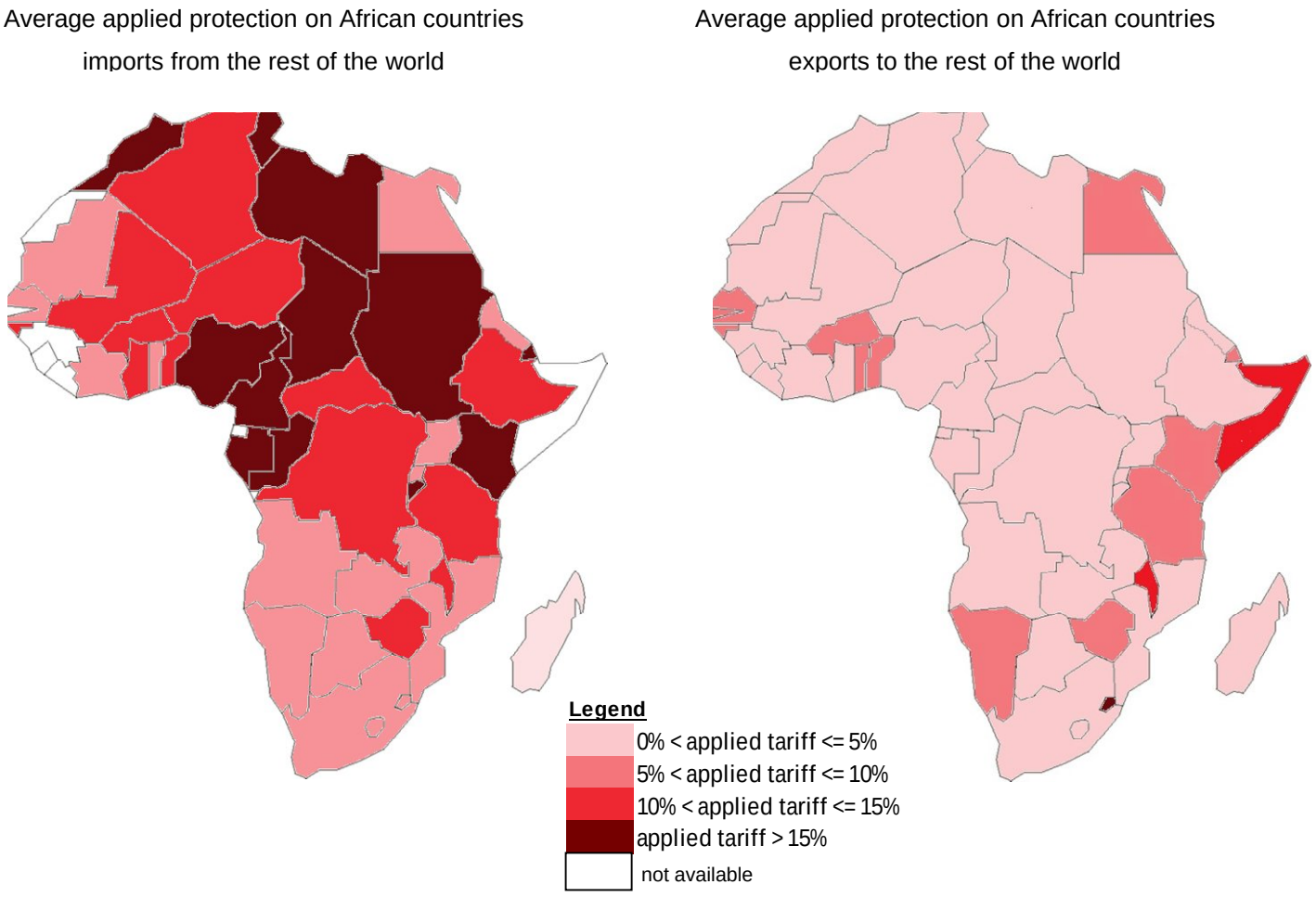
[4] Unless otherwise stated, the average protection information has been computed by the authors based on MAcMap-HS6v2 database (more details about the database are given in the Section III of this paper).
[5] This agreement allows developing countries to export selected products to certain markets (mainly developed countries) at lower tariff rates than the most-favored nation rates. Any member of the World Trade Organization (WTO) must not discriminate in terms of access granted to its market: a tariff rate given to one WTO member partner must be extended to all other WTO members' partners. This tariff rate is called the most-favored nation (MFN) rate. It is important to note that there are a few exceptions:, namely: allowed preferential treatments or regional agreements.
[6] The EBA initiative provides Duty-Free Quota-Free access to Least Developed Countries (LDCs) when exporting to the European Union.
[7] This Act gives preferential access to African exports towards the U.S. market.
[8] See Annex 1 for detailed protection by country.
[9] Authors' calculations based on the MIRAGE model.

continent[10]. For example, Ethiopia imposes an average tariff of 13.3% on its imports coming from other African countries (as a whole) and faces an average tariff of 19.5% on its exports to the rest of Africa (as a whole). Since the average protection of the continent is 8.7%, as indicated earlier, it means that Ethiopia is on average more protectionist than the rest of Africa (as a whole) applying on average a 4.6 percentage points higher tariff (i.e.: 13.3%-8.7%) on its imports from the continent. In addition, the country faces on average higher trade barriers than the rest of Africa (as a whole) facing on average a 10.8 percentage points higher tariff (i.e.: 19.5%-8.7%) on its exports to the continent. For only about one third of African countries (third quadrant on the Figure 1, namely: Burkina Faso, Comoros, Eritrea, Guinea, Guinea-Bissau, Lesotho, Liberia, Malawi, Mali, Namibia, Niger, Rwanda, Senegal, Swaziland, Togo, Uganda, and Zambia) both imposed and faced protections are on average lower than the relatively high averages for the continent. The rest of the countries are, on average, either more protectionists than Africa or have a more difficult access than Africa. A quarter of them (first quadrant of the Figure 1; namely: Cameroon, Equatorial Guinea, Ethiopia, Ghana, Morocco, Mozambique, Seychelles, Tanzania, and Tunisia) are, on average, more protectionists and face, on average, more trade barriers than Africa as a whole.

Tariff barriers are not the sole constraints to trade in Africa. Although more difficult to quantify, non-tariff barriers -such as lengthy customs procedures, sanitary and phyto-sanitary measures, standards, geographic indicators or poor infrastructure (both hard/tangible (i.e.: roads, railways, ports, airports, hospital, schools, etc.) and soft/"Invisible" (i.e.: communication technologies, legal, regulatory, and financial systems, etc.))- can considerably limit trade. For example, the World Bank Doing Business (2012) report indicates that even if Sub-Saharan Africa has significantly improved its reforms aiming to ease trading across borders over the last few years it still lags behind other regions. The study shows that it takes on average 31.5 days to export from a Sub-Saharan African country and as much as 37.1 days to import to a Sub-Saharan African country; in contrast, these average figures fall to 10.5 days and 10.7 days respectively, with respect to a high income OECD country.

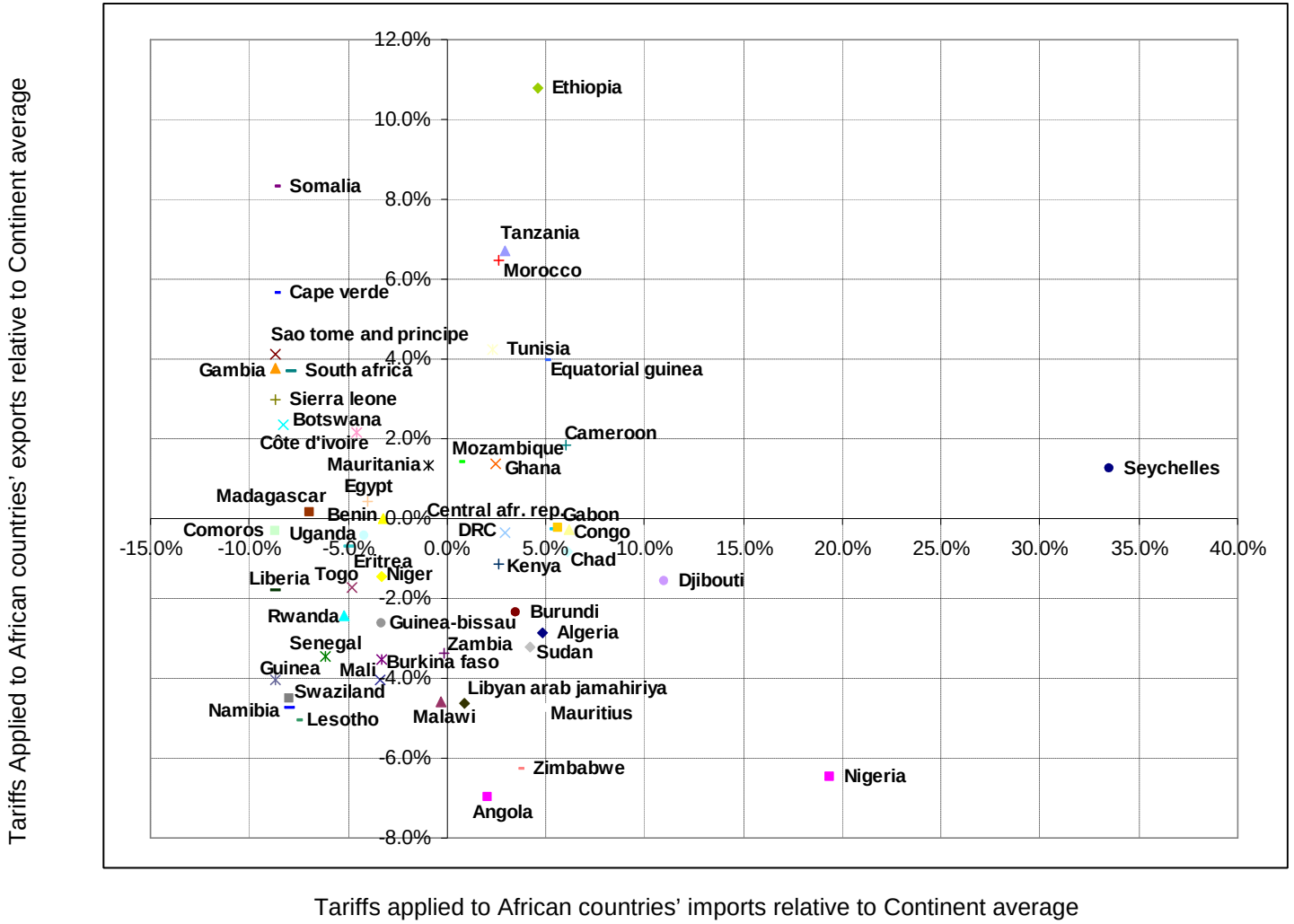
[10] The x-axis of Figure 2 measures the average protection applied on imports (positive values showing a higher average protection imposed to the imports coming from the continent; negative values revealing a lower average protection imposed to the imports from the continent), while the y-axis indicates the average protection that exports face (positive values showing a higher average protection on the exports directed to the continent; negative values revealing a lower average protection on the exports to the continent). X-axis and y-axis cross at the average protection of the continent indicating similar average applied and faced protections than the averages for Africa as a whole.

**Map 1: Average applied protection on African countries' imports/exports from/to the rest of the World (2004)**




*Source: Authors' calculations based on TASTE software and MAcMap-HS6v2 database*

**Figure 1: Average protections applied and faced by African countries as compared to the rest of Africa (2004)**




*Source: Authors' calculations based on TASTE software and MAcMap-HS6v2 database*

Moreover, African economies are often little diversified, exporting to only a few partners and with a strong concentration of exports in primary products. Figure 2 confirms these characteristics. Oil exporting countries such as Angola, Nigeria, and Libya are amongst the least diversified countries in Africa in terms of exported products. Nonetheless, there are a few exceptions. For instance, Morocco and South Africa are nearly as diversified as developed countries in terms of the products they export and Benin is the African country exporting to the widest range of partners. However, in terms of solely intra-African trade, the picture is considerably different as trade of industrial as well as agriculture and food products largely surpasses that of primary products (see Table 1). These elements suggest that trade within African economies is made up more elaborated products than trade with economies located outside the continent.

**Table 1: Africa's export structures by main sectors and according to their destination - 2010**

| | Total | Agricultural and food products | Primary products | Other industrial products | Services |
|---|---|---|---|---|---|
| **Africa** | **100.0%** | **18.4%** | **8.8%** | **68.6%** | **4.2%** |
| Rest of the World | 100.0% | 8.4% | 39.4% | 31.7% | 20.6% |
| ***Africa+ Rest of the World*** | ***100.0%*** | ***9.4%*** | ***36.3%*** | ***35.4%*** | ***18.9%*** |

*Source: Authors' calculations based on MIRAGE model*

Other reasons can be advanced to explain Africa's limited potential in exploiting trade opportunities, such as, constrained production capacities or not enough efficient financing systems.

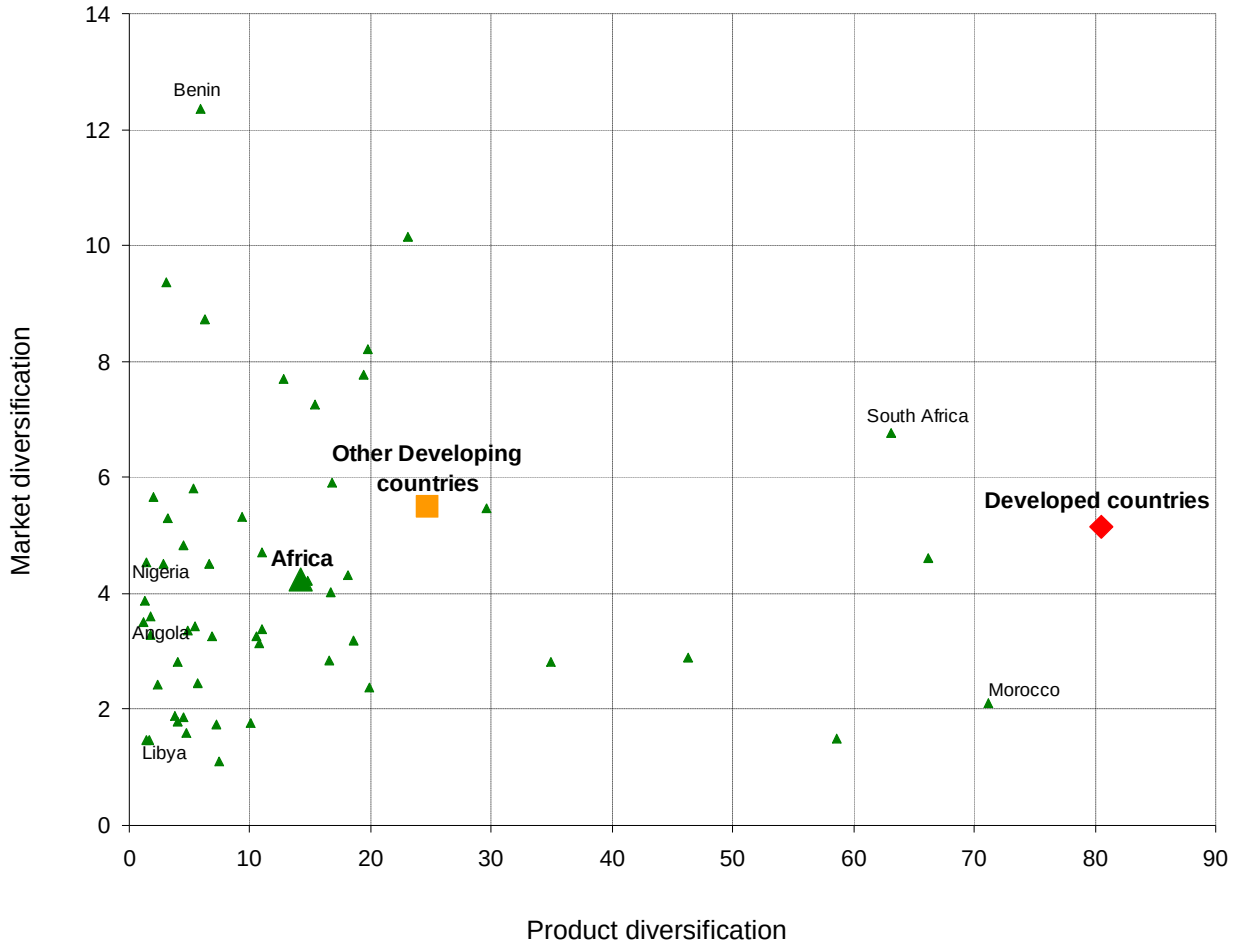
In these conditions, it is not totally surprising to note that trade flows within African economies remain at low levels with nearly 11% of total Africa's trade being intra-trade in 2010[11].

Therefore, a progressive elimination of tariff barriers within Africa, as envisaged by the different steps of regional integration, is expected to bring substantial benefits to the continent. It may help African countries grabbing significant trade opportunities, diversifying their economies and therefore improving their competitiveness outside of the continent. Nevertheless, as African economies are extremely heterogeneous, a strict elimination of tariff barriers will certainly not be sufficient. It must be accompanied by complimentary policies aiming at reducing trade costs (i.e. administrative and customs formalities among others), enhancing mobility of factors within the continent or improving financing systems.

Using a Computable General Equilibrium model, this analysis assesses the economic impacts, from accrued regional integration, on African economies.

[11] Authors' calculations based on the MIRAGE model.

**Figure 2: Market and product diversifications of African countries (2004)**




*Source: Authors' calculations based on MAcMap-HS6v2 database*

## III. Methodology and description of trade reforms

### a. Main model assumptions and data requirements

Computable General Equilibrium models allow for capturing the complex interactions taking place within the different agents of an economy. For the purpose of our analysis, we use MIRAGE (Modeling International Relationships in Applied General Equilibrium) –a multi-country and multi-sector CGE model– particularly well designed for capturing trade policy effects. In order to better assess the different steps -timely planned- of the regional integration in Africa, we utilize a dynamic version of the model. The dynamic is recursive implying a succession of equilibriums being solved sequentially from one year to another.

On the demand side of the model, a single representative agent is assumed in each region; this agent allocating a fixed share of its income for savings and devoting the rest to its consumption of goods. A Linear Expenditure System–Constant Elasticity of Substitution (LES–CES) function is used for representing agent's preferences across sectors. The model allows for vertical (quality) as well as horizontal (variety) differentiations in goods. The goods produced by developed countries are assumed to have a higher quality than the ones produced by developing countries (Armington hypothesis).

On the supply side, the model relies on a Leontief function assuming perfect complementarity between intermediate consumption and value added. Five factors of production are contributing to the value added: unskilled and skilled labor, capital, land, and natural resources. It is important to note that skilled labor and capital are supposed to be more substitutable between themselves than with other factors. A full employment of factor endowments is assumed[12]. Skilled labor is perfectly mobile between sectors while in the case of unskilled labor there is imperfect mobility between agricultural and non agricultural sectors but the mobility is perfect among each group of sectors. The rates of variations of the labor are

[12] Note that scenarios allowing for unemployment in the labor market were considered so as to implement a wage curve in the model following Blanchflower and Oswald's methodology (2005). However, only results based on the assumption of full employment of labor are presented (the full employment hypothesis assumes wage flexibility as there is a constant aggregate employment in all regions). This is obviously imperfect as it does not reflect well the situation of African economies on that respect; however, there are several reasons that motivate such decision. First, assuming full employment or unemployment -modeled as briefly described above- for the labor factor in the CGE model does not lead to significant differences in the results obtained. Moreover, the lack of availability and reliability of unemployment rates for African economies can render the exercise very questionable. Second, another way to represent unemployment in CGE models is to assume nominal or real wages fixed. Nevertheless, this assumption is also source of intense debate as it does consider the wage determination's process in developing countries (Ben Hammouda and Osakwe (2006)). Third, the full employment assumption is coherent with the medium to long term effects resulting from shocks analyzed with CGE models (Bouët et al. (2010)).

exogenously set following the demographic forecast provided by the World Bank[13]. Land is imperfectly mobile between sectors while natural resources and capital are sector-specific. Yet, natural resources are constant and capital is accumulative. The sole adjustment variable for capital stocks is the investment, such as the capital stock for the current year depends on the investment made for the same year and the capital stock from the previous year which has depreciated. In addition, GDP growth is forecasted affecting total factor productivity[14].

The macroeconomic closure of the MIRAGE model is obtained by maintaining the current account of each region constant and fixed to its initial value. The real exchange rate is allowed to adjust in order to balance any possible disequilibrium of the current account. In other words, when a trade reform stimulates trade, such as reduction of tariff barriers, the real exchange rates appreciate if exports increase more than the imports or depreciate when the exports increase less than the imports.

As other CGE models, MIRAGE requires an extremely large amount of very detailed data for describing all economic relationships taking place, within the different agents of the world economy, in a particular year. Based in Purdue University (Indiana, USA) the Global Trade Analysis Project (GTAP) maintains a well-known database especially designed for CGE models. The version 7 of the GTAP database is used as a global Social Accounting Matrix (SAM) for the MIRAGE model; providing data on international trade (bilateral flows as well as trade barriers), production, consumption of intermediate and final goods and services, for 113 countries/regions and 57 sectors, and for the year 2004[15].

Nevertheless, when it comes to analyzing trade policies, it is extremely important to get bilateral trade barriers at a much disaggregated level as in trade negotiations tariff reductions are generally made at the Harmonized System at 6-digit (HS6) level of the product lines. For this reason, we replace the GTAP data on trade protections –given for 113 countries/regions and 57 sectors– by those coming from the MAcMap-HS6 version 2 database. It provides exhaustive information on market access at the bilateral level, namely for 220 exporter countries and 169 importer countries, and for as much as 5113 products, for the year 2004. Most notably, it includes all preferential schemes currently active, as well as offering a more intuitive aggregation methodology that lends itself to a useful description of tariff barriers to worldwide trade at a specific point in time. Indeed, not only it is possible to aggregate tariff lines using bilateral imports-weight, but MAcMap-HS6 also offers the option to aggregate protection data using a so called "reference group weight". In this case, the weight used for aggregation does not strictly reflect the trade for the country considered, but rather that of a group of countries (group of reference) to

[13] See World Development Indicators from the World Bank.
[14] See World Bank publication: "Global Economic Prospects 2005: Trade, Regionalism, and Development".
[15] A full description of the GTAP version 7 database can be obtained from Narayanan, B. and T.L. Walmsley, Editors (2008).

which a country belongs to according to its income level. As a consequence, the "reference group weight" limits possible endogeneity bias between trade and protection[16]. Finally, the MAcMap-HS6 database version 2 has an integrated "GTAP scaling" module such that trade flows associated to tariff lines are kept consistent with the trade information from the GTAP database used in the CGE model. Note that for the analysis in question, tariff barriers are first aggregated at the level of sectors and countries/regions of the GTAP database, using the "reference group weight", before being aggregated at the level of sectors and countries/regions selected for the model following the same aggregation method.

