

# AFRICA'S TRADE POTENTIAL

## EXPORT OPPORTUNITIES IN GROWTH MARKETS





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EXPORT OPPORTUNITIES  
IN GROWTH MARKETS

## Abstract for trade information services

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Paper analysing trade growth opportunities for sub-Saharan Africa (SSA) through market diversification and lowering its dependency on the export of commodities – describes general trade trends between sub-Saharan Africa and other emerging markets, for example in Asia; presents an assessment of value chain integration for the African economy overall and for individual countries and sectors; identifies sectors and regions with a large potential for trade; assesses the magnitude of potential trade and the economic benefits to SSA from various trade-related strategies and policies; shows the extent to which trade could be further enhanced by halving transport time and costs and facilitating trade within Africa as well as between Africa and Asia.

Descriptors: **Africa South of the Sahara, Export Potential, Intra-regional Trade, Trade Facilitation, Value Chain, Commodities.**

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English

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## Executive summary

To tap into trade-growth opportunities, sub-Saharan Africa (SSA) needs to diversify in several ways: it needs to become less dependent on the stagnating markets of its traditional trading partners in the developed world. At the same time it needs to lower its dependence on the export of commodities vulnerable to price shocks.

This analysis addresses how SSA can achieve sustainability in export revenues by integrating deeper into sector value-chains and thereby increasing the share of value-added products within its exports. The analysis also identifies strategic options and policies for sub-Saharan African countries to maximize their trade-related economic growth through 2025 by tapping into growth markets in Asia, Latin America and their own continent, and invest in trade-related infrastructure and trade facilitation.

The reorientation of SSA exports away from stagnating OECD markets towards Asia, and China in particular, has already begun. Trade between Western Africa and Asia, for instance, is forecast to increase by 14% annually over the next decade, significantly outpacing the overall growth in world trade.

But, since the large majority of SSA products destined for Asia are commodities, a reorientation to growth markets is by itself not sufficient to achieve future sustainability. Furthermore, the share of raw materials in Africa's exports to Asia is still growing. Thus by simply turning towards Asia, this analysis shows that the SSA region runs the risk of leaving itself even more vulnerable to commodity price shocks than it is today.

In addition to increasing their share of exports to Asia, SSA countries increasingly trade within their own region too. In this intraregional trade, though, it is the share of value-added products that contributes to rising exports. The share of value-added products in SSA's exports to Europe is also growing. In this context ITC's analysis finds that by improving trade-related infrastructure and reducing procedural bottlenecks through trade facilitation initiatives, SSA countries stand to increase their trade particularly within the region, which is likely to favour the production of value-added goods. Thus the mix recommended to optimize trade-related economic growth for SSA is **diversification towards emerging markets, including in products with higher added value, combined with investment in trade infrastructure and simplified customs procedures** to reduce the time and cost required to get products to market.

The expected benefit for SSA of investing in trade-related infrastructure alone is an increase in exports of up to 51% beyond the baseline growth forecast, along with a gross domestic product (GDP) gain of US\$ 20 billion per year by 2025.

In order to assess the magnitude of potential trade and the economic benefits to SSA from various trade-related strategies and policies, this paper addresses the following questions:

1. What are the general trends in African trade with other emerging regions? What is the level of integration along the value chain? To which extent are individual sectors and countries already vertically integrated? *In summary, in which sectors and regions have African exporters recently performed well?*
2. What is the future level of trade between Africa and other emerging regions, like Asia and Latin America? Which sectors show the highest trade potential? What is the impact of Asian trade initiatives in Africa? And, how could improvements in African trade infrastructure affect trade? *In summary, what should policymakers do to maximize future trade potential?*

Both SSA countries and Asia are forecast to grow rapidly in the coming decade, which will further fuel intraregional trade in SSA and trade between the two regions. Increased Asian demand is expected to particularly favour SSA's exports of primary products, such as oil, coal and gas. Against this baseline of forecast trade growth, driven by economic growth alone, this ITC analysis simulates the potential effects of three types of policy changes:

- (a) Reducing the time and cost of transporting goods on the African continent by improving trade infrastructure such as ports and roads;

- (b) Simplifying customs procedures in sub-Saharan Africa; and
- (c) Simplifying customs procedures with Asia.

The results of these simulations suggest that infrastructure improvements on the African continent will achieve the greatest welfare and trade gains, and since this policy favours intraregional trade, it is expected to be favourable to the export growth of value-added products.

*In which sectors and regions have African exporters recently performed well?*

**SSA exports are already being reoriented to growing Asian markets and these exports are increasingly raw commodities. Efforts are needed to integrate sectors along the value chain. Success stories are emerging in intra-SSA trade e.g. in leather.**

Exports to Asia have grown rapidly in the past 15 years and Asia's share of African exports continues to rise. Asia is now the third-biggest destination for sub-Saharan Africa's non-oil exports after sub-Saharan Africa itself and Europe (the European Union and the countries of the European Free Trade Agreement).

In 1995-2010, SSA's exports of processed goods (such as bread, textiles and furniture) and semi-processed goods (such as flour, yarns and industrial alcohol) have grown faster than exports of non-oil raw products. In the case of intraregional exports, processed and semi-processed goods comprise the largest share of non-oil exports, at 46% and 41%, respectively. The ratio of SSA exports of processed goods to Asia, however, stands at an abysmal 5%, leaving much room for improvement.

Splitting trade by level of processing provides important information on the structure of exports, but doing so misses insights related to the import side of trade, where a country transforms imported goods in order to use the end-products domestically. ITC's analysis assesses Africa's ability to move up the value chain, both on the import and on the export side in the following two ways:

- (a) By assuming that an increase in the share of intermediate goods in total SSA imports is a sign that transformative industries are being set up in the country, processing foreign inputs for domestic use or re-exportation;
- (b) By assuming that an increase in the share of transformed goods in total SSA exports is a sign that transformative industries are being set up in the country, processing domestic or foreign inputs for export.

Overall, the share of transformed products in total exports from SSA has increased, but the share of intermediate inputs in total imports has remained stable. Individual success stories are notable. The leather sector is a good example of vertical integration, where a number of countries have established leather processing industries and increased their exports of finished leather articles. Less successful has been the cotton and textiles industry, where only three countries – Burkina Faso, Chad and Mali – increased the share of textiles in the sector's total exports. Promising markets for these well-performing SSA countries and sectors are mostly found within Africa itself, as well as among traditional markets in Europe and other OECD countries. Although not growing rapidly overall, exports to these markets have gradually shifted towards transformed goods. A right policy mix needs to be identified, which allows SSA to fully exploit its trade and growth opportunities — to simultaneously reorient towards fast-growing markets and higher value-added exports.

*What should policymakers do to maximize future trade potential?*

**Reducing the time and cost required to transport goods to market by investing in trade-related infrastructure would increase SSA exports by up to 51% beyond the export growth that would otherwise occur based on current trends and boost GDP by \$20 billion annually.<sup>1</sup>**

Projections of trade to 2025 on the basis of expected growth in population, as well as regional growth, suggest that sub-Saharan Africa will significantly increase its exports to Asia and other African regions without any change in policy. Most of the increase will, however, be concentrated in the oil, coal and gas sector, and in other primary products. East Africa may also develop its textile and clothing sector, but the world price of these products will be under pressure from Asian competition.

Improving transport infrastructure within Africa and thereby reducing the cost and time required to export goods by half, would boost SSA's GDP by more than US\$ 20 billion annually in 2025 and increase SSA's trade by up to 51% beyond the forecast natural growth. This would mostly benefit intraregional trade, where the relative cost and time lost because of Africa's poor transport network is the highest. To a lesser extent, improved transport infrastructure also helps trade with other regions. Among the three simulated scenarios examined in this paper, infrastructure improvements trigger the biggest economic benefits. Because of the size of the African continent, the outlined scenario is likely to be the most costly as well. Even though improvements have been made in some African countries in the past few years, customs procedures are still a lengthy process. A trade-facilitation programme that would cut the time needed to comply with customs procedures at port by 50% would generate an extra US\$ 15 billion annually in GDP for sub-Saharan Africa. Finally, focusing on simplifying customs procedures with Asian trading partners would also bring some benefit to SSA countries, but it would mostly benefit sectors with little value addition.

**Reducing transport time and cost through trade infrastructure projects should be a priority as it supports value-added intra-African trade.**

This ITC analysis provides a fully-fledged picture of promising markets and sectors for African exports. A fast-paced reorientation of sub-Saharan African exports towards fast-growing emerging markets is already under way, but this is concentrated currently on raw products in general, and oil in particular. Without any firm policy action, predicted future growth patterns will favour this trend. In parallel, some African countries are also engaged in higher value-added trade, and some of the markets for transformed products are found within Africa itself. Infrastructure projects that support intra-African trade could therefore be beneficial to the establishment of processing industries. Projects that aim at simplifying customs procedures will bring slightly lower benefit, but will also be far less costly to implement. Finally, bilateral initiatives that seek to facilitate African-Asian trade contain the risk of strongly favouring trade in primary products. Such initiatives therefore need to be accompanied by Asian investments into transformative industries in SSA in order to establish new supply chains between Asian manufacturers and their subsidiaries in Africa.

Continued strong growth in SSA exports to Asia is expected based on the current set of policies, but since these exports are likely to involve mostly unprocessed raw products, policymakers should focus on a policy mix that supports value-added exports towards fast-growing markets. Trade-related infrastructure projects and facilitated customs procedures on the African continent, combined with bilateral trade and investment agreements that have a development component, will likely support the tendency of some SSA countries to engage in the export of value-added products to Asia and beyond.

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<sup>1</sup> This is a simplified, hypothetical scenario. Calculating the costs of such an infrastructure improvement is beyond the scope of this paper, but the World Bank's Africa Infrastructure Country Diagnostic Study estimates that improvements to achieve the necessary level of connectivity within SSA would require an annual investment of nearly US\$ 13 billion over ten years. We assume that the financing for these infrastructure projects would come from outside SSA.





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## Abbreviations

The following abbreviations are used:

BACI	Base pour l'Analyse du Commerce International
BEC	Broad economic categories
CEPII	Centre d'Études Prospectives et d'Informations Internationales
CGE	Computable general equilibrium
EFTA	European Free Trade Association
EU	European Union
GDP	Gross domestic product
GTAP	Global Trade Analysis Project
HS	Harmonized System
ITC	International Trade Centre
MIRAGE	Modelling International Relationships in Applied General Equilibrium
NTB	Non-tariff barrier
OECD	Organisation for Economic Co-operation and Development
RoW	Rest of the World
SACU	Southern African Customs Union
SSA	Sub-Saharan Africa
USITC	United States International Trade Commission



## Introduction

While more than half of sub-Saharan Africa (SSA)'s merchandise trade was still done with the Organisation for Economic Co-operation and Development (OECD) partners in 2011, new partners are rapidly emerging and present growth opportunities for Africa. As important as the question of *where* to export is the question of *what* to export. Fast growing exports to Asia are largely driven by commodities that involve little value addition. African producers and policymakers are therefore confronted with two challenges: they need to diversify geographically and at the same time increase their export earnings by moving up the value chain. This paper seeks to identify promising products and markets, as well as to assess how African producers can move up the value chain and reduce the continent's vulnerability to commodity price shocks and fluctuating terms of trade.

OECD countries are still important both as destination markets for SSA exports as well as suppliers of SSA imports, with the European Union (EU) alone accounting for approximately one third of SSA's trade. However, the structure of world trade is changing with key countries in Asia and Latin America rapidly increasing their share in world trade at the expense of many developed economies that continue to struggle with slow economic growth, high levels of debt and unemployment. In 2011, China has become the world's biggest importer of SSA products, catching up with its position as SSA's biggest supplier since 2005.<sup>2</sup> Opportunities for SSA exports outside the OECD, however, are not limited to China. Growth markets exist elsewhere in Asia, Latin America as well as within Africa itself.

These new opportunities need to be sustainable. African exports are currently often concentrated on commodities, which suffer from fluctuating world prices. Integrating into global value chains will help developing countries and regions to benefit from higher value-added exports, while at the same time protect them from volatile commodity prices. Some regions, like Asia, have successfully created internationally integrated sectors, for example in electronics. Africa has strong potential in other sectors, like clothing, to integrate the production of cotton with garment manufacturing, or in agribusiness, by linking crop production with food and beverage processing.

Several Asian initiatives have recently aimed at increasing trade and investment links with African partner countries. At the same time, there are efforts to facilitate trade within Africa by improving, for example, the infrastructure necessary for trade. Yet, relatively little is known about how much could eventually be traded and, in particular, about the sectors and regions which show the highest potential for increasing trade.

This study identifies those sectors and regional markets for which African exports have performed well and show future promise. Chapter 1 describes general trade trends between sub-Saharan Africa and other emerging markets, for example in Asia and Latin America. It presents an assessment of value chain integration for the African economy overall and for individual countries and sectors. Chapter 2 identifies sectors and regions with a large potential for trade. The paper establishes a baseline scenario that African trade will continue to grow over the next decade both within the African region (up to 12% per annum) as well as with other regions (up to 14% per annum), because of trade stimulated by economic growth. Against this background the paper shows the extent to which trade could be even further enhanced by halving transport time and costs and facilitating trade within Africa as well as between Africa and Asia.

The analysis answers the following questions:

1. What are the general trends in African trade with other emerging regions? What is the level of integration along the value chain? To which extent are individual sectors and countries already vertically integrated? In which sectors and regions have African exporters recently performed well?
2. What is the future level of trade between Africa and other emerging regions, like Asia and Latin America? Which sectors show the highest trade potential? What is the impact of Asian trade initiatives in Africa? And, how would improvements in African trade infrastructure affect trade? In which sectors and regions do African exporters have the highest trade potential?

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<sup>2</sup> In fact, China is now absorbing 22% of SSA's exports.

## Chapter 1 Africa's<sup>3</sup> export trends

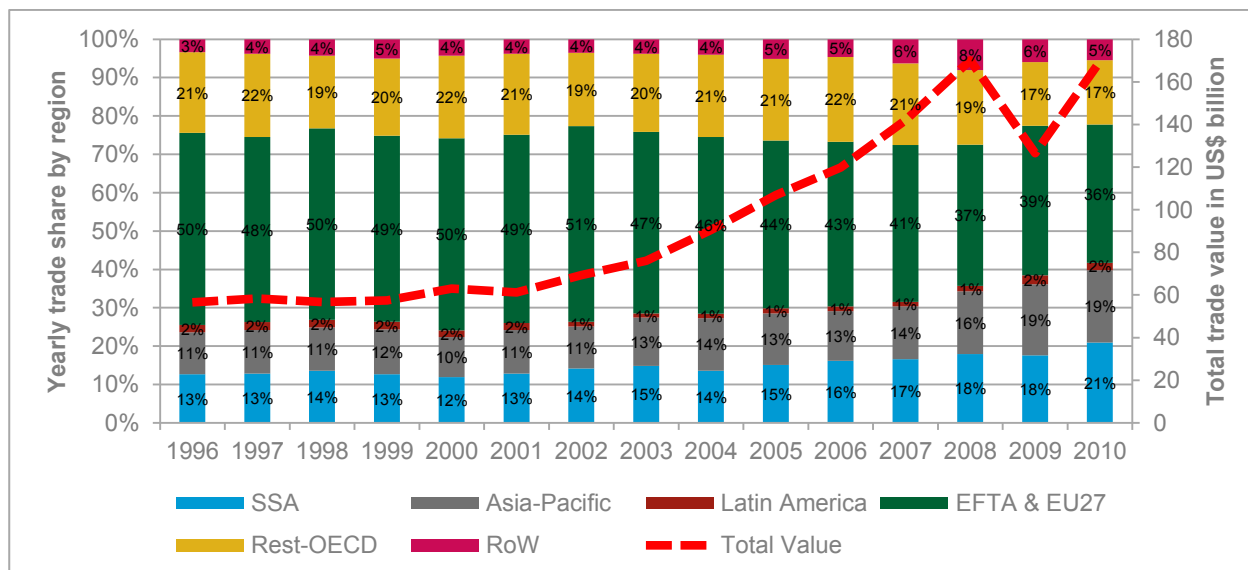
### 1. Exports by world regions and sectors

The following presents general trade trends between sub-Saharan Africa and emerging markets in Asia and Latin America, as well as traditional markets in Europe and other OECD countries.<sup>4</sup> To prevent our analyses being strongly driven by oil exports and to ensure they suggest areas where sub-Saharan Africa could engage in sectoral development and diversification, oil is excluded from the graphs and tables presented in the main text. Analyses including oil can be found in appendix I.

#### *Traditional European markets are the largest yet declining destinations for sub-Saharan African exports*

Figure 1 shows the evolution of SSA non-oil exports to different world regions since 1995. The total increase from US\$ 57 billion to US\$ 169 billion has essentially been driven by exports to Asia-Pacific and to the Rest of the World (RoW), as well as by intraregional exports to other SSA countries. By contrast, the share of exports going to traditional European, other OECD and Latin American destinations has declined. Exports to Asia have grown dramatically and account for 19% of total exports. The share of intraregional exports, which accounted for a mere 12% of total exports in 1995, has almost doubled to 21%. The growth of exports to the RoW, which comprises mainly North African, Near East and Central Asian countries, has been fastest but off a small base, and its share in total sub-Saharan African exports, at 5%, is still very low. The largest destination for SSA non-oil exports is still by far the EU and EFTA (European Free Trade Association), absorbing US\$ 61 billion of SSA export products. The relative decline of the EU and EFTA in total SSA exports from 51% in 1995 to 36% in 2010 reflects the general trend of increasing consumption in emerging markets accompanied by stagnation in traditional markets.<sup>5</sup>

**Figure 1: Evolution of African export shares to different regions (excl. oil)**



Source: ITC calculations based on CEPII's BACI data.

<sup>3</sup> Unless otherwise specified, Africa refers to sub-Saharan Africa. North African countries are grouped together with other countries in the Rest of the World (RoW). A full list of all country groups is provided in Appendix I.

<sup>4</sup> For the assessment of general trade trends, we employ CEPII's BACI database.