### b. Geographic and sectoral decomposition

Considering the numerous equations -inevitably increasing with the number of sectors and regions- of the MIRAGE model, and in order to avoid resolution issues due to software limitations, it is generally recommended to run the model with no more than 30 countries/regions and 30 sectors[17].

In that sense, 27 countries/regions, were determined focusing on Africa. All the available African countries and regions (i.e. 16 African countries and the 6 African regions) from the GTAP database were selected, as were the main partners, namely: the European Union, the United States, and a group made up the BRIC countries; the rest of the countries were aggregated into Rest of Developed Countries and Rest of Developing Countries[18] (see Table 2).

When it comes to the sectoral decomposition, priority was given to sectors which are keys for African economies. In other words, as much details as possible were kept for agriculture and for the main industrial products, namely: primary products, petroleum and coal products, mineral and metal products, or textiles, wearing apparel and leather products. In total, 21 sectors were considered which can be decomposed into 12 agricultural, 7 industrial and 2 services' sectors[19] (see Table 3).

[16] If trade (or import) weight is satisfactory to reflect the quality of specialization for a bilateral relationship (as long as there are no significant mistakes on reported trade values) it can, however, leads to a serious endogeneity bias. Indeed, for a specific line the higher the tariff, the lower the import flow, and therefore the lower the aggregated tariff. In that sense, the trade weight tends to underestimate protection. Therefore, using the "reference group weight" can limit endogeneity bias and measurement errors.
[17] The General Algebraic Modeling System (GAMS) software is used to run the MIRAGE model.
[18] See Annex 3 for detailed correspondences between GTAP countries/regions and those determined for the study.
[19] See Annex 4 for detailed correspondences between GTAP sectors and those determined for the study.

## Table 2: Geographic decomposition

| # | Country/*Region* | Africa/Non-Africa | Main Regional Economic Communities | | | | | | | | Main Negotiating Groups | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | COMESA | EAC | SADC | IGAD | ECOWAS | CEN-SAD | ECCAS | UMA | COMESA+EAC+SADC+IGAD Group | ECOWAS+CEN-SAD+ECCAS+UMA Group |
| 1 | Egypt | Africa | ■ | | | | | ■ | | | ■ | |
| 2 | Morocco | Africa | | | | | | ■ | | ■ | | ■ |
| 3 | Tunisia | Africa | | | | | | ■ | | ■ | | ■ |
| 4 | *Rest of North Africa* | Africa | ■ | | | | | ■ | | ■ | | ■ |
| 5 | Nigeria | Africa | | | | | ■ | ■ | | | | ■ |
| 6 | Senegal | Africa | | | | | ■ | ■ | | | | ■ |
| 7 | *Rest of Western Africa* | Africa | | | | | ■ | ■ | | ■ | | ■ |
| 8 | *Rest of Central Africa* | Africa | | | | | | ■ | ■ | | | ■ |
| 9 | *Rest of South Central Africa (Angola & DRC)* | Africa | ■ | | ■ | | | | | | ■ | |
| 10 | Ethiopia | Africa | ■ | | | ■ | | | | | ■ | |
| 11 | Madagascar | Africa | ■ | | ■ | | | | | | ■ | |
| 12 | Malawi | Africa | ■ | | ■ | | | | | | ■ | |
| 13 | Mauritius | Africa | ■ | | ■ | | | | | | ■ | |
| 14 | Mozambique | Africa | ■ | | ■ | | | | | | ■ | |
| 15 | Tanzania | Africa | ■ | ■ | ■ | ■ | | | | | ■ | |
| 16 | Uganda | Africa | ■ | ■ | ■ | ■ | | | | | ■ | |
| 17 | Zambia | Africa | ■ | ■ | ■ | ■ | | | | | ■ | |
| 18 | Zimbabwe | Africa | ■ | ■ | ■ | ■ | | | | | ■ | |
| 19 | *Rest of Eastern Africa* | Africa | ■ | ■ | ■ | ■ | | ■ | | | ■ | |
| 20 | Botswana | Africa | ■ | | ■ | | | | | | ■ | |
| 21 | South Africa | Africa | ■ | | ■ | | | | | | ■ | |
| 22 | *Rest of South African Customs Union* | Africa | ■ | | ■ | | | | | | ■ | |
| 23 | *BRIC countries* | Non-Africa | | | | | | | | | | |
| 24 | *Rest of Developing Countries* | Non-Africa | | | | | | | | | | |
| 25 | European Union | Non-Africa | | | | | | | | | | |
| 26 | United States | Non-Africa | | | | | | | | | | |
| 27 | *Rest of Developed Countries* | Non-Africa | | | | | | | | | | |

■ Country/Region fully part of the Regional Economic Community (REC)

■ At least one country (but not all) in the corresponding region is part of the REC

## Table 3: Sectoral decomposition

| # | Sector | Category |
|---|---|---|
| 1 | Paddy and processed rice | Agriculture |
| 2 | Wheat | Agriculture |
| 3 | Cereals | Agriculture |
| 4 | Oilseeds | Agriculture |
| 5 | Sugar cane and sugar beet | Agriculture |
| 6 | Cattle, sheep, goats and horses | Agriculture |
| 7 | Animal products and wool | Agriculture |
| 8 | Other agricultural products | Agriculture |
| 9 | Milk and dairy products | Agriculture |
| 10 | Meat products | Agriculture |
| 11 | Sugar | Agriculture |
| 12 | Other food products | Agriculture |
| 13 | Forestry | Industry |
| 14 | Fishing | Industry |
| 15 | Other primary products | Industry |
| 16 | Textile, wearing apparel and leather products | Industry |
| 17 | Petroleum, coal products | Industry |
| 18 | Mineral and metal products | Industry |
| 19 | Other manufactures products | Industry |
| 20 | Transport | Services |
| 21 | Other services | Services |

### c. Implemented trade reforms

African Heads of States and Governments have recently agreed -by endorsing the African Union Action Plan for "Boosting Intra-African Trade and the Establishment of a Continental Free Trade Area"- to set up a CFTA with 2017 as tentative target. Moreover, a roadmap for the regional integration process in Africa was clearly provided by the Abuja Treaty, which came into effect in 1994. In particular, the treaty stipulates that a Continental Customs Union is to be established by 2019.

Therefore, we assume the removal of all tariff barriers on goods within the African continent to be effective by 2017.

For comparison purposes, and in case the 2017 deadline is not met for the establishment of a CFTA, we also considered full elimination of tariff barriers on goods within (and not between) two regional groups. These groups were determined based on the following three criterions: limitations of the GTAP database[20], multiple overlapping memberships to the Regional Economic Communities[21], and current state of negotiations[22]. As a result, a single FTA is assumed between COMESA, EAC, SADC and IGAD[23], while another is considered between ECOWAS, CEN-SAD, ECCAS and AMU[24].

In addition to the full elimination of tariff barriers in goods within Africa, as implied by a CFTA, it is assumed that, by 2019, African countries will have determined and harmonized their external tariffs. That is to say, all African economies will impose the same Common External Tariff (CET) structure on their imports coming from the rest of the world. CET structures usually consist in several tariff bands, such as tariff levels differ by type of product. As Regional Economic Communities (RECs) are expected to become regional Customs Union by 2017, some of them -in particular COMESA and ECOWAS- have already designed their own CET structures. While the "COMESA CET" assumes 3 tariff bands (0% for raw materials as well as for capital goods, 10% for intermediate goods, and 25% for final goods)[25], the "ECOWAS CET" relies on 5 bands (0% for essential social goods, 5% for goods of primary necessity, raw materials, capital goods and specific inputs, 10% for intermediate goods, 20% for final consumer goods, and 35%

[20] The majority of African countries are aggregated into six regional groups.
[21] Many African countries belong to more than one REC (see Table 2).
[22] 26 African country members of COMESA, EAC & SADC have agreed to establish a Tripartite FTA by 2014.
[23] IGAD is not part of the Tripartite. However, except for Somalia, all country members of IGAD belong to at least one of the three RECs of the Tripartite.
[24] Note that out of the 28 countries members of either, ECOWAS, ECCAS or AMU, 16 are also members of CEN-SAD.
[25] See "Brief on the COMESA Customs Union" available on COMESA official website, and directly accessible from the following link:
http://programmes.comesa.int/index.php?option=com_content&view=article&id=90:comesa-customs-union&catid=48:general&Itemid=142.

for "Specific goods for economic development")[26]. Moreover, and in order to protect domestic markets in specific sensitive sectors, African countries are allowed to individually select a limited number of products which will be either exempted from CET adoption or that will have protection rates higher than the rate of the higher band of the CET structure. Note that although some countries have already determined and submitted their sensitive product lists, information available remains limited[27]. For these reasons, our analysis proposes two sets of scenarios to assess the CCU: one with adoption of COMESA CET and another one considering ECOWAS CET. Furthermore, for each set of scenarios, sensitive products are allowed and determined by computing an index proposed by Jean et al. (2008)[28]. To be precise, we consider two options following Dimaranan and Mevel (2008): 2 per cent and 5 per cent of the 5113 product lines defined at the Harmonized System (HS) 6-digit level for which the computed index is the highest are assumed to be sensitive products and fully exempted from CET adoption.

Finally, for each of the above scenarios options with and without trade facilitation measures are envisaged and compared. These are modeled using a database on trade costs associated to time from Minor and Tsigas (2008). The authors estimated the percentage of exports and imports lost due to a delay of one day in customs processing and port handling, by country and sector. Decreux and Fontagne (2009) aggregated, at the GTAP level, data of costs at the barrier from Minor and Tsigas. Applying the same methodology, trade costs were aggregated for the regions and sectors determined in the study allowing for calibration of these costs into the model. Reductions of these trade costs or "iceberg costs" were then applied, such as customs procedures and port handling in import and export processes within African countries are assumed to become twice more efficient by 2017, as compared to that in the base year.

Unless otherwise stated, all the results from the CGE analysis are obtained by comparison between the different above described scenarios and the reference (also know as baseline scenario which corresponds to the situation without implementation of any trade reform[29]) in the year 2022[30], and are given in percentage or absolute change between the two

[26] See the "ECOWAS Common External Tariff (CET) available on ECOWAS official website, and accessible from the following link: http://www.aidfortrade.ecowas.int/programmes/ecowas-common-external-tariff-cet.

[27] For example: only Burundi, Republic Democratic of Congo, Comoros, Kenya, Madagascar, Malawi, Mauritius, Rwanda, Sudan, Swaziland, and Uganda recently submitted their sensitive product lists to COMESA.

[28] From a policy maker point of view, considering both benefits and costs of sector protections, the authors show that a product can be qualified as sensitive if it combines the following three characteristics: representing a high value of total imports, being initially highly protected, and being subject to a large tariff reduction from trade reforms.

[29] Note that the Multi-Fiber Agreement (MFA) which imposes quotas on exports of textile and garments from developing countries to developed countries expired on 1 January 2005. Therefore, this constraint has been removed in both the reference and the different scenarios simulated and presented in this paper.

compared situations. In other words, these correspond to annual changes for the year 2022. These are not cumulative changes overtime or changes as compared to the base year (2004).

## IV. Economic impacts of implemented reforms

African countries impose and face relatively high tariff barriers when trading within the continent, with an 8.7% average protection, as already indicated in section II. A reduction of tariff barriers on goods, as assumed with the establishment of free trade areas within the continent, should considerably improve market access between African economies and would be expected to bring significant increases in intra-trade flows. Nevertheless, the reduction of tariff barriers will inevitably reduce tariff revenues for African government. Therefore, such liberalization reforms will only be considered fully beneficial for African countries if potential losses are to be more than compensated by other gains.

### a. Expected outcomes from the establishment of Free Trade Areas (FTAs): Regional FTAs (RFTAs) vs. Continental FTA (CFTA)

Trade flows would be significantly enhanced with the establishment of vast Free Trade Areas in Africa. While the formation of RFTAs would result in a 2.8% (or $17.6 billion) increase in Africa's exports to the world, as compared to the baseline scenario in 2022, the creation of a CFTA would stimulate African exports by 4.0% (or $25.3 billion); other regions not implementing any trade reforms would register a slight reduction in their total exports.

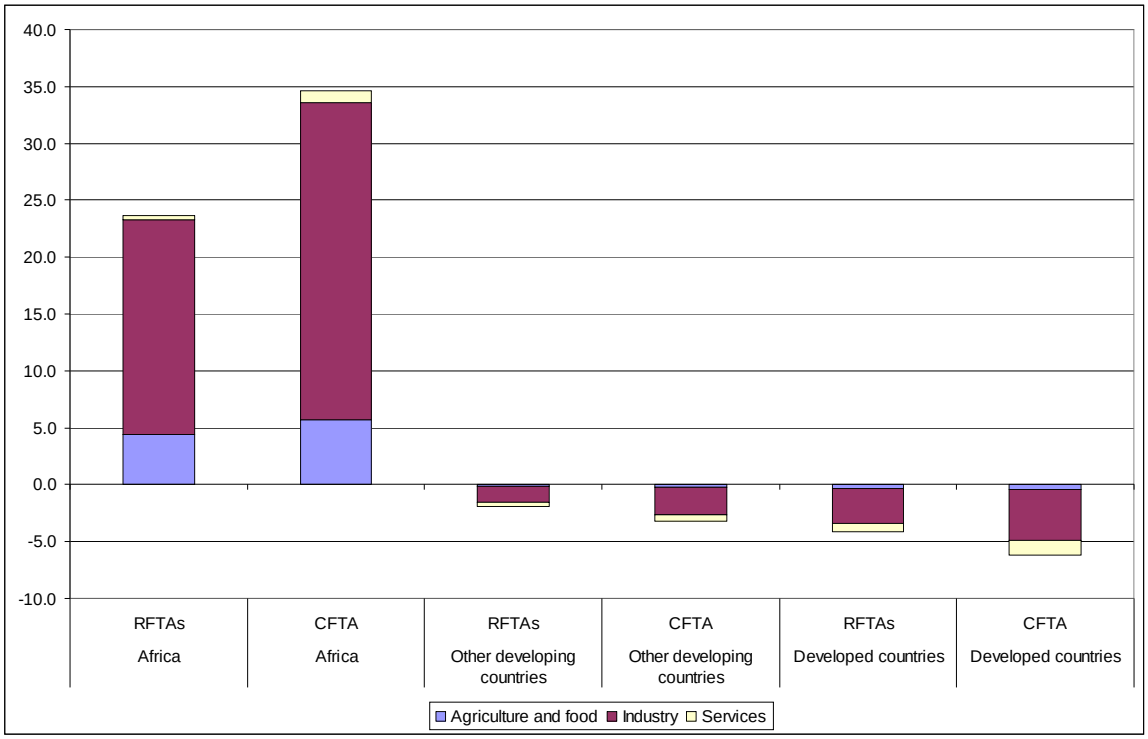
At the sector level, it is in agriculture and food that African exports would rise the most with the adoption of RFTAs and CFTA reforms with +7.2% (or $3.8 billion) and +9.4% (or $5.0 billion), as compared to the reference scenario in 2022, respectively. Exports of Africa would increase in all agricultural and food sectors without exception, whatever the FTA reform implemented; exports of wheat, cereals, sugar, meat, raw milk and dairy products and other food products would be the most stimulated. African exports of industrial products would also increase with +4.7% (or $21.1 billion), as compared to the baseline in 2022, when a CFTA is established. However, services -which are not subject to any tariff cuts-, would see their exports reducing as they would face severe competition from the other sectors in which tariff reductions were applied[31].

Thanks to the positive and substantial above mentioned export variations, FTA reforms would be net trade creative for Africa as trade diversion effects will be largely compensated by

[30] Results are observed in 2022 and not 2017 (date of full implementation of scenarios) in order to let enough time for variables in the model to adjust from implemented shocks.
[31] See Annex 10 for detailed variations by sector.

the creation of new trade flows. Indeed, the rise in African exports within the continent would strongly offset reductions of African exports to non-African developing and developed countries. The net trade creation effect for Africa would be observed in agriculture and food sectors as well as in industrial ones. Nevertheless, the reduction in African exports of services directed towards outside the continent would be larger than the increase of services' exports within the African continent (see Figure 3).

**Figure 3: Exports of African countries by destinations and main sectors– Changes as compared to the baseline scenario – 2022 – $USD bn**




*Source: Authors' calculations based on MIRAGE model*

Figure 3 is indicative of a critical finding from the analysis undertaken, that is to say, a strong increase in intra-African trade. If the creation of RFTAs would stimulate intra-trade by 35.7% (or $23.6 billion), as compared to the baseline scenario in 2022, the establishment of a CFTA would result in a 52.3% (or $34.6 billion) increase in intra-African trade; thanks to exchanges within the continent growing in the three main sectors, namely: agriculture and food, industry and services. The progression would be the highest in industry with +53.3% (or $27.9 billion), as compared to the baseline in 2022, after establishment of a CFTA. As a result intra-African trade would be even more sophisticated than in the absence of FTA reforms (as already indicated in Table 1). Increase in intra-African trade of agriculture and food sectors would follow closely, in percentage terms, with an additional 53.1% (or $5.7 billion) after creation of a CFTA,

relative to the reference case in 2022. Intra-trade within the continent would also rise significantly in services with a 31.9% (or $1.0 billion) augmentation from the baseline at the same horizon. Expressed differently, the establishment of a fully effective CFTA by 2017 would enhance intra-African trade by 51.7% over a twelve year period, the share of intra-African trade passing from 10.2% in 2010 to 15.5 % in 2022. Although quite considerable, this increase is well below the target set by AU member states who wish to see the share of intra-African trade doubling over the next 10 years. **This is suggestive of the need for complementary measures to reach the announced objective which cannot be achieved by the strict establishment of a CFTA.**

Before looking at additional measures that could potentially help increasing the share of intra-African trade, it is important to observe the impact of the sole FTA reforms on real income (or welfare) at both, global and country levels.

Despite losses of tariff revenues for government, implied by the liberalization reforms, the real income for Africa as a whole would be accrued with the implemented trade policies, thanks to the strong stimulation of exports. Establishing a CFTA would have a positive impact on Africa's real income with +0.20% (or $296.7 million), as compared to the baseline scenario in 2022. The creation of RFTAs would also produce real income gains of 0.14% (or $203.4 million), relative to the reference in 2022, for the continent. It is clear that these welfare gains would be rather limited, however, their positive signs do not plead against deepened regional integration in Africa. It can be noted that real income would decrease for non-African countries not implementing the FTA reforms.

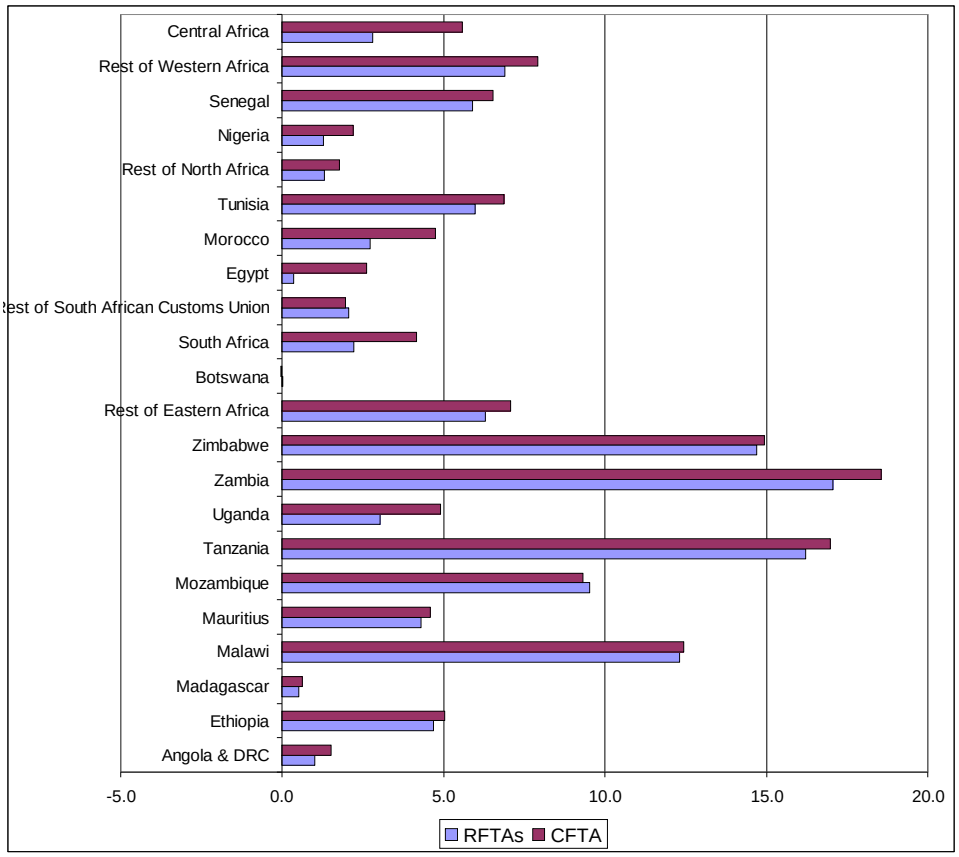
Real wages for all categories of African workers would also be positively affected by the formation of large free trade areas. For example, following the implementation of a CFTA, unskilled workers employed in non-agricultural sectors would obtain the highest real wages increase with +0.80%; their unskilled counterparts engaged in the agricultural sector would see their income raise by +0.74%, on top of the baseline for the year 2022. To a lesser extent, skilled workers would also get positive real wage variations (see Table 5). These results are consistent with the intra-African trade variations showed in Figure 3 and indicative of higher export growth, within the continent, for industrial sectors than for agricultural ones.

Turning to the country analysis of the results, these are somewhat more ambiguous than at the global level. Indeed, if all African countries would benefit from larger exports[32] than without

[32] Note, however, that Botswana's exports would be unchanged with the FTA reforms. Moreover, only three countries/regions - Botswana, Mozambique, and the Rest of SACU would not benefit more with the implementation of a Continental FTA as compared to Regional FTAs. One reason for such observations is the fact that these countries are initially among the least diversified economies in terms of products and market of imports and exports. In terms of imports, these economies depend heavily on South Africa: 34%, 65% and 71% of Mozambique, Rest of SACU and Botswana's imports, respectively, come from South Africa. 33% of Rest of SACU products are exported to South Africa, while 67% and 76% of

the trade reforms (see Figure 4), the same cannot be said about real income (see Table 4). Even if real income variations are limited, almost half of African countries/regions considered in the study would be worst off in terms of real income after the formation of free trade areas. Three main justifications can be advanced. Firstly, while African countries liberalize, governments have to renounce to a non-negligible source of income namely, tariff revenues. Secondly, as African economies open up, competition is increasing on the continental market. As a results trade flows are reoriented such as African imports from partners located either on the continent or outside of the continent are being replaced by imports from African partners benefiting from better market access, thanks to tariff cuts, and potentially leading to terms of trade reductions (see Table 4). Thirdly, as world prices of food products slightly increase with the liberalization reforms, net-food importing countries such as Angola & DRC, Mozambique, Botswana, Rest of North Africa, Nigeria and Central Africa are hurt and their real income reduced.

**Figure 4: Total export volumes by country – Changes as compared to the baseline scenario – 2022 – %**




*Source: Authors' calculations based on MIRAGE model*

Mozambique's and Botswana's exports, respectively, are oriented towards the European Union. In addition, mineral and metal products constitute 54% of Mozambique exports, while 71% of Botswana's exports are primary products.

**Table 4: Real income, Tariff Revenues and Terms of Trade by African country/region – Changes as compared to the baseline scenario – 2022**

| | Real income - % | | Tariff Revenues - % | | Terms of Trade - % | |
|---|---|---|---|---|---|---|
| | RFTAs | CFTA | RFTAs | CFTA | RFTAs | CFTA |
| Angola & DRC | -0.3 | -0.3 | -12.5 | -15.2 | -0.2 | -0.2 |
| Ethiopia | 0.2 | 0.3 | -11.1 | -10.8 | 0.5 | 0.6 |
| Madagascar | 0.0 | 0.1 | -7.8 | -7.5 | 0.0 | 0.1 |
| Malawi | -0.6 | -0.6 | -60.7 | -60.0 | -1.6 | -1.5 |
| Mauritius | -0.9 | -0.8 | -19.1 | -18.6 | -0.7 | -0.6 |
| Mozambique | -0.5 | -0.5 | -54.1 | -54.0 | -1.2 | -1.3 |
| Tanzania | 0.2 | 0.3 | -36.7 | -36.2 | 0.0 | 0.2 |
| Uganda | 0.1 | 0.4 | -15.1 | -13.1 | 0.1 | 0.7 |
| Zambia | -0.5 | -0.2 | -60.0 | -59.1 | -1.9 | -1.4 |
| Zimbabwe | -1.5 | -1.4 | -70.8 | -70.5 | -2.4 | -2.4 |
| Rest of Eastern Africa | -0.3 | -0.2 | -14.9 | -14.7 | -0.6 | -0.5 |
| Botswana | -0.2 | -0.4 | -0.7 | 1.7 | -0.3 | -0.6 |
| South Africa | 0.4 | 0.7 | 3.0 | 5.9 | 0.6 | 1.2 |
| Rest of South African Customs Union | 1.1 | 1.1 | 1.4 | 1.8 | 0.7 | 0.7 |
| Egypt | 0.0 | 0.3 | -0.5 | 0.1 | 0.0 | 0.5 |
| Morocco | 0.2 | 0.0 | -1.4 | -5.9 | 0.2 | 0.0 |
| Tunisia | 0.6 | 0.6 | -3.6 | -6.4 | 0.5 | 0.4 |
| Rest of North Africa | 0.0 | -0.1 | -4.4 | -7.8 | 0.0 | 0.0 |
| Nigeria | -0.1 | -0.4 | -8.6 | -16.7 | 0.0 | -0.2 |
| Senegal | 0.3 | 0.3 | -5.8 | -10.2 | 0.6 | 0.4 |
| Rest of Western Africa | 0.6 | 0.6 | -5.8 | -11.7 | 0.8 | 0.7 |
| Central Africa | 0.1 | -0.1 | -9.0 | -23.8 | 0.0 | -0.3 |

*Source: Authors' calculations based on MIRAGE model*

In terms of real wages, as found at the global level, these generally increase for all categories of workers in nearly all African countries/regions once FTA reforms have been implemented; thanks to higher production and exports. However, workers employed in countries strongly specialized in exports of primary products, such as oil exporting countries: Angola, Egypt, Nigeria, Rest of Eastern Africa (inclusive of Kenya), Rest of North Africa); as well as Zambia (69% of Zambia's exports are mineral and metal products) register a decrease in real wages (see Table 5 and Annex 8). Note that primary products are initially relatively lowly protected limiting market access improvement and thus real wage increase associated with liberalization reforms.

**Table 5: Real wages by main qualifications and main sectors of activity– Changes as compared to the baseline scenario – 2022 – %**

| | RFTAs | | | CFTA | | |
|---|---|---|---|---|---|---|
| | Unskilled real wages in agriculture | Unskilled real wages in non agricultural sectors | Skilled real wages | Unskilled real wages in agriculture | Unskilled real wages in non agricultural sectors | Skilled real wages |
| Angola & DRC | -0.24 | -0.06 | -0.28 | -0.12 | 0.04 | -0.31 |
| Ethiopia | 1.09 | 0.21 | -0.48 | 1.18 | 0.25 | -0.45 |
| Madagascar | 0.03 | 0.05 | 0.09 | 0.20 | 0.09 | 0.17 |
| Malawi | 3.14 | 1.95 | 1.01 | 3.33 | 1.97 | 0.99 |
| Mauritius | -0.11 | 1.12 | 0.64 | -0.16 | 1.25 | 0.71 |
| Mozambique | 0.56 | 1.09 | 0.27 | 0.58 | 1.06 | 0.26 |
| Tanzania | 1.10 | 1.10 | 1.44 | 1.13 | 1.17 | 1.55 |
| Uganda | 0.29 | 0.41 | 0.38 | 0.48 | 0.91 | 0.82 |
| Zambia | -0.05 | 1.12 | 1.24 | 0.48 | 1.42 | 1.40 |
| Zimbabwe | 8.12 | 4.97 | 3.15 | 8.14 | 5.00 | 2.99 |
| Rest of Eastern Africa | -0.20 | 0.37 | 0.25 | -0.13 | 0.47 | 0.40 |
| Botswana | 0.34 | -0.06 | -0.18 | 0.50 | -0.18 | -0.40 |
| South Africa | 0.86 | 0.30 | 0.46 | 0.93 | 0.56 | 0.80 |
| Rest of South African Customs Union | 1.59 | 0.86 | 1.06 | 1.83 | 0.82 | 1.00 |
| Egypt | -0.02 | 0.04 | 0.07 | 0.32 | 0.28 | 0.28 |
| Morocco | 0.81 | 0.26 | 0.33 | 1.41 | 0.38 | 0.47 |
| Tunisia | 0.36 | 1.28 | 1.48 | -0.58 | 1.42 | 1.65 |
| Rest of North Africa | 0.19 | 0.24 | 0.22 | 0.12 | 0.25 | 0.18 |
| Nigeria | -0.26 | 0.23 | -0.02 | -0.54 | 0.12 | -0.42 |
| Senegal | 0.28 | 0.84 | 0.47 | 0.25 | 0.97 | 0.71 |
| Rest of Western Africa | 0.27 | 1.94 | 1.65 | 0.40 | 2.15 | 1.81 |
| Central Africa | 0.27 | 0.42 | 0.30 | 0.46 | 0.64 | 0.38 |
| **AFRICA** | **0.65** | **0.70** | **0.49** | **0.74** | **0.80** | **0.54** |

*Source: Authors' calculations based on MIRAGE model*

If the expected outcomes from larger free trade areas, and in particular following the establishment of a CFTA, are rather positive at the global level for Africa, the share of intra-African trade would, however, not double within the next 10 years as wished by AU member states. Moreover, country level results can legitimately raise some concerns due to real income losses for some African economies.

In this context, **it is critical to explore possibilities of complementary measures which could potentially help offsetting the unsatisfactory outcomes from removal of the sole tariff barriers in goods**. Considering the numerous non-tariff barriers to trade within the African continent, as indicated in section II, two measures to ease trade across borders are envisaged. Firstly, a reduction by half of time spent at African ports by merchandise. Secondly,

customs procedures in African countries are assumed to become twice more efficient than they are today. Both measures are fully and simultaneously implemented, along with FTA reforms, by 2017.

The outcomes of the simulations considering trade facilitation measures on top of FTA reforms are extremely interesting. These additional policies not only would boost further exports at both the global and country levels, but also all African countries would then register real income and real wage gains (see Annex 11). In terms of exports, both industrial and agriculture and food sectors would benefit strongly from the reforms. While, in percentage terms, exports of agriculture and food were increased more than those of industrial products with the sole establishment of free trade areas, the contrary is found when trade facilitation measures are also taken into account (see Annex 10). As a result, the sophistication of African trade would be further enhanced if FTAs would be complemented with non-tariff measures to ease trade across borders.

Intra-African trade would also be strongly impacted with the adoption of trade facilitation measures. Indeed, the creation of a CFTA accompanied by more efficient customs procedures and reduction in delays that merchandise spend at African ports, would lead to a 128.4% (or $85.0 billion) increase in intra-African trade, as compared to the baseline in 2022. Consequently, the share of intra-African trade would in fact more than double over the next decade passing from 10.2% in 2010 to 21.9% in 2022. Sophistication of intra-African trade would also be significantly expended as intra-continental trade in industry would grow the fastest with the reforms (see Annex 12). This would positively and substantially impact wages of both skilled and unskilled worked employed in non-agricultural activities (see Annex 11). Real wages for workers engaged in agriculture would also be positively affected but to a lesser extent. It is worth mentioning that while wages of skilled workers would increase the least with the sole FTA reforms, they augment the most when such reforms are accompanied by trade facilitation measures.

### b. Expected outcomes from the formation of a Continental Customs Union (CCU)

A CCU builds on the acquis of a CFTA as it also requires full liberalization of goods within the African continent. Moreover, it necessitates the adoption of a common external tariff (CET) structure imposed on imports from all non-African economies. As already indicated in section III, two CET structures are currently on the table in Africa: the “COMESA-CET” and the “ECOWAS-CET”. In addition, each African country is allowed to exclude a certain number of products[33],

[33] Here we allow for 2% to 5% of tariff lines defined at the Harmonized System 6-digit level (HS6) to be defined as sensitive products by each African country (2% corresponds to 102 product lines, while 5% is equal to 255 products lines). See section III for details about the methodology used for selection of these products. See Annex 15 for the 30 most common sensitive products for African countries depending on the

designed as sensitive, from the CET structure. In other words, the tariff barriers imposed on products determined as sensitive are not modified with the CCU reform.

**Table 6: Changes in average protection and African imports and exports after establishment of CCU scenarios as compared to a CFTA, 2022, %**

| | | Total | Agriculture and Food | Industry & Services |
|---|---|---|---|---|
| Average protection imposed by Africa on its imports from the Rest of the World | COMESA CET - 2% | **-27.9** | -22.8 | -29.1 |
| | COMESA CET - 5% | **-20.8** | -16.6 | -21.8 |
| | ECOWAS CET - 2% | **-21.3** | -15.9 | -22.5 |
| | ECOWAS CET - 5% | **-15.3** | -11.2 | -16.2 |
| Total African imports from the World | COMESA CET - 2% | **3.4** | 3.3 | 3.5 |
| | COMESA CET - 5% | **2.6** | 2.2 | 2.7 |
| | ECOWAS CET - 2% | **3.3** | 1.0 | 3.5 |
| | ECOWAS CET - 5% | **2.6** | 0.3 | 2.8 |
| Total African exports to the World | COMESA CET - 2% | **4.2** | 2.5 | 4.4 |
| | COMESA CET - 5% | **3.2** | 2.0 | 3.4 |
| | ECOWAS CET - 2% | **4.0** | 2.1 | 4.2 |
| | ECOWAS CET - 5% | **3.2** | 1.7 | 3.3 |

*Source: Authors' calculations based on MAcMap-HS6v2 database and MIRAGE model*

Table 6 indicates that, overall, a CCU would reduce the average protection imposed by African countries on their imports from the rest of the world. Moreover, and for a same number of sensitive products considered, the "COMESA CET" would lead to significantly higher tariff cuts than the "ECOWAS CET". Finally, the for a same CET structure, the larger the sensitive product list the lower the tariff reduction. Indeed, if 2% of sensitive products are allowed, non-African countries exports of goods would face, on average, 27.9% and 21.3% less protection when entering African markets after the establishment of a CCU relying on the "COMESA CET" and "ECOWAS CET", respectively; for 5% of sensitive products average protection would decrease by 20.8% and 15.3% following the creation of CCU based on "COMESA CET" and "ECOWAS CET", respectively[34]. It is also noteworthy to point out that a CCU with a "COMESA CET" allowing for 5% of sensitive products would cut average tariffs imposed by African countries on their imports from the rest of the world by only 0.5% less than a CCU with an "ECOWAS CET" consenting just 2% of sensitive products. When breaking the protection down into agricultural and

CET structure and share of products considered to be sensitive. Obviously, the lists attached in Annex 15 does not represent well all sensitive products which, in addition, differ from one country to another but due to lack of space, we do not display those in the paper. However, full details can be asked upon request to the authors.

[34] In other words, the average protection imposed by Africa on its imports from the rest of the world would pass from 13.6% with a CFTA to 9.8%, 10.8%, 10.7% and 11.5% with a "COMESA CET – 2 % of sensitive products", a "COMESA CET – 5 % of sensitive products", an "ECOWAS CET – 2 % of sensitive products", and an "ECOWAS CET – 5 % of sensitive products", respectively.

food products versus industrial products[35], tariff cuts implied by the "COMESA CET" with 5% of sensitive products for agricultural and food products are even higher than tariff reductions with "ECOWAS CET" considering 2% of products as sensitive. This confirms the more ambitious CET bands associated with the COMESA proposed structure than those attached to the ECOWAS structure, in particular for agricultural and food products.

Considering the better access given by Africa, on average, to non-African countries when they exports towards African markets, it is logical to see African imports increasing following the establishment of a CCU whatever its CET structure and the number of sensitive products permitted. In other words, African imports would progress between +2.7% (or $16.2 billion) and +3.5% (or $21.6 billion) depending on the CCU scenarios, as compared to a CFTA for the year 2022; increases would be larger in industry and services than in agriculture and food, thanks to higher tariff cuts in industrial sectors implied by the CCU reforms (see Table 6).

However, and whatever the scenario considered for a CCU, African exports would increase in greater magnitude than African imports. Indeed, exports originating from African economies would be stimulated between +3.2% (or $20.6 billion) and +4.2% (or $27.6 billion) according to the CCU scenarios implemented, relative to a CFTA in 2022; exports of industrial products and services would be more stimulated than exports of agriculture and food products (see Table 6). Moreover, it has to be noted that these additional positive variations in African exports would be essentially directed towards outside the continent (see Table 7).

**Table 7: Changes in African exports by destination after establishment of CFTA and CCU scenarios as compared to the baseline, 2022, $USD bn**

| | **African exports to world** | African exports to African partners (Intra-African Trade) | African Export to NON-African partners |
|---|---|---|---|
| CFTA | **25.3** | 34.6 | -9.3 |
| CCU - COMESA CET - 2% | **52.9** | 27.5 | 25.4 |
| CCU - COMESA CET - 5% | **46.2** | 29 | 17.2 |
| CCU - ECOWAS CET - 2% | **51.4** | 29.2 | 22.2 |
| CCU - ECOWAS CET - 5% | **45.8** | 30.4 | 15.4 |

*Source: Authors' calculations based on MIRAGE model*

As already indicated, after the creation of a CFTA, African countries' exports to non-African partners would diminish relative to the baseline scenario in 2022, whereas intra-African trade would be significantly stimulated (see Figure 3). If a single external tariffs' structure is implemented for the African continent, intra-African trade would also increase as compared to the

[35] Note that there is no tariff available on services into the MAcMap-HS6v2 database used for the analysis; as a consequence no liberalization in services is undertaken.

baseline but in a lesser extent than with a CFTA, due to some exports that would be redirected to non-African partners. Indeed, and as summarized in Table 7, African exports would progress by $25.3 billion with a CFTA, as compared to the reference case for the year 2022; resulting from of a $34.6 billion increase in intra-African trade combined with a $9.3 billion reduction in African exports to the rest of the world (see Figure 3 and Table 7). African exports would progress twice as much with the establishment of a CCU ranging between +$45.8 billion and +$52.9 billion, depending on the CCU scenarios considered, relative to the baseline scenario in 2022; explained by an increase in intra-African trade amounting between +$30.4 billion and +$27.5 billion as well as an augmentation of African exports to non-African partners comprised between +$15.4 billion and +$25.4 billion (see Table 7 and Figure 5). It is worth mentioning that more ambitious CET structures with lower number of sensitive products (i.e. “COMESA CET “ with 2% of sensitive products) stimulate less intra-African trade and more African exports to the rest of the world than less ambitious CET structures with higher number of sensitive products (i.e. “ECOWAS CET” with 5% of sensitive products). However, in net, CET structures implying higher tariff cuts and/or with limited amount of sensitive products are more trade creative for African economies than CET structures leading to less reduction in tariff barriers and/or associated with higher number of sensitive products (see Table 7).

**Table 8: Average protection imposed by Africa on its imports from non-African partners by type of uses – 2004 – %**

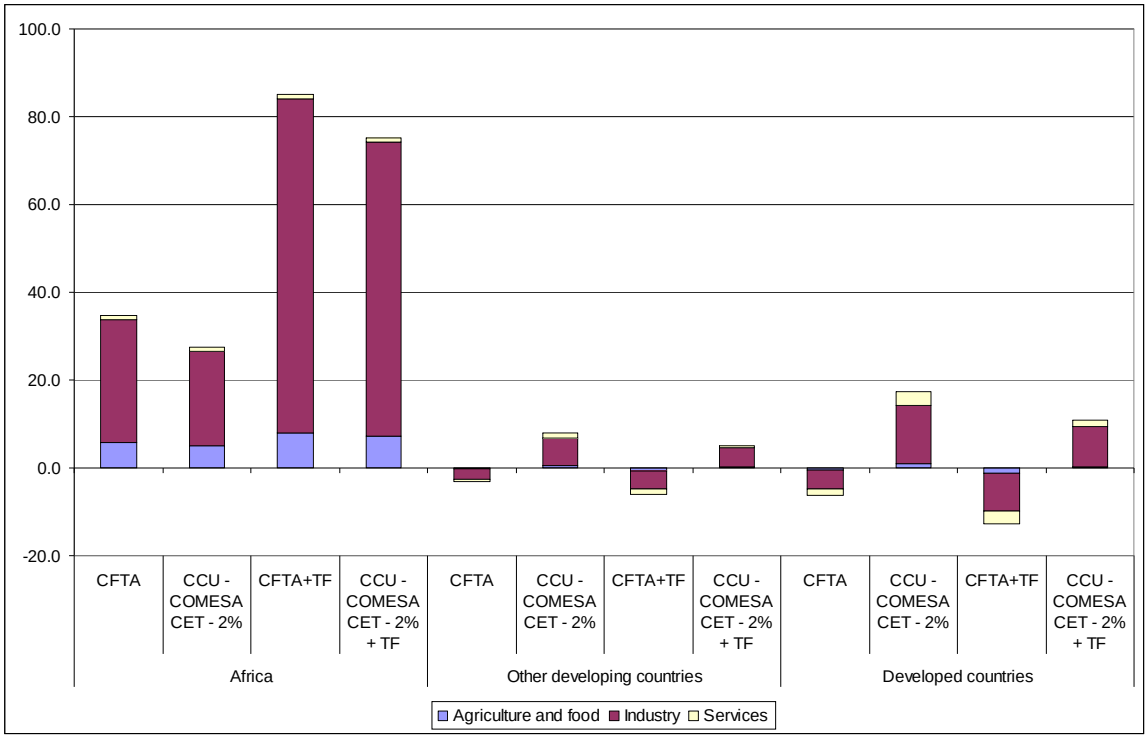
| | |
|---|---|
| Raw materials | 4.6 |
| **Intermediate goods** | **11.3** |
| Consumer goods | 18.5 |
| Capital goods | 5.7 |

*Source: Authors’ calculations based on the World Integrated Trade Solution (WITS; using TRAINS data) – Effectively Applied Tariff (AHS) using import-weighted*

At first, the outcome indicative of an increase in African countries’ exports to the rest of the world could appear counter-intuitive as African economies are not granted any further access to non-African partners’ markets with the formation of a CCU. Nonetheless, as already indicated, the adoption of the CET structure -whatever the scenario envisaged in this study- would reduce average tariffs imposed by Africa on its imports from the rest of the world. As a consequence, the average price of African imports from non-African countries would be reduced. Interestingly, initial protection imposed by African countries on their imports from the rest of the world is relatively high for intermediate goods, limiting potential for their use as inputs in the production process and the possibility for exports of transformed products by African countries. Thanks to the

establishment of a CCU, the reduction of average tariffs imposed by African countries on their imports of intermediate goods from the rest of the world would make imports of inputs -to be used in the production process of African economies- cheaper. Thus, production costs would be lowered leading to an increase production. African economies would become more competitive on the world market and would be able to exploit new market opportunities outside the continent[36].

**Figure 5: Change in African exports by destination for CFTA and CCU based on the most ambitious CET structure ("COMESA CET") and the lowest share of sensitive products (2%) with and without trade facilitation (TF) measures, relative to the baseline, 2022 – $USD bn**




*Source: Authors' calculations based on MIRAGE model*

Similarly to what was observed with a CFTA, the adoption of trade facilitation measures within African economies would considerably boost intra-African trade in the context of a CCU as well, and with industrial sectors grabbing most of the increase in both absolute and per cent terms (see Figure 5). Indeed, even if the share of intra-African trade would be slightly inferior to that of the case of a CFTA inclusive of trade facilitation measures, it would still nearly double in 2022, whatever the scenarios considered for the CCU accompanied with non-tariff measures to ease trade across borders, as compared to 2010 (see Table 9). Moreover, as trade facilitation measures are only assumed to be improved within the African continent, it is not surprising to

[36] Note that the model closure assumes fixed trade balance.

observe that African exports towards outside the continent would augment less with than without these additional measures added to a CCU reform. However, and despite these observations, the creation of a CCU complemented with trade facilitation measures would be significantly more trade creative for Africa overall than a CFTA also combined with measures facilitating trade. Indeed, whereas African exports would increase by $66.2 billion with a CFTA inclusive of trade facilitation measures, they would increase between $83.3 billion (i.e. for "ECOWAS CET" with 5% sensitive products) and $91.0 billion (i.e. for "COMESA CET" with 2% sensitive products) with similar trade facilitation reforms on top of a CCU, depending on the CET structure and assumption made for sensitive products, as compared to the baseline for the year 2022.