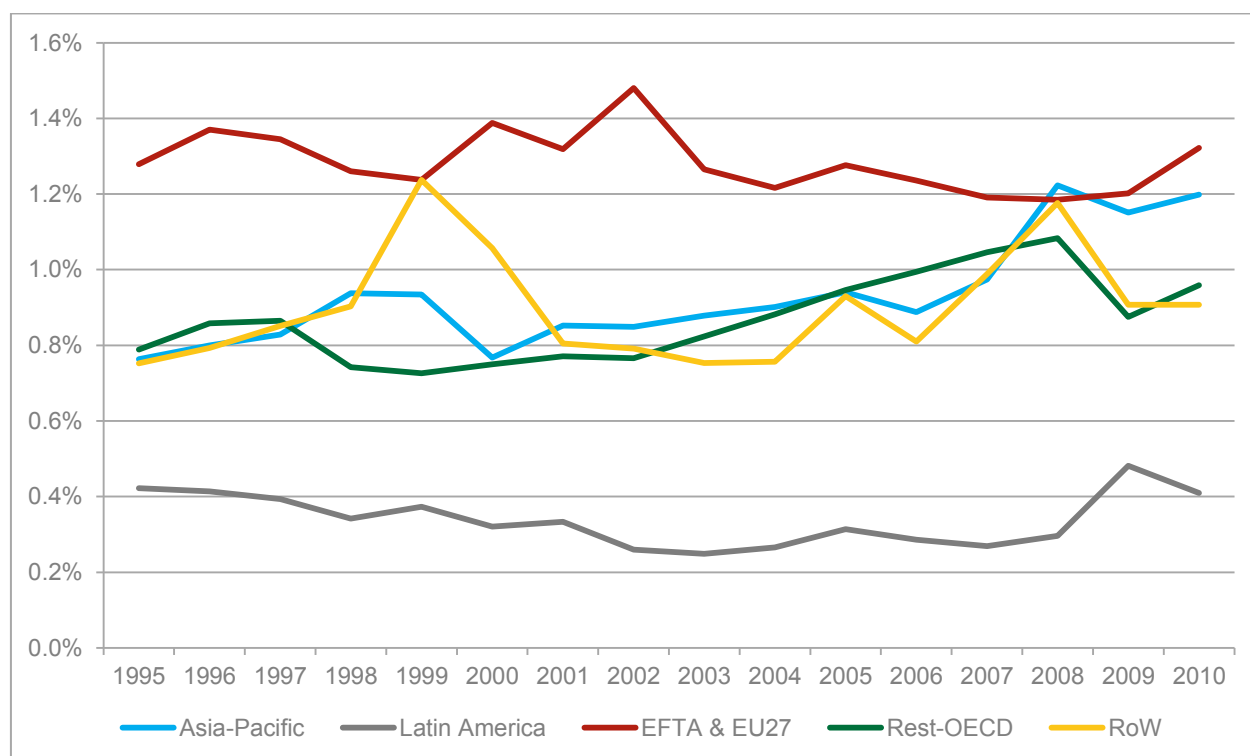
<sup>5</sup> Including oil in the picture changes things dramatically. Appendix I, figure A.1 shows that the export value of sub-Saharan Africa nearly doubles. In addition, if one includes oil, the export growth to the Asia-Pacific region becomes even more impressive and surpasses the export growth to any other world region by far.



### *Africa is gaining market share particularly in Asia and within Africa*

SSA has not only increased its exports, it has also been able to gain market share everywhere except in Latin America. The strongest increase is in the Asia-Pacific market, where Africa has expanded its share from below 0.8% to 1.2%.<sup>6</sup> This is followed by markets within the region (not shown in the graph to avoid scaling issues), which has grown from 9% to almost 14% SSA over the past 15 years, demonstrating strong regional integration.

**Figure 2: Evolution of African export shares in different markets (excl. oil)**



Source: ITC calculations based on CEPII's BACI data. SSA is not included in the graph to avoid the scaling being distorted by the comparably large share SSA holds in this market.

### *The transport equipment sector has strongly increased its share in African exports and in world imports*

As important as the identification of fast growing markets is the identification of fast growing sectors. African exports have increased most in vehicles, as indicated by an annual growth rate of over 15% between 1995 and 2010. The Southern African Customs Union (SACU) accounts for nearly 70% of transport equipment exports and largely drives the SSA performance in this sector. Table 1 shows that nevertheless transport equipment still represent a small fraction of African exports and a tiny fraction of world imports. Africa relies to a large and increasing extent on the export of mineral products, where it also holds a significant share of world imports (12%). Cotton and Textiles, the second most important African export sector in 1995 has lost ground both in terms of its share in African exports and in terms of market share in the world. The biggest increases in market shares are in transport equipment (8%) and in raw hides, skins and leather, footwear, headgear, etc. and in machinery and electronic appliances (each ca. 4%). Interesting for our further analysis in Section 1.2. is also the fact that SSA has increased its world market share of processed foodstuffs and beverages, an industry which involves transformation and is therefore located at the upper end of the agricultural value chain.

<sup>6</sup> Including oil (Appendix I, figure A.2), African market shares have expanded considerably more and reach 2.4% in Asia-Pacific and 2.3% in the Rest-OECD (in 2010).

**Table 1: African exports by sector**

	Exports (in US\$ billion) 2010	Share in African exports		Share in world imports	
		1995	2010	1995	2010
Live animals and animal products	4.3	2.8%	1.2%	2.3%	2.3%
Vegetable products	13.4	6.9%	3.6%	5.0%	5.1%
Animal or vegetable fats and oils	1.0	0.7%	0.4%	2.7%	2.1%
Prepared foodstuffs and beverages	18.1	5.9%	4.2%	3.7%	4.8%
Mineral products	183.9	41.2%	58.9%	11.8%	11.7%
Products of chemical industries	8.9	4.9%	3.6%	1.3%	1.3%
Plastics, rubber and articles thereof	3.9	1.1%	1.1%	0.5%	0.8%
Raw hides and skins, leather, and articles thereof	2.3	0.8%	0.5%	1.9%	3.5%
Wood and articles thereof	3.7	2.5%	0.8%	3.7%	3.4%
Pulp of wood and articles thereof	3.2	1.3%	0.8%	1.0%	1.6%
Textiles and articles thereof	5.7	9.5%	3.7%	3.0%	2.8%
Footwear, headgear, umbrellas etc.; feathers and articles thereof	0.5	0.5%	0.3%	1.0%	1.5%
Articles of stone, plaster, cement etc.	0.7	0.3%	0.4%	0.5%	1.6%
Pearls, precious stone, metals and articles thereof	32.5	8.7%	6.7%	8.9%	8.0%
Base metals and articles thereof	32.1	7.9%	7.4%	2.8%	3.4%
Machinery and mechanical appliances; Electrical equipment	9.0	2.9%	3.7%	0.2%	0.5%
Vehicles, aircraft, vessels and transport equipment	10.5	1.3%	2.4%	0.2%	0.9%
Optical and medical instruments; Clocks and watches; Musical instruments	0.7	0.3%	0.2%	0.2%	0.3%
Arms and ammunition	0.0	0.0%	0.0%	0.7%	0.3%
Miscellaneous manufactured articles	0.9	0.6%	0.3%	0.6%	0.5%
Art works and antiques	0.1	0.0%	0.0%	0.6%	1.0%

Source: ITC calculations based on CEPII's BACI data. Highlighted in green are sectors which have increased their share in African exports or where Africa has increased its market share in the world. Note that oil is included in total exports here. While the shares of each non-oil export sector would increase if oil exports were not taken into accounting the total, the ranking of sectors would not change.

We further identify the top African export products to each of the selected regions. For each region, we list in appendix I, table A.1 the top five export products according to their export value and report their annual growth rate over the past 15 years along with their current market share. In addition, we list fast-growing products that have not yet reached high export levels.

Mineral products dominate African exports to all regions. Base metals also always rank among the top five products. Their market share outside Africa are, however, still very small. Exports to traditional markets in Europe consist to a significant part also of raw and processed food and beverages. In terms of growth rates, two sectors are worth noting: starting from very low levels, transport equipment has experienced high growth rates to other OECD and RoW markets. As noted earlier, these exports are dominated by SACU. Footwear, headgear, etc. is demonstrating a strong increase in sales to Asia-Pacific, Latin American and Rest-OECD markets.

## 2. Value chain integration

Along with finding new export markets, SSA needs to reduce its dependence on commodities and engage in higher value-added exports, in order to deliver higher export earnings for its growing population. In 2010, 34% of non-oil exports (and 63% of exports including oil) have been in raw products that do not involve any transformation. By contrast, in other developing regions like in Latin America, commodities account for only 23% and in developed regions, like the EU and EFTA, for only 5% of all non-oil exports.

### 2.1. Methodology

Our aim is to give a complete picture of Africa's move higher up the value chain. Since production and consumption data are not available, we must rely on trade statistics to identify where Africa has been successfully in creating transformative industries. We use import data as well as export data for assessing SSA's (value-added) trade with different world regions. On the import side, we make use of a classification based on broad economic categories (BEC) that distinguish transformed goods, parts, consumption, capital and primary goods. We aggregate all categories except "consumption" and "capital"<sup>7</sup> together into "intermediate goods" before combining them at the 6-digit level of the Harmonized System (HS) with import data for SSA. We then claim that everything which is neither a capital good nor used for consumption needs to be further transformed; hence any increase in SSA's import share of intermediates will be interpreted as a sign of value chain integration. The results on the import side reflect the ongoing creation of assembly industries in sub-Saharan Africa built upon imported inputs where the transformed goods may be used inside or outside the country. On the export side, we make use of an ITC classification that distinguishes raw from semi-processed and processed goods at the HS6-digit level. Here we assume that all (semi-)processed exports have been transformed within SSA, hence any increase in SSA's export share of transformed goods will as well be interpreted as a sign of value chain integration.

To summarize, we evaluate Africa's ability to move up the value chain using a two-track approach:

- Increase in the share of intermediate goods in total **imports**: set up of transformative industries relying on *foreign sourced inputs* where the *transformed goods may be used at home or abroad*;
- Increase in the share of transformed goods in total **exports**: set up of transformative industries relying on *domestic or foreign sourced inputs* where the *transformed goods are used abroad*.

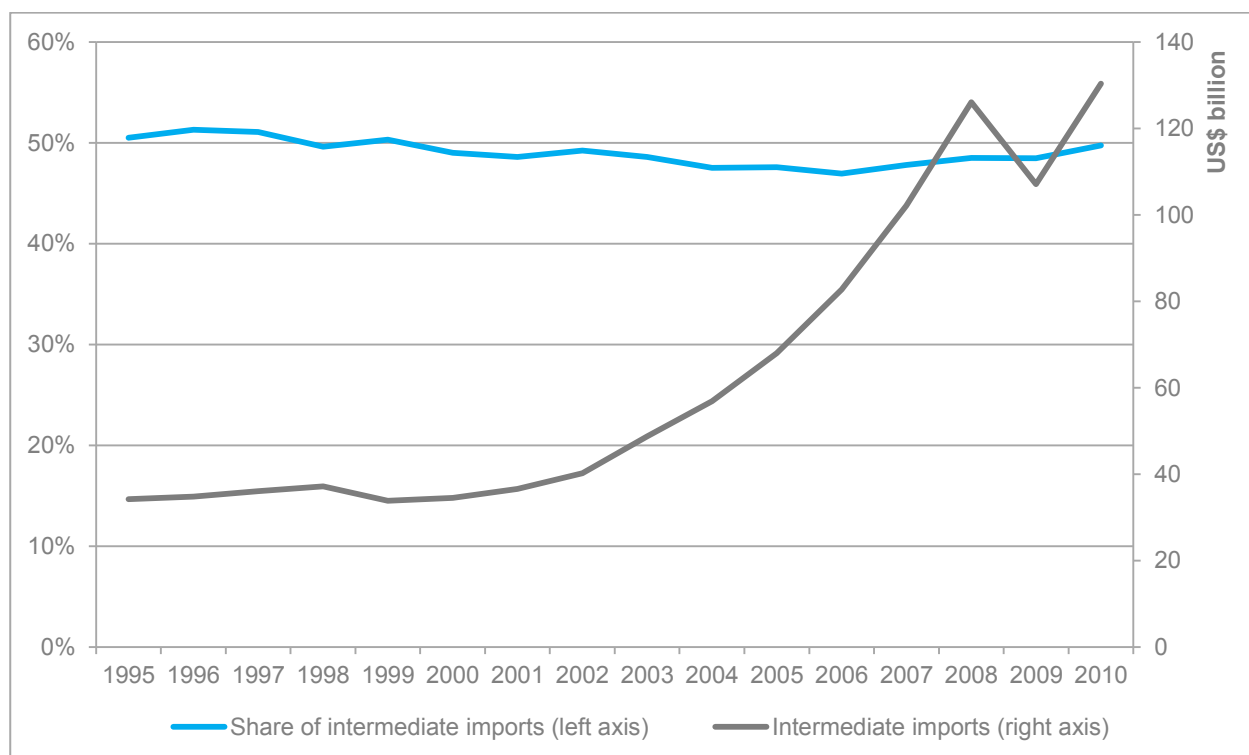
Looking at both the export and import analyses provides us with a broad picture of the status of processing industries in SSA. Note that while the first approach does not account for locally produced inputs, the second approach does not account for locally used transformed goods. Even though we are unable to capture cases where the entire value chain is within one country, we are confident that a combined look at import and export data provides a sound indication of the formation of value chains in sub-Saharan Africa.

### 2.2. General assessment of value chain integration

We begin with the assessment of imports of intermediate inputs. Figure 3 shows the evolution of imports of intermediate goods in value terms (right axis) together with the evolution of the import share of intermediates in total imports (left axis) for the entire SSA economy. Parallel to total African exports, African imports of intermediates have been on the rise over the past 15 years reaching a value of more than US\$ 130 billion in 2010. This corresponds to an annual growth rate of 9% over the period. African imports of capital goods or goods for final consumption have experienced a surge that was almost as strong, thereby leaving the share of intermediates in total imports almost unchanged, at around 50%.

Table 2 shows that the slight decrease of the share of intermediate inputs in total imports is not felt towards all supplying regions. SSA increased its imports of intermediates from other SSA countries, as well as from the RoW. These are at the same time also the two regions for which the share of intermediates in total imports is highest.

<sup>7</sup> Capital goods are mostly tools, machinery, electronical equipment or apparatus which are unlikely to be further transformed.

**Figure 3: Evolution of African imports of intermediates (excl. oil)**

Source: ITC calculations based on CEPII's BACI data.

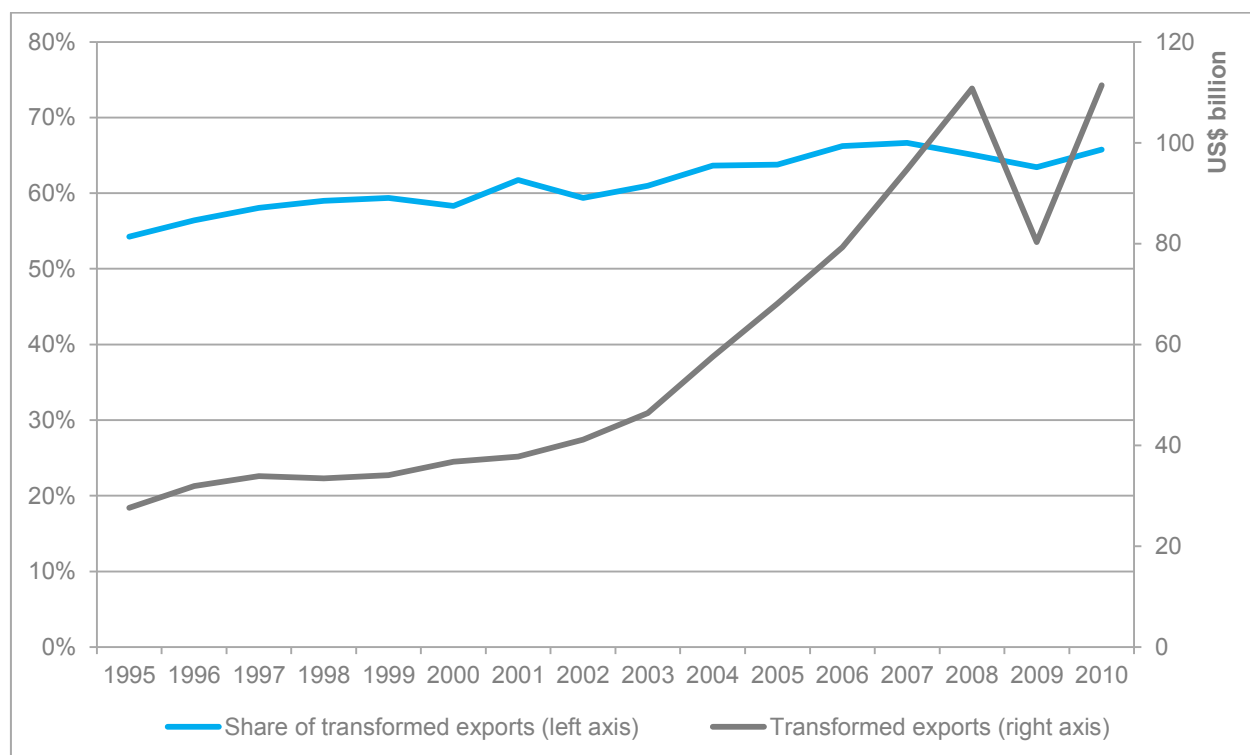
**Table 2: Evolution of African imports of intermediates from world regions (excl. oil)**

Supplying region	Intermediate imports (2010) (in US\$ billion)	Share of intermediates in total imports (2010)	Annual growth rate of share (1995-2010)	Absolute growth of share (1995-2010)
SSA	23.9	67.4%	0.3%	3.3pp
Asia-Pacific	34.1	44.7%	-0.5%	-3.6pp
Latin America	5.6	46.6%	-2.6%	-22.2pp
EU27 and EFTA	37.4	48.4%	-0.4%	-2.7pp
Rest-OECD	19.9	42.8%	-0.1%	-0.4pp
ROW	9.5	66.5%	1.0%	9.3pp

Source: ITC calculations based on CEPII's BACI data. Data is expressed in values (column 1), percentages (columns 2 and 3) and percentage points (column 4).

Figure 4 depicts the evolution of exports of transformed goods (as a share of total exports). While semi-processed and processed goods together accounted for only 54% of all exports in 1995, their share has steadily increased to reach 66% in 2010. Note that this number is still low compared to other world regions whose exports are up to 95% composed of transformed products.<sup>8</sup> Yet, SSA is gradually catching up. Taken together, figures 3 and 4 suggest that globally SSA has been successful in engaging in the export of value-added products without increasing its reliance on imported intermediates.

<sup>8</sup> The figures including oil are found in Appendix I (figures A.3 and A.4). Since oil is classified as a raw material and since SSA countries comprise a number of oil producers, the share of intermediates in total imports is slightly higher and the share of transformed goods in total exports is substantially lower. Furthermore, the strong rise in oil prices over recent years has in turn resulted in a declining share of transformed goods in total exports.

**Figure 4: Evolution of African exports of transformed goods (excl. oil)**

Source: ITC calculations based on CEPII's BACI data.

### Exports to Asia-Pacific and to Latin America increasingly focus on raw materials

A geographical disaggregation demonstrates that SSA's success in exporting a higher share of value-added goods is not felt across the board but is driven by distinct world regions (table 3). Exports of transformed products to the EU and EFTA have increased most, their share growing from 41% to 59%. This is followed by the RoW. Note that the share of transformed goods in intraregional trade has also risen despite the fact that it was already at 80% of total intraregional trade in 1995. By contrast, exports to Asia-Pacific and to Latin America are increasingly dominated by raw materials.

**Table 2: Evolution of African exports of transformed goods to world regions (excl. oil)**

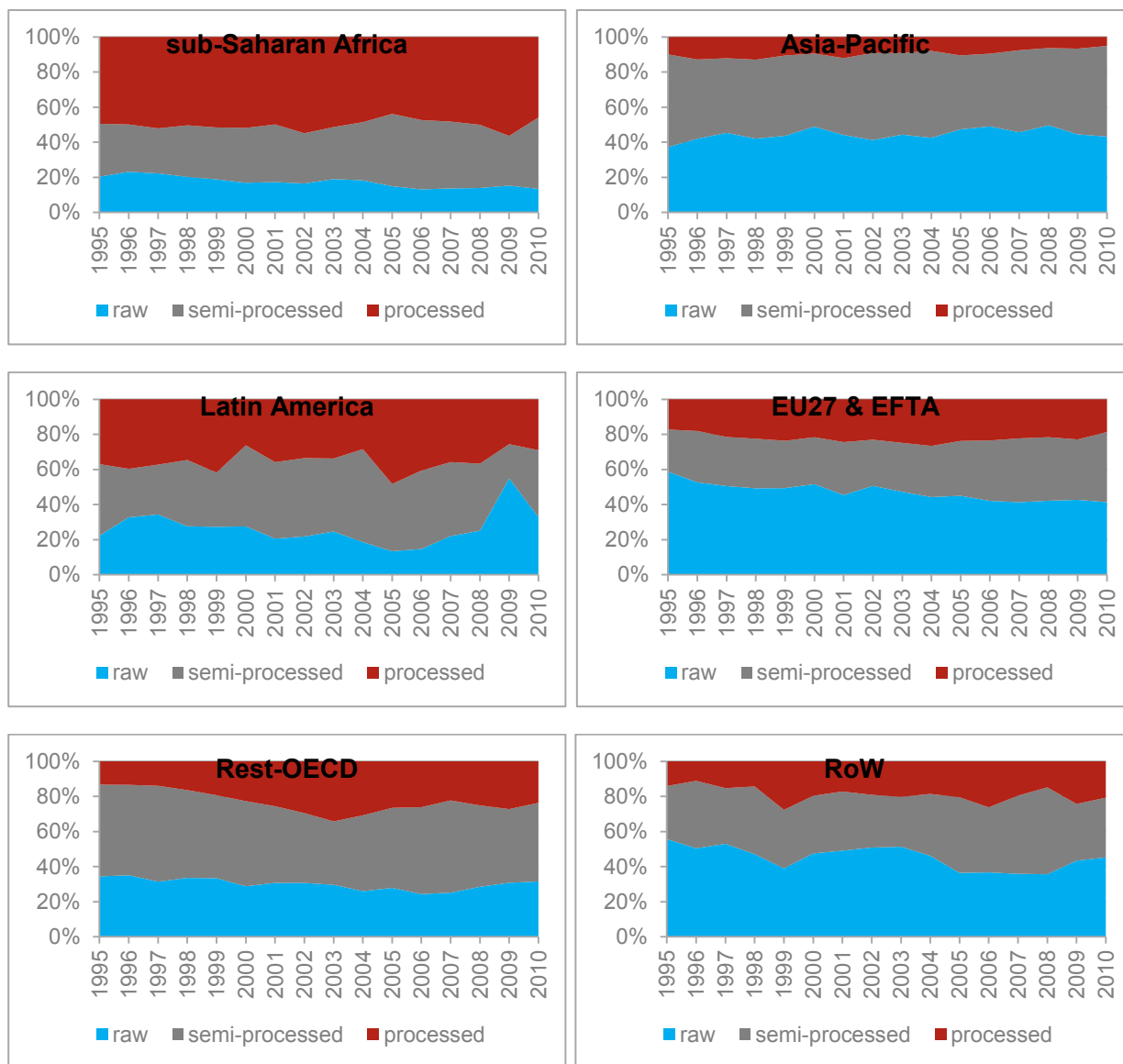
Demanding region	Transformed exports (2010) (in US\$ billion)	Share of transformed in total exports (2010)	Annual growth rate of share (1995-2010)	Absolute growth of share (1995-2010)
SSA	30.7	86.6%	0.6%	7.0pp
Asia-Pacific	18.2	56.8%	-0.7%	-6.0pp
Latin America	2.2	67.2%	-1.0%	-10.5pp
EU27 and EFTA	35.8	58.7%	2.4%	17.4pp
Rest-OECD	19.5	68.5%	0.3%	2.8pp
ROW	5.0	54.8%	1.4%	10.4pp

Source: ITC calculations based on CEPII's BACI data. Data is expressed in values (column 1), percentages (columns 2 and 3) and percentage points (column 4).

Figure 5 depicts the above, distinguishing additionally the different processing levels. In fact, the increase in SSA's share in transformed intraregional exports has been driven by higher exports of semi-processed goods. While semi-processed and processed goods take up the largest share of intra-SSA trade (41% and

46% respectively), raw material and semi-processed goods dominate exports to Asia-Pacific (43% and 52% respectively). For the other regions, exports are more balanced across the different processing levels. To sum up, whereas Africa's strong increase in exports to Asia-Pacific has been led by an increase in raw materials, the region has demonstrated its ability to move away from basic commodities in trade, also in intra-African trade.<sup>9</sup>

**Figure 5: African export shares by level of processing to world regions (excl. oil)**



Source: ITC calculations based on CEPII's BACI data.

<sup>9</sup> Including oil further accentuates the trends outlined above and reveals the extent to which the extraordinary growth of African exports to the Asia-Pacific region has been driven by oil (figure A.4). Only in trade with the EU & EFTA and with the RoW, raw material exports have not increased relative to exports of semi-processed and processed goods when oil is taken into consideration.

### 2.3. Sector- and country-specific assessment of value chain integration

The global results suggest a moderate move towards setting up transformative industries in SSA. This section concentrates on four identified sectors and discusses whether individual countries have managed to move higher in the value chain in these particular sectors. We sort individual HS codes into four broad sectors as depicted in appendix I, table A.2. We have chosen sectors for which value chains are comparably easy to identify. The sectors, which we evaluate individually, are agriculture, leather, wood, and textiles.

For each sector, we list the best performing countries, evaluated according to their ability to set up transformative industries. As before, this is first approximated by an increase in the share of the country's imports of intermediate goods in its total imports and second, by an increase in the share of the country's exports of transformed in its total exports. The upper part of each table tells us whether countries have established transformative industries that rely on imported inputs (and may be used at home or abroad). The lower part informs about transformation processes that target users abroad (where inputs may be sourced locally or globally). For comparison, a fifth column is added to show how top ranked importers perform on the export side and vice versa. We use a filtering process to identify the top performers: (i) we exclude countries that have experienced a decrease in their imports of intermediates (exports of transformed goods) over the respective time period; (ii) we exclude countries that have experienced a decrease in the share of intermediates in total imports (transformed goods in total exports)<sup>10</sup>; (iii) we exclude countries with highly volatile growth rates of these shares as this might be an indication of non-sustainable, one off events and/or poor data quality.<sup>11</sup>

For the country that has experienced the highest absolute growth (in percentage points) of the share of transformed goods in total exports within each sector, we also analyse in detail to which markets these exports increasingly are destined. By this, we provide details on countries that are catching-up in terms of vertical integration while ensuring at the same time that transformed goods account for a significant share of total exports. We enrich our quantitative analyses with concrete examples, i.e. projects, initiatives and programmes where countries and regions have successfully set up value chains.

#### *Agriculture: Angola has most successfully expanded its share of agrifood exports*

In agriculture, out of the 44 SSA countries two decreased their imports and 26 their import share of intermediates. All remaining countries except Benin show a highly volatile development of the import share. Benin is therefore the only country that has significantly increased its share of intermediate inputs (table 4, upper part). Note that this does not necessarily mean that other countries have not established transformative industries. If countries have used local inputs to produce agricultural goods for exports, they will appear in the lower part of table 4. Out of the 44 SSA countries (see appendix I for the full list), 36 increased their export sales of transformed goods between 1995 and 2010. Eight of them, however, experienced a higher growth of exports of unprocessed agricultural products, leading to a decrease of the share of transformed goods in total exports. Another 17 showed highly volatile growth rates and are not further considered. The final selection includes the 11 countries listed below.

Angola experienced the strongest relative and absolute growth of the export share of (semi-)processed goods. The strong growth performance has boosted transformed products to account for 31% of all agricultural exports. This is also the highest share of all successful exporters. The staggering revival of Angola's agrifood industries is accompanied by governmental and private sector initiatives. Projects to build agro-industrial zones and investments from foreign food processing multinationals, such as Nestlé, give hope for a more sustainable development in the future.<sup>12</sup>

<sup>10</sup> Note that we consider the first year with a positive share when the share is zero in 1995.

<sup>11</sup> Volatility is assessed by comparing the standard deviation with the annual growth rate of the ratios. Countries for which the standard deviation is larger than the annual growth rate are excluded.

<sup>12</sup> Newspaper articles, accessed at <http://www.howwemadeitinafrica.com/restoring-angolan-agriculture-to-its-former-glory/12650/> and <http://allafrica.com/stories/201208080885.html> on 12/09/2012.

Table 4 lists Benin as the only successful country in setting up processing industries that use imported inputs. In 2010, intermediates accounted for a share of total agricultural imports five times higher than in 1995. At the same time, Benin has increased its export share of processed agricultural goods, suggesting that the imported intermediates are also transformed for re-export. Since the export share has fluctuated significantly, Benin is not part of the list of successful exporters of value-added agricultural produce. Major agricultural exporters such as Uganda and the United Republic of Tanzania (which rank 7<sup>th</sup> and 8<sup>th</sup> among SSA countries in terms of total agriculture exports) have strongly engaged in agroprocessing, lifting the share of transformed agricultural goods in total exports from 3-4% to 20% and 16%, respectively. In Tanzania, this development was supported by imported intermediates (+6 percentage points).

**Table 3: Top countries to move up the value chain in agriculture**

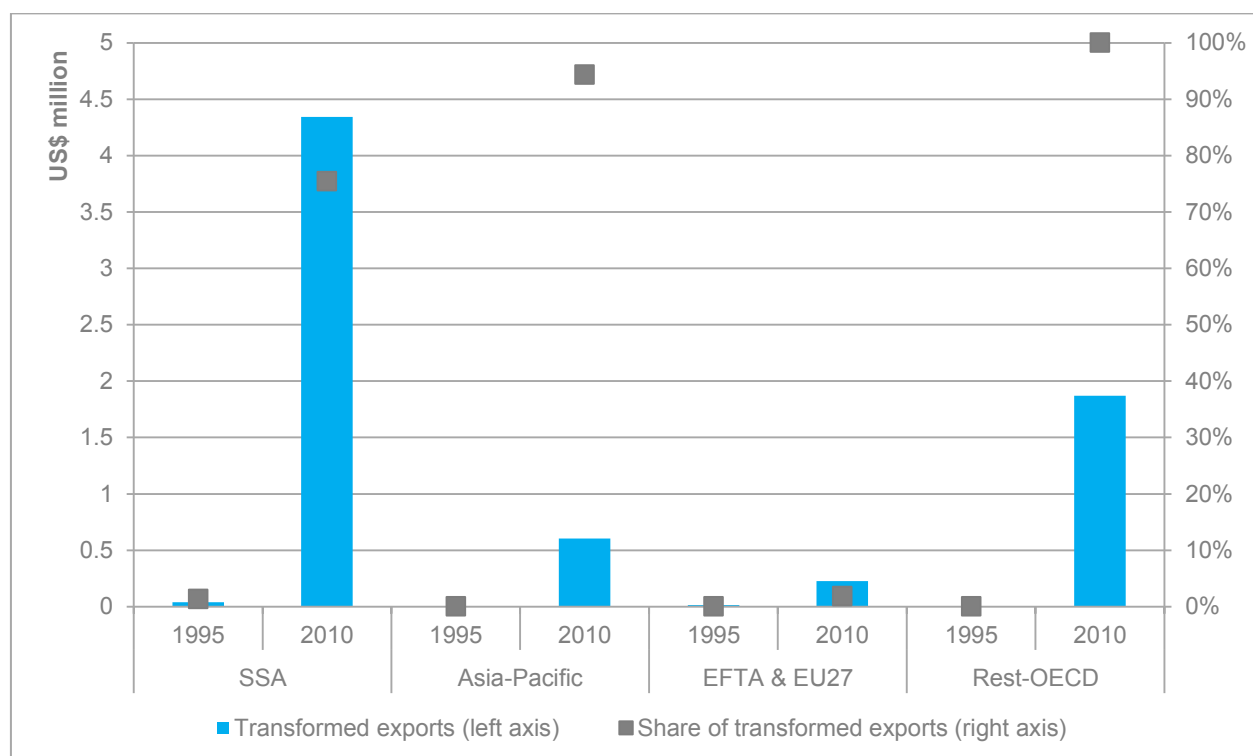
Country	Intermediate goods' imports				Transformed goods' exports
	Imports (2010) (in US\$ million)	Share in total imports (2010)	Annual growth rate of share (1995-2010)	Absolute growth of share (1995-2010)	Absolute growth of share (1995-2010)
Benin	544.2	40.7%	10.9%	32.1pp	6.9pp
Country	Transformed goods exports				Intermediate goods' imports
	Exports (2010) (in US\$ million)	Share in total exports (2010)	Annual growth rate of share (1995-2010)	Absolute growth of share (1995-2010)	Absolute growth of share (1995-2010)
Angola	7.0	31.4%	43.1%	31.2pp	-15.3pp
Dem. Rep. of the Congo	18.5	25.1%	11.2%	20.0pp	3.6pp
Uganda	233.9	19.5%	14.1%	16.8pp	-10.2pp
United Rep. of Tanzania	197.2	16.0%	9.8%	12.1pp	6.2pp
Mauritania	68.7	10.5%	16.2%	9.4pp	6.7pp
Rwanda	9.9	7.0%	17.8%	6.4pp	26.2pp
Sao Tome and Principe	0.8	8.6%	8.6%	6.2pp	20.2pp
Burundi	10.6	8.5%	8.3%	5.9pp	-6.4pp
Ethiopia	77.2	3.9%	5.9%	2.3pp	-8.9pp
Somalia	2.4	1.2%	12.3%	1.0pp	-16.8pp
Guinea-Bissau	0.4	0.5%	13.9%	0.5pp	-10.4pp

Source: ITC calculations based on CEPII's BACI data. Data is expressed in values (column 1), percentages (columns 2 and 3) and percentage points (columns 4 and 5).

When analysing countries' performance in detail, we exclude markets with zero imports of transformed products in 1995 and 2010. In the case of agriculture, this reduces Angola's markets to SSA, Asia-Pacific, the EU and EFTA and the Rest-OECD (figure 6). First of all, the figure demonstrates that agro-processing is a relatively new activity in Angola. In 1995, during the country's civil war, exports were virtually zero to all regions. In 2010, by far most transformed agricultural products (more than US\$ 4.3 million) are destined for other SSA markets. This has increased the share of transformed products in total exports from 1% to 75%. Mostly resulting from the lack of raw agricultural exports, the share of transformed goods in total exports reaches even 94% in Asia-Pacific and 100% in the Rest-OECD. The total value of these exports, however, is still very low at US\$ 0.6 million and US\$ 1.9 million, respectively. The same holds for Angola's traditional markets in Europe, which import, compared with Asia-Pacific, a much higher share of agricultural products that are destined to be further processed.



**Figure 6: Angola's export performance in transformed agricultural goods in world markets**



Source: ITC calculations based on CEPII's BACI data. Angola's exports of transformed goods to Latin America and the RoW are zero in 1995 and in 2010.

### **Leather: ten countries have set up transformative industries**

The countries which have been the most successful in setting up leather processing industries are listed in table 5 below. On the import side, 27 countries imported fewer intermediates in 2010 than in 1995. Two countries had a negative and seven countries a volatile development of their intermediate input shares. Equatorial Guinea was excluded because of zero imports in eight out of 16 years. The list therefore comprises of seven countries, listed below. On the export side, 16 countries were excluded due to a negative development of export sales of processed leather articles. Another four countries were excluded due to a negative and 20 due to a volatile development of the export ratio. Again, we disregard Equatorial Guinea due to missing data. Overall and in particular compared to other value chains, the leather industry has quite successfully engaged in processing activities. ITC is supporting this development with various projects, such as the "COMESA leather sector regional export development" project, which is being implemented through 2013. This initiative has the objective to add value to local resources and to bring processed leather goods (e.g. shoes and bags) to regional and international markets.

Congo's strong annual growth of intermediates as a share of total imports has been triggered by an outstanding performance between 2007 and 2010. Before that, the share was marginal, fluctuating between 0% and 1%. Interestingly, most countries whose share of intermediates in total leather imports strongly increased have (with the exception of Comoros and Ghana) also expanded their exports of (semi-)processed leather articles. This is a strong sign of a flourishing leather processing industry where countries without sufficient domestic supply of raw material import it from other countries to transform and eventually export finished leather goods. Note, however, that in the particular case of the Congo, the absolute value of transformed exports has in fact declined over the past 15 years. Yet, the share has increased because the drop in raw leather exports was even more pronounced. Note also that we control for such inadequacies by excluding cases with decreased exports of transformed products from the beginning. All the other countries experienced fluctuating export shares and are, therefore, not among the best performing exporters. Here, Chad shows highest absolute growth, but is still a very small leather

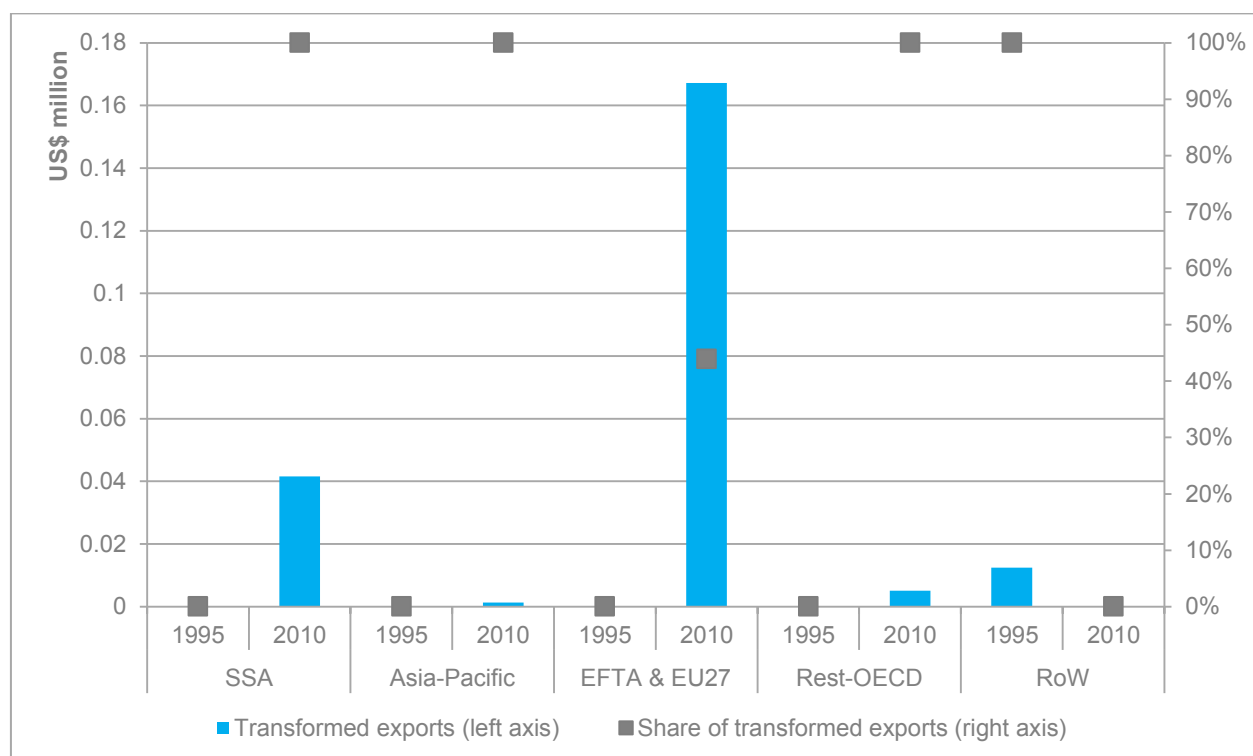
exporter overall with a total export value of only US\$ 429,000 (US\$ 215,000 of which is transformed). Rwanda and Burundi are with total leather exports of more than US\$ 9 million much bigger players on the leather market and show also the highest relative growth of the share of transformed leather exports.