**Table 9: Share of Intra-African Trade in 2010 vs. 2022 with the different trade reforms - %**

| | |
|---|---|
| 2010 | **10.2** |
| 2022 - CFTA+TF | **21.9** |
| 2022 - CCU+TF - COMESA CET - 2% | **19.8** |
| 2022 - CCU+TF - COMESA CET - 5% | **20.2** |
| 2022 - CCU+TF - ECOWAS CET - 2% | **20.1** |
| 2022 - CCU+TF - ECOWAS CET - 5% | **20.5** |

*Source: Authors' calculations based on MIRAGE model*

Additionally, the establishment of a CCU would not entail real income gains as compared to those associated with a CFTA. If African countries would open part of their markets to non-African partners following the creation of a CCU and therefore renounce to tariff revenues, significantly higher increase in exports as compared to imports (leading to appreciation of real exchange rates) would maintain real income gain to observed levels after a CFTA. Indeed, if a CCU is established real income variations would range between +0.18% and +0.20% with an African Customs Union without trade facilitation measures and between +1.02% and +1.04% when trade facilitation reforms are included, depending on the structure of the CET and the selected sensitive goods, as compared to the baseline scenario in 2022.

At the country level, relatively similar conclusions than for a CFTA can be drawn in the case of a CCU. That is to say, all African countries would see their exports stimulated with CCU reforms -in a greater magnitude than with CFTA- but real income variations would be quite unequal with nearly half of the countries registering negative real income changes, as compared to the reference case in 2022. Nonetheless, the introduction of trade facilitation measures would not only boost African exports but also real income variations such as they would become positive for all African economies, without exception (see Annexes 13 and 14).

## V. Conclusion and policy recommendations

African Heads of States and Governments recently agreed to establish a Continental Free Trade Area with 2017 as indicative date for its effectiveness.

Results from a Computable General Equilibrium model analysis, indicate that deepened regional integration in Africa through establishment of wider Free Trade Areas would benefit to the continent. Such reforms would increase exports, real income as well as real wages for all categories of workers for Africa as a whole. Moreover, the analysis suggests that the larger the reform the greater the associated gains.

However, the implementation of the sole removal of tariff barriers on goods within the African continent would not be sufficient to achieve the target announced by the African Union's Member States who wish to see the share of intra-African trade doubling over the next decade. The increase in the share of intra-African trade would, nevertheless, be quite substantial as it would pass from 10.2% in 2010 to 15.5% in 2022. To add to the relative insufficiencies from the strict creation of a CFTA, results at the country level would be ambiguous. Indeed, although most African economies would benefit from the formation of a CFTA, some countries would actually register a decrease in their real income due to tariff revenue losses and/or diminished terms of trade and/or negative net food trade balances. Also, certain categories of workers, in some regions, would see their real wages declining with the reform.

For these reasons, it is critical to explore ways that could help brightening outcomes from the establishment of a CFTA. In that sense, an improvement of trade facilitation measure, namely making customs procedures twice more efficient as well as reducing by half the time merchandise are retained at African ports, is envisaged. Not only this would lead to positive exports, real income and real wage variations in all African countries but the share of intra-African trade would more than double between 2010 and 2022, jumping from 10.2% to 21.9%, respectively. Furthermore, introducing non-tariff measures to ease trading across borders on top of a CFTA would considerably reinforce the sophistication of intra-African trade, expanding substantially exchanges of manufactured products.

Finally, if the establishment of a Continental Customs Union, to be effective two years after a Continental Free Trade Area –that is to say in 2019, according to the Abuja Treaty- would not enhance further intra-African trade, it would help creating new trade opportunities for African economies. The higher the tariff cuts involved by the Common External Tariff of the CCU and the lower the number of sensitive products allowed, the higher the export increase for Africa towards non-African partners[37]. Indeed, by opening up part of their markets to the rest of the world,

[37] Note, however, that extremely aggressive cuts (implied by very low CET structures) may not be advisable as it may tend to limit intra-African trade and it may also entail real income gains due to higher

African countries would be able to import cheaper the necessary inputs to be used in the production process and thus increase export opportunities. This would also give perspective for export diversification and more sophisticated trade not only within Africa but when exporting to the rest of the world as well.

Several limitations associated with the methodology used should be kept in mind when it comes to analyzing trade policies in the African context. Firstly, not all African countries are available into the GTAP database used a social global accounting matrix for the Computable General Equilibrium model. This does not allow for capturing detailed economic impacts of trade reforms for every single African economy. Second, CGE models are based on numerous assumptions which do not necessarily reflect well reality. In particular, the modeling aspect of the labor market, and the possibility of unemployment –often relatively high in African countries-, may appear unsatisfactory. Although an attempt was made to account for unemployment in this study, the lack of data available and its sometimes poor reliability for African economies did not allow for adequate modeling. The significance of the informal trade in Africa as well as the importance of tariff barriers on trade in services and the difficulty to account for these elements can also be added as limitations. Nevertheless, and despite the above mentioned modeling constraints, CGE models are probably the sole tools capable of capturing multiple interactions taking place in the world economy and to interpret the effects of complex trade policies in this context. Therefore, the outcomes from the establishment of a Continental Free Trade area followed by a Continental Customs Union in Africa presented in this paper should not be undermined.

tariff revenue losses even though this may well be compensated by export increases to outside the continent.

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## Annexes

### Annex 1 – Average protection on African countries' imports from/exports to World (2004)

| Country | Average imposed protection on imports from World | Average faced protection on exports to World |
|---|---|---|
| Algeria | 13.9% | 0.5% |
| Angola | 7.1% | 0.4% |
| Benin | 10.2% | 6.0% |
| Botswana | 6.6% | 3.2% |
| Burkina faso | 10.2% | 5.5% |
| Burundi | 20.4% | 3.7% |
| Cameroon | 15.0% | 3.7% |
| Cape verde | 0.0% | 3.1% |
| Central african republic | 14.9% | 0.8% |
| Chad | 15.6% | 0.6% |
| Comoros | 0.0% | 1.1% |
| Congo | 15.7% | 1.1% |
| Congo (democratic rep.) | 11.2% | 1.6% |
| Côte d'ivoire | 9.2% | 3.9% |
| Djibouti | 29.3% | 7.8% |
| Egypt | 9.5% | 5.1% |
| Equatorial guinea | 15.1% | 1.3% |
| Eritrea | 6.5% | 9.1% |
| Ethiopia | 11.0% | 4.5% |
| Gabon | 15.1% | 0.9% |
| Gambia | 0.0% | 8.0% |
| Ghana | 13.6% | 3.4% |
| Guinea | 0.0% | 1.5% |
| Guinea-bissau | 10.3% | 8.7% |
| Kenya | 17.5% | 5.6% |
| Lesotho | 7.1% | 0.2% |
| Liberia | 0.0% | 1.3% |
| Libyan arab jamahiriya | 20.7% | 0.6% |
| Madagascar | 4.1% | 1.7% |
| Malawi | 10.1% | 14.3% |
| Mali | 10.2% | 2.3% |
| Mauritania | 9.4% | 3.0% |
| Mauritius | 18.8% | 12.4% |
| Morocco | 19.5% | 2.6% |
| Mozambique | 9.7% | 1.8% |
| Namibia | 7.4% | 5.3% |
| Niger | 10.2% | 2.4% |
| Nigeria | 24.4% | 2.6% |
| Rwanda | 7.2% | 2.4% |
| Sao tome and principe | 0.0% | 2.2% |
| Senegal | 8.6% | 5.7% |
| Seychelles | 33.7% | 3.0% |
| Sierra leone | 0.0% | 2.3% |
| Somalia | 0.0% | 10.3% |
| South africa | 6.8% | 4.4% |
| Sudan | 18.3% | 3.8% |
| Swaziland | 7.3% | 15.8% |
| Tanzania | 10.9% | 8.4% |
| Togo | 9.3% | 5.5% |
| Tunisia | 17.6% | 3.0% |
| Uganda | 6.4% | 3.7% |
| Zambia | 8.6% | 3.3% |
| Zimbabwe | 14.6% | 6.8% |
| **AFRICA** | **13.6%** | **2.5%** |

*Source: Authors' calculations based on TASTE software and MAcMapHS6v2 database*

## Annex 2 – GTAP countries regions and correspondences with geographic decomposition chosen for the study

| # | GTAP code | GTAP label | Model label |
|---|---|---|---|
| 1 | AUS | Australia | Other Developed Countries |
| 2 | NZL | New Zealand | Other Developed Countries |
| 3 | XOC | Rest of Oceania | Other Developing Countries |
| 4 | CHN | China | BRIC countries |
| 5 | HKG | Hong Kong | Other Developing Countries |
| 6 | JPN | Japan | Other Developed Countries |
| 7 | KOR | Korea | Other Developed Countries |
| 8 | TWN | Taiwan | Other Developing Countries |
| 9 | XEA | Rest of East Asia | Other Developing Countries |
| 10 | KHM | Cambodia | Other Developing Countries |
| 11 | IDN | Indonesia | Other Developing Countries |
| 12 | LAO | Lao People's Democratic Republic | Other Developing Countries |
| 13 | MMR | Myanmar | Other Developing Countries |
| 14 | MYS | Malaysia | Other Developing Countries |
| 15 | PHL | Philippines | Other Developing Countries |
| 16 | SGP | Singapore | Other Developing Countries |
| 17 | THA | Thailand | Other Developing Countries |
| 18 | VNM | Vietnam | Other Developing Countries |
| 19 | XSE | Rest of Southeast Asia | Other Developing Countries |
| 20 | BGD | Bangladesh | Other Developing Countries |
| 21 | IND | India | BRIC countries |
| 22 | PAK | Pakistan | Other Developing Countries |
| 23 | LKA | Sri Lanka | Other Developing Countries |
| 24 | XSA | Rest of South Asia | Other Developing Countries |
| 25 | CAN | Canada | Other Developed Countries |
| 26 | USA | United States of America | United States |
| 27 | MEX | Mexico | Other Developing Countries |
| 28 | XNA | Rest of North America | Other Developing Countries |
| 29 | ARG | Argentina | Other Developing Countries |
| 30 | BOL | Bolivia | Other Developing Countries |
| 31 | BRA | Brazil | BRIC countries |
| 32 | CHL | Chile | Other Developing Countries |
| 33 | COL | Colombia | Other Developing Countries |
| 34 | ECU | Ecuador | Other Developing Countries |
| 35 | PRY | Paraguay | Other Developing Countries |
| 36 | PER | Peru | Other Developing Countries |
| 37 | URY | Uruguay | Other Developing Countries |
| 38 | VEN | Venezuela | Other Developing Countries |
| 39 | XSM | Rest of South America | Other Developing Countries |
| 40 | CRI | Costa Rica | Other Developing Countries |
| 41 | GTM | Guatemala | Other Developing Countries |
| 42 | NIC | Nicaragua | Other Developing Countries |
| 43 | PAN | Panama | Other Developing Countries |
| 44 | XCA | Rest of Central America | Other Developing Countries |
| 45 | XCB | Caribbean | Other Developing Countries |
| 46 | AUT | Austria | European Union |
| 47 | BEL | Belgium | European Union |
| 48 | CYP | Cyprus | European Union |
| 49 | CZE | Czech Republic | European Union |
| 50 | DNK | Denmark | European Union |
| 51 | EST | Estonia | European Union |
| 52 | FIN | Finland | European Union |
| 53 | FRA | France | European Union |
| 54 | DEU | Germany | European Union |
| 55 | GRC | Greece | European Union |
| 56 | HUN | Hungary | European Union |
| 57 | IRL | Ireland | European Union |
| 58 | ITA | Italy | European Union |
| 59 | LVA | Latvia | European Union |
| 60 | LTU | Lithuania | European Union |
| 61 | LUX | Luxembourg | European Union |
| 62 | MLT | Malta | European Union |
| 63 | NLD | Netherlands | European Union |
| 64 | POL | Poland | European Union |
| 65 | PRT | Portugal | European Union |
| 66 | SVK | Slovakia | European Union |
| 67 | SVN | Slovenia | European Union |
| 68 | ESP | Spain | European Union |
| 69 | SWE | Sweden | European Union |
| 70 | GBR | United Kingdom | European Union |
| 71 | CHE | Switzerland | Other Developed Countries |
| 72 | NOR | Norway | Other Developed Countries |
| 73 | XEF | Rest of EFTA | Other Developed Countries |
| 74 | ALB | Albania | Other Developing Countries |
| 75 | BGR | Bulgaria | European Union |
| 76 | BLR | Belarus | Other Developing Countries |
| 77 | HRV | Croatia | Other Developing Countries |
| 78 | ROU | Romania | European Union |

| # | GTAP code | GTAP label | Model label |
|---|---|---|---|
| 79 | RUS | Russian Federation | BRIC countries |
| 80 | UKR | Ukraine | Other Developing Countries |
| 81 | XEE | Rest of Eastern Europe | Other Developing Countries |
| 82 | XER | Rest of Europe | Other Developing Countries |
| 83 | KAZ | Kazakhstan | Other Developing Countries |
| 84 | KGZ | Kyrgyzstan | Other Developing Countries |
| 85 | XSU | Rest of Former Soviet Union | Other Developing Countries |
| 86 | ARM | Armenia | Other Developing Countries |
| 87 | AZE | Azerbaijan | Other Developing Countries |
| 88 | GEO | Georgia | Other Developing Countries |
| 89 | IRN | Iran, Islamic Republic of | Other Developing Countries |
| 90 | TUR | Turkey | Other Developing Countries |
| 91 | XWS | Rest of Western Asia | Other Developing Countries |
| 92 | EGY | Egypt | Egypt |
| 93 | MAR | Morocco | Morocco |
| 94 | TUN | Tunisia | Tunisia |
| 95 | XNF | Rest of North Africa<br>- Algeria<br>- Libyan Arab Jamahiriya | Rest of North Africa |
| 96 | NGA | Nigeria | Nigeria |
| 97 | SEN | Senegal | Senegal |
| 98 | XWF | Rest of Western Africa<br>- Benin<br>- Burkina Faso<br>- Cape Verde<br>- Cote d'Ivoire<br>- Gambia<br>- Ghana<br>- Guinea<br>- Guinea-Bissau<br>- Liberia<br>- Mali<br>- Mauritania<br>- Niger<br>- *Saint Helena*<br>- Sierra Leone<br>- Togo | Rest of Western Africa |
| 99 | XCF | Rest of Central Africa<br>- Cameroon<br>- Central African Republic<br>- Chad<br>- Congo<br>- Equatorial Guinea<br>- Gabon<br>- Sao Tome and Principe | Rest of Central Africa |
| 100 | XAC | Rest of South Central Africa<br>- Angola<br>- Congo, Democratic Republic of the | Rest of South Central Africa |
| 101 | ETH | Ethiopia | Ethiopia |
| 102 | MDG | Madagascar | Madagascar |
| 103 | MWI | Malawi | Malawi |
| 104 | MUS | Mauritius | Mauritius |
| 105 | MOZ | Mozambique | Mozambique |
| 106 | TZA | Tanzania | Tanzania |
| 107 | UGA | Uganda | Uganda |
| 108 | ZMB | Zambia | Zambia |
| 109 | ZWE | Zimbabwe | Zimbabwe |
| 110 | XEC | Rest of Eastern Africa<br>- Burundi<br>- Comoros<br>- Djibouti<br>- Eritrea<br>- Kenya<br>- *Mayotte*<br>- *Reunion*<br>- Rwanda<br>- Seychelles<br>- Somalia<br>- Sudan | Rest of Eastern Africa |
| 111 | BWA | Botswana | Botswana |
| 112 | ZAF | South Africa | South Africa |
| 113 | XSC | Rest of South African Customs Union<br>- Lesotho<br>- Namibia<br>- Swaziland | Rest of South African Customs Union |

## Annex 3 – GTAP sectors and correspondences with sector decomposition chosen for the study

| # | GTAP code | GTAP label | Model label |
|---|---|---|---|
| 1 | PDR | Paddy rice | Paddy and processed rice |
| 2 | WHT | Wheat | Wheat |
| 3 | GRO | Cereal grains nec | Cereals |
| 4 | V_F | Vegetables, fruit, nuts | Other agricultural products |
| 5 | OSD | Oil seeds | Oilseeds |
| 6 | C_B | Sugar cane, sugar beet | Sugar cane and sugar beet |
| 7 | PFB | Plant-based fibers | Other agricultural products |
| 8 | OCR | Crops nec | Other agricultural products |
| 9 | CTL | Bovine cattle, sheep and goats, horses | Cattle, sheep, goats and horses |
| 10 | OAP | Animal products nec | Animal products and wool |
| 11 | RMK | Raw milk | Milk and dairy products |
| 12 | WOL | Wool, silk-worm cocoons | Animal products and wool |
| 13 | FRS | Forestry | Forestry |
| 14 | FSH | Fishing | Fishing |
| 15 | COA | Coal | Other Primary products |
| 16 | OIL | Oil | Other Primary products |
| 17 | GAS | Gas | Other Primary products |
| 18 | OMN | Minerals nec | Other Primary products |
| 19 | CMT | Bovine meat products | Meat products |
| 20 | OMT | Meat products nec | Meat products |
| 21 | VOL | Vegetable oils and fats | Other food products |
| 22 | MIL | Dairy products | Milk and dairy products |
| 23 | PCR | Processed rice | Paddy and processed rice |
| 24 | SGR | Sugar | Sugar |
| 25 | OFD | Food products nec | Other food products |
| 26 | B_T | Beverages and tobacco products | Other food products |
| 27 | TEX | Textiles | Textile, wearing apparel and leather products |
| 28 | WAP | Wearing apparel | Textile, wearing apparel and leather products |
| 29 | LEA | Leather products | Textile, wearing apparel and leather products |
| 30 | LUM | Wood products | Other manufactured products |
| 31 | PPP | Paper products, publishing | Other manufactured products |
| 32 | P_C | Petroleum, coal products | Petroleum, coal products |
| 33 | CRP | Chemical, rubber, plastic products | Other manufactured products |
| 34 | NMM | Mineral products nec | Mineral and metals products |
| 35 | I_S | Ferrous metals | Mineral and metals products |
| 36 | NFM | Metals nec | Mineral and metals products |
| 37 | FMP | Metal products | Mineral and metals products |
| 38 | MVH | Motor vehicles and parts | Other manufactured products |
| 39 | OTN | Transport equipment nec | Other manufactured products |
| 40 | ELE | Electronic equipment | Other manufactured products |
| 41 | OME | Machinery and equipment nec | Other manufactured products |
| 42 | OMF | Manufactures nec | Other manufactured products |
| 43 | ELY | Electricity | Other manufactured products |
| 44 | GDT | Gas manufacture, distribution | Other manufactured products |
| 45 | WTR | Water | Other services |
| 46 | CNS | Construction | Other services |
| 47 | TRD | Trade | Other services |
| 48 | OTP | Transport nec | Transport |
| 49 | WTP | Water transport | Transport |
| 50 | ATP | Air transport | Transport |
| 51 | CMN | Communication | Other services |
| 52 | OFI | Financial services nec | Other services |
| 53 | ISR | Insurance | Other services |
| 54 | OBS | Business services nec | Other services |
| 55 | ROS | Recreational and other services | Other services |
| 56 | OSG | Public Administration, Defense, Education, Health | Other services |
| 57 | DWE | Dwellings | Other services |

## Annex 4 – Initial bilateral protection within Africa by country/region - 2004

| Exporter \ Importer | Angola & DRC | Ethiopia | Madagascar | Malawi | Mauritius | Mozambique | Tanzania | Uganda | Zambia | Zimbabwe | Rest of Eastern Africa | Botswana | South Africa | Rest of South African Customs Union | Egypt | Morocco | Tunisia | Rest of North Africa | Nigeria | Senegal | Rest of Western Africa | Central Africa |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angola & DRC | 13.1% | 13.8% | 2.1% | 7.4% | 2.2% | 3.7% | 9.5% | 11.2% | 7.6% | 6.9% | 20.0% | 0.7% | 0.0% | 1.7% | 5.5% | 20.7% | 8.6% | 30.4% | 17.8% | 6.5% | 8.1% | 13.9% |
| Ethiopia | 10.6% | 0.0% | 4.3% | 12.3% | 1.4% | 16.3% | 17.4% | 6.6% | 13.6% | 18.5% | 22.2% | 6.9% | 8.9% | 10.8% | 3.7% | 34.9% | 50.4% | 12.2% | 45.1% | 10.3% | 9.9% | 18.5% |
| Madagascar | 17.1% | 20.4% | 0.0% | 0.0% | 0.0% | 9.4% | 7.4% | 2.0% | 0.0% | 0.0% | 7.3% | 9.9% | 4.7% | 3.6% | 0.0% | 26.7% | 32.7% | 21.1% | 33.4% | 16.0% | 12.6% | 20.0% |
| Malawi | 14.5% | 11.0% | 0.0% | 0.0% | 0.0% | 4.7% | 16.1% | 2.7% | 0.0% | 0.0% | 1.6% | 1.3% | 3.5% | 0.6% | 0.0% | 18.0% | 25.6% | 11.8% | 22.7% | 7.5% | 10.4% | 18.8% |
| Mauritius | 10.5% | 21.2% | 0.0% | 0.0% | 0.0% | 20.6% | 9.4% | 0.6% | 0.0% | 0.0% | 0.3% | 2.3% | 2.2% | 0.4% | 0.0% | 36.8% | 32.0% | 22.1% | 37.0% | 8.6% | 11.5% | 17.4% |
| Mozambique | 9.8% | 11.9% | 8.4% | 11.7% | 8.1% | 0.0% | 19.2% | 13.0% | 15.7% | 10.6% | 23.7% | 1.4% | 5.4% | 6.1% | 7.7% | 22.8% | 17.1% | 7.8% | 32.5% | 11.4% | 12.1% | 14.2% |
| Tanzania | 15.0% | 13.7% | 5.6% | 11.2% | 18.6% | 14.6% | 0.0% | 0.0% | 14.7% | 17.5% | 25.0% | 8.7% | 2.5% | 11.2% | 22.5% | 19.5% | 24.9% | 12.3% | 39.0% | 12.5% | 11.8% | 20.3% |
| Uganda | 13.9% | 14.0% | 1.4% | 1.9% | 0.4% | 11.7% | 0.0% | 0.0% | 2.7% | 6.5% | 4.5% | 3.9% | 9.8% | 5.5% | 2.3% | 13.4% | 19.6% | 20.0% | 35.3% | 12.2% | 12.6% | 23.5% |
| Zambia | 9.9% | 10.3% | 0.0% | 0.0% | 0.0% | 6.2% | 14.3% | 1.4% | 0.0% | 0.0% | 0.2% | 0.7% | 0.2% | 0.4% | 0.0% | 15.4% | 20.7% | 12.2% | 20.2% | 8.8% | 9.7% | 18.1% |
| Zimbabwe | 17.2% | 14.8% | 0.0% | 0.0% | 0.0% | 9.9% | 9.4% | 1.5% | 0.0% | 0.0% | 1.4% | 1.1% | 0.5% | 2.1% | 0.0% | 18.7% | 26.8% | 12.0% | 35.8% | 6.4% | 10.7% | 20.7% |
| Rest of Eastern Africa | 16.2% | 16.4% | 0.1% | 0.7% | 1.0% | 11.8% | 15.3% | 1.6% | 0.3% | 2.2% | 2.2% | 10.0% | 4.7% | 9.9% | 0.3% | 16.2% | 18.0% | 15.1% | 24.0% | 10.3% | 13.0% | 16.4% |
| Botswana | 13.3% | 13.9% | 4.9% | 8.8% | 9.4% | 8.1% | 13.2% | 8.0% | 12.2% | 12.6% | 21.3% | 0.0% | 0.0% | 0.1% | 11.8% | 26.3% | 41.3% | 29.0% | 23.4% | 7.8% | 11.6% | 20.8% |
| South Africa | 10.6% | 12.4% | 1.9% | 10.2% | 17.0% | 9.1% | 10.1% | 6.3% | 9.7% | 13.1% | 20.1% | 0.0% | 0.0% | 0.0% | 22.1% | 20.4% | 31.2% | 15.8% | 24.6% | 9.2% | 10.8% | 14.8% |
| Rest of South African Customs Union | 12.1% | 16.1% | 10.3% | 7.2% | 12.5% | 12.6% | 14.7% | 2.7% | 10.1% | 16.6% | 20.3% | 0.0% | 0.0% | 0.0% | 109.4% | 31.6% | 33.3% | 19.7% | 21.6% | 10.2% | 12.1% | 19.3% |
| Egypt | 13.2% | 9.6% | 0.0% | 0.0% | 0.0% | 8.1% | 12.5% | 1.4% | 0.0% | 0.0% | 0.3% | 24.5% | 13.2% | 8.9% | 0.0% | 11.5% | 18.1% | 13.6% | 29.8% | 11.2% | 13.9% | 15.7% |
| Morocco | 12.3% | 21.4% | 4.7% | 15.6% | 11.3% | 13.2% | 18.5% | 4.8% | 15.9% | 11.2% | 19.6% | 14.7% | 12.7% | 8.8% | 5.1% | 0.0% | 13.4% | 0.0% | 65.7% | 6.4% | 15.7% | 23.1% |
| Tunisia | 8.8% | 15.7% | 2.7% | 13.4% | 30.5% | 6.9% | 16.9% | 7.2% | 13.6% | 11.8% | 15.7% | 19.8% | 12.8% | 13.1% | 3.5% | 10.8% | 0.0% | 14.6% | 34.4% | 11.3% | 13.9% | 19.5% |
| Rest of North Africa | 22.3% | 6.0% | 0.8% | 5.0% | 7.0% | 4.6% | 3.1% | 7.3% | 7.5% | 10.5% | 11.2% | 4.9% | 3.0% | 2.0% | 4.4% | 0.0% | 6.5% | 17.9% | 28.0% | 5.9% | 20.6% | 11.3% |
| Nigeria | 26.3% | 16.1% | 2.7% | 11.9% | 1.7% | 9.9% | 13.9% | 13.8% | 14.2% | 15.6% | 24.2% | 1.6% | 0.1% | 0.7% | 5.1% | 17.6% | 7.3% | 26.4% | 0.0% | 0.1% | 3.1% | 16.0% |
| Senegal | 14.7% | 11.8% | 3.5% | 8.8% | 3.9% | 10.0% | 10.5% | 5.0% | 10.7% | 14.1% | 17.7% | 6.3% | 2.7% | 5.9% | 10.7% | 19.7% | 22.7% | 15.4% | 28.2% | 0.0% | 2.9% | 15.4% |
| Rest of Western Africa | 13.1% | 13.5% | 3.4% | 12.5% | 1.0% | 11.2% | 11.3% | 9.1% | 14.3% | 16.7% | 18.0% | 6.2% | 0.9% | 9.5% | 7.2% | 14.5% | 16.9% | 7.7% | 30.7% | 2.6% | 4.9% | 17.4% |
| Central Africa | 13.3% | 12.6% | 3.1% | 10.5% | 0.6% | 8.8% | 9.5% | 7.5% | 8.7% | 13.5% | 21.0% | 2.4% | 0.7% | 1.8% | 6.8% | 20.9% | 19.4% | 17.1% | 27.6% | 9.6% | 11.5% | 0.1% |

*Source: Authors' calculations based on MIRAGE model*

**Annex 5 – Initial protection imposed by African countries/regions on their imports from other African countries/regions - 2004**

| | Paddy and processed rice | Wheat | Cereals | Oilseeds | Sugar cane and Sugar beet | Cattle sheep goats and horses | Animal products and wool | Other agricultural products | Milk and dairy products | Meat products | Sugar | Other food products | Forestry | Fishing | Other primary products | Textile wearing apparel and leather products | Petroleum coal products | Mineral and metal products | Other manufactured products |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angola & DRC | 8.0% | 4.8% | 8.2% | 7.4% | 10.0% | 7.1% | 9.7% | 10.2% | 11.7% | 10.9% | 16.5% | 17.5% | 29.6% | 28.4% | 20.2% | 15.5% | 11.2% | 11.0% | 9.3% |
| Ethiopia | 4.8% | 4.8% | 4.9% | 4.9% | 4.8% | 8.7% | 16.7% | 24.5% | 27.7% | 22.8% | 4.8% | 27.6% | 9.0% | 31.8% | 6.1% | 32.8% | 1.0% | 10.7% | 12.8% |
| Madagascar | 0.0% | 0.0% | 2.4% | 1.0% | 0.0% | 0.0% | 0.1% | 1.8% | 3.4% | 4.0% | 11.5% | 1.9% | 0.9% | 0.6% | 0.2% | 2.2% | 0.0% | 2.5% | 2.7% |
| Malawi | 7.5% | 0.0% | 0.1% | 0.0% | 0.0% | 7.3% | 1.3% | 9.4% | 15.1% | 7.4% | 5.9% | 10.9% | 5.7% | 5.0% | 1.0% | 11.3% | 7.9% | 8.4% | 8.0% |
| Mauritius | 2.5% | 0.0% | 0.1% | 0.0% | 0.7% | 0.3% | 7.3% | 5.2% | 3.3% | 6.2% | 79.6% | 22.3% | 3.1% | 5.5% | 3.1% | 16.0% | 0.7% | 9.6% | 15.2% |
| Mozambique | 5.4% | 2.0% | 2.8% | 4.6% | 1.3% | 6.5% | 7.9% | 16.4% | 15.1% | 22.0% | 7.5% | 18.9% | 4.3% | 11.7% | 3.9% | 19.5% | 6.5% | 7.0% | 7.9% |
| Tanzania | 24.2% | 5.0% | 13.8% | 24.8% | 24.9% | 17.9% | 10.4% | 22.2% | 10.8% | 19.8% | 25.0% | 21.6% | 6.8% | 21.0% | 8.4% | 19.4% | 1.5% | 13.0% | 9.7% |
| Uganda | 3.8% | 0.0% | 1.5% | 3.1% | 7.0% | 6.5% | 2.8% | 12.9% | 2.6% | 10.2% | 11.9% | 8.1% | 5.6% | 12.5% | 8.6% | 5.6% | 2.8% | 6.3% | 3.6% |
| Zambia | 4.5% | 5.0% | 4.8% | 4.4% | 10.2% | 5.9% | 8.9% | 13.2% | 9.2% | 20.8% | 16.2% | 13.2% | 20.3% | 24.0% | 5.6% | 14.9% | 16.9% | 6.1% | 7.9% |
| Zimbabwe | 12.1% | 5.0% | 19.7% | 6.2% | 15.0% | 15.5% | 10.7% | 29.8% | 18.9% | 31.6% | 22.5% | 24.9% | 5.0% | 17.7% | 8.2% | 21.6% | 10.3% | 8.6% | 13.0% |
| Rest of Eastern Africa | 0.8% | 21.6% | 22.3% | 12.4% | 5.8% | 12.5% | 4.5% | 12.0% | 9.7% | 21.4% | 18.6% | 15.2% | 18.6% | 29.0% | 9.6% | 15.2% | 5.7% | 12.2% | 10.2% |
| Botswana | 0.0% | 0.0% | 0.1% | 0.4% | 18.8% | 0.0% | 0.0% | 1.3% | 0.4% | 0.7% | 3.3% | 0.7% | 0.2% | 0.5% | 0.0% | 2.5% | 0.1% | 0.1% | 0.2% |
| South Africa | 0.0% | 0.0% | 1.0% | 3.0% | 18.3% | 0.0% | 0.1% | 29.2% | 2.1% | 0.6% | 3.2% | 2.2% | 0.1% | 0.3% | 0.0% | 4.2% | 1.3% | 0.4% | 0.8% |
| Rest of South African Customs Union | 0.0% | 0.0% | 0.0% | 1.7% | 6.3% | 0.0% | 0.0% | 1.5% | 8.0% | 0.2% | 2.5% | 0.7% | 0.0% | 0.3% | 0.0% | 1.9% | 0.8% | 0.1% | 0.2% |
| Egypt | 1.0% | 1.4% | 1.9% | 0.2% | 2.0% | 4.2% | 0.4% | 8.1% | 2.6% | 26.9% | 2.2% | 15.8% | 1.5% | 2.1% | 3.8% | 16.3% | 4.4% | 1.4% | 5.8% |
| Morocco | 61.3% | 42.8% | 65.0% | 19.5% | 20.8% | 134.3% | 14.4% | 40.3% | 8.7% | 81.1% | 9.6% | 22.6% | 22.8% | 36.0% | 16.4% | 18.2% | 2.0% | 5.9% | 11.7% |
| Tunisia | 12.1% | 48.9% | 15.7% | 19.2% | 74.8% | 101.5% | 15.6% | 161.4% | 24.0% | 97.5% | 11.7% | 32.8% | 24.0% | 26.1% | 3.6% | 15.7% | 2.0% | 15.5% | 15.7% |
| Rest of North Africa | 5.6% | 5.1% | 4.1% | 9.6% | 21.5% | 10.5% | 13.5% | 11.4% | 10.3% | 26.3% | 11.7% | 16.1% | 4.4% | 19.5% | 16.6% | 14.6% | 12.8% | 12.0% | 12.1% |
| Nigeria | 75.0% | 5.0% | 69.4% | 19.8% | 15.0% | 17.5% | 43.8% | 34.3% | 23.4% | 45.4% | 15.1% | 63.6% | 15.8% | 14.4% | 13.5% | 54.2% | 29.7% | 24.5% | 20.8% |
| Senegal | 10.0% | 4.6% | 3.5% | 1.7% | 5.0% | 0.9% | 11.1% | 6.2% | 2.6% | 7.2% | 19.0% | 7.6% | 4.8% | 4.9% | 0.1% | 4.2% | 5.0% | 8.7% | 5.6% |
| Rest of Western Africa | 4.4% | 6.0% | 3.3% | 3.5% | 7.0% | 3.1% | 7.9% | 10.7% | 6.2% | 10.2% | 14.5% | 9.3% | 9.9% | 12.1% | 1.0% | 7.9% | 8.1% | 8.0% | 6.5% |
| Central Africa | 19.4% | 9.6% | 21.3% | 12.1% | 10.0% | 17.9% | 19.8% | 20.5% | 22.4% | 20.1% | 24.4% | 23.1% | 1.0% | 21.5% | 12.3% | 22.5% | 8.1% | 15.1% | 12.6% |
| **AFRICA** | **6.2%** | **5.9%** | **16.0%** | **7.6%** | **12.6%** | **3.2%** | **7.6%** | **13.9%** | **8.1%** | **11.6%** | **14.9%** | **15.4%** | **11.9%** | **11.7%** | **2.3%** | **11.8%** | **9.2%** | **9.1%** | **8.5%** |

*Source: Authors' calculations based on MIRAGE model*

**Annex 6 – Initial protection faced by African countries/regions on their exports to other African countries/regions - 2004**

| | Paddy and processed rice | Wheat | Cereals | Oilseeds | Sugar cane and Sugar beet | Cattle sheep goats and horses | Animal products and wool | Other agricultural products | Milk and dairy products | Meat products | Sugar | Other food products | Forestry | Fishing | Other primary products | Textile wearing apparel and leather products | Petroleum coal products | Mineral and metal products | Other manufactured products |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angola & DRC | 34.8% | 7.6% | 16.7% | 15.2% | 14.0% | 15.7% | 3.8% | 15.6% | 12.3% | 3.2% | 30.0% | 19.1% | 12.6% | 6.2% | 1.4% | 27.6% | 8.0% | 14.7% | 10.1% |
| Ethiopia | 0.0% | 23.8% | 18.0% | 9.7% | 12.8% | 14.5% | 16.8% | 30.3% | 21.7% | 29.7% | 18.4% | 27.5% | 21.4% | 22.1% | 17.3% | 17.9% | 26.3% | 17.3% | 9.0% |
| Madagascar | 10.4% | 3.7% | 1.7% | 2.8% | 10.4% | 13.9% | 3.3% | 68.8% | 14.2% | 11.4% | 13.2% | 12.7% | 8.1% | 9.0% | 1.1% | 8.5% | 0.7% | 7.2% | 5.3% |
| Malawi | 1.9% | 0.0% | 9.8% | 1.3% | 8.7% | 13.9% | 2.8% | 15.2% | 3.0% | 2.5% | 4.2% | 6.0% | 2.6% | 1.5% | 3.8% | 8.8% | 2.4% | 2.5% | 2.7% |
| Mauritius | 30.0% | 3.5% | 15.6% | 1.0% | 8.7% | 1.3% | 3.5% | 1.1% | 5.9% | 4.1% | 6.9% | 4.5% | 2.3% | 11.0% | 6.1% | 7.4% | 4.6% | 4.7% | 2.2% |
| Mozambique | 19.1% | 9.9% | 14.9% | 9.3% | 14.4% | 0.0% | 0.3% | 12.0% | 18.4% | 33.4% | 15.6% | 7.9% | 6.8% | 1.5% | 5.8% | 30.9% | 16.0% | 2.7% | 4.4% |
| Tanzania | 15.8% | 2.9% | 25.1% | 12.1% | 13.7% | 10.7% | 10.4% | 17.5% | 16.3% | 19.4% | 27.1% | 26.8% | 10.2% | 25.4% | 7.0% | 23.8% | 15.8% | 3.3% | 13.8% |
| Uganda | 8.8% | 5.3% | 5.2% | 3.2% | 9.5% | 3.2% | 4.8% | 3.9% | 8.0% | 6.9% | 17.9% | 9.0% | 10.0% | 15.2% | 5.6% | 7.8% | 11.0% | 8.8% | 8.3% |
| Zambia | 22.4% | 0.6% | 11.6% | 0.5% | 8.7% | 2.3% | 8.3% | 12.3% | 0.8% | 15.5% | 20.6% | 12.0% | 2.6% | 2.7% | 5.8% | 4.6% | 11.0% | 4.9% | 4.4% |
| Zimbabwe | 7.1% | 2.0% | 12.2% | 2.2% | 0.4% | 4.1% | 12.0% | 6.9% | 1.9% | 1.8% | 10.8% | 10.2% | 0.5% | 2.2% | 0.2% | 2.4% | 2.0% | 0.8% | 1.8% |
| Rest of Eastern Africa | 21.3% | 5.1% | 14.5% | 5.1% | 7.0% | 7.3% | 4.7% | 16.9% | 5.3% | 22.2% | 12.8% | 12.3% | 6.1% | 8.2% | 6.5% | 9.4% | 6.9% | 7.0% | 6.8% |
| Botswana | 15.4% | 7.7% | 16.2% | 15.2% | 12.8% | 6.5% | 5.0% | 18.3% | 18.5% | 6.4% | 22.7% | 26.1% | 8.0% | 10.0% | 7.8% | 21.7% | 17.4% | 7.7% | 12.2% |
| South Africa | 12.6% | 5.8% | 19.0% | 8.3% | 20.3% | 6.9% | 9.6% | 14.7% | 20.0% | 21.7% | 22.6% | 24.0% | 8.8% | 12.0% | 11.4% | 18.2% | 9.4% | 12.8% | 10.6% |
| Rest of South African Customs Union | 1.2% | 7.7% | 4.3% | 4.1% | 11.2% | 0.0% | 1.9% | 7.1% | 1.7% | 1.7% | 13.8% | 10.3% | 0.4% | 0.9% | 1.0% | 1.4% | 11.7% | 1.6% | 2.5% |
| Egypt | 5.1% | 4.3% | 6.1% | 34.9% | 20.2% | 2.3% | 6.0% | 23.5% | 24.2% | 12.5% | 1.8% | 18.2% | 8.8% | 15.8% | 5.4% | 13.6% | 6.2% | 8.8% | 7.7% |
| Morocco | 29.6% | 7.1% | 16.9% | 5.9% | 10.9% | 4.4% | 2.8% | 18.6% | 17.3% | 8.2% | 10.8% | 23.1% | 4.6% | 12.8% | 7.0% | 18.3% | 10.4% | 9.2% | 7.8% |
| Tunisia | 17.3% | 6.0% | 4.0% | 21.9% | 11.5% | 6.6% | 6.9% | 23.4% | 20.1% | 25.5% | 15.3% | 20.3% | 5.0% | 11.4% | 6.9% | 21.0% | 15.2% | 14.0% | 10.6% |
| Rest of North Africa | 35.4% | 8.7% | 7.0% | 18.5% | 12.3% | 14.2% | 10.5% | 58.0% | 18.3% | 24.2% | 21.2% | 33.9% | 38.7% | 15.6% | 4.1% | 22.4% | 4.9% | 7.7% | 6.1% |
| Nigeria | 15.3% | 18.2% | 12.1% | 11.8% | 10.4% | 13.3% | 11.7% | 17.7% | 13.6% | 23.3% | 29.3% | 15.9% | 8.7% | 8.0% | 1.0% | 13.1% | 10.2% | 11.1% | 14.7% |
| Senegal | 2.8% | 7.0% | 11.6% | 7.6% | 13.6% | 2.8% | 10.9% | 6.0% | 5.2% | 5.3% | 3.7% | 9.3% | 17.5% | 12.8% | 5.5% | 7.2% | 4.2% | 3.4% | 4.3% |
| Rest of Western Africa | 7.2% | 8.4% | 4.8% | 9.3% | 9.6% | 4.0% | 13.6% | 9.0% | 6.0% | 11.7% | 6.1% | 10.1% | 11.1% | 15.1% | 4.0% | 12.0% | 15.9% | 3.8% | 8.3% |
| Central Africa | 6.5% | 12.8% | 12.0% | 6.8% | 0.0% | 5.2% | 8.8% | 9.0% | 7.9% | 12.8% | 2.2% | 15.3% | 12.9% | 13.7% | 4.3% | 14.9% | 9.1% | 10.8% | 11.2% |
| **AFRICA** | **6.2%** | **5.9%** | **16.0%** | **7.6%** | **12.6%** | **3.2%** | **7.6%** | **13.9%** | **8.1%** | **11.6%** | **14.9%** | **15.4%** | **11.9%** | **11.7%** | **2.3%** | **11.8%** | **9.2%** | **9.1%** | **8.5%** |

*Source: Authors' calculations based on MIRAGE model*

**Annex 7 – Initial import and export structures by country/region and to/from main destinations - 2004**

| Exporter | Importer: Africa | Bric Countries | Other Developing countries | European Union | United States | Other Developed countries | Woprld Total |
|---|---|---|---|---|---|---|---|
| Angola & DRC | 2% | 42% | 11% | 10% | 32% | 4% | **100%** |
| Ethiopia | 6% | 5% | 20% | 36% | 17% | 16% | **100%** |
| Madagascar | 2% | 6% | 10% | 49% | 25% | 9% | **100%** |
| Malawi | 23% | 9% | 10% | 34% | 16% | 9% | **100%** |
| Mauritius | 5% | 6% | 10% | 55% | 14% | 10% | **100%** |
| Mozambique | 10% | 10% | 7% | 67% | 3% | 3% | **100%** |
| Tanzania | 15% | 13% | 18% | 33% | 10% | 11% | **100%** |
| Uganda | 13% | 9% | 17% | 35% | 14% | 14% | **100%** |
| Zambia | 29% | 9% | 25% | 10% | 2% | 25% | **100%** |
| Zimbabwe | 34% | 8% | 11% | 28% | 6% | 13% | **100%** |
| Rest of Eastern Africa | 11% | 19% | 18% | 26% | 9% | 17% | **100%** |
| Botswana | 9% | 1% | 4% | 76% | 5% | 6% | **100%** |
| South Africa | 20% | 9% | 15% | 34% | 9% | 13% | **100%** |
| Rest of South African Customs Union | 44% | 3% | 6% | 26% | 14% | 8% | **100%** |
| Egypt | 5% | 6% | 18% | 40% | 21% | 9% | **100%** |
| Morocco | 3% | 8% | 12% | 59% | 10% | 8% | **100%** |
| Tunisia | 6% | 4% | 7% | 73% | 5% | 5% | **100%** |
| Rest of North Africa | 3% | 6% | 12% | 60% | 15% | 5% | **100%** |
| Nigeria | 4% | 32% | 4% | 20% | 34% | 6% | **100%** |
| Senegal | 26% | 16% | 8% | 36% | 7% | 6% | **100%** |
| Rest of Western Africa | 16% | 10% | 9% | 46% | 10% | 8% | **100%** |
| Central Africa | 4% | 13% | 13% | 35% | 29% | 6% | **100%** |
| Bric Countries | 2% | 5% | 24% | 29% | 24% | 16% | **100%** |
| Other Developing countries | 1% | 11% | 51% | 13% | 14% | 10% | **100%** |
| European Union | 8% | 16% | 31% | 0% | 24% | 22% | **100%** |
| United States | 2% | 9% | 30% | 26% | 0% | 33% | **100%** |
| Other Developed countries | 2% | 15% | 21% | 22% | 28% | 12% | **100%** |

| Importer | Exporter: Africa | Bric Countries | Other Developing countries | European Union | United States | Other Developed countries | Woprld Total |
|---|---|---|---|---|---|---|---|
| Angola & DRC | 8% | 9% | 10% | 38% | 11% | 23% | **100%** |
| Ethiopia | 5% | 11% | 34% | 27% | 15% | 8% | **100%** |
| Madagascar | 13% | 16% | 19% | 37% | 8% | 6% | **100%** |
| Malawi | 48% | 10% | 12% | 20% | 5% | 6% | **100%** |
| Mauritius | 11% | 12% | 28% | 33% | 5% | 10% | **100%** |
| Mozambique | 40% | 9% | 16% | 22% | 7% | 5% | **100%** |
| Tanzania | 19% | 13% | 26% | 24% | 7% | 10% | **100%** |
| Uganda | 28% | 11% | 18% | 26% | 7% | 10% | **100%** |
| Zambia | 52% | 7% | 14% | 15% | 6% | 7% | **100%** |
| Zimbabwe | 61% | 6% | 12% | 11% | 5% | 4% | **100%** |
| Rest of Eastern Africa | 10% | 17% | 27% | 29% | 7% | 10% | **100%** |
| Botswana | 73% | 3% | 4% | 13% | 3% | 4% | **100%** |
| South Africa | 10% | 10% | 21% | 39% | 8% | 12% | **100%** |
| Rest of South African Customs Union | 67% | 4% | 7% | 14% | 5% | 3% | **100%** |
| Egypt | 4% | 13% | 18% | 38% | 15% | 11% | **100%** |
| Morocco | 4% | 10% | 18% | 55% | 6% | 6% | **100%** |
| Tunisia | 5% | 7% | 10% | 69% | 4% | 5% | **100%** |
| Rest of North Africa | 4% | 9% | 17% | 52% | 8% | 11% | **100%** |
| Nigeria | 4% | 17% | 14% | 44% | 11% | 10% | **100%** |
| Senegal | 19% | 9% | 18% | 44% | 6% | 5% | **100%** |
| Rest of Western Africa | 14% | 14% | 13% | 36% | 7% | 16% | **100%** |
| Central Africa | 12% | 6% | 10% | 52% | 13% | 7% | **100%** |
| Bric Countries | 4% | 6% | 36% | 22% | 9% | 24% | **100%** |
| Other Developing countries | 1% | 9% | 55% | 14% | 10% | 11% | **100%** |
| European Union | 8% | 23% | 29% | 0% | 18% | 23% | **100%** |
| United States | 3% | 19% | 29% | 21% | 0% | 28% | **100%** |
| Other Developed countries | 2% | 14% | 23% | 23% | 25% | 13% | **100%** |