**Table 5: Top countries to move up the value chain in leather**

Country	Intermediate goods' imports				Transformed goods' exports
	Imports (2010) (in US\$ million)	Share in total imports (2010)	Annual growth rate of share (1995-2010)	Absolute growth of share (1995-2010)	Absolute growth of share (1995-2010)
Nigeria	40.5	14.4%	15.2%	12.7pp	2.8pp
Congo	2.4	9.6%	46.1%	9.6pp	59.9pp
Comoros	0.4	10.8%	11.5%	8.7pp	0.0pp
Ethiopia	3.9	9.1%	9.0%	6.6pp	31.4pp
Mali	0.7	2.6%	19.0%	2.4pp	39.2pp
Ghana	1.1	1.4%	5.1%	0.8pp	-1.8pp
Democratic Republic of the Congo	0.4	0.8%	9.0%	0.6pp	36.0pp
Country	Transformed goods' exports				Intermediate goods' imports
	Exports (2010) (in US\$ million)	Share in total exports (2010)	Annual growth rate of share (1995-2010)	Absolute growth of share (1995-2010)	Absolute growth of share (1995-2010)
Chad	0.2	50.2%	25.7%	48.6pp	-24.3pp
Rwanda	4.3	46.7%	58.1%	46.6pp	1.5pp
Burundi	2.1	22.5%	55.8%	22.4pp	-8.2pp

Source: ITC calculations based on CEPII's BACI data. Data is expressed in values (column 1), percentages (columns 2 and 3) and percentage points (columns 4 and 5).

Again, we study the country with the highest absolute growth of the share of transformed goods in total exports in detail – Chad. Out of a total value of leather exports of US\$ 429,000, transformed products account for US\$ 215,000, more than 50%. Figure 7 shows that Chad has positive exports of (semi-)processed leather articles to five markets. Its largest market by far is Europe. As a consequence of the remarkable growth, the share of transformed goods in total leather exports has increased to 44%. In tiny markets, it is even at 100%. Despite these high dynamics, leather processing is still an infant industry in Chad and the growth was realized on a very low base.

**Figure 7: Chad's export performance in (semi-) processed leather articles in world markets**

Source: ITC calculations based on CEPII's BACI data. Chad's exports of transformed goods to Latin America are zero in 1995 and in 2010.

### **Wood: Ethiopia and Gabon are the only countries that have moved up the value chain**

In the wood industry, all but two countries increased their level of imported intermediates. 31 however did not increase their share, meaning that their imports of finished wood articles increased by more than their imports of raw or partly processed inputs. All the remaining 11 countries had highly volatile shares. Hence, we have not been able to identify any success story for countries that rely on raw timber imports for their transformative industries. Yet, countries which possess a local supply of timber may well have managed to set up wood processing industries. 34 out of 44 countries increased their exports of consumables. Out of those, 15 countries had, however, a decreasing share of transformed goods in total exports of the industry. Since in 17 cases the share of exports of finished wood products fluctuated excessively, the final selection on the export side includes only two countries. This demonstrates the failure of widely establishing wood processing industries on the continent and the tendency of timber-abundant countries to continue to rely on exports of unprocessed material.<sup>13</sup>

Ethiopia and Gabon represent the only exceptions. Ethiopia's wood industry has seen an impressive growth of processed wooden articles in total exports (table 6). Starting with an export value of just US\$ 124,000 in 1995, it reached US\$ 18.2 million in 2009 before collapsing to US\$ 4.4 million in 2010. Gabon, the only other country that has successfully moved up the value chain, is with exports of US\$ 248 million, a much larger player among processed wood exporters. Both countries have decreased their shares of intermediate wood imports, confirming the overall finding on the import side.

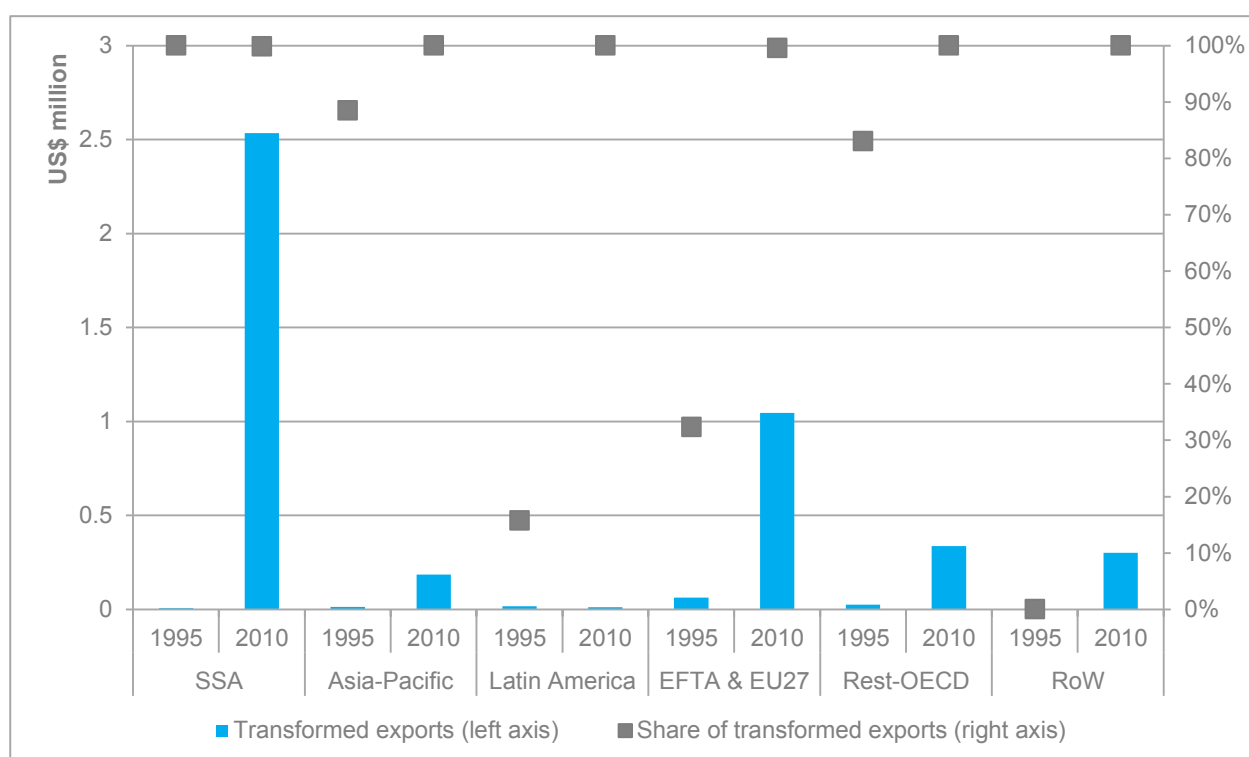
<sup>13</sup> See also <http://allafrica.com/stories/201009220284.html> and <http://www.fao.org/forestry/23516-07ce58e8d71010587d338ae25e8978c76.pdf>.

**Table 6: Top countries to move up the value chain in wood**

Country	Transformed goods' exports				Intermediate goods' imports
	Exports (2010) (in US\$ million)	Share in total exports (2010)	Annual growth rate of share (1995-2010)	Absolute growth of share (1995-2010)	Absolute growth of share (1995-2010)
Ethiopia	4.4	99.8%	7.1%	64.3pp	-12.9pp
Gabon	248.3	42.2%	15.5%	37.3pp	-11.3pp

Source: ITC calculations based on CEPII's BACI data. Data is expressed in values (column 1), percentages (columns 2 and 3) and percentage points (columns 4 and 5).

Ethiopia's wood articles' exports are mainly destined for regional markets (figure 8). The increase of intraregional exports from US\$ 6,000 in 1995 to US\$ 2.5 million in 2010 is not reflected in an increased share since raw timber exports to other SSA countries were zero in 1995. The only other market, to which Ethiopia exported a significant amount of (semi-)processed wood articles in 2010, is the EU and EFTA region. Given the general lack of raw timber exports, the share of transformed articles has increased everywhere to nearly 100%.

**Figure 8: Ethiopia's export performance in transformed wood products in world markets**

Source: ITC calculations based on CEPII's BACI data.

### Textiles: Burkina Faso, Chad and Mali increasingly engage in processing

In the cotton and textile sector, four countries imported less cotton in 2010 than in 1995. Another 23 have not increased their share and the remaining 17 have reported a highly volatile share. Hence, as with wood, there is no success story of a country relying on cotton imports for further processing. Thus, successful countries in textile exports are countries that produce their own cotton. Out of the total 44 SSA countries, 18 have decreased their absolute exported value of textile articles and another eight their share. 15 countries showed volatile shares, reducing the list of successful countries to only three. Indeed, big textile

producers like Mauritius and Madagascar are not among these successful countries. Mauritius' textile exports have actually slightly decreased from US\$ 955 million in 1995 to US\$ 846 million in 2010. Madagascar's exports by contrast have more than tripled but so have its raw cotton exports. Therefore, we cannot conclude that the country is increasingly adding value before exporting its products.

Table 7 lists Burkina Faso, Chad and Mali as countries which have set up industries that engage in the processing of cotton and other material in order to export textile products. Burkina Faso and Mali are also among the largest African cotton producers with volumes of 187 million and 151 million tons in 2011/12 respectively.<sup>14</sup> This suggests that at least a few cotton producers are gradually also processing the raw product, reacting to lower demand and highly volatile commodity prices. All three countries participate in ITC's "All ACP Agricultural Commodity Programme" in which successful textile and clothing producers from other regions relay their experiences to African cotton producers with the aim of building capacity to transform cotton.

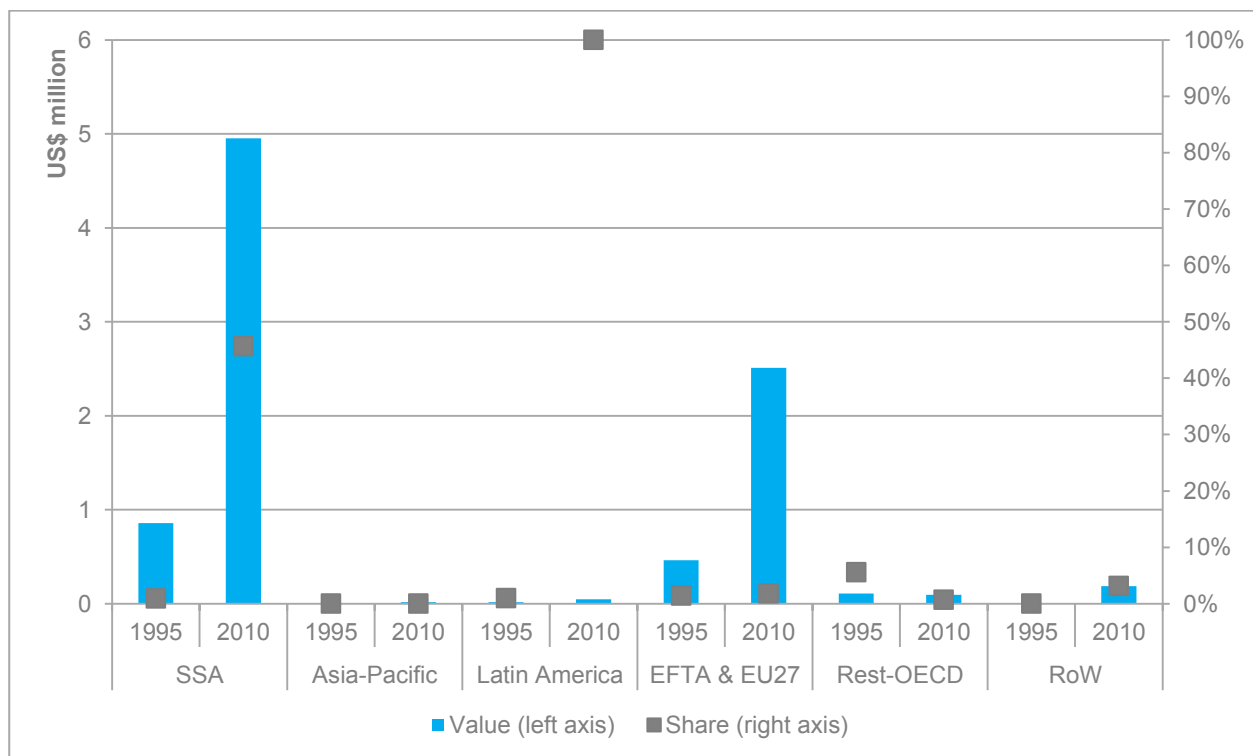
**Table 7: Top countries to move up the value chain in textiles**

Country	Transformed goods' exports				Intermediate goods' imports
	Exports (2010) (in US\$ million)	Share in total exports (2010)	Annual growth rate of share (1995-2010)	Absolute growth of share (1995-2010)	Absolute growth of share (1995-2010)
Burkina Faso	7.8	2.0%	5.1%	1.1pp	-12.6pp
Chad	0.6	0.6%	9.6%	0.4pp	-46.1pp
Mali	4.7	1.7%	1.4%	0.3pp	0.6pp

Source: ITC calculations based on CEPII's BACI data. Data is expressed in values (column 1), percentages (columns 2 and 3) and percentage points (columns 4 and 5).

We study Burkina Faso as the country with the strongest absolute growth of the share of textiles in total exports of the industry. Figure 9 shows that Burkina Faso exports textiles to all world regions. There is a certain concentration, however, on SSA and European markets. The low textile share in exports to most regions (except for Latin America) confirms that Burkina Faso is still mainly engaged in exports of cotton to spinning mills elsewhere. In particular to Asia, one of Burkina Faso's major cotton markets, textile exports are still virtually zero.

<sup>14</sup> ICAC (2012): World Cotton Outlook.

**Figure 9: Burkina Faso's export performance in textiles in world markets**

Source: ITC calculations based on CEPII's BACI data.

### **Value-added exports aim at regional and traditional markets rather than at fast-growing emerging economies in Asia and Latin America**

This chapter has shown that SSA is increasingly exporting transformed products and is thus already moving up the value chain. Some countries and sectors have demonstrated real successes in this transformation. The positive trends are not equally distributed across markets: it is, in particular, trade within SSA and trade with traditional markets in Europe and the RoW (comprising North African countries) that is characterized by increasing value addition. Trade with the Asia-Pacific region, which is becoming SSA's principal export market, is increasingly dominated by oil and other raw materials, hence by products that are located at the lower end of the value chain. These results confirm that SSA is confronted with a paradox: on the one hand, the region needs to diversify exports away from traditional and towards emerging markets. On the other hand, some of these emerging markets do not buy value-added exports, which on the other hand account for an increasing share of exports to traditional markets. A balance of geographical and product diversification is therefore needed to tap into sustainable growth opportunities. The next chapter will suggest policies that could help achieve these objectives.

## Chapter 2 Africa's export potential

The previous chapter has identified those African countries and sectors that have performed well in terms of value addition. This chapter examines how African performance may be boosted by changes in trade policy including improvements to trade-related infrastructure and trade procedures. Often African suppliers suffer from high transport costs and procedural obstacles that turn cross-border trade into a lengthy and expensive undertaking. Countries will only manage to integrate into supply chains with more sophisticated products when moving goods and crossing borders are predictable and inexpensive.

In the second part of this study we examine prospects for Africa by computing projections of the world economy based on three hypothetical scenarios. Our approach takes stock of available information on current trade structure and production factors, along with reasonable assumptions concerning the evolution of the world economy over the coming years to infer likely changes to trade patterns and their effect on African exporters. The methodology of the computations is presented in appendix II.

We compare the evolution of trade and income between 2007 and 2025 in four different scenarios:

- **Baseline:** we assume a world *without policy changes*. We only account for differentiated economic growth rates and demographic information. The other three scenarios are compared to this baseline.
- **Policy change I:** we consider *improvements in transport infrastructure within the SSA region*. The poor quality of transport infrastructure in Africa is a significant obstacle to trade across the continent. It increases the cost of transport as well as the time that is needed to trade. Both issues are tackled in this scenario. We assume that infrastructure projects are put in place that halve international transportation costs between any two SSA trade partners over the next five years and that reduce the time to transport traded goods within each country. This hypothetical scenario is quite ambitious; calculations of the cost of these improvements are beyond the scope of this paper and we assume that these costs will be borne by external parties, such as donors and development agencies.
- **Policy change II:** we consider *trade facilitation in Africa*. We assume that customs procedures are accelerated by SSA countries both on the export and on the import side. Trade facilitation is generally achieved by improving the performance of customs administrations. Therefore, we assume that this improvement reduces processing time across the board, regardless of the trading partners. Since trade facilitation programmes can actually be implemented within a far shorter period of time than big infrastructure projects, we assume that this improvement will materialise within two years.
- **Policy change III:** we try to capture the wish expressed by some Asian countries to develop their ties with Africa. Such ambition can be achieved through a large set of different policy measures. Here, we assume a *reduction of bilateral trade costs between SSA and Asia* (South Asia, East Asia and Pacific, developing countries only).

### 1. Model specification and assumptions

Our approach describes production, demand and trade in a dynamic framework. The link between subsequent years is made through the evolution of variables like demographics, saving patterns by region and productivity. In the baseline scenario we compute the economic efficiency gains that are consistent with projected growth in Africa and its trading partners. In the policy change scenarios, growth becomes endogenous, and hence, changes to GDP and welfare<sup>15</sup> are determined by the policies under considerations. Subsequent years are also linked through the accumulation of capital. Installed capital is tied to a sector, but capital depreciation and investment allow capital to progressively move to the most profitable sectors over time. Other factors include land availability, natural resources, skilled and unskilled labour. Labour is assumed to be perfectly mobile across activities. Even though this assumption may seem ambitious at first, it is justified by the fact that the magnitude of shocks considered never exceeds the

<sup>15</sup> In this study, welfare is equivalent to real income: it reflects the average purchasing power of each region. The model excludes the issue of income distribution within a region.

natural replacement of labour through entry to and exit from the labour market. Newcomers to the labour market can choose sectors in which the demand is highest. Land can also be allocated to different sectors, but its “mobility” is assumed to be imperfect. Finally, natural resources, like an oil field or a mineral mine, are specific to a sector, as it is not normally possible to transfer one natural resource into a different one.<sup>16</sup> At the global level there is assumed to be no inflation, even though the price level can rise or decline in particular regions.