*Source: Authors' calculations based on MIRAGE model*

**Annex 8 – Initial export structures by country/region and sector - 2004**

| | Paddy and processed rice | Wheat | Cereals | Oilseeds | Sugar cane and Sugar beet | Cattle sheep goats and horses | Animal products and wool | Other agricultural products | Milk and dairy products | Meat products | Sugar | Other food products | **Agriculture and food products** | Forestry | Fishing | Other primary products | Textile wearing apparel and leather produc | Petroleum coal products | Mineral and metal products | Other manufactured products | **Industrial products** | Transport | Other services | **Services** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angola & DRC | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | **0%** | 2% | 0% | 93% | 0% | 0% | 0% | 1% | **97%** | 1% | 2% | **3%** |
| Ethiopia | 0% | 0% | 0% | 5% | 0% | 0% | 2% | 18% | 0% | 1% | 1% | 2% | **30%** | 2% | 0% | 0% | 4% | 0% | 7% | 2% | **14%** | 21% | 34% | **56%** |
| Madagascar | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 13% | 0% | 0% | 1% | 12% | **27%** | 0% | 0% | 23% | 21% | 0% | 1% | 6% | **51%** | 10% | 12% | **22%** |
| Malawi | 0% | 0% | 0% | 1% | 0% | 0% | 0% | 45% | 0% | 0% | 9% | 1% | **56%** | 0% | 0% | 25% | 6% | 0% | 0% | 5% | **37%** | 4% | 4% | **7%** |
| Mauritius | 0% | 0% | 0% | 0% | 0% | 0% | 1% | 0% | 0% | 0% | 9% | 4% | **14%** | 0% | 0% | 15% | 24% | 0% | 1% | 10% | **50%** | 20% | 16% | **36%** |
| Mozambique | 0% | 0% | 0% | 1% | 0% | 0% | 0% | 6% | 0% | 0% | 1% | 5% | **14%** | 1% | 0% | 1% | 0% | 0% | 54% | 19% | **76%** | 4% | 6% | **10%** |
| Tanzania | 0% | 0% | 0% | 1% | 0% | 0% | 1% | 17% | 0% | 0% | 1% | 9% | **30%** | 1% | 0% | 5% | 4% | 0% | 12% | 4% | **26%** | 13% | 32% | **44%** |
| Uganda | 0% | 0% | 1% | 0% | 0% | 0% | 1% | 17% | 0% | 0% | 0% | 10% | **29%** | 0% | 0% | 40% | 2% | 0% | 7% | 4% | **53%** | 7% | 12% | **19%** |
| Zambia | 0% | 0% | 1% | 2% | 0% | 0% | 0% | 11% | 0% | 0% | 2% | 1% | **17%** | 0% | 0% | 4% | 2% | 0% | 69% | 5% | **79%** | 2% | 3% | **4%** |
| Zimbabwe | 0% | 0% | 0% | 0% | 0% | 0% | 1% | 29% | 0% | 0% | 3% | 4% | **38%** | 0% | 0% | 11% | 3% | 0% | 26% | 11% | **51%** | 3% | 8% | **11%** |
| Rest of Eastern Africa | 0% | 0% | 0% | 1% | 0% | 2% | 1% | 12% | 0% | 1% | 0% | 6% | **24%** | 1% | 0% | 30% | 3% | 1% | 4% | 7% | **45%** | 9% | 22% | **31%** |
| Botswana | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 1% | 0% | 1% | **2%** | 0% | 0% | 71% | 2% | 0% | 5% | 5% | **83%** | 5% | 10% | **15%** |
| South Africa | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 3% | 0% | 0% | 0% | 4% | **9%** | 0% | 0% | 14% | 2% | 2% | 28% | 31% | **77%** | 5% | 10% | **14%** |
| Rest of South African Customs Union | 0% | 0% | 0% | 0% | 0% | 1% | 0% | 1% | 0% | 2% | 4% | 11% | **19%** | 0% | 1% | 17% | 12% | 0% | 7% | 31% | **68%** | 2% | 11% | **13%** |
| Egypt | 1% | 0% | 0% | 0% | 0% | 0% | 0% | 3% | 0% | 0% | 0% | 2% | **7%** | 0% | 0% | 3% | 6% | 6% | 10% | 8% | **34%** | 27% | 32% | **59%** |
| Morocco | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 5% | 0% | 0% | 0% | 7% | **12%** | 0% | 1% | 4% | 19% | 1% | 3% | 23% | **52%** | 13% | 23% | **36%** |
| Tunisia | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 1% | 0% | 0% | 0% | 6% | **8%** | 0% | 0% | 5% | 31% | 0% | 4% | 26% | **66%** | 12% | 15% | **26%** |
| Rest of North Africa | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | **0%** | 0% | 0% | 74% | 0% | 10% | 2% | 3% | **89%** | 3% | 8% | **11%** |
| Nigeria | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 1% | 0% | 0% | 0% | 0% | **1%** | 0% | 0% | 88% | 1% | 0% | 0% | 1% | **90%** | 2% | 7% | **9%** |
| Senegal | 1% | 0% | 0% | 0% | 0% | 0% | 1% | 4% | 0% | 0% | 0% | 18% | **23%** | 0% | 3% | 2% | 1% | 2% | 5% | 27% | **40%** | 11% | 26% | **37%** |
| Rest of Western Africa | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 27% | 0% | 0% | 0% | 10% | **38%** | 1% | 0% | 15% | 1% | 2% | 7% | 21% | **47%** | 5% | 9% | **14%** |
| Central Africa | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 6% | 0% | 0% | 0% | 1% | **7%** | 5% | 0% | 62% | 0% | 2% | 2% | 9% | **79%** | 3% | 10% | **14%** |
| Bric countries | 0% | 0% | 0% | 1% | 0% | 0% | 0% | 1% | 0% | 1% | 0% | 2% | **5%** | 0% | 0% | 9% | 17% | 2% | 11% | 47% | **87%** | 2% | 6% | **8%** |
| Other developing countries | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 1% | 0% | 0% | 0% | 3% | **6%** | 0% | 0% | 15% | 9% | 3% | 8% | 41% | **76%** | 4% | 14% | **18%** |
| European Union | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 3% | **4%** | 0% | 0% | 1% | 3% | 1% | 6% | 55% | **68%** | 6% | 21% | **28%** |
| United States | 0% | 1% | 1% | 1% | 0% | 0% | 0% | 1% | 0% | 1% | 0% | 2% | **6%** | 0% | 0% | 1% | 2% | 2% | 5% | 60% | **69%** | 5% | 20% | **25%** |
| Other developed countries | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 1% | 0% | 1% | **4%** | 0% | 0% | 6% | 2% | 1% | 9% | 58% | **76%** | 3% | 17% | **21%** |

*Source: Authors' calculations based on MIRAGE model*

**Annex 9 – Initial import structures by country/region and sector - 2004**

| | Paddy and processed rice | Wheat | Cereals | Oilseeds | Sugar cane and Sugar beet | Cattle sheep goats and horses | Animal products and wool | Other agricultural products | Milk and dairy products | Meat products | Sugar | Other food products | **Agriculture and food products** | Forestry | Fishing | Other primary products | Textile wearing apparel and leather produc | Petroleum coal products | Mineral and metal products | Other manufactured products | **Industrial products** | Transport | Other services | **Services** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angola & DRC | 1% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 1% | 1% | 0% | 6% | **9%** | 0% | 0% | 0% | 2% | 3% | 7% | 43% | **55%** | 1% | 34% | **35%** |
| Ethiopia | 0% | 2% | 0% | 0% | 0% | 0% | 0% | 1% | 0% | 0% | 0% | 3% | **6%** | 0% | 0% | 0% | 3% | 15% | 6% | 51% | **75%** | 9% | 9% | **19%** |
| Madagascar | 2% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 7% | **10%** | 0% | 0% | 0% | 15% | 9% | 6% | 36% | **67%** | 3% | 20% | **23%** |
| Malawi | 0% | 1% | 1% | 0% | 0% | 0% | 0% | 5% | 1% | 0% | 0% | 8% | **16%** | 0% | 0% | 1% | 8% | 5% | 7% | 53% | **74%** | 3% | 8% | **11%** |
| Mauritius | 1% | 0% | 0% | 0% | 0% | 0% | 0% | 2% | 1% | 1% | 0% | 6% | **12%** | 0% | 0% | 1% | 10% | 5% | 13% | 37% | **66%** | 9% | 13% | **22%** |
| Mozambique | 3% | 4% | 0% | 0% | 0% | 0% | 0% | 2% | 1% | 1% | 2% | 8% | **20%** | 0% | 0% | 0% | 4% | 9% | 8% | 43% | **64%** | 3% | 13% | **16%** |
| Tanzania | 2% | 3% | 1% | 0% | 0% | 0% | 0% | 1% | 0% | 0% | 1% | 5% | **12%** | 0% | 0% | 0% | 5% | 9% | 12% | 43% | **69%** | 4% | 15% | **19%** |
| Uganda | 1% | 2% | 0% | 0% | 0% | 0% | 0% | 1% | 0% | 0% | 1% | 6% | **12%** | 0% | 0% | 1% | 6% | 10% | 10% | 43% | **69%** | 2% | 17% | **19%** |
| Zambia | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 1% | 0% | 0% | 0% | 5% | **7%** | 0% | 0% | 9% | 3% | 2% | 10% | 54% | **78%** | 8% | 7% | **15%** |
| Zimbabwe | 0% | 2% | 4% | 0% | 0% | 0% | 0% | 4% | 0% | 0% | 0% | 6% | **18%** | 0% | 0% | 1% | 4% | 7% | 13% | 48% | **74%** | 2% | 7% | **9%** |
| Rest of Eastern Africa | 1% | 3% | 1% | 0% | 0% | 0% | 0% | 2% | 1% | 0% | 1% | 6% | **14%** | 0% | 0% | 2% | 6% | 5% | 12% | 43% | **68%** | 2% | 16% | **18%** |
| Botswana | 0% | 0% | 1% | 0% | 0% | 0% | 0% | 1% | 2% | 0% | 1% | 7% | **13%** | 0% | 0% | 1% | 5% | 6% | 11% | 49% | **72%** | 2% | 13% | **15%** |
| South Africa | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 1% | 0% | 0% | 0% | 3% | **6%** | 0% | 0% | 13% | 5% | 1% | 7% | 57% | **83%** | 4% | 8% | **12%** |
| Rest of South African Customs Union | 0% | 1% | 1% | 0% | 0% | 0% | 0% | 2% | 1% | 1% | 0% | 9% | **14%** | 0% | 0% | 1% | 8% | 7% | 8% | 46% | **69%** | 1% | 15% | **17%** |
| Egypt | 0% | 4% | 2% | 1% | 0% | 0% | 0% | 3% | 1% | 1% | 1% | 5% | **17%** | 0% | 0% | 2% | 4% | 3% | 9% | 43% | **61%** | 3% | 19% | **22%** |
| Morocco | 0% | 2% | 1% | 1% | 0% | 0% | 0% | 1% | 1% | 0% | 0% | 3% | **9%** | 0% | 0% | 11% | 14% | 4% | 9% | 42% | **79%** | 2% | 9% | **11%** |
| Tunisia | 0% | 1% | 1% | 0% | 0% | 0% | 0% | 1% | 0% | 0% | 1% | 3% | **8%** | 0% | 0% | 4% | 19% | 6% | 9% | 45% | **83%** | 3% | 6% | **10%** |
| Rest of North Africa | 0% | 3% | 1% | 0% | 0% | 0% | 0% | 1% | 3% | 1% | 1% | 5% | **15%** | 0% | 0% | 1% | 4% | 0% | 12% | 53% | **69%** | 4% | 12% | **16%** |
| Nigeria | 2% | 2% | 0% | 0% | 0% | 0% | 0% | 0% | 1% | 0% | 1% | 4% | **10%** | 0% | 0% | 0% | 4% | 10% | 7% | 43% | **65%** | 3% | 22% | **25%** |
| Senegal | 9% | 2% | 0% | 0% | 0% | 0% | 0% | 3% | 2% | 1% | 0% | 7% | **25%** | 0% | 0% | 10% | 5% | 5% | 7% | 35% | **64%** | 3% | 8% | **11%** |
| Rest of Western Africa | 3% | 1% | 0% | 0% | 0% | 0% | 0% | 2% | 1% | 1% | 1% | 8% | **17%** | 0% | 0% | 2% | 7% | 4% | 8% | 49% | **70%** | 3% | 9% | **12%** |
| Central Africa | 1% | 1% | 0% | 0% | 0% | 0% | 0% | 0% | 1% | 1% | 1% | 7% | **13%** | 0% | 0% | 1% | 2% | 3% | 7% | 39% | **53%** | 6% | 29% | **34%** |
| Bric countries | 0% | 0% | 0% | 1% | 0% | 0% | 0% | 1% | 0% | 0% | 0% | 2% | **5%** | 0% | 0% | 11% | 5% | 2% | 8% | 54% | **80%** | 3% | 12% | **15%** |
| Other developing countries | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 1% | 0% | 0% | 0% | 3% | **6%** | 0% | 0% | 7% | 5% | 3% | 9% | 54% | **78%** | 3% | 12% | **16%** |
| European Union | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 2% | 0% | 0% | 0% | 2% | **5%** | 0% | 0% | 13% | 7% | 2% | 6% | 43% | **71%** | 6% | 18% | **24%** |
| United States | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 1% | 0% | 0% | 0% | 2% | **4%** | 0% | 0% | 9% | 8% | 2% | 6% | 45% | **71%** | 4% | 22% | **26%** |
| Other developed countries | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 1% | 0% | 1% | 0% | 3% | **6%** | 0% | 0% | 10% | 5% | 2% | 8% | 50% | **75%** | 5% | 14% | **19%** |

*Source: Authors' calculations based on MIRAGE model*

**Annex 10 – Africa's export volumes by sector with and without adoption of trade facilitation measures – Changes as compared to the baseline scenario – 2022 – %**

| | RFTAs | CFTA | RFTAs+TF | CFTA+TF |
|---|---|---|---|---|
| Paddy and processed rice | 1.1 | 3.2 | 1.5 | 3.0 |
| Wheat | 25.7 | 26.0 | 24.4 | 24.0 |
| Cereals | 16.3 | 16.9 | 16.3 | 16.4 |
| Oilseeds | 2.4 | 3.9 | 1.1 | 2.4 |
| Sugar cane and sugar beet | 41.2 | 38.6 | 81.2 | 77.8 |
| Cattle, sheep, goats and horses | 4.3 | 4.2 | 3.5 | 3.1 |
| Animal products and wool | 0.6 | 0.5 | -0.4 | -1.2 |
| Other agricultural products | 1.1 | 1.7 | 0.0 | 0.3 |
| Raw milk and dairy products | 72.7 | 101.0 | 75.7 | 104.7 |
| Meat products | 13.8 | 26.2 | 14.4 | 25.6 |
| Sugar | 13.7 | 16.5 | 11.5 | 13.8 |
| Other food products | 13.6 | 17.0 | 21.2 | 25.5 |
| **Agriculture and food** | **7.2** | **9.4** | **9.0** | **11.3** |
| Forestry | 3.3 | 4.4 | 2.2 | 3.5 |
| Fishing | -0.1 | 0.2 | -0.7 | -0.6 |
| Other primary products | -0.1 | 0.4 | 0.6 | 1.3 |
| Textile wearing apparel and leather products | 7.8 | 8.8 | 12.1 | 13.5 |
| Petroleum coal products | 6.6 | 9.8 | 20.7 | 26.9 |
| Mineral and metal products | 4.6 | 6.2 | 10.1 | 12.9 |
| Other manufactured products | 9.1 | 13.1 | 35.3 | 45.0 |
| **Industrial products** | **3.2** | **4.7** | **10.4** | **13.5** |
| Transport | -0.6 | -1.3 | -1.3 | -2.4 |
| Other services | -0.5 | -0.3 | -2.5 | -2.8 |
| **Services** | **-0.5** | **-0.6** | **-2.1** | **-2.7** |

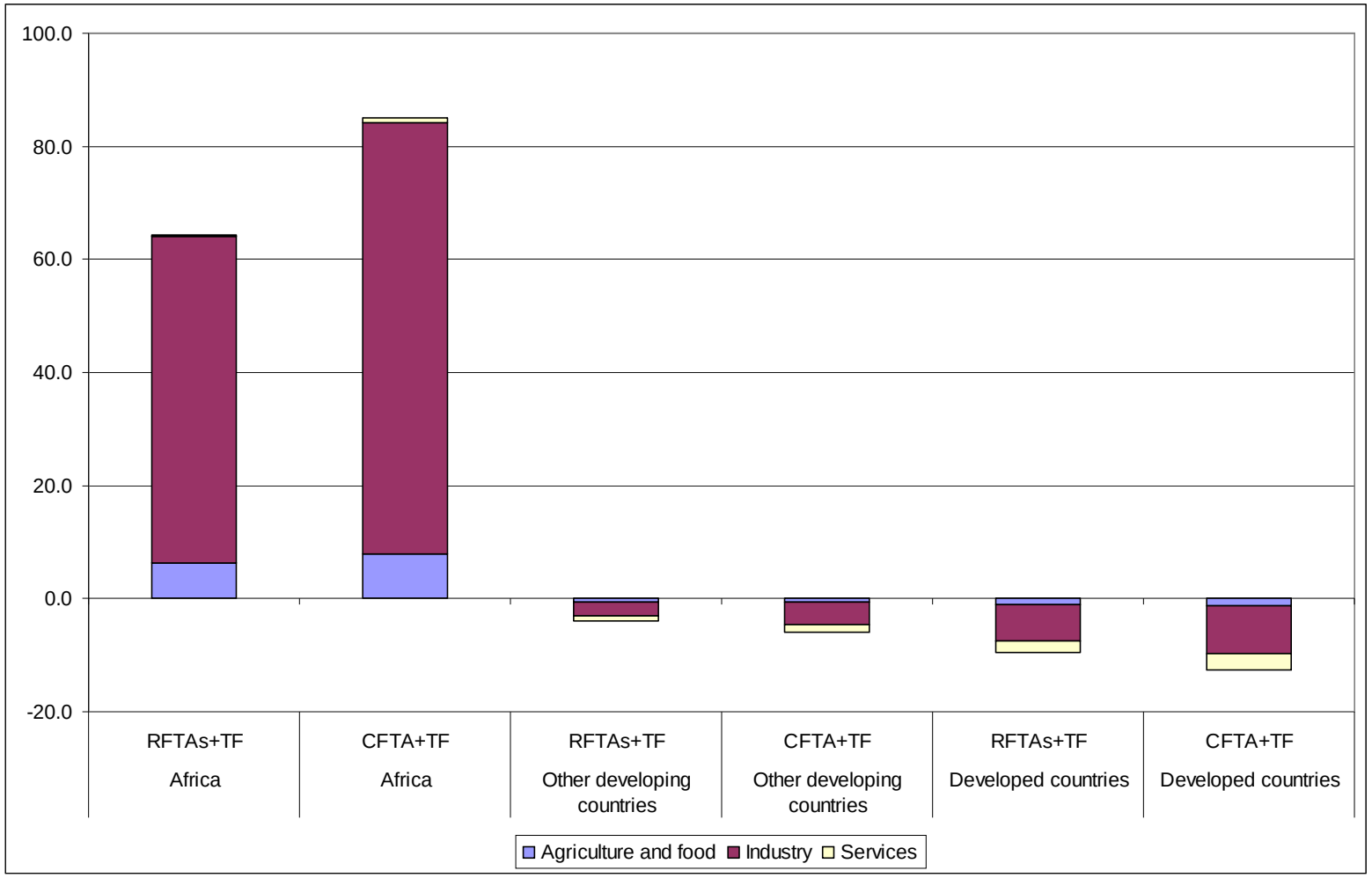
*Source: Authors' calculations based on MIRAGE model*

**Annex 11 – Africa's exports, real income, wages with adoption of trade facilitations measures– Changes as compared to the baseline scenario – 2022 – %**

| | Exports | | Real Income | | Unskilled real wages in agriculture | | Unskilled real wages in non agricultural sectors | | Skilled real wages | |
|---|---|---|---|---|---|---|---|---|---|---|
| | RFTAs+TF | CFTA+TF | RFTAs+TF | CFTA+TF | RFTAs+TF | CFTA+TF | RFTAs+TF | CFTA+TF | RFTAs+TF | CFTA+TF |
| Angola & DRC | 3.7 | 4.8 | 0.6 | 0.8 | 0.84 | 1.12 | 1.05 | 1.46 | 1.56 | 1.92 |
| Ethiopia | 12.2 | 12.7 | 0.9 | 1.0 | 1.44 | 1.53 | 1.79 | 1.83 | 0.34 | 0.36 |
| Madagascar | 1.8 | 1.9 | 0.6 | 0.7 | 0.44 | 0.60 | 0.77 | 0.79 | 1.20 | 1.26 |
| Malawi | 24.4 | 24.4 | 2.9 | 2.8 | 8.45 | 8.45 | 6.82 | 6.75 | 7.37 | 7.17 |
| Mauritius | 7.5 | 7.9 | -0.3 | -0.1 | 0.70 | 0.60 | 2.35 | 2.49 | 1.81 | 1.80 |
| Mozambique | 17.0 | 16.4 | 1.5 | 1.4 | 1.76 | 1.78 | 3.24 | 3.14 | 2.46 | 2.40 |
| Tanzania | 32.6 | 34.5 | 1.4 | 1.5 | 2.31 | 2.33 | 2.40 | 2.70 | 3.84 | 4.17 |
| Uganda | 13.0 | 17.6 | 1.8 | 2.3 | 1.12 | 1.25 | 3.21 | 4.26 | 4.22 | 5.12 |
| Zambia | 41.0 | 42.4 | 2.3 | 2.6 | 2.64 | 3.18 | 4.99 | 5.29 | 7.92 | 7.97 |
| Zimbabwe | 29.1 | 29.3 | 4.2 | 4.2 | 15.95 | 15.60 | 12.10 | 11.97 | 11.53 | 11.07 |
| Rest of Eastern Africa | 16.8 | 18.2 | 0.3 | 0.4 | 0.33 | 0.40 | 1.29 | 1.45 | 1.44 | 1.65 |
| Botswana | 7.3 | 7.3 | 4.4 | 4.0 | 3.20 | 3.56 | 5.07 | 4.80 | 7.69 | 7.21 |
| South Africa | 9.8 | 14.3 | 1.0 | 1.7 | 1.24 | 1.22 | 0.93 | 1.42 | 1.39 | 2.09 |
| Rest of South African Customs Union | 32.4 | 32.1 | 10.9 | 10.9 | 4.25 | 4.61 | 9.98 | 9.92 | 13.61 | 13.39 |
| Egypt | 1.1 | 4.9 | 0.1 | 0.5 | -0.08 | 0.17 | 0.09 | 0.41 | 0.13 | 0.39 |
| Morocco | 4.4 | 6.7 | 0.3 | 0.2 | 0.99 | 1.67 | 0.41 | 0.57 | 0.55 | 0.73 |
| Tunisia | 10.1 | 11.2 | 1.3 | 1.2 | 0.79 | -0.17 | 2.07 | 2.23 | 2.57 | 2.76 |
| Rest of North Africa | 2.1 | 2.8 | 0.1 | 0.0 | 0.30 | 0.27 | 0.39 | 0.45 | 0.41 | 0.42 |
| Nigeria | 2.6 | 4.5 | 0.2 | 0.1 | 0.19 | 0.15 | 0.76 | 0.93 | 0.51 | 0.42 |
| Senegal | 20.8 | 21.5 | 1.6 | 1.6 | 0.06 | 0.21 | 2.38 | 2.61 | 1.27 | 1.74 |
| Rest of Western Africa | 18.2 | 20.2 | 2.0 | 2.2 | 0.15 | 0.51 | 4.62 | 5.26 | 4.47 | 5.23 |
| Central Africa | 6.1 | 11.5 | 0.5 | 0.6 | 0.61 | 1.33 | 1.01 | 1.66 | 1.04 | 1.80 |
| **AFRICA** | **7.9** | **10.2** | **0.8** | **1.0** | **1.81** | **1.94** | **2.73** | **2.93** | **3.07** | **3.23** |

*Source: Authors' calculations based on MIRAGE model*

**Annex 12 – Exports of African countries by destinations and main sectors with introduction of trade facilitation measures – Changes as compared to the baseline scenario – 2022 – $USD bn**




*Source: Authors' calculations based on MIRAGE model*

**Annex 13 – Africa's exports with and without adoption of trade facilitations (TF) measures in addition to CCU reforms – Changes as compared to the baseline scenario – 2022 – %**

| | COMESA CET - 2% | COMESA CET - 2% + TF | COMESA CET - 5% | COMESA CET - 5% + TF | ECOWAS CET - 2% | ECOWAS CET - 2% + TF | ECOWAS CET - 5% | ECOWAS CET - 5% + TF |
|---|---|---|---|---|---|---|---|---|
| Angola & DRC | 4.2 | 7.4 | 4.0 | 7.2 | 4.6 | 7.9 | 4.5 | 7.9 |
| Ethiopia | 10.3 | 17.1 | 9.0 | 16.2 | 8.8 | 15.7 | 7.8 | 15.2 |
| Madagascar | 1.3 | 2.6 | 1.1 | 2.3 | 0.8 | 2.1 | 0.7 | 2.0 |
| Malawi | 13.2 | 24.6 | 13.1 | 24.7 | 13.1 | 24.6 | 13.0 | 24.8 |
| Mauritius | 14.8 | 17.7 | 12.3 | 15.3 | 16.6 | 19.5 | 13.1 | 16.3 |
| Mozambique | 11.6 | 18.4 | 11.0 | 17.9 | 10.5 | 17.6 | 10.2 | 17.3 |
| Tanzania | 18.9 | 35.5 | 17.9 | 34.8 | 18.2 | 35.0 | 17.8 | 34.8 |
| Uganda | 6.7 | 18.9 | 6.7 | 19.0 | 8.3 | 21.0 | 8.4 | 21.1 |
| Zambia | 20.4 | 44.4 | 20.1 | 44.1 | 21.1 | 45.3 | 20.9 | 45.1 |
| Zimbabwe | 18.3 | 32.4 | 18.0 | 32.2 | 18.6 | 33.0 | 18.4 | 32.8 |
| Rest of Eastern Africa | 19.9 | 30.0 | 16.8 | 27.4 | 20.0 | 30.4 | 17.1 | 27.9 |
| Botswana | 0.0 | 7.2 | 0.0 | 7.2 | 0.0 | 7.2 | 0.0 | 7.2 |
| South Africa | 4.4 | 13.9 | 4.1 | 13.7 | 4.2 | 13.8 | 3.9 | 13.7 |
| Rest of South African Customs Union | 2.0 | 31.9 | 1.9 | 31.9 | 1.8 | 31.8 | 1.8 | 31.8 |
| Egypt | 6.4 | 8.4 | 5.6 | 7.7 | 6.9 | 9.0 | 6.3 | 8.4 |
| Morocco | 22.2 | 24.0 | 18.4 | 20.3 | 21.5 | 23.4 | 17.6 | 19.5 |
| Tunisia | 21.9 | 25.8 | 18.1 | 22.1 | 20.2 | 24.3 | 17.4 | 21.6 |
| Rest of North Africa | 5.4 | 6.2 | 4.5 | 5.4 | 4.6 | 5.5 | 3.9 | 4.8 |
| Nigeria | 6.1 | 8.1 | 5.2 | 7.3 | 6.7 | 8.8 | 5.8 | 8.0 |
| Senegal | 8.3 | 22.7 | 7.9 | 22.4 | 5.9 | 20.5 | 6.0 | 20.7 |
| Rest of Western Africa | 10.0 | 21.5 | 9.7 | 21.4 | 8.2 | 19.9 | 8.2 | 20.1 |
| Central Africa | 8.4 | 13.7 | 7.8 | 13.2 | 9.1 | 14.6 | 8.7 | 14.3 |
| **AFRICA** | **8.5** | **14.2** | **7.4** | **13.3** | **8.2** | **14.1** | **7.3** | **13.3** |

*Source: Authors' calculations based on MIRAGE model*

**Annex 14 – Africa's real incomes with and without adoption of trade facilitations (TF) measures in addition to CCU reforms – Changes as compared to the baseline scenario – 2022 – %**

| | COMESA CET - 2% | COMESA CET - 2% + TF | COMESA CET - 5% | COMESA CET - 5% + TF | ECOWAS CET - 2% | ECOWAS CET - 2% + TF | ECOWAS CET - 5% | ECOWAS CET - 5% + TF |
|---|---|---|---|---|---|---|---|---|
| Angola & DRC | -0.2 | 1.02 | -0.15 | 1.02 | -0.09 | 1.07 | -0.09 | 1.06 |
| Ethiopia | 0.3 | 0.98 | 0.29 | 1.04 | 0.29 | 1.01 | 0.31 | 1.06 |
| Madagascar | 0.0 | 0.63 | 0.03 | 0.64 | 0.06 | 0.67 | 0.06 | 0.67 |
| Malawi | -0.4 | 2.98 | -0.48 | 2.94 | -0.45 | 2.97 | -0.47 | 2.95 |
| Mauritius | -0.3 | 0.46 | -0.34 | 0.39 | -0.42 | 0.34 | -0.52 | 0.20 |
| Mozambique | -0.4 | 1.57 | -0.47 | 1.53 | -0.46 | 1.54 | -0.48 | 1.51 |
| Tanzania | 0.2 | 1.46 | 0.21 | 1.48 | 0.21 | 1.48 | 0.22 | 1.50 |
| Uganda | 0.3 | 2.25 | 0.30 | 2.23 | 0.28 | 2.22 | 0.26 | 2.20 |
| Zambia | -0.3 | 2.62 | -0.24 | 2.64 | -0.24 | 2.63 | -0.24 | 2.63 |
| Zimbabwe | -1.0 | 4.62 | -1.06 | 4.55 | -1.16 | 4.45 | -1.22 | 4.38 |
| Rest of Eastern Africa | -0.2 | 0.47 | -0.19 | 0.48 | -0.22 | 0.46 | -0.22 | 0.44 |
| Botswana | -0.2 | 4.30 | -0.24 | 4.22 | -0.21 | 4.25 | -0.27 | 4.18 |
| South Africa | 0.5 | 1.44 | 0.57 | 1.50 | 0.56 | 1.49 | 0.58 | 1.52 |
| Rest of South African Customs Union | 0.9 | 10.64 | 0.91 | 10.71 | 0.87 | 10.67 | 0.91 | 10.71 |
| Egypt | 0.0 | 0.20 | 0.07 | 0.27 | 0.02 | 0.21 | 0.06 | 0.26 |
| Morocco | 0.2 | 0.36 | 0.26 | 0.43 | 0.21 | 0.39 | 0.24 | 0.41 |
| Tunisia | 0.9 | 1.53 | 0.94 | 1.57 | 0.92 | 1.56 | 0.94 | 1.58 |
| Rest of North Africa | -0.1 | 0.00 | -0.11 | 0.01 | -0.12 | 0.01 | -0.10 | 0.01 |
| Nigeria | 0.1 | 0.83 | -0.01 | 0.65 | -0.01 | 0.69 | -0.18 | 0.48 |
| Senegal | 0.2 | 1.51 | 0.18 | 1.54 | 0.22 | 1.56 | 0.23 | 1.58 |
| Rest of Western Africa | 0.3 | 1.94 | 0.39 | 2.00 | 0.36 | 1.94 | 0.40 | 1.99 |
| Central Africa | -0.2 | 0.55 | -0.15 | 0.58 | -0.24 | 0.49 | -0.22 | 0.51 |
| **AFRICA** | **0.17** | **1.02** | **0.20** | **1.04** | **0.18** | **1.02** | **0.18** | **1.02** |

*Source: Authors' calculations based on MIRAGE model*

## Annex 15 – 30 most common sensitive products for African countries, depending on CET structure and share of products designed as sensitive

| COMESA CET - 2 % of sensitive product lines | | |
|---|---|---|
| **HS6 Code** | **HS6 Label** | **Share of African countries for which the product line is considered as sensitive** |
| 852520 | TRANSMISSION APPARATUS INCORPORATING RECEPTION APPARATUS, FOR RADIO-TELEPHONY, RADIO-TELEGRAPHY, RADIO-BROADCASTING OR TELEVISION | 75.6% |
| 271000 | PETROLEUM OILS AND OILS OBTAINED FROM BITUMINOUS MINERALS (EXCL, CRUDE); PREPARATIONS CONTAINING >= 70 % BY WEIGHT OF PETROLEUM OILS OR OF OILS OBTAINED FROM BITUMINOUS MINERALS, THESE OILS BEING THE BASIC CONSTITUENTS OF THE PREPARATIONS N.E.S. | 66.7% |
| 690890 | GLAZED CERAMIC FLAGS AND PAVING, HEARTH OR WALL TILES (EXCL. OF SILICEOUS FOSSIL MEALS OR SIMILAR SILICEOUS EARTHS, REFRACTORY CERAMIC GOODS, TILES MADE INTO STANDS, ORNAMENTAL ARTICLES AND TILES SPECIFICALLY MANUFACTURED FOR STOVES) | 66.7% |
| 840999 | PARTS SUITABLE FOR USE SOLELY OR PRINCIPALLY WITH COMPRESSION-IGNITION INTERNAL COMBUSTION PISTON ENGINE, N.E.S. | 66.7% |
| 853690 | ELECTRICAL APPARATUS FOR SWITCHING ELECTRICAL CIRCUITS, OR FOR MAKING CONNECTIONS TO OR IN ELECTRICAL CIRCUITS, FOR A VOLTAGE <= 1.000 V (EXCL. FUSES, AUTOMATIC CIRCUIT BREAKERS AND OTHER APPARATUS FOR PROTECTING ELECTRICAL CIRCUITS, RELAYS AND OTHER SWIT | 66.7% |
| 100190 | WHEAT AND MESLIN (EXCL. DURUM WHEAT) | 60.0% |
| 170199 | CANE OR BEET SUGAR AND CHEMICALLY PURE SUCROSE, IN SOLID FORM (EXCL. CANE AND BEET SUGAR CONTAINING ADDED FLAVOURING OR COLOURING AND RAW SUGAR) | 60.0% |
| 847330 | PARTS AND ACCESSORIES OF AUTOMATIC DATA PROCESSING MACHINES OR FOR OTHER MACHINES OF HEADING 8471, N.E.S. | 57.8% |
| 870423 | MOTOR VEHICLES FOR THE TRANSPORT OF GOODS, WITH COMPRESSION-IGNITION INTERNAL COMBUSTION PISTON ENGINE 'DIESEL OR SEMI-DIESEL' OF A GROSS VEHICLE WEIGHT > 20 TONNES (EXCL. DUMPERS FOR OFF-HIGHWAY USE OF SUBHEADING 8704.10 AND SPECIAL PURPOSE MOTOR VEHICLE | 57.8% |
| 151190 | PALM OIL AND ITS FRACTIONS, WHETHER OR NOT REFINED (EXCL. CHEMICALLY MODIFIED AND CRUDE) | 55.6% |
| 401120 | NEW PNEUMATIC TYRES, OF RUBBER, OF A KIND USED FOR BUSES AND LORRIES (EXCL. TYPRES WITH LUG, CORNER OR SIMILAR TREADS) | 53.3% |
| 870120 | ROAD TRACTORS FOR SEMI-TRAILERS | 53.3% |
| 520852 | PLAIN WOVEN FABRICS OF COTTON, CONTAINING >= 85% COTTON BY WEIGHT AND WEIGHING > 100 G TO 200 G/M², PRINTED | 51.1% |
| 870899 | PARTS AND ACCESSORIES, FOR TRACTORS, MOTOR VEHICLES FOR THE TRANSPORT OF TEN OR MORE PERSONS, MOTOR CARS AND OTHER MOTOR VEHICLES PRINCIPALLY DESIGNED FOR THE TRANSPORT OF PERSONS, MOTOR VEHICLES FOR THE TRANSPORT OF GOODS AND SPECIAL PURPOSE MOTOR VEHICL | 51.1% |
| 110100 | WHEAT OR MESLIN FLOUR | 48.9% |
| 240220 | CIGARETTES, CONTAINING TOBACCO | 48.9% |
| 721420 | BARS AND RODS, OF IRON OR NON-ALLOY STEEL, WITH INDENTATIONS, RIBS, GROVES OR OTHER DEFORMATIONS PRODUCED DURING THE ROLLING PROCESS | 48.9% |
| 730890 | STRUCTURES AND PARTS OF STRUCTURES, OF IRON OR STEEL, N.E.S. (EXCL. BRIDGES AND BRIDGE-SECTIONS, TOWERS AND LATTICE MASTS, DOORS AND WINDOWS AND THEIR FRAMES, THRESHOLDS FOR DOORS, PROPS AND SIMILAR EQUIPMENT FOR SCAFFOLDING, SHUTTERING, PROPPING OR PIT-P | 48.9% |
| 150790 | SOYA-BEAN OIL AND ITS FRACTIONS, WHETHER OR NOT REFINED (EXCL. CHEMICALLY MODIFIED AND CRUDE) | 46.7% |
| 252329 | PORTLAND CEMENT (EXCL. WHITE, WHETHER OR NOT ARTIFICIALLY COLOURED) | 46.7% |
| 854459 | ELECTRIC CONDUCTORS, FOR A VOLTAGE > 80 V BUT <= 1.000 V, INSULATED, NOT FITTED WITH CONNECTORS, N.E.S. | 46.7% |
| 870323 | MOTOR CARS AND OTHER MOTOR VEHICLES PRINCIPALLY DESIGNED FOR THE TRANSPORT OF PERSONS, INCL. STATION WAGONS AND RACING CARS, WITH SPARK-IGNITION INTERNAL COMBUSTION RECIPROCATING PISTON ENGINE OF A CYLINDER CAPACITY > 1.500 CM³ BUT <= 3.000 CM³ (EXCL. VEH | 46.7% |
| 240120 | TOBACCO, PARTLY OR WHOLLY STEMMED/STRIPPED, OTHERWISE UNMANUFACTURED | 44.4% |
| 853890 | PARTS SUITABLE FOR USE SOLELY OR PRINCIPALLY WITH THE APPARATUS OF HEADING 8535, 8536 OR 8537, N.E.S. (EXCL. BOARDS, PANELS, CONSOLES, DESKS, CABINETS AND OTHER BASES FOR THE GOODS OF HEADING 8537, NOT EQUIPPED WITH THEIR APPARATUS) | 44.4% |
| 080810 | FRESH APPLES | 42.2% |
| 160413 | PREPARED OR PRESERVED SARDINES, SARDINELLA AND BRISLING OR SPRATS, WHOLE OR IN PIECES (EXCL. MINCED) | 42.2% |
| 841480 | AIR PUMPS, AIR OR OTHER GAS COMPRESSORS AND VENTILATING OR RECYCLING HOODS INCORPORATING A FAN, WHETHER OR NOT FITTED WITH FILTERS, HAVING A MAXIMUM HORIZONTAL SIDE > 120 CM (EXCL. VACUUM PUMPS, HAND- OR FOOT-OPERATED AIR PUMPS, COMPRESSORS FOR REFRIGERAT | 42.2% |
| 870410 | DUMPERS FOR OFF-HIGHWAY USE | 42.2% |
| 020230 | FROZEN, BONELESS MEAT OF BOVINE ANIMALS | 40.0% |
| 071310 | DRIED, SHELLED PEAS 'PISUM SATIVUM', WHETHER OR NOT SKINNED OR SPLIT | 40.0% |