We divide the world into nine regions and 18 sectors, with a special focus on SSA, comprising of four regions: Western, Central, Eastern Africa and SACU. Sectors have also been chosen to reflect African trade patterns, within the limits set by the 57 sectors included in the Global Trade Analysis Project (GTAP), the only comprehensive such database available. Sectors in which Africa performs well, like cocoa, flowers and spices, sugar or forestry have been singled out, while sectors for which Africa does not have a strong comparative advantage have been grouped together.<sup>17</sup> We also isolated product groups that have been identified in Chapter 1, such as clothing and leather.

Products can either be sold domestically or they can be exported. As each region includes several countries, countries can engage in either intra- or in extraregional exports. Even beyond the issue of distance, products tend to be sold within a country rather than across borders. This is due to the fact that international trade implies a number of additional costs that do not need to be borne when selling on the domestic market, or at least not to the same extent. For some very specific products and markets, tariffs can represent a significant cost, but most costs associated with trade-costs are non-tariff costs.

Transport costs are one component of trade costs. Transport is a service activity produced like any other, using intermediate inputs and capital as production factors. Its cost depends on the sector, as well as on the exporting and importing region. Trade costs also include a large set of non-tariff barriers, like the need to comply with regulations and specific procedures that are required for imported products and services. In the model, we use the ad-valorem equivalents of these costs, as they have been estimated by other studies (see appendix II for details). Finally, transport and customs procedures take time, which represents an additional trade cost. This time has been recorded by the World Bank within the framework of the doing business project.<sup>18</sup> Time to trade is divided into four components; in our simulations we assume changes in two of them: procedural time and inland transportation time, while we assume that pre-shipment procedures and handling at the port are constant. Again, time is translated into ad-valorem equivalents based on estimations by Minor and Tsigas (2008). They provide estimates of the costs of one day of trading for any product between two trading partners.

## 2. The baseline scenario

In the baseline scenario we only consider the natural development of trade as a result of the growth of demand and supply, along with the evolution of demographics. Trade costs are left unchanged. Figure 10 shows an optimistic evolution for two regions: SSA and Asia. Eastern and Western Africa perform best, followed by Central Africa. SACU's performance remains stable with an annual growth between 3% and 4%. Asia's economic growth is actually slowly declining, but still remains very strong until 2025, at almost 6% growth per annum. Europe, other OECD countries, and Latin America and the Caribbean are performing less well. The RoW, comprising of oil-abundant countries in the Middle East, the Russian Federation and Central Asia, but also North Africa, shows a mixed picture.

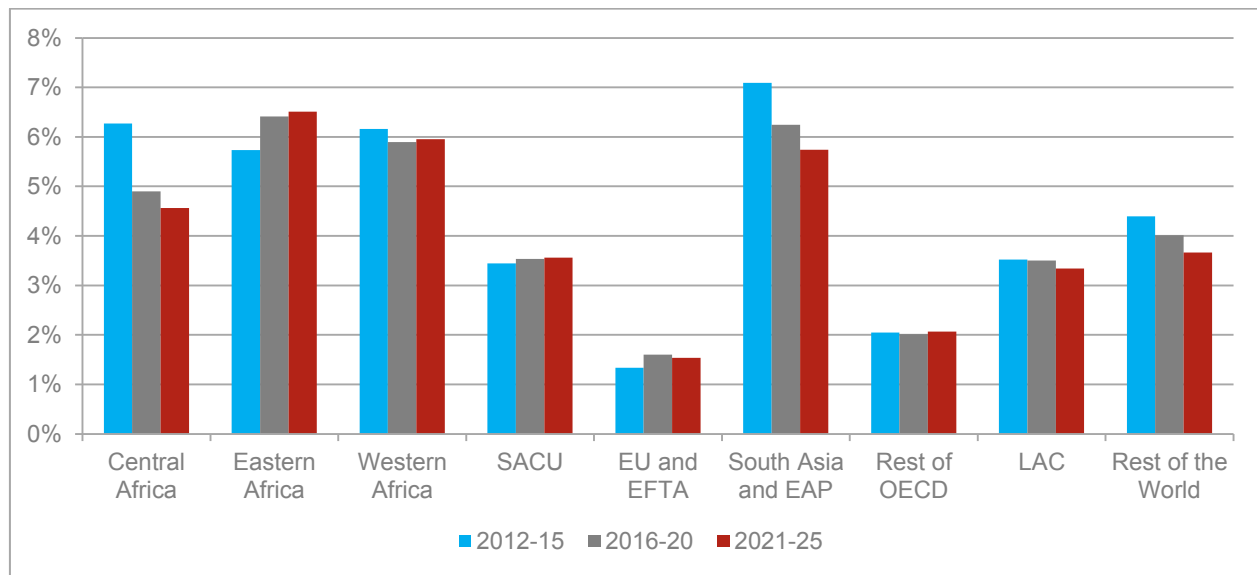
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<sup>16</sup> A detailed description of model specification can be found in Decreux and Valin (2007).

<sup>17</sup> The detailed aggregation is provided in Appendix II.

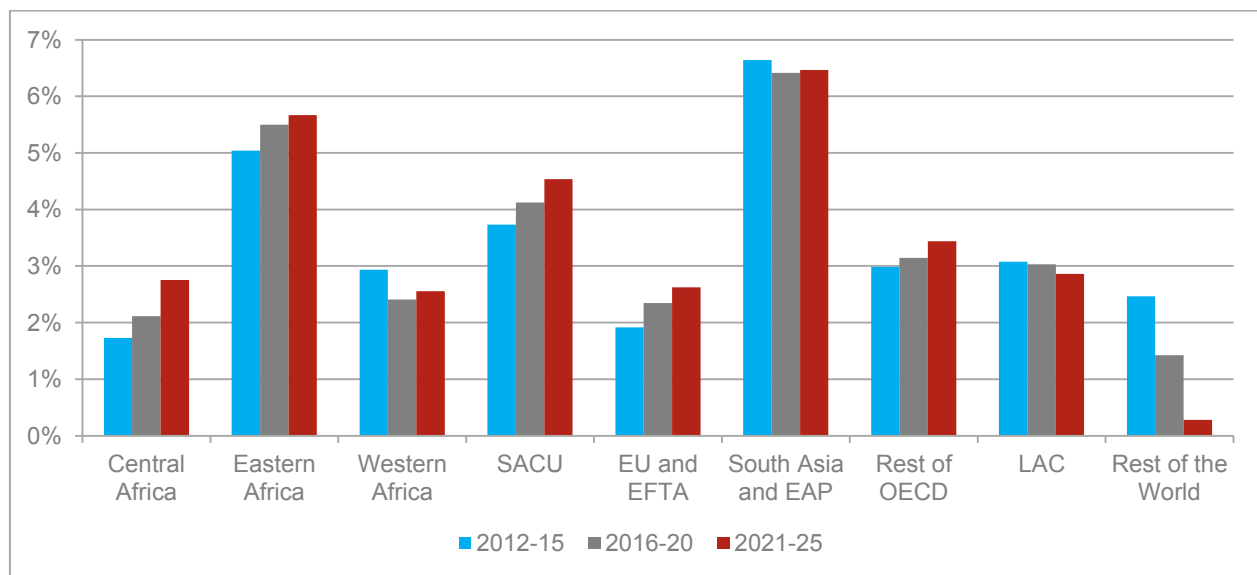
<sup>18</sup> For the exact source, please refer to Appendix II.



**Figure 10: GDP growth forecast by region (baseline scenario)**

Source: ITC calculations based on the MIRAGE model. Regional growth predictions are from CEPIL.

All other variables presented below are endogenous to the model and are directly derived from previous assumptions along with projections on population and labour. Figures 11 and 12 show the growth of non-oil exports, respectively in value and volume terms. Similar graphs including oil can be found in appendix II.

**Figure 11: Predicted growth of export values by region (excl. oil)**

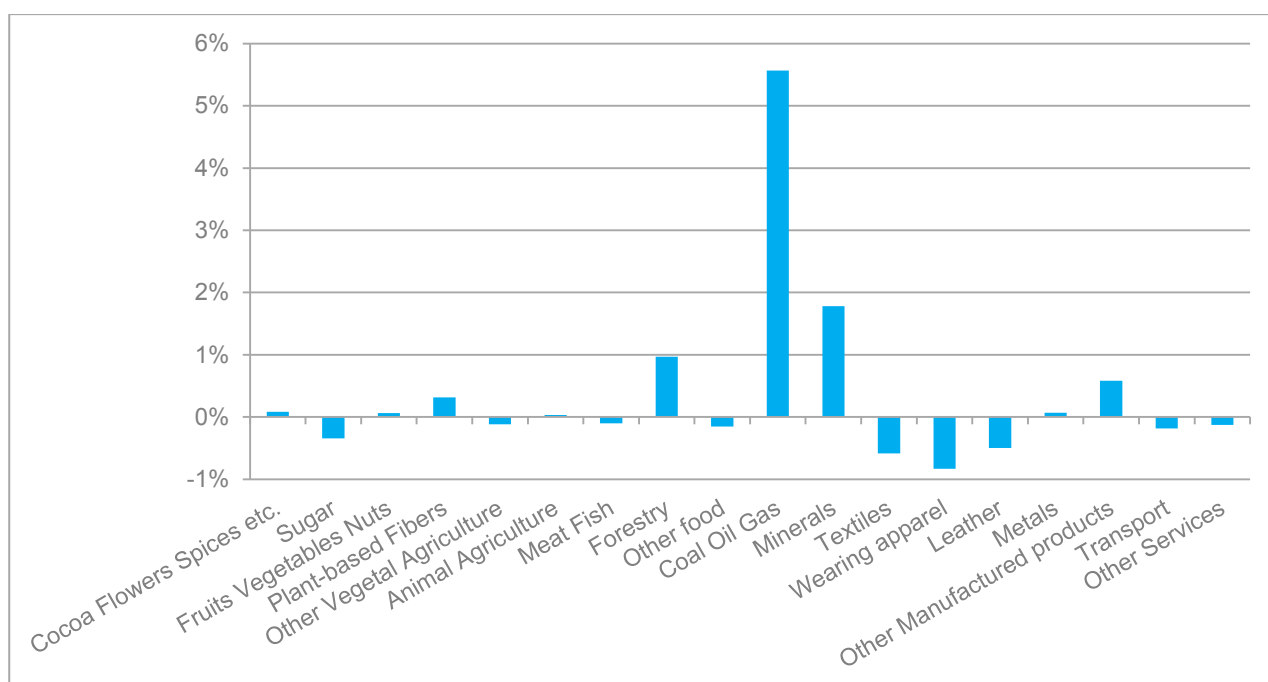
Source: ITC calculations based on the MIRAGE model.

The comparison between GDP and export projections reveals that some regions are affected by a significant “Dutch disease” effect: Central Africa, Western Africa, and the RoW are strongly specialised in oil exports, and therefore, the projected increase of oil prices (see figure 12 below) raises their predicted GDP growth, but has evidently no impact on non-oil exports.<sup>19</sup> In fact, rising oil prices even prevent these regions from specialising in the export of other products.

<sup>19</sup> This observation is confirmed by table A.6. (same indicator but including oil) in Appendix II.

Figure 12 analyses the evolution of world prices for all products of the aggregation further. As scarce resources impose a constraint on production capacity, the prices of products which rely most on natural resources grow faster than the prices of other products. The coal, oil and gas price is growing significantly faster because of the increasing scarcity of these resources, and also because intermediate demand for that product is rather inelastic in the short run. Minerals and forestry also experience fast growing prices. By contrast, prices of products like textiles and apparel and leather are declining, as a result of efficiency gains by the fast growing economies specialised in these sectors. This creates a strong competition for countries that rely on the export of these products. It should also be kept in mind that consumer demand is not homothetic: revenue growth favours demand for some products more than for others; this phenomenon is taken into account by the model, which has been calibrated on the basis of revenue and substitution elasticities estimated by the United States International Trade Commission (USITC). Whereas the elasticity of demand for some food products like cereal grains is close to zero, it is larger than one for manufactured products. The picture for the price of energy exports is very much in line with what was discussed in Chapter 1 of this study regarding the large contribution of oil to the growth in exports.

**Figure 12: Predicted average annual price growth by sector (2012-2025)**



Source: ITC calculations based on the MIRAGE model.

In order to neutralise the impact of price changes, table 8 presents the total variation of exports by sector between 2012 and 2025 at constant prices. Absolute export variations are dominated by the oil, coal and gas sector, but this is only due to the size of initial flows. In percentage terms, exports do not increase more in this sector than in others. Note that these projections do not take into account any active strategy by the countries; they are the result purely of the current export structure and the evolution of demand throughout the world. Even at constant prices, we observe that the oil, coal and gas sector is expected to be the first contributor to export growth in Central and Western Africa. In addition to the general development of the primary sector, Eastern Africa and SACU are also expected to develop their manufacturing and services sectors.

**Table 8: Changes in export value at constant prices by sector (2012-2025, in US\$ million)**

	Central Africa	Eastern Africa	Western Africa	SACU
Cocoa flowers spices etc.	-190	3,978	173	226
Sugar	20	887	15	291
Fruits vegetables nuts	-98	579	101	1,302
Plant-based fibres	37	732	1,206	132
Other vegetal agriculture	-7	1,399	182	228
Animal agriculture	-3	1,201	195	458
Meat fish	-6	306	-53	274
Forestry	508	338	406	217
Other food	100	3,993	1,617	2,293
Coal oil gas	39,777	8,401	67,867	5,524
Minerals	2,241	948	1,954	9,865
Textiles	-7	1,328	171	-36
Wearing apparel	-8	524	-4	-48
Leather	-4	440	-121	11
Metals	-292	12,198	855	24,689
Other manufactured products	-820	7,428	969	20,924
Transport	-56	4,705	537	1,591
Other services	-234	9,434	1,190	4,596

Source: ITC calculations based on the MIRAGE model.

A similar breakdown can be done by market. Table 9 shows the evolution of each market in percentage terms for African exporters. Central Africa is the fastest growing market for all SSA regions except Central Africa itself, which in turn is forecast to grow its exports most to Eastern Africa. For all SSA regions, the Asian market comes second in terms of growth rates.<sup>20</sup>

**Table 9: Average annual growth of export values by region (2012-2025, in %, excl. oil)**

Exporters	Importers			
	Central Africa	Eastern Africa	Western Africa	SACU
Central Africa	4.8	11.7	6.7	9.5
Eastern Africa	6.8	6.7	2.9	5.3
Western Africa	2.7	10.2	5.1	7.8
SACU	-0.3	5.1	1.4	3.3
EU and EFTA	-1.2	4.0	0.6	2.6
South Asia and EAP	5.7	6.6	4.6	6.2
Rest of OECD	-1.4	3.5	0.3	2.5
LAC	-0.5	4.9	1.5	3.6
Rest of the World	3.4	6.4	3.8	5.7

Source: ITC calculations based on the MIRAGE model.

<sup>20</sup> If oil is included in the analysis, the South Asia and East Asia-Pacific regions rank first for the two SSA regions that export large quantities of oil, Central and Western Africa (see Appendix II, table A.5).

### *Without policy changes, African exports will increasingly focus on primary goods*

The baseline results demonstrate that without any policy action, the geographical orientation of exports towards fast-growing markets in Asia will continue. This will favour primary products, and in particular, oil, coal and gas, which currently dominate sub-Saharan African exports. The oil, coal and gas sector will benefit from a strong price increases, whereas other sectors, like leather and textiles will experience declining prices as a result of increasing supply. Hence, policy actions will be necessary if SSA wants to turn towards the exports of value-added products.

## **3. Policy scenarios<sup>21</sup>**

In order to shift exports towards value-adding industries, policy changes are required. We consider three scenarios: policies enhancing transport infrastructure; policies facilitating intra-African trade; and policies facilitating African-Asian trade.

### **3.1. Policy change I: transport infrastructure improvements**

Under the first policy change scenario, we assume that an ambitious programme to improve transport infrastructure in Africa will be implemented. We assume that the costs of this programme are entirely borne by external partners. As a consequence, the programme will be beneficial to all SSA regions.

Transport costs include domestic transportation, from production to port and from port to final destination, and in international transportation also from port to port. For each of these components, there is a financial cost and a cost associated to time. Data is available for the cost of international transport as well as for the cost associated with time of domestic transportation. We assume that domestic transport time is halved in five years. This will bring a direct benefit to trade within Africa but also to trade with extra-regional partners. The cost of international transportation between any two SSA countries is also reduced by half during the same time period.

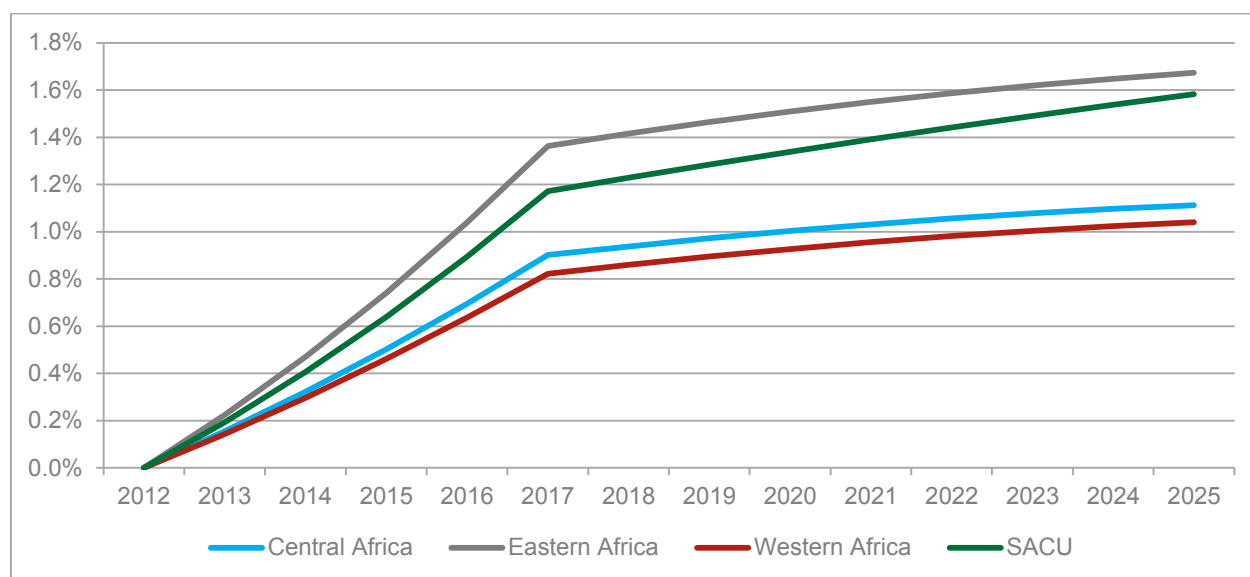
In figure 13, we present the impact of this change on purchasing power in the four SSA regions. The impact on other regions is marginal. A programme achieving the assumed reduction in transportation time and costs would bring a significant benefit to all African regions. This effect will be highest during the five-year implementation period. However, even after full implementation, the gain will continue to increase as compared to the baseline. This is due to capital accumulation permitted by a higher GDP. In 2025, GDP in SSA would be 0.8% above its level in the baseline for the same year, corresponding to a gain of just above US\$ 20 billion<sup>22</sup>. Terms of trade would also improve substantially (imported goods become cheaper as a consequence of reduced transport costs) thereby increasing the purchasing power of people in the countries considered. For that reason, the overall benefit in terms of real income as presented in figure 13 is 1-1.7%, significantly higher than the 0.8% increase of GDP.

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<sup>21</sup> Instead of presenting the annual growth rates for each scenario, we will focus on the differences between the baseline and the policy scenario, as is common practice in dynamic CGE modelling. GDP growth is no longer exogenous at this stage. This implies that the policy changes we consider will affect growth.

<sup>22</sup> Since the model does not assume any inflation overall (the world GDP deflator is kept constant), results are expressed in US\$ of the base year, i.e. 2007.

**Figure 13: Impact of the policy change I scenario (transport) on purchasing power as compared to the baseline**



Source: ITC calculations based on the MIRAGE model.

As a basis of comparison, the World Bank<sup>23</sup> estimates that required improvements of SSA transport infrastructure would cost nearly US\$ 13 billion annually over ten years in order to achieve a good level of connectivity in the region. This is lower than the expected annual GDP gain obtained by 2025 based on our assumptions.

SSA countries' exports and, in particular intraregional trade would increase significantly as a result of this programme (table 10), for some regions up to 51%. Trade between African regions increases as a result of the reduction of domestic transportation time (from production to port and from port to final destination) and the reduction of international transport cost between African countries. Exports to external regions benefit only from domestic transportation improvements to the port in Africa.

Trade in transformed products benefits more from this programme (table 11), because it benefits twice – on the sourcing side because of better access to inputs and on the supply side because of better access to markets. In percentage terms, exports of textiles, wearing apparel and other manufactured products increase the most. This remains true in value terms for all regions except Central Africa, for which primary products remain the first beneficiary of the programme. Some agricultural sectors like sugar, vegetal agriculture and animal agriculture would also benefit significantly from improvements in transport infrastructure, because transport is lengthy and costly for these products.

<sup>23</sup> The Africa Infrastructure Country Diagnostic study (see Appendix II for the detailed reference) estimates the cost of implementing significant transport infrastructure improvements over a period of ten years. They consider two scenarios, the base or ideal scenario, and a less costly pragmatic scenario. The annual cost of US\$ 13 billion corresponds to their base scenario.

**Table 10: Impact of the policy change I scenario (transport) on trade values as compared to the baseline in 2025 (in %, excl. oil)**

Importers \ Exporters	Exporters			
	Central Africa	Eastern Africa	Western Africa	SACU
Central Africa	17.0	50.6	10.3	25.9
Eastern Africa	39.9	38.7	10.0	37.4
Western Africa	17.7	11.7	30.2	18.9
SACU	37.9	24.6	-0.1	28.0
EU and EFTA	4.4	2.9	2.1	1.2
South Asia and EAP	1.4	4.0	2.1	0.8
Rest of OECD	6.1	5.2	2.1	1.1
LAC	5.1	0.8	2.4	3.3
Rest of the World	1.8	1.5	4.8	0.9

Source: ITC calculations based on the MIRAGE model.

**Table 11: Impact of the policy change I scenario (transport) on export values as compared to the baseline in 2025 (in US\$ million and %)**

	Central Africa		Eastern Africa		Western Africa		SACU	
Cocoa flowers spices etc.	11	5%	74	1%	19	0%	33	7%
Sugar	17	30%	133	8%	16	26%	118	12%
Fruits vegetables nuts	3	2%	52	4%	93	6%	229	6%
Plant-based fibres	7	2%	0	0%	62	2%	-2	-1%
Other vegetal agriculture	2	15%	434	17%	301	31%	168	26%
Animal agriculture	5	14%	33	2%	104	20%	134	11%
Meat fish	0	6%	16	3%	14	11%	87	9%
Forestry	36	1%	129	11%	13	1%	46	13%
Other food	35	9%	645	11%	351	7%	443	7%
Coal oil gas	643	0%	270	0%	695	0%	61	0%
Minerals	231	3%	241	7%	44	1%	287	1%
Textiles	2	20%	413	17%	125	13%	165	17%
Wearing apparel	1	16%	124	9%	12	15%	124	18%
Leather	0	11%	108	14%	63	15%	44	12%
Metals	117	15%	4,076	18%	344	7%	529	1%
Other manufactured products	385	18%	5,621	43%	2617	25%	13,071	21%
Transport	18	2%	-8	0%	81	2%	-88	-1%
Other services	36	1%	-258	-2%	40	1%	-464	-3%

Source: ITC calculations based on the MIRAGE model.

**Programmes to improve infrastructure will be highly beneficial to African countries and boost, in particular, intraregional trade**

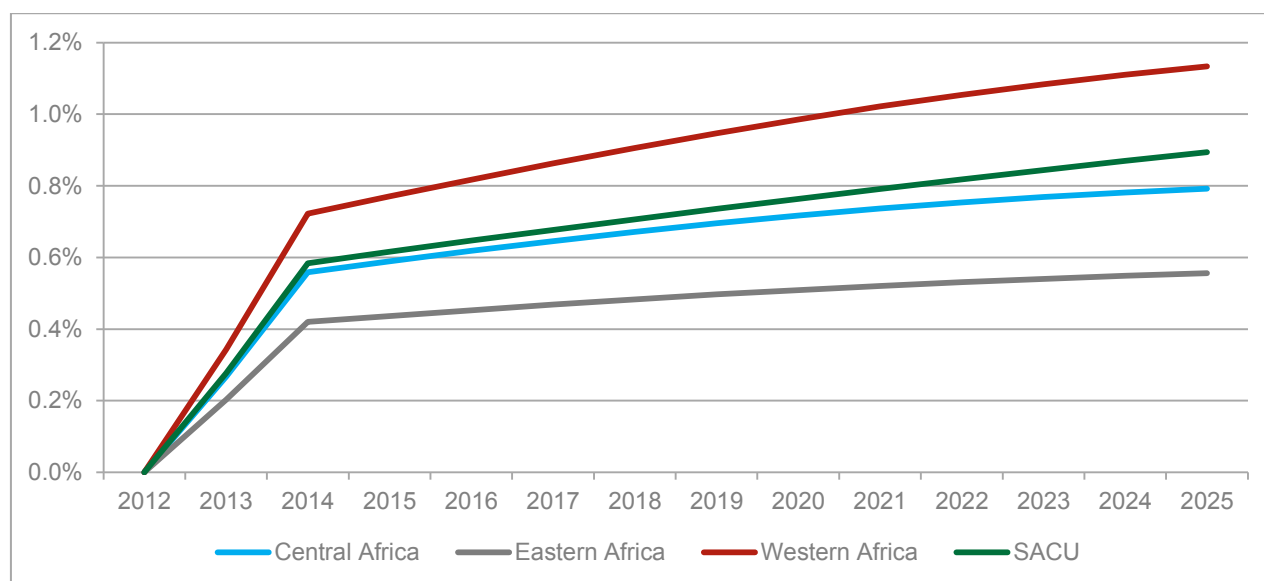
Infrastructure projects aimed at reducing transport time and cost will generate high and long term welfare gains for sub-Saharan Africa. The trade impact will be greatest for intraregional trade. The previous chapter identified some countries and sectors that have increased the share of transformed products for final consumption in total exports destined, in particular, to African markets. Therefore, policies – even though costly – that boost intraregional trade may allow SSA to exploit sustainable export opportunities. The sector-specific results confirm that gains are predominantly found in processing industries which benefit from better access to both inputs and markets.

### 3.2. Policy change II: trade facilitation

As a second simulation, we assume that SSA facilitates trade by accelerating customs procedures at port.<sup>24</sup> The World Bank's doing business surveys provide information on the number of days needed to comply with customs processes. We assume that time will halve within two years. The impact on trade varies across products. Minor and Tsigas (2010) estimated the ad-valorem equivalent cost of one day spent at the port to accomplish procedures at product level. Combining their estimates with the most recent doing business survey allows us to estimate the impact on trade flows.

As trade facilitation is generally achieved through the modernization of customs infrastructure and the simplification of procedures, it benefits trade with all partners. Intraregional trade, however, benefits most, as the effects of trade facilitation improvement in Africa benefit trade for both exports and imports

**Figure 14: Impact of the policy change II scenario (trade facilitation) on purchasing power as compared to the baseline**



Source: ITC calculations based on the MIRAGE model.

<sup>24</sup> No assumption is made regarding the cost of producing documents before the shipment, because estimations of those are unavailable.

Western Africa would be the region benefiting most from trade facilitation, while Eastern Africa, where customs processes are already the least intrusive, would benefit the least. Figure 14 shows the evolution of welfare as the consequence of this policy. In general, the shape of the curves looks similar to the one observed in the previous scenario, but the largest beneficiaries are not the same. This is due to the fact that Nigeria, which accounts for most of the Western Africa region, has very lengthy customs procedures on the import side. According to doing business surveys, Nigeria takes longest to deal with customs issues of all African countries. As a consequence, it is Western Africa that has the most to gain from the kind trade facilitation improvements assumed for this scenario.

The GDP gain from this change in 2025 would be US\$ 15 billion, as compared to the baseline scenario. Again, benefits would be even greater when accounting also for purchasing power effects, as a consequence improvements in the terms of trade.

In terms of trade flows, SACU's exports of other manufactured products to other African regions, and in particular to Central and Western Africa, would increase most. The simplification of customs procedures on the export side by South African customs officials would also result in an increase of their exports to Latin American countries (table 12). Even though intraregional trade within SSA would increase globally, some small declines are also expected between Central and Western African countries. These two regions mostly trade with each other products for which trade facilitation does not make a big difference. At the same time, easing of customs processes will make imports from other regions more competitive, thereby slightly reducing trade between Central and Western Africa.

**Table 12: Impact of the policy change II scenario (trade facilitation) on trade values as compared to the baseline in 2025 (in %, excl. oil)**

Importers \ Exporters	Exporters			
	Central Africa	Eastern Africa	Western Africa	SACU
Central Africa	-0.8	5.5	-1.4	14.1
Eastern Africa	1.4	3.2	4.0	7.1
Western Africa	0.9	3.3	-0.9	12.8
SACU	10.6	5.3	3.0	4.4
EU and EFTA	3.1	2.3	3.0	3.0
South Asia and EAP	1.2	2.4	2.7	2.6
Rest of OECD	4.3	2.9	3.1	3.5
LAC	3.5	1.9	3.3	5.1
Rest of the World	1.5	1.8	3.7	1.5

Source: ITC calculations based on the MIRAGE model.

The sector that would benefit most in percentage terms from SSA trade facilitation is manufacturing, especially in the SACU region (table 13). Textiles, wearing apparel, leather, metal and other manufactured products also show some improvements.



**Table 13: Impact of the policy change II scenario (trade facilitation) on export values as compared to the baseline in 2025 (in US\$ million and %)**

	Central Africa		Eastern Africa		Western Africa		SACU	
Cocoa flowers spices etc.	4	2%	93	1%	60	1%	2	0%
Sugar	0	1%	14	1%	1	1%	-9	-1%
Fruits vegetables nuts	1	1%	11	1%	15	1%	64	2%
Plant-based fibres	4	1%	6	0%	38	1%	-1	0%
Other vegetal agriculture	0	1%	31	1%	8	1%	6	1%
Animal agriculture	0	1%	13	1%	3	0%	3	0%
Meat fish	0	4%	11	2%	3	3%	10	1%
Forestry	33	1%	6	0%	33	3%	-2	-1%
Other food	7	2%	112	2%	47	1%	70	1%
Coal oil gas	377	0%	244	0%	569	0%	-63	0%
Minerals	22	0%	5	0%	11	0%	22	0%
Textiles	1	7%	109	4%	26	3%	57	6%
Wearing apparel	1	9%	76	5%	5	7%	39	6%
Leather	0	5%	25	3%	32	8%	15	4%
Metals	72	9%	1,093	5%	268	5%	1,372	3%
Other manufactured products	154	7%	784	6%	153	1%	6,463	10%
Transport	16	2%	126	1%	131	4%	-16	0%
Other services	33	1%	126	1%	113	2%	-194	-1%

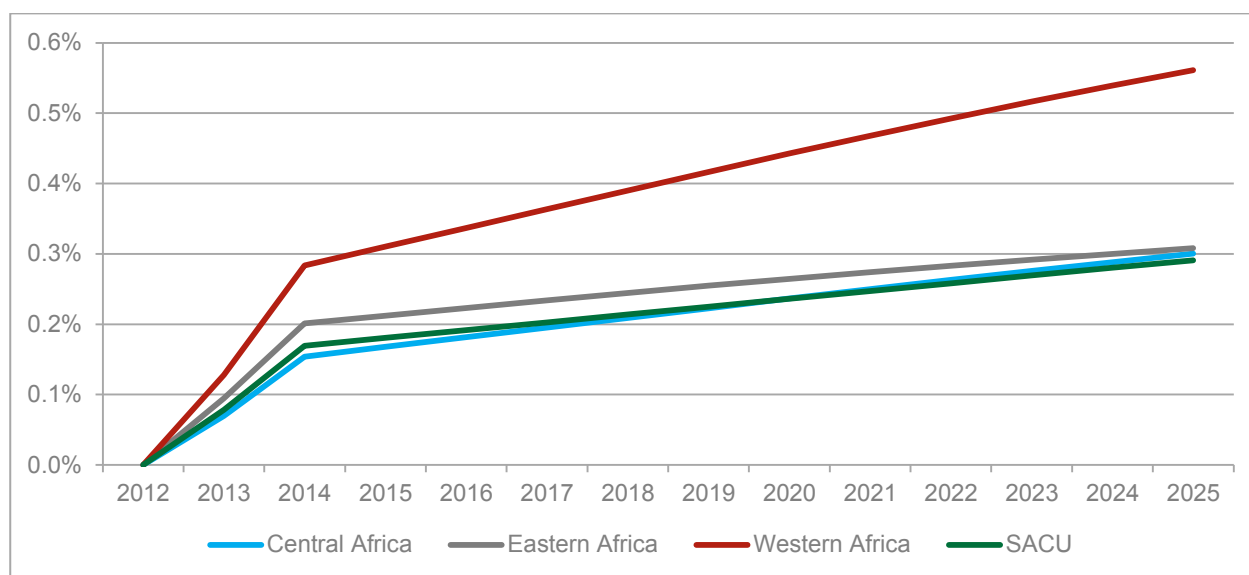
Source: ITC calculations based on the MIRAGE model.

### *Programmes to simplify customs procedures will bring lower benefits at lower costs*

The facilitation of customs procedures will produce trade and welfare gains that will be somewhat lower than those achieved through infrastructure improvements. Given the much lower costs of implementing this policy change, it would still be desirable to pursue such a programme. Note, however, that trade gains under this scenario will not favour intraregional trade as strongly as under the previous scenario, but will be more evenly distributed among trading partners. Intraregional trade among Central and Western African countries will actually even slightly decline.

### **3.3. Policy change III: Africa-Asia trade facilitation**

The last scenario we examine assumes that Asia and Africa simplify their trade procedures on a bilateral basis. On the African side, this corresponds to Policy Change II, except that simplifications in trade procedures are concentrated on transactions with Asian partners. In addition to this, Asian countries also facilitate their procedures for all trade transactions with African partners, but the impact of this second component is bound to be limited, as Asian customs processes are already smooth. Welfare impacts of such a scenario are shown in figure 15.

**Figure 15: Impact of the policy change III scenario (Africa-Asia) on purchasing power as compared to the baseline**

Source: ITC calculations based on the MIRAGE model.

Facilitating trade with Asia would again benefit Western Africa more than other regions, because Nigeria has most room for improving its procedures. Overall, the welfare gains are lower than under both previous policy change scenarios.

Trade impact by region is presented in table 14. The policy would mostly increase exports from Asia to African countries, which would in turn export more to other regions. SACU is the only African region that would export significantly more to Asia. In fact, intraregional trade would even decline in many cases due to substitution effects.

**Table 14: Impact of the policy change III scenario (Africa-Asia) on trade values as compared to the baseline in 2025 (in %, excl. oil)**

Exporters \ Importers	Exporters				
	Central Africa	Eastern Africa	Western Africa	SACU	Asia
Central Africa	-1.6	-1.0	-0.8	-2.5	6.7
Eastern Africa	0.2	-2.0	-0.6	-3.6	6.8
Western Africa	-4.0	-1.9	-2.5	-4.8	8.4
SACU	-1.1	-0.2	0.7	-1.9	8.1
EU and EFTA	0.5	1.4	1.2	0.5	-0.2
South Asia and EAP	1.0	3.3	2.1	6.3	0.0
Rest of OECD	0.6	1.5	1.2	0.7	-0.2
LAC	0.7	1.2	1.4	0.7	-0.2
Rest of the World	0.3	1.4	1.2	0.7	-0.2

Source: ITC calculations based on the MIRAGE model.

Table 15 analyzes impact by sector. In value terms, the scenario considered would mostly benefit the oil and metals sectors. By contrast, overall exports of other manufactured products would be slightly reduced in all SSA regions, along with textiles in Western Africa and wearing apparel in SACU. An increased competition by Asian producers would slightly discourage investments in those sectors, and exports would decrease in the long run.

**Table 15: Impact of the policy change III scenario (Africa-Asia) on export values as compared to the baseline in 2025 (in US\$ million and %)**

	Central Africa		Eastern Africa		Western Africa		SACU	
Cocoa flowers spices etc.	1	0%	70	1%	30	1%	1	0%
Sugar	0	0%	13	1%	0	0%	2	0%
Fruits vegetables nuts	0	0%	6	0%	6	0%	20	1%
Plant-based fibres	2	1%	9	1%	21	1%	1	1%
Other vegetal agriculture	0	0%	16	1%	3	0%	1	0%
Animal agriculture	0	0%	20	1%	2	0%	16	1%
Meat fish	0	1%	8	2%	1	1%	10	1%
Forestry	16	1%	7	1%	20	2%	2	1%
Other food	1	0%	29	0%	23	0%	6	0%
Coal oil gas	223	0%	234	0%	392	0%	62	0%
Minerals	8	0%	2	0%	4	0%	23	0%
Textiles	0	1%	21	1%	-28	-3%	8	1%
Wearing apparel	0	2%	30	2%	1	1%	-5	-1%
Leather	0	1%	16	2%	11	3%	7	2%
Metals	53	7%	487	2%	80	2%	1,586	3%
Other manufactured products	-7	0%	-150	-1%	-77	-1%	-110	0%
Transport	6	1%	113	1%	63	2%	35	1%
Other services	11	0%	125	1%	55	1%	32	0%

Source: ITC's staff calculations based on the MIRAGE model.

### ***African-Asian trade facilitation programmes will mostly boost Asian exports to Africa, not vice versa***

Trade facilitation programmes specifically targeted at bilateral Asian-African customs procedures will benefit above all Asian exports to Africa. SACU is the only African region that would enjoy higher exports to Asia as well. Trade with traditional markets in Europe, the Rest-OECD or the RoW would only marginally increase and intraregional non-oil trade would even decline overall. Policy Scenarios I and II thus appear to be preferable. At the same time, it must be noted that this is a simplified scenario and policy changes aimed at encouraging trade between Asia and Africa could take many other forms than a simplification of customs procedures. Most importantly, some Asian countries may encourage private investments in Africa by granting financial or other incentives to investment projects on this continent. All these initiatives are likely to affect trade positively, including for value-added exports.