| COMESA CET - 5 % of sensitive product lines | | |
|---|---|---|
| **HS6 Code** | **HS6 Label** | **Share of African countries for which the product line is considered as sensitive** |
| 853690 | ELECTRICAL APPARATUS FOR SWITCHING ELECTRICAL CIRCUITS, OR FOR MAKING CONNECTIONS TO OR IN ELECTRICAL CIRCUITS, FOR A VOLTAGE <= 1.000 V (EXCL. FUSES, AUTOMATIC CIRCUIT BREAKERS AND OTHER APPARATUS FOR PROTECTING ELECTRICAL CIRCUITS, RELAYS AND OTHER SWIT | 88.9% |
| 690890 | GLAZED CERAMIC FLAGS AND PAVING, HEARTH OR WALL TILES (EXCL. OF SILICEOUS FOSSIL MEALS OR SIMILAR SILICEOUS EARTHS, REFRACTORY CERAMIC GOODS, TILES MADE INTO STANDS, ORNAMENTAL ARTICLES AND TILES SPECIFICALLY MANUFACTURED FOR STOVES) | 82.2% |
| 870423 | MOTOR VEHICLES FOR THE TRANSPORT OF GOODS, WITH COMPRESSION-IGNITION INTERNAL COMBUSTION PISTON ENGINE 'DIESEL OR SEMI-DIESEL' OF A GROSS VEHICLE WEIGHT > 20 TONNES (EXCL. DUMPERS FOR OFF-HIGHWAY USE OF SUBHEADING 8704.10 AND SPECIAL PURPOSE MOTOR VEHICLE | 82.2% |
| 852520 | TRANSMISSION APPARATUS INCORPORATING RECEPTION APPARATUS, FOR RADIO-TELEPHONY, RADIO-TELEGRAPHY, RADIO-BROADCASTING OR TELEVISION | 80.0% |
| 870120 | ROAD TRACTORS FOR SEMI-TRAILERS | 80.0% |
| 401120 | NEW PNEUMATIC TYRES, OF RUBBER, OF A KIND USED FOR BUSES AND LORRIES (EXCL. TYPRES WITH LUG, CORNER OR SIMILAR TREADS) | 77.8% |
| 840999 | PARTS SUITABLE FOR USE SOLELY OR PRINCIPALLY WITH COMPRESSION-IGNITION INTERNAL COMBUSTION PISTON ENGINE, N.E.S. | 77.8% |
| 100190 | WHEAT AND MESLIN (EXCL. DURUM WHEAT) | 73.3% |
| 170199 | CANE OR BEET SUGAR AND CHEMICALLY PURE SUCROSE, IN SOLID FORM (EXCL. CANE AND BEET SUGAR CONTAINING ADDED FLAVOURING OR COLOURING AND RAW SUGAR) | 73.3% |
| 721420 | BARS AND RODS, OF IRON OR NON-ALLOY STEEL, WITH INDENTATIONS, RIBS, GROVES OR OTHER DEFORMATIONS PRODUCED DURING THE ROLLING PROCESS | 73.3% |
| 870323 | MOTOR CARS AND OTHER MOTOR VEHICLES PRINCIPALLY DESIGNED FOR THE TRANSPORT OF PERSONS, INCL. STATION WAGONS AND RACING CARS, WITH SPARK-IGNITION INTERNAL COMBUSTION RECIPROCATING PISTON ENGINE OF A CYLINDER CAPACITY > 1.500 CMª BUT <= 3.000 CMª (EXCL. VEH | 73.3% |
| 271000 | PETROLEUM OILS AND OILS OBTAINED FROM BITUMINOUS MINERALS (EXCL. CRUDE); PREPARATIONS CONTAINING >= 70 % BY WEIGHT OF PETROLEUM OILS OR OF OILS OBTAINED FROM BITUMINOUS MINERALS, THESE OILS BEING THE BASIC CONSTITUENTS OF THE PREPARATIONS N.E.S. | 71.1% |
| 071310 | DRIED, SHELLED PEAS 'PISUM SATIVUM', WHETHER OR NOT SKINNED OR SPLIT | 68.9% |
| 170490 | SUGAR CONFECTIONERY NOT CONTAINING COCOA, INCL. WHITE CHOCOLATE (EXCL. CHEWING GUM) | 68.9% |
| 630900 | WORN CLOTHING AND CLOTHING ACCESSORIES, BLANKETS AND TRAVELLING RUGS, HOUSEHOLD LINEN AND ARTICLES FOR INTERIOR FURNISHING, OF ALL TYPES OF TEXTILE MATERIALS, INCL. ALL TYPES OF FOOTWEAR AND HEADGEAR, SHOWING SIGNS OF APPRECIABLE WEAR AND PRESENTED IN BUL | 68.9% |
| 150790 | SOYA-BEAN OIL AND ITS FRACTIONS, WHETHER OR NOT REFINED (EXCL. CHEMICALLY MODIFIED AND CRUDE) | 66.7% |
| 240220 | CIGARETTES, CONTAINING TOBACCO | 66.7% |
| 853890 | PARTS SUITABLE FOR USE SOLELY OR PRINCIPALLY WITH THE APPARATUS OF HEADING 8535, 8536 OR 8537, N.E.S. (EXCL. BOARDS, PANELS, CONSOLES, DESKS, CABINETS AND OTHER BASES FOR THE GOODS OF HEADING 8537, NOT EQUIPPED WITH THEIR APPARATUS) | 66.7% |
| 854459 | ELECTRIC CONDUCTORS, FOR A VOLTAGE > 80 V BUT <= 1.000 V, INSULATED, NOT FITTED WITH CONNECTORS, N.E.S. | 66.7% |
| 870333 | MOTOR CARS AND OTHER MOTOR VEHICLES PRINCIPALLY DESIGNED FOR THE TRANSPORT OF PERSONS, INCL. STATION WAGONS AND RACING CARS, WITH COMPRESSION-IGNITION INTERNAL COMBUSTION PISTON ENGINE 'DIESEL OR SEMI-DIESEL' OF A CYLINDER CAPACITY > 2.500 CMª (EXCL. VEHI | 66.7% |
| 080810 | FRESH APPLES | 64.4% |
| 110100 | WHEAT OR MESLIN FLOUR | 64.4% |
| 401110 | NEW PNEUMATIC TYRES, OF RUBBER, OF A KIND USED FOR MOTOR CARS, INCL. STATION WAGONS AND RACING CARS | 64.4% |
| 840991 | PARTS SUITABLE FOR USE SOLELY OR PRINCIPALLY WITH SPARK-IGNITION INTERNAL COMBUSTION PISTON ENGINE, N.E.S. | 64.4% |
| 841480 | AIR PUMPS, AIR OR OTHER GAS COMPRESSORS AND VENTILATING OR RECYCLING HOODS INCORPORATING A FAN, WHETHER OR NOT FITTED WITH FILTERS, HAVING A MAXIMUM HORIZONTAL SIDE > 120 CM (EXCL. VACUUM PUMPS, HAND- OR FOOT-OPERATED AIR PUMPS, COMPRESSORS FOR REFRIGERAT | 64.4% |
| 843149 | PARTS OF MACHINERY OF HEADING 8426, 8429 AND 8430, N.E.S. | 64.4% |
| 847330 | PARTS AND ACCESSORIES OF AUTOMATIC DATA PROCESSING MACHINES OR FOR OTHER MACHINES OF HEADING 8471, N.E.S. | 64.4% |
| 852439 | DISCS, RECORDED, FOR LASER READING SYSTEMS, FOR REPRODUCING SOUND AND IMAGE OR IMAGE ONLY | 64.4% |
| 853669 | PLUGS AND SOCKETS FOR A VOLTAGE <= 1.000 V (EXCL. LAMP-HOLDERS) | 64.4% |
| 151190 | PALM OIL AND ITS FRACTIONS, WHETHER OR NOT REFINED (EXCL. CHEMICALLY MODIFIED AND CRUDE) | 62.2% |

| ECOWAS CET - 2 % of sensitive product lines | | |
|---|---|---|
| **HS6 Code** | **HS6 Label** | **Share of African countries for which the product line is considered as sensitive** |
| 340111 | SOAP AND ORGANIC SURFACE-ACTIVE PRODUCTS AND PREPARATIONS, IN THE FORM OF BARS, CAKES, MOULDED PIECES OR SHAPES, AND PAPER, WADDING, FELT AND NONWOVENS, IMPREGNATED, COATED OR COVERED WITH SOAP OR DETERGENT, FOR TOILET USE, INCL. MEDICATED PRODUCTS | 84.4% |
| 392490 | HOUSEHOLD ARTICLES AND TOILET ARTICLES, OF PLASTICS (EXCL. TABLEWARE, KITCHENWARE, BATHS, SHOWER-BATHS, WASH-BASINS, BIDETS, LAVATORY PANS, SEATS AND COVERS, FLUSHING CISTERNS AND SIMILAR SANITARY WARE) | 77.8% |
| 852812 | TELEVISION RECEIVERS, COLOUR, WHETHER OR NOT INCORPORATING RADIO-BROADCAST RECEIVERS OR SOUND OR VIDEO RECORDING OR REPRODUCING APPARATUS | 77.8% |
| 730890 | STRUCTURES AND PARTS OF STRUCTURES, OF IRON OR STEEL, N.E.S. (EXCL. BRIDGES AND BRIDGE-SECTIONS, TOWERS AND LATTICE MASTS, DOORS AND WINDOWS AND THEIR FRAMES, THRESHOLDS FOR DOORS, PROPS AND SIMILAR EQUIPMENT FOR SCAFFOLDING, SHUTTERING, PROPPING OR PIT-P | 73.3% |
| 210690 | FOOD PREPARATIONS, N.E.S. | 66.7% |
| 271000 | PETROLEUM OILS AND OILS OBTAINED FROM BITUMINOUS MINERALS (EXCL. CRUDE); PREPARATIONS CONTAINING >= 70 % BY WEIGHT OF PETROLEUM OILS OR OF OILS OBTAINED FROM BITUMINOUS MINERALS, THESE OILS BEING THE BASIC CONSTITUENTS OF THE PREPARATIONS N.E.S. | 66.7% |
| 401120 | NEW PNEUMATIC TYRES, OF RUBBER, OF A KIND USED FOR BUSES AND LORRIES (EXCL. TYPRES WITH LUG, CORNER OR SIMILAR TREADS) | 66.7% |
| 870333 | MOTOR CARS AND OTHER MOTOR VEHICLES PRINCIPALLY DESIGNED FOR THE TRANSPORT OF PERSONS, INCL. STATION WAGONS AND RACING CARS, WITH COMPRESSION-IGNITION INTERNAL COMBUSTION PISTON ENGINE 'DIESEL OR SEMI-DIESEL' OF A CYLINDER CAPACITY > 2.500 CMª (EXCL. VEHI | 66.7% |
| 870421 | MOTOR VEHICLES FOR THE TRANSPORT OF GOODS, WITH COMPRESSION-IGNITION INTERNAL COMBUSTION PISTON ENGINE 'DIESEL OR SEMI-DIESEL' OF A GROSS VEHICLE WEIGHT <= 5 TONNES (EXCL. DUMPERS FOR OFF-HIGHWAY USE OF SUBHEADING 8704.10 AND SPECIAL PURPOSE MOTOR VEHICLE | 66.7% |
| 630900 | WORN CLOTHING AND CLOTHING ACCESSORIES, BLANKETS AND TRAVELLING RUGS, HOUSEHOLD LINEN AND ARTICLES FOR INTERIOR FURNISHING, OF ALL TYPES OF TEXTILE MATERIALS, INCL. ALL TYPES OF FOOTWEAR AND HEADGEAR, SHOWING SIGNS OF APPRECIABLE WEAR AND PRESENTED IN BUL | 64.4% |
| 871120 | MOTOR-CYCLES, INCL. MOPEDS, WITH RECIPROCATING INTERNAL COMBUSTION PISTON ENGINE OF A CYLINDER CAPACITY > 50 CMª BUT <= 250 CMª | 60.0% |
| 940360 | WOODEN FURNITURE (EXCL. FOR OFFICES, KITCHENS AND BEDROOMS, AND SEATS) | 60.0% |
| 870323 | MOTOR CARS AND OTHER MOTOR VEHICLES PRINCIPALLY DESIGNED FOR THE TRANSPORT OF PERSONS, INCL. STATION WAGONS AND RACING CARS, WITH SPARK-IGNITION INTERNAL COMBUSTION RECIPROCATING PISTON ENGINE OF A CYLINDER CAPACITY > 1.500 CMª BUT <= 3.000 CMª (EXCL. VEH | 57.8% |
| 870899 | PARTS AND ACCESSORIES, FOR TRACTORS, MOTOR VEHICLES FOR THE TRANSPORT OF TEN OR MORE PERSONS, MOTOR CARS AND OTHER MOTOR VEHICLES PRINCIPALLY DESIGNED FOR THE TRANSPORT OF PERSONS, MOTOR VEHICLES FOR THE TRANSPORT OF GOODS AND SPECIAL PURPOSE MOTOR VEHICL | 57.8% |
| 240220 | CIGARETTES, CONTAINING TOBACCO | 55.6% |
| 170490 | SUGAR CONFECTIONERY NOT CONTAINING COCOA, INCL. WHITE CHOCOLATE (EXCL. CHEWING GUM) | 53.3% |
| 392390 | ARTICLES FOR THE CONVEYANCE OR PACKAGING OF GOODS, OF PLASTICS (EXCL. BOXES, CASES, CRATES AND SIMILAR ARTICLES; SACKS AND BAGS, INCL. CONES; CARBOYS, BOTTLES, FLASKS AND SIMILAR ARTICLES; SPPOLS, SPINDLES, BOBBINS AND SIMILAR SUPPORTS; STOPPERS, LIDS, CA | 53.3% |
| 854459 | ELECTRIC CONDUCTORS, FOR A VOLTAGE > 80 V BUT <= 1.000 V, INSULATED, NOT FITTED WITH CONNECTORS, N.E.S. | 53.3% |
| 870210 | MOTOR VEHICLES FOR THE TRANSPORT OF >= 10 PERSONS, INCL. DRIVER, WITH COMPRESSION-IGNITION INTERNAL COMBUSTION PISTON ENGINE 'DIESEL OR SEMI-DIESEL' | 53.3% |
| 330499 | BEAUTY OR MAKE-UP PREPARATIONS AND PREPARATIONS FOR THE CARE OF THE SKIN (OTHER THAN MEDICAMENTS), INCL. SUNSCREEN OR SUNTAN PREPARATIONS (EXCL. MEDICAMENTS, LIP AND EYE MAKE-UP PREPARATIONS, MANICURE OR PEDICURE PREPARATIONS AND MAKE-UP OR SKIN CARE POWD | 51.1% |
| 392690 | ARTICLES OF PLASTICS AND ARTICLES OF OTHER MATERIALS OF HEADING 3901 TO 3914, N.E.S. | 51.1% |
| 190190 | MALT EXTRACT; FOOD PREPARATIONS OF FLOUR, GROATS, MEAL, STARCH OR MALT EXTRACT, NOT CONTAINING COCOA OR CONTAINING < 40% BY WEIGHT OF COCOA CALCULATED ON A TOTALLY DEFATTED BASIS, N.E.S. AND FOOD PREPARATIONS OF MILK, CREAM, BUTTER MILK, SOUR MILK, SOUR C | 48.9% |
| 200290 | TOMATOES, PREPARED OR PRESERVED OTHERWISE THAN BY VINEGAR OR ACETIC ACID (EXCL. WHOLE OR IN PIECES) | 48.9% |
| 690890 | GLAZED CERAMIC FLAGS AND PAVING, HEARTH OR WALL TILES (EXCL. OF SILICEOUS FOSSIL MEALS OR SIMILAR SILICEOUS EARTHS, REFRACTORY CERAMIC GOODS, TILES MADE INTO STANDS, ORNAMENTAL ARTICLES AND TILES SPECIFICALLY MANUFACTURED FOR STOVES) | 48.9% |
| 220421 | WINE OF FRESH GRAPES, INCL. FORTIFIED WINES, AND GRAPE MUST WHOSE FERMENTATION HAS BEEN ARRESTED BY THE ADDITION OF ALCOHOL, IN CONTAINERS OF <= 2 L (EXCL. SPARKLING WINE) | 46.7% |
| 151620 | VEGETABLE FATS AND OILS AND THEIR FRACTIONS, PARTLY OR WHOLLY HYDROGENATED, INTER-ESTERIFIED, RE-ESTERIFIED OR ELAIDINISED, WHETHER OR NOT REFINED, BUT NOT FURTHER PREPARED | 44.4% |
| 160413 | PREPARED OR PRESERVED SARDINES, SARDINELLA AND BRISLING OR SPRATS, WHOLE OR IN PIECES (EXCL. MINCED) | 44.4% |
| 170111 | RAW CANE SUGAR (EXCL. ADDED FLAVOURING OR COLOURING) | 44.4% |
| 220290 | NON-ALCOHOLIC BEVERAGES (EXCL. WATER, FRUIT OR VEGETABLE JUICES AND MILK) | 44.4% |
| 252329 | PORTLAND CEMENT (EXCL. WHITE, WHETHER OR NOT ARTIFICIALLY COLOURED) | 44.4% |

| ECOWAS CET - 5 % of sensitive product lines | | |
|---|---|---|
| **HS6 Code** | **HS6 Label** | **Share of African countries for which the product line is considered as sensitive** |
| 392490 | HOUSEHOLD ARTICLES AND TOILET ARTICLES, OF PLASTICS (EXCL. TABLEWARE, KITCHENWARE, BATHS, SHOWER-BATHS, WASH-BASINS, BIDETS, LAVATORY PANS, SEATS AND COVERS, FLUSHING CISTERNS AND SIMILAR SANITARY WARE) | 97.8% |
| 340111 | SOAP AND ORGANIC SURFACE-ACTIVE PRODUCTS AND PREPARATIONS, IN THE FORM OF BARS, CAKES, MOULDED PIECES OR SHAPES, AND PAPER, WADDING, FELT AND NONWOVENS, IMPREGNATED, COATED OR COVERED WITH SOAP OR DETERGENT, FOR TOILET USE, INCL. MEDICATED PRODUCTS | 88.9% |
| 630900 | WORN CLOTHING AND CLOTHING ACCESSORIES, BLANKETS AND TRAVELLING RUGS, HOUSEHOLD LINEN AND ARTICLES FOR INTERIOR FURNISHING, OF ALL TYPES OF TEXTILE MATERIALS, INCL. ALL TYPES OF FOOTWEAR AND HEADGEAR, SHOWING SIGNS OF APPRECIABLE WEAR AND PRESENTED IN BUL | 88.9% |
| 170490 | SUGAR CONFECTIONERY NOT CONTAINING COCOA, INCL. WHITE CHOCOLATE (EXCL. CHEWING GUM) | 86.7% |
| 392390 | ARTICLES FOR THE CONVEYANCE OR PACKAGING OF GOODS, OF PLASTICS (EXCL. BOXES, CASES, CRATES AND SIMILAR ARTICLES; SACKS AND BAGS, INCL. CONES; CARBOYS, BOTTLES, FLASKS AND SIMILAR ARTICLES; SPPOLS, SPINDLES, BOBBINS AND SIMILAR SUPPORTS; STOPPERS, LIDS, CA | 86.7% |
| 852812 | TELEVISION RECEIVERS, COLOUR, WHETHER OR NOT INCORPORATING RADIO-BROADCAST RECEIVERS OR SOUND OR VIDEO RECORDING OR REPRODUCING APPARATUS | 86.7% |
| 330499 | BEAUTY OR MAKE-UP PREPARATIONS AND PREPARATIONS FOR THE CARE OF THE SKIN (OTHER THAN MEDICAMENTS), INCL. SUNSCREEN OR SUNTAN PREPARATIONS (EXCL. MEDICAMENTS, LIP AND EYE MAKE-UP PREPARATIONS, MANICURE OR PEDICURE PREPARATIONS AND MAKE-UP OR SKIN CARE POWD | 84.4% |
| 870421 | MOTOR VEHICLES FOR THE TRANSPORT OF GOODS, WITH COMPRESSION-IGNITION INTERNAL COMBUSTION PISTON ENGINE 'DIESEL OR SEMI-DIESEL' OF A GROSS VEHICLE WEIGHT <= 5 TONNES (EXCL. DUMPERS FOR OFF-HIGHWAY USE OF SUBHEADING 8704.10 AND SPECIAL PURPOSE MOTOR VEHICLE | 84.4% |
| 940360 | WOODEN FURNITURE (EXCL. FOR OFFICES, KITCHENS AND BEDROOMS, AND SEATS) | 84.4% |
| 210690 | FOOD PREPARATIONS, N.E.S. | 82.2% |
| 401120 | NEW PNEUMATIC TYRES, OF RUBBER, OF A KIND USED FOR BUSES AND LORRIES (EXCL. TYPRES WITH LUG, CORNER OR SIMILAR TREADS) | 82.2% |
| 730890 | STRUCTURES AND PARTS OF STRUCTURES, OF IRON OR STEEL, N.E.S. (EXCL. BRIDGES AND BRIDGE-SECTIONS, TOWERS AND LATTICE MASTS, DOORS AND WINDOWS AND THEIR FRAMES, THRESHOLDS FOR DOORS, PROPS AND SIMILAR EQUIPMENT FOR SCAFFOLDING, SHUTTERING, PROPPING OR PIT-P | 82.2% |
| 870333 | MOTOR CARS AND OTHER MOTOR VEHICLES PRINCIPALLY DESIGNED FOR THE TRANSPORT OF PERSONS, INCL. STATION WAGONS AND RACING CARS, WITH COMPRESSION-IGNITION INTERNAL COMBUSTION PISTON ENGINE 'DIESEL OR SEMI-DIESEL' OF A CYLINDER CAPACITY > 2.500 CM³ (EXCL. VEHI | 82.2% |
| 640299 | FOOTWEAR WITH OUTER SOLES AND UPPERS OF RUBBER OR PLASTICS (EXCL. COVERING THE ANKLE OR WITH UPPER STRAPS OR THONGS ASSEMBLED TO THE SOLE BY MEANS OF PLUGS, WATERPROOF FOOTWEAR OF HEADING 6401, SPORTS FOOTWEAR, ORTHOPAEDIC FOOTWEAR AND TOY FOOTWEAR) | 80.0% |
| 854459 | ELECTRIC CONDUCTORS, FOR A VOLTAGE > 80 V BUT <= 1.000 V, INSULATED, NOT FITTED WITH CONNECTORS, N.E.S. | 80.0% |
| 271000 | PETROLEUM OILS AND OILS OBTAINED FROM BITUMINOUS MINERALS (EXCL. CRUDE); PREPARATIONS CONTAINING >= 70 % BY WEIGHT OF PETROLEUM OILS OR OF OILS OBTAINED FROM BITUMINOUS MINERALS, THESE OILS BEING THE BASIC CONSTITUENTS OF THE PREPARATIONS N.E.S. | 77.8% |
| 870323 | MOTOR CARS AND OTHER MOTOR VEHICLES PRINCIPALLY DESIGNED FOR THE TRANSPORT OF PERSONS, INCL. STATION WAGONS AND RACING CARS, WITH SPARK-IGNITION INTERNAL COMBUSTION RECIPROCATING PISTON ENGINE OF A CYLINDER CAPACITY > 1.500 CM³ BUT <= 3.000 CM³ (EXCL. VEH | 77.8% |
| 190530 | SWEET BISCUITS, WAFFLES AND WAFERS, WHETHER OR NOT CONTAINING COCOA (EXCL, WITH WATER CONTENT OF > 10 %) | 75.6% |
| 240220 | CIGARETTES, CONTAINING TOBACCO | 75.6% |
| 870899 | PARTS AND ACCESSORIES, FOR TRACTORS, MOTOR VEHICLES FOR THE TRANSPORT OF TEN OR MORE PERSONS, MOTOR CARS AND OTHER MOTOR VEHICLES PRINCIPALLY DESIGNED FOR THE TRANSPORT OF PERSONS, MOTOR VEHICLES FOR THE TRANSPORT OF GOODS AND SPECIAL PURPOSE MOTOR VEHICL | 73.3% |
| 871120 | MOTOR-CYCLES, INCL. MOPEDS, WITH RECIPROCATING INTERNAL COMBUSTION PISTON ENGINE OF A CYLINDER CAPACITY > 50 CM³ BUT <= 250 CM³ | 73.3% |
| 330300 | PERFUMES AND TOILET WATERS (EXCL. AFTERSHAVE LOTIONS, PERSONAL DEODORANTS AND HAIR LOTIONS) | 71.1% |
| 940390 | PARTS OF FURNITURE, N.E.S. (EXCL. SEATS) | 71.1% |
| 220290 | NON-ALCOHOLIC BEVERAGES (EXCL. WATER, FRUIT OR VEGETABLE JUICES AND MILK) | 68.9% |
| 610910 | T-SHIRTS, SINGLETS AND OTHER VESTS OF COTTON, KNITTED OR CROCHETED | 68.9% |
| 640220 | FOOTWEAR WITH OUTER SOLES AND UPPERS OF RUBBER OR PLASTICS, WITH UPPER STRAPS OR THONGS ASSEMBLED TO THE SOLE BY MEANS OF PLUGS (EXCL. TOY FOOTWEAR) | 68.9% |
| 852719 | RADIO-BROADCAST RECEIVERS CAPABLE OF OPERATING WITHOUT AN EXTERNAL SOURCE OF POWER, INCL. APPARATUS CAPABLE OF ALSO RECEIVING RADIO-TELEPHONY OR RADIO-TELEGRAPHY, NOT COMBINED WITH SOUND REPRODUCING APPARATUS | 68.9% |
| 870210 | MOTOR VEHICLES FOR THE TRANSPORT OF >= 10 PERSONS, INCL. DRIVER, WITH COMPRESSION-IGNITION INTERNAL COMBUSTION PISTON ENGINE 'DIESEL OR SEMI-DIESEL' | 68.9% |
| 220421 | WINE OF FRESH GRAPES, INCL. FORTIFIED WINES, AND GRAPE MUST WHOSE FERMENTATION HAS BEEN ARRESTED BY THE ADDITION OF ALCOHOL, IN CONTAINERS OF <= 2 L (EXCL. SPARKLING WINE) | 66.7% |
| 330590 | PREPARATIONS FOR USE ON THE HAIR (EXCL. SHAMPOOS, PREPARATIONS FOR PERMANENT WAVING OR STRAIGHTENING AND HAIR LACQUERS) | 66.7% |

*Source: Authors' calculations based on MAcMap-HS6v2 database*