## Conclusions

Given the diverging dynamics of trade across world regions and sub-Saharan Africa's traditional dependence on commodity exports, this study's objective has been to find new and promising opportunities for African exporters and to identify policy changes that could help to tap into potential for trade.

Chapter 1 showed that Africa is already reorienting its trade away from slow-growing markets in Europe and the OECD and towards fast-growing developing economies in Africa and Asia. Splitting African exports according to their level of processing provides additional insights: over the period 1995-2010, non-oil exports of processed and semi-processed goods have grown faster than exports of raw products, which have lost their leading position in African exports. Not so, however, in trade with Asia. Raw and semi-processed goods account for the overwhelming and increasing share of exports to Asia. The situation looks much brighter in trade with other markets. For example in Europe and in other OECD countries raw products are in decline and in SSA, where processed goods already make up almost half of all exports.

The analysis provides a moderately promising picture of Africa's ability to move up the value chain. In addition, individual success stories point to the potential that exists: the agricultural sector and the leather sector are examples of successful vertical integration; a number of countries have established processing industries to transform domestic or imported intermediates into products that are further used inside or outside the country. The main markets of these well-performing SSA countries and sectors are found mostly within Africa and also among some traditional markets in Europe and the OECD. Although not growing rapidly overall, there has been a movement overall towards the imports of transformed goods for final consumption.

Chapter 2 of the study predicted future African export levels based on reasonable assumptions of economic growth and various policy changes. The baseline scenario without any policy action suggests significant increases of sub-Saharan African exports to Asia and other African regions. Most of the increase will be concentrated in the oil, coal and gas sector, as well as in other primary products. This fits current trends identified in the first part of the study.

The policy scenarios consider improvements in infrastructure and customs procedures within sub-Saharan Africa and trade facilitation between sub-Saharan Africa and Asia. Reducing transportation time by improving transport infrastructure within Africa will bring the largest welfare benefits to the whole region and increase most their intraregional trade. Trade facilitation programmes, in particular with Asia, are likely to bring somewhat smaller benefits, but will also be much less costly.

Transport infrastructure within Africa would increase mostly exports of transformed products, because these sectors would benefit from improved access to both inputs and markets. They would provide additional income and facilitate access to higher value-added activities. By contrast, a trade facilitation scenario limited to the Asia-Africa relationship bears the risk of favouring mostly the exports of primary products. Therefore, any trade agreement between Asia and Africa should include a strong development component and foresee provisions to stimulate direct investments into African transformation industries.

## Appendix I Africa's export trends

### Regions

#### Asia-Pacific

Afghanistan	Korea, Democratic People's Republic of	Palau
American Samoa	Lao People's Democratic Republic	Papua New Guinea
Bangladesh	Macao, China	Philippines
Bhutan	Malaysia	Samoa
Brunei Darussalam	Maldives	Singapore
Cambodia	Marshall Islands	Solomon Islands
China	Micronesia, Federated States of	Sri Lanka
East Timor	Mongolia	Chinese Taipei
Fiji	Myanmar	Thailand
Hong Kong, China	Nepal	Tonga
India	Pakistan	Tuvalu
Indonesia		Vanuatu
Kiribati		Viet Nam

#### EU27 and EFTA

Andorra	Holy See	Poland
Austria	Hungary	Portugal
Belgium-Luxembourg	Iceland	Romania
Bulgaria	Ireland	San Marino
Cyprus	Italy	Slovakia
Czech Republic	Latvia	Slovenia
Denmark	Lithuania	Spain
Estonia	Malta	Sweden
Finland	Monaco	Switzerland, Liechtenstein
France	Netherlands	United Kingdom
Germany	Norway, Svalbard and Jan Mayen	
Greece		

#### Latin America and the Caribbean

Anguilla	Cayman Islands	Grenada
Antigua and Barbuda	Chile	Guatemala
Argentina	Colombia	Guyana
Aruba	Costa Rica	Haiti
Bahamas	Cuba	Honduras
Barbados	Dominica	Jamaica
Bolivia (Plurinational State of)	Dominican Republic	Mexico
Brazil	Ecuador	Montserrat
British Virgin Islands	El Salvador	Netherland Antilles
Belize	Falkland Islands	Nicaragua

Panama  
Paraguay  
Turks and Caicos Islands  
Peru  
Saint Kitts and Nevis

Saint Lucia  
Saint Vincent and the  
Grenadines  
Suriname  
Trinidad and Tobago

Uruguay  
Venezuela (Bolivarian  
Republic of)

**Rest-OECD**

Australia  
Canada  
Israel  
Japan

Korea, Republic of  
New Zealand  
Turkey

United States, Puerto Rico  
and United States Virgin  
Islands

**Sub-Saharan Africa**

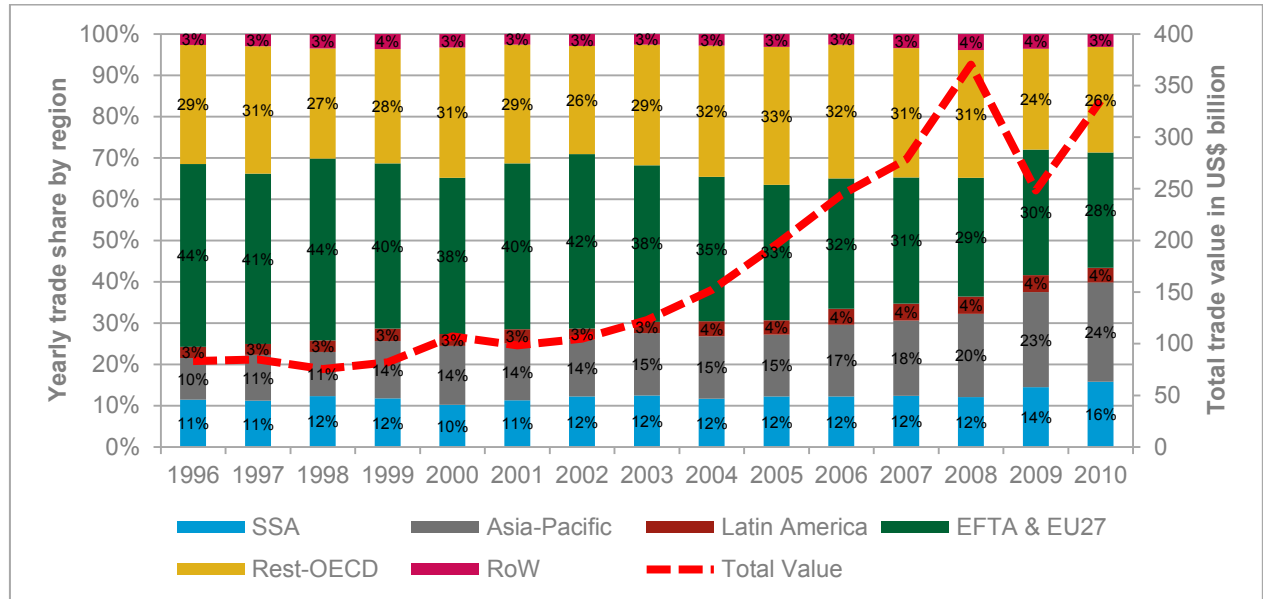
Angola  
Benin  
Burkina Faso  
Burundi  
Cameroon  
Cape Verde  
Central African Republic  
Chad  
Comoros  
Congo  
Congo, Democratic Republic  
of the  
Côte d'Ivoire  
Djibouti  
Equatorial Guinea

Ethiopia  
Eritrea  
Gabon  
Gambia  
Ghana  
Guinea  
Guinea-Bissau  
Kenya  
Liberia  
Madagascar  
Malawi  
Mali  
Mauritania  
Mauritius  
Mozambique

Niger  
Nigeria  
Rwanda  
Sao Tome and Principe  
Senegal  
Seychelles  
Sierra Leone  
Somalia  
South African Customs Union  
Sudan  
Tanzania, United Republic of  
Togo  
Uganda  
Zambia  
Zimbabwe

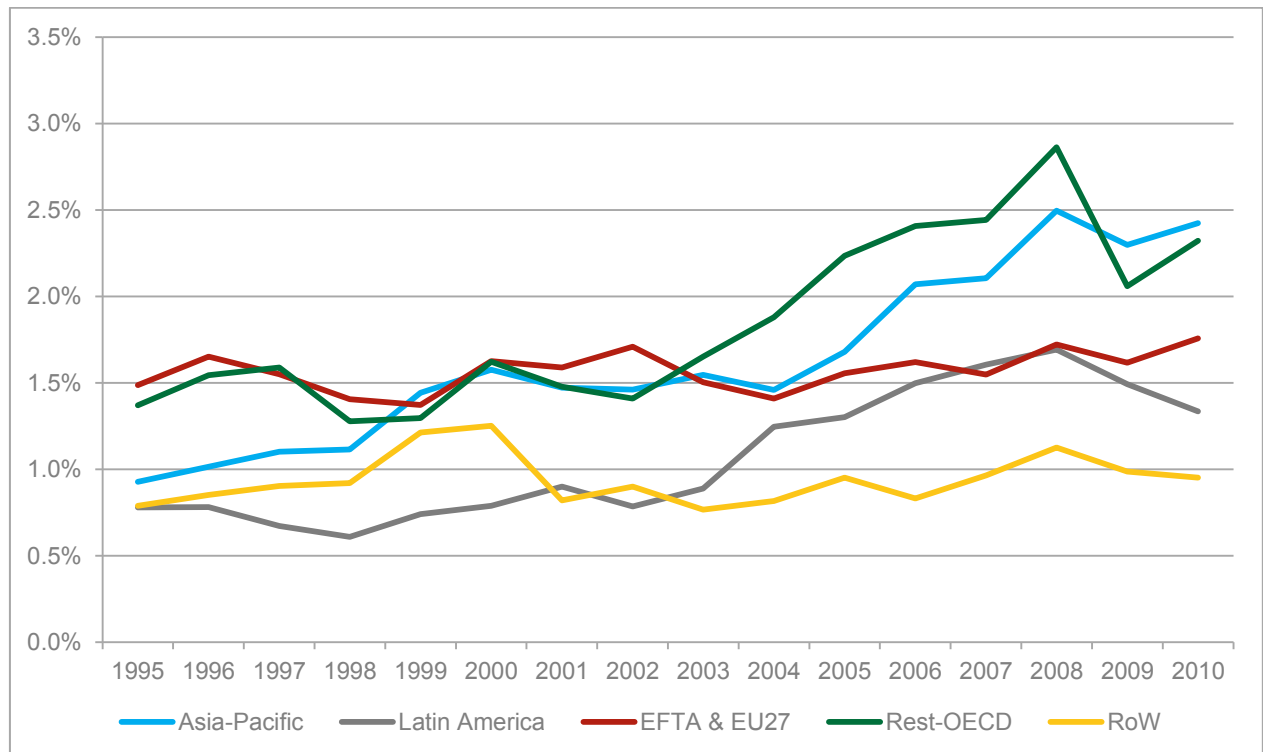
Additional graphs

Figure A.1: Evolution of African exports to different regions (incl. oil)



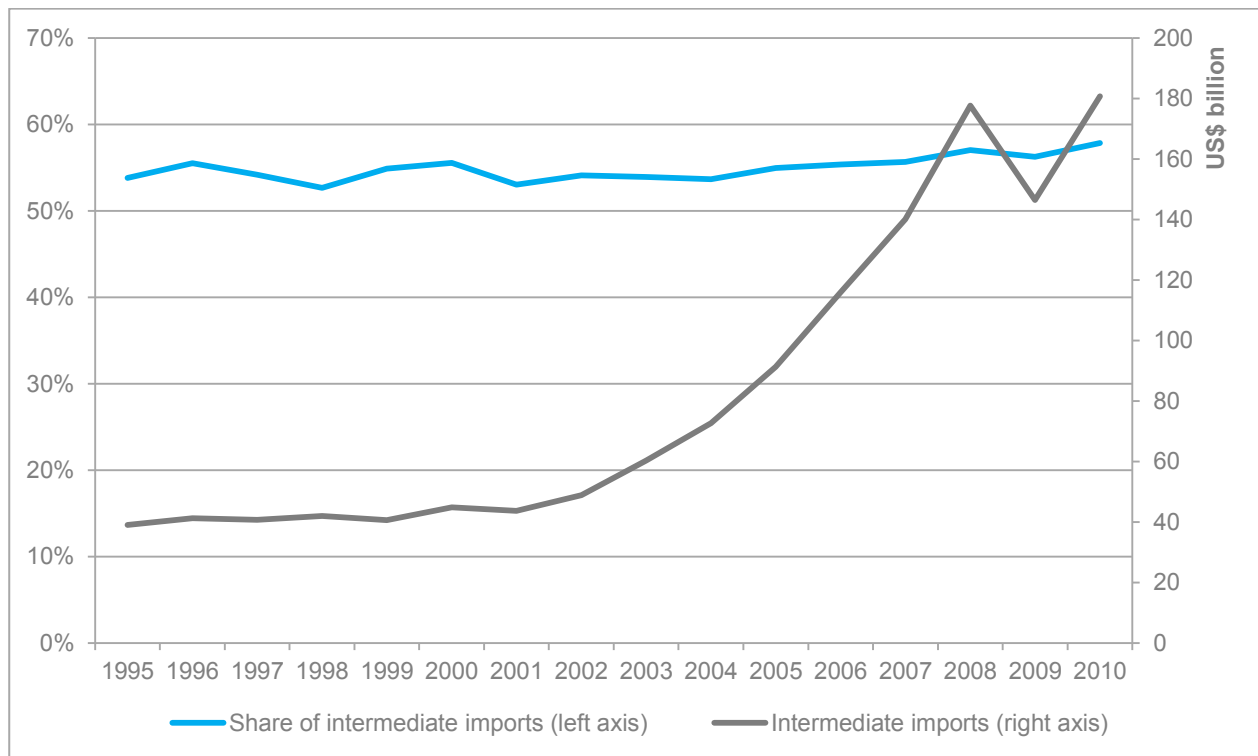
Source: ITC staff calculations based on CEPII's BACI data.

Figure A.2: Evolution of African export shares in different markets (incl. oil)



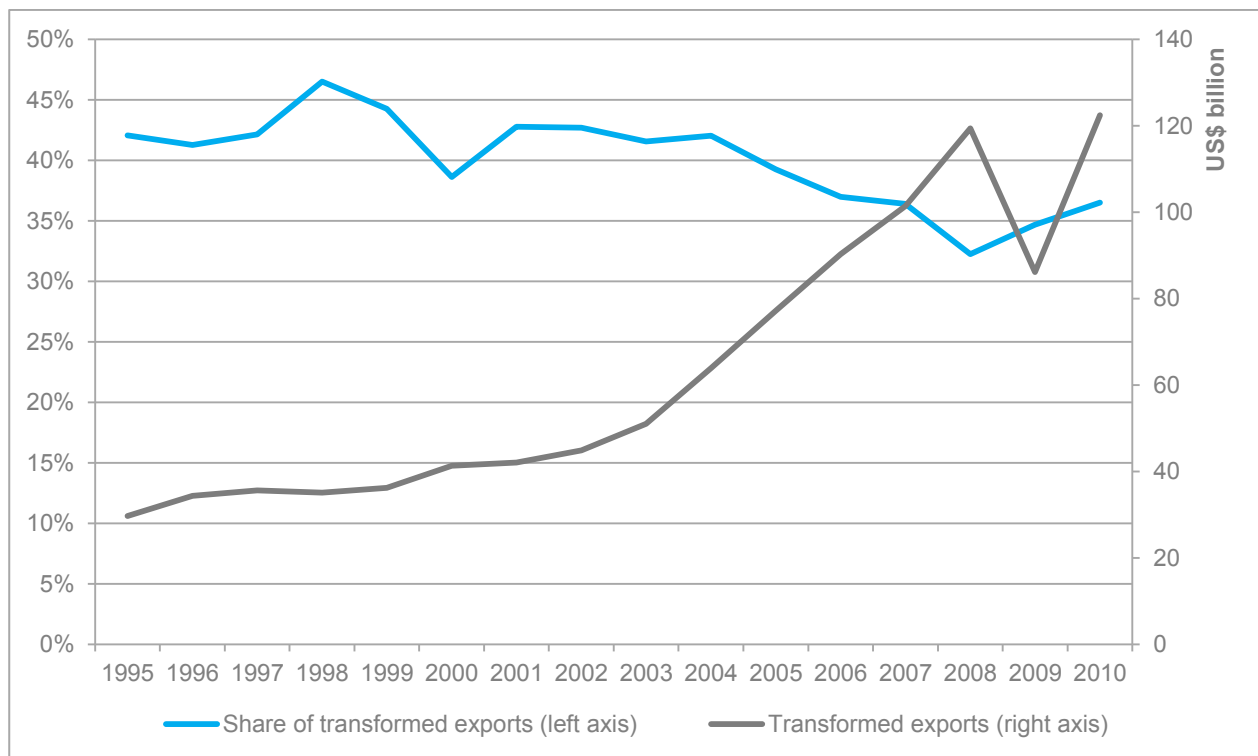
Source: ITC staff calculations based on CEPII's BACI data.

**Figure A.3: Evolution of imports of intermediates (incl. oil)**



Source: ITC staff calculations based on CEPII's BACI data.

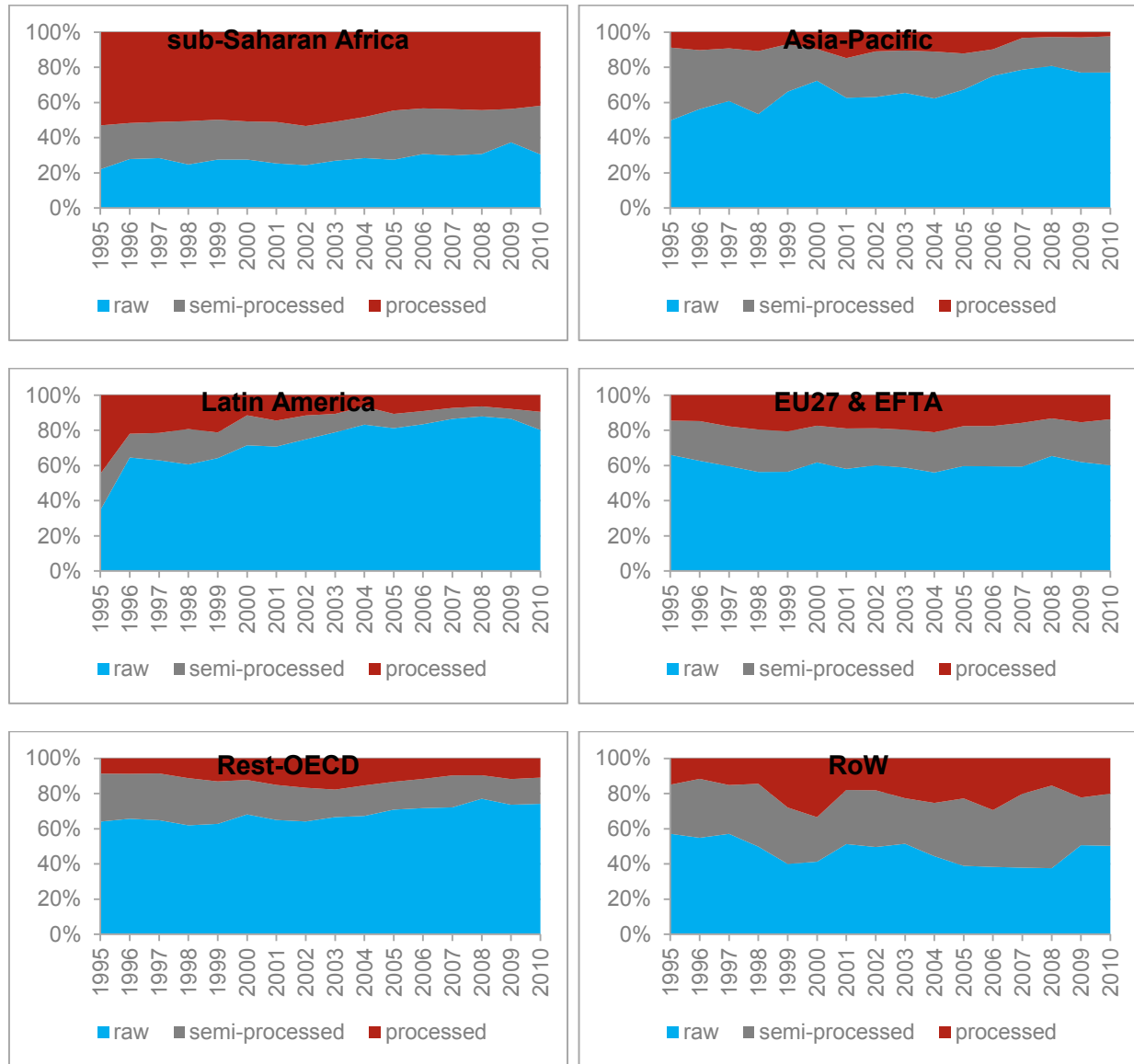
**Figure A.4: Evolution of exports of transformed goods (incl. oil)**



Source: ITC staff calculations based on CEPII's BACI data.



**Figure A.5: African export shares by level of processing to world regions (incl. oil)**



Source: ITC staff calculations based on CEPII's BACI data.

## Additional tables

Table A.1: Top 5 African export sectors...

<i>...in the SSA market</i>	Exports (in US\$ billion) (2010)	Annual growth (1995-2010)	Market share (2010)
Mineral products	19.8	17.4%	35.9%
Pearls, precious stone, metals and articles thereof	5.4	31.2%	58.4%
Base metals and articles thereof	4.7	12.2%	20.3%
Vehicles, aircraft, vessels and transport equipment	3.4	14.1%	7.4%
Machinery and mechanical appliances; Electrical equipment	3.4	10.7%	5.2%
...			
Raw hides and skins, leather, and articles thereof	0.6	22.5%	45.0%
<i>...in the Asia-Pacific market</i>	Exports (in US\$ billion) (2010)	Annual growth (1995-2010)	Market share (2010)
Mineral products	55.0	25.4%	7.2%
Base metals and articles thereof	9.2	12.6%	3.9%
Pearls, precious stone, metals and articles thereof	5.0	10.3%	3.7%
Vegetable products	2.5	13.7%	3.6%
Products of chemical industries	1.7	11.3%	0.7%
...			
Footwear, headgear, umbrellas etc.; feathers and articles thereof	0.0	19.8%	0.4%
<i>...in the Latin American market</i>	Exports (in US\$ billion) (2010)	Annual growth (1995-2010)	Market share (2010)
Mineral products	8.9	15.5%	7.7%
Base metals and articles thereof	0.6	8.6%	1.0%
Prepared foodstuffs and beverages	0.6	9.6%	2.3%
Textiles and articles thereof	0.5	9.2%	1.5%
Machinery and mechanical appliances; Electrical equipment	0.3	8.9%	0.1%
...			
Pearls, precious stone, metals and articles thereof	0.2	24.8%	4.0%
Footwear, headgear, umbrellas etc.; feathers and articles thereof	0.0	32.4%	0.7%
<i>...in the EU27 and EFTA market</i>	Exports (in US\$ billion) 2010	Annual growth 1995-2010	Market share 2010
Mineral products	37.9	11.2%	5.0%
Pearls, precious stone, metals and articles thereof	13.1	6.3%	8.6%
Base metals and articles thereof	11.6	11.6%	2.6%
Prepared foodstuffs and beverages	9.3	6.1%	4.6%
Vegetable products	6.0	2.4%	4.5%

<i>...in the Rest-OECD market</i>	Exports (in US\$ billion) (2010)	Annual growth (1995-2010)	Market share (2010)
Mineral products	60.4	12.3%	7.8%
Pearls, precious stone, metals and articles thereof	7.6	6.8%	7.8%
Base metals and articles thereof	4.7	5.1%	1.9%
Vehicles, aircraft, vessels and transport equipment	3.1	22.9%	0.8%
Prepared foodstuffs and beverages	2.7	8.6%	2.8%
...			
Footwear, headgear, umbrellas etc.; feathers and articles thereof	0.2	22.1%	0.6%
<i>...in the RoW market</i>	Exports (in US\$ billion) (2010)	Annual growth (1995-2010)	Market share (2010)
Mineral products	2.0	17.0%	1.7%
Vegetable products	1.6	10.1%	3.0%
Prepared foodstuffs and beverages	1.4	13.3%	2.9%
Base metals and articles thereof	1.4	10.9%	1.3%
Pearls, precious stone, metals and articles thereof	1.3	39.2%	4.1%
...			
Machinery and mechanical appliances; Electronical equipment	0.6	22.2%	1.1%
Vehicles, aircraft, vessels and transport equipment	0.5	31.5%	0.1%
Optical and medical instruments; Clocks and watches; Musical instruments	0.0	20.1%	0.5%

Source: ITC staff calculations based on CEPII's BACI data.

**Table A.2: Product classification for value chain analysis**

HS codes	Value chains
01-24	Agriculture
41, 42, 64 + 911390, 960500	Leather
44-49 + 940130, 940140, 940150, 940161, 940169, 940330, 940340, 940350, 940360, 940380, 940390, 940410, 961000	Wood
50-63 + 880400, 940430, 940490	Textile

## Appendix II Africa's export potential

### Model

To compute economic scenarios of the world economy until 2025, we use the MIRAGE model, a computable general equilibrium (CGE) model built at CEPII and used by a number of institutions. This model can be used to compute projections of world trade until 2025 on the basis of projected growth and savings rates, as well as of the projected development of the total population and the labour force. CGE models are a family of macroeconomic models in which supply and demand are balanced through price adjustments. As such, they are used mostly for medium and long term simulations. CGE models used for trade analysis, like MIRAGE, deconstruct the economy into several sectors in order to capture factor reallocations between sectors that are central for this kind of analysis. They also represent different world regions in a comprehensive framework. The production structure is described in detail, based on information on intermediate consumption and factor demand provided in Social Accounting Matrices prior to running the model. Demand is also represented in detail, with a distinction between final demand, intermediate consumption and investments by all regions considered in the model. The numeraire of the model is the world GDP deflator, so that there is no inflation at world level.

The full list of data sources is presented below.

### Data sources

#### Social accounting matrices, elasticities

Most data comes from the Global Trade Analysis Project's (GTAP) world social accounting matrix, version 8 Final Release Candidate 2 (February 2012), which represents the year 2007. This database also contains tariff and trade substitution elasticity data.

Final demand revenue and substitution elasticities are based on USITC estimates and MIRAGE authors' computations.

#### Dynamic data

Total population and active population projections are taken from the International Labour Organization (ILO). GDP and saving rates projections are taken from the CEPII Baseline database (Baseline v2.1, September 2012).

Fouré J., Bénassy-Quéré A. and Fontagné L. (2012), The Great Shift: Macroeconomic Projections for the World Economy at the 2050 Horizon, CEPII Working paper 2012-03.

#### Non-tariff barriers (NTBs) ad valorem equivalents

##### *Goods*

Kee H., Nicita A. and Olarreaga M. (2009), Estimating Trade Restrictiveness Indices, *Economic Journal*, 119(534), pp. 172-199.

The authors provide ad valorem equivalents of obstacles to trade at the HS6 level.

In the case of the EU, we used border effects estimates by de Sousa J., Mayer T. and Zignago S. (2012), *Regional Science and Urban Economics* (forthcoming) to differentiate between intra-EU and extra-EU NTBs applied by EU markets.

##### *Services*

Fontagné L., Guillin A. and Mitaritonna C. (2011), Estimations of Tariff Equivalents for the Services Sector, CEPII Working Paper 2011-24.

## Doing business trading across borders

To calculate the number of days needed to trade, three sets of data have been used:

- Customs procedural time at port (2011)
- Handling at port (2011)
- Inland/domestic transportation (2012)

To estimate the cost of time per product and by pair of trading partners, the following data has been used:

Minor P. (2010), Time as a Barrier to Trade: A GTAP Database of Ad Valorem Trade Time Costs, GTAP resource 3301.

## Cost of a transport infrastructure improvement programme

Carruthers R. and Krishnamani R. R., with Murray S. (2010), Improving Connectivity: Investing in Transport Infrastructure in sub-Saharan Africa, Africa Infrastructure Country Diagnostic Background Paper 7 (Phase II).

## Region and sector disaggregation

**Table A.3: Regional disaggregation**

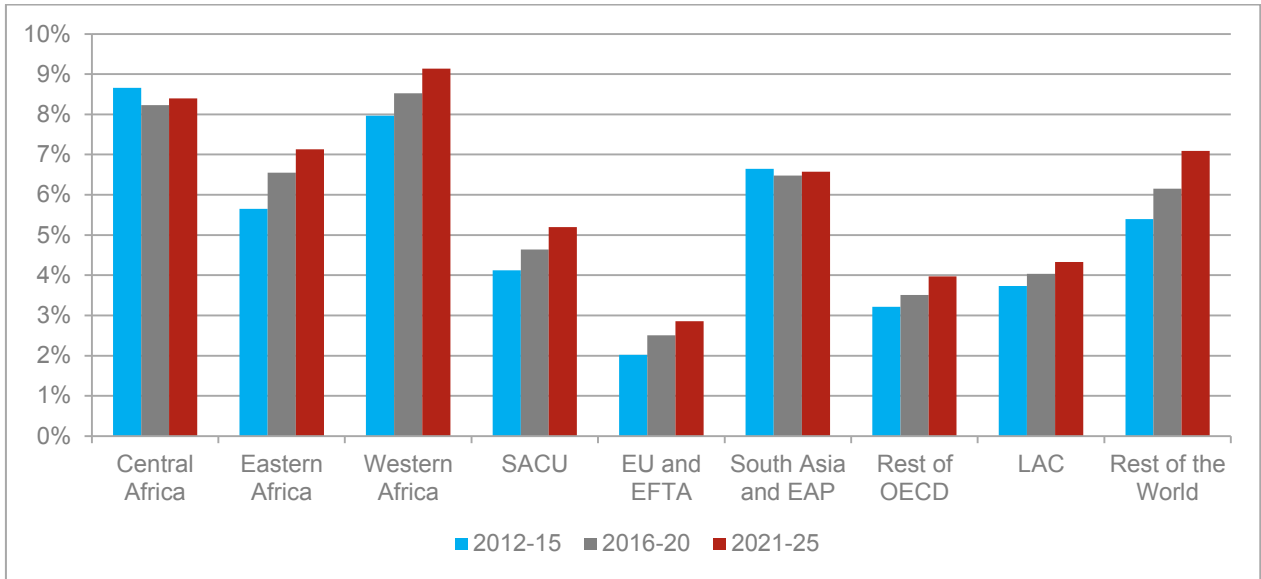
Central Africa	Angola Cameroon, Central African Republic, Chad, Congo, Democratic Republic of the Congo Equatorial Guinea, Gabon, Sao Tome and Principe	Sub-Saharan Africa
Eastern Africa	Burundi, Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Rwanda, Seychelles, Somalia, Sudan, Tanzania (United Republic of), Uganda, Zambia, Zimbabwe	
Western Africa	Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Saint Helena, Ascension and Tristan da Cunha, Senegal, Sierra Leone, Togo	
SACU	Botswana, Lesotho, Namibia, South Africa, Swaziland	
EU and EFTA		Developed
Rest of OECD	Australia, New Zealand, Japan, Korea (Republic of), United States, Canada, Turkey	
LAC	Includes Mexico	Developing
South Asia and EAP		
Rest of the World	Russian Federation, Middle East (except Turkey), Central Asia, North Africa	

**Table A.4: Sector disaggregation**

Cocoa flowers spices etc.		Agro-food
Sugar	Cane and sugar	
Fruits vegetables nuts		
Plant-based fibres	Cotton, etc.	
Other vegetal agriculture	Includes vegetable oil and processed rice	
Animal agriculture	Does not include meat	
Meat fish		
Other food	Processed food, beverage and tobacco	
Forestry		Primary
Coal oil gas		
Minerals		
Textiles		Industry
Wearing apparel		
Leather		
Metals	Does not include metal products	
Other manufactured products		
Transport		Services
Other services		

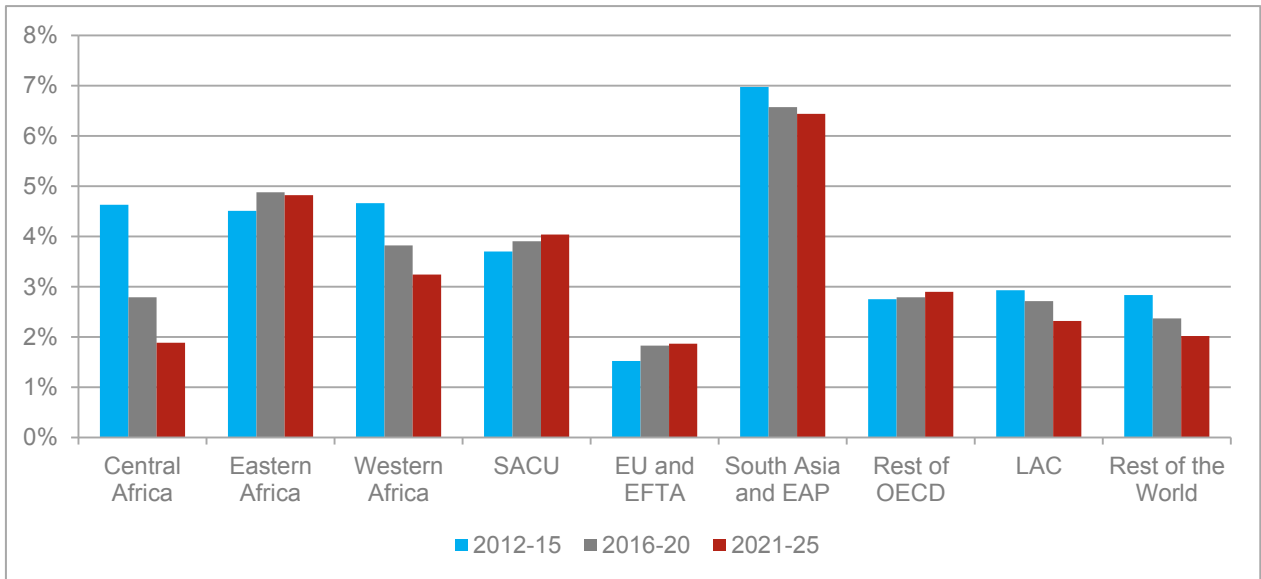
Tables and graphs including oil

**Figure A.6: Predicted growth of export values by region**



Source: ITC staff calculations based on the MIRAGE model. Export values are deflated by the world GDP deflator.

**Figure A.7: Predicted growth of export volumes by region**



Source: ITC staff calculations based on the MIRAGE model. Export volumes are deflated by the price of trade itself.

**Table A.5: Average annual growth of export values by region (2012-2025, in %)**

Importers \ Exporters	Exporters			
	Central Africa	Eastern Africa	Western Africa	SACU
Central Africa	5.5	11.7	7.9	9.5
Eastern Africa	6.8	6.7	3.1	5.4
Western Africa	7.1	10.1	7.1	7.9
SACU	6.5	5.3	4.5	3.3
EU and EFTA	3.0	3.9	4.4	3.4
South Asia and EAP	12.3	9.6	13.7	7.2
Rest of OECD	5.1	3.5	6.9	2.8
LAC	5.7	4.5	7.6	3.9
Rest of the World	3.7	6.3	3.9	6.4

Source: ITC staff calculations based on the MIRAGE model.

**Table A.6: Impact of the policy change I scenario (transport) on trade values as compared to the baseline in 2025 (in %)**

Importers \ Exporters	Exporters			
	Central Africa	Eastern Africa	Western Africa	SACU
Central Africa	13.4	50.5	6.5	26.3
Eastern Africa	39.8	38.6	9.7	37.4
Western Africa	6.6	11.5	18.0	18.9
SACU	11.2	23.1	6.1	28.1
EU and EFTA	0.9	2.7	0.5	0.9
South Asia and EAP	0.1	1.0	0.1	0.5
Rest of OECD	0.2	2.9	0.0	1.0
LAC	0.2	0.7	0.0	2.9
Rest of the World	1.6	1.5	4.6	0.6

Source: ITC staff calculations based on the MIRAGE model.

**Table A.7: Impact of the policy change II scenario (trade facilitation) on trade values as compared to the baseline in 2025 (in %)**

Importers \ Exporters	Exporters			
	Central Africa	Eastern Africa	Western Africa	SACU
Central Africa	-1.5	5.5	-2.4	13.9
Eastern Africa	1.4	3.2	3.9	6.9
Western Africa	-2.2	3.2	-1.8	12.5
SACU	0.8	4.5	1.7	4.4
EU and EFTA	0.7	2.2	1.1	2.4
South Asia and EAP	0.2	0.9	0.4	2.1
Rest of OECD	0.3	1.7	0.4	3.3
LAC	0.3	1.7	0.4	4.6
Rest of the World	1.4	1.8	3.5	1.2

Source: ITC staff calculations based on the MIRAGE model.



**Table A.8: Impact of the policy change III scenario (Africa-Asia) on trade values as compared to the baseline in 2025 (in %)**

Importers \ Exporters	Exporters				
	Central Africa	Eastern Africa	Western Africa	SACU	Asia
Central Africa	-1.6	-1.0	-1.2	-2.5	6.7
Eastern Africa	0.2	-2.0	-0.6	-3.6	6.8
Western Africa	-1.9	-1.9	-2.0	-4.7	8.4
SACU	-0.6	-0.2	0.0	-1.9	8.1
EU and EFTA	0.1	1.3	0.4	0.5	-0.2
South Asia and EAP	0.2	1.2	0.3	5.2	0.0
Rest of OECD	0.1	1.0	0.2	0.7	-0.2
LAC	0.0	1.1	0.2	0.7	-0.2
Rest of the World	0.3	1.4	1.2	0.7	-0.2

Source: ITC's staff calculations based on the MIRAGE model.



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