REGIONAL VALUE CHAINS IN AFRICA

A comprehensive mapping across eight Regional Economic Communities

African Union

UNIDO

GPI GLOBAL POLICY INCUBATOR

empowering transformation.

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A comprehensive mapping across eight Regional Economic Communities

Report prepared by

GPI Global Policy Incubator GmbH

In collaboration with

United Nations Industrial Development Organization (UNIDO)

African Union (AUC)

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Glossary

CAGR Compound Annual Growth Rate.
CEN-SAD Community of Sahel–Saharan States.
CO2 Carbon dioxide.
COMESA Common Market for Eastern and Southern Africa.

EAC East African Community.
ECCAS Economic Community of Central African States.
ECOWAS Economic Community of West African States.

GDP Gross Domestic Product.

HS Harmonized Commodity Description and Coding System, short *"Harmonized System"*).

ICT Information and Communications Technology.
IGAD Intergovernmental Authority on Development.
ILOSTAT International Labour Organization, Department of Statistics.
INDSTAT Industrial Statistics Database.
ISIC International Standard Industrial Classification.

MSMEs Micro, Small and Medium-sized Enterprises.
MVA Manufacturing value added.

NTB Non-Tariff Barriers.

OECD Organisation for Economic Co-operation and Development.

R&D Research and Development.
REC Regional Economic Community.
RISDP Revised Regional Indicative Strategic Development Plan.
RVC Regional Value Chain.

SADC Southern African Development Community.
SDG Sustainable Development Goals.
SME Small and Medium-sized Enterprise.

UMA Arab Maghreb Union.
UN United Nations.
UNIDO United Nations Industrial Development Organization.

WACOMP West Africa Competitiveness Programme.
WDI World Development Indicators.

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Executive Summary

Key findings

General findings of the report

Despite its efforts in the past, industrial development has remained a challenge for African nations. The analysis presented in this report highlights substantial differences across the Regional Economic Communities (RECs), which explain both differences in the economic structure and development of the respective regions. At the same time, there are also some striking parallels across all economic communities worth pointing out.

Manufacturing production For one, most RECs show similar industrial capacity levels[a], which is lower than the average of all developing economies. Only UMA records a significantly higher MVA per capita level compared to all other RECs. On average, Africa's MVA per capita level of $212 is starkly lower than the average of all developing countries (excluding China), which was $500 in 2019.

At the same time, industrial production across all RECs largely relies on three main sectors. *Food and beverages* is one of the largest sub-sectors in manufacturing value-added generation across all regions. This sector is followed by *chemical products*, which is found to be in the top-three most value-added generating sectors in five out of the eight analysed RECs and *coke and refined petroleum products* (in the top-three in five RECs).

Manufacturing trade Africa's manufacturing industries' comparatively low manufacturing value-added generating capacity is also visible in the continent's exports. For example, per capita exports in 2019 were only 35% of the level registered by the low- and middle-income countries excluding China ($560). Furthermore, across the analysed RECs manufactured exports were massively concentrated in only a few countries. In all RECs, at least 50% of each region's total manufacturing exports originate in the top-three most exporting countries. If we consider the continent as a whole, five countries alone account for more than 50% of total African manufacturing exports in 2019. These countries are South Africa (23%), Nigeria (10%), Algeria (7%), Angola (7%), and Egypt (6%).

One consequence of low industrial production capacity is a heavy dependence on imports for intermediate and final consumption of manufactured goods. All RECs have massive manufacturing import dependency, with manufacturing representing from 88% to 94% of total imports.

Characteristics of traded goods There is a distinct pattern in African countries' traded commodities. Exports predominantly consist of primary goods. They serve as inputs for the final production of goods. On the other side, African economies typically import more products for final consumption and more processed, intermediate commodities goods. In other words, almost everything that African regions import today are manufactured products, while exports are still primarily characterised by raw materials.

Regional integration Traditionally, regional integration within RECs has emphasised market integration through trade liberalisation and facilitation, mainly by removing tariff and non-tariff barriers to trade and investment. However, increasing attention is being placed on productive integration by focusing on supply-side constraints and policy-making capacity building to develop regional value chains deliberately. Nevertheless, such policies and priorities occupy a much smaller space on the regional integration agendas.

Regional Value Chains Looking at the kind of goods traded inter-regionally in Africa, certain Regional Value Chains (RVCs) are relevant across all RECs. These are *vegetable and animal oils and fats; refined petroleum products; soap and detergents* as well as *cleaning and polishing preparations, perfumes and toilet preparations; plastic products* and *basic iron and steel*. While regional trade dynamics illustrate the existence of RVC-type trade in Africa, international trade is more extensive than intra-regional trade across almost all RECs. At the same time, the report finds that different countries are dominant trading hubs within an RVC and region, depending on the type of goods and complexity.

Finally, there is ample scope to further RVC-type trade across the eight RECs analysed in this report. The top RVCs identified across the eight RECs have been showing robust growth performance in the past. Even though the potential for new key RVCs to develop is limited to a few cases in each REC, this report's analysis illustrates that developing these sectors may positively affect socio-economic development.

[a] Expressed by manufacturing value added - MVA - per capita.

Key findings

Findings for the CEN-SAD region

Key findings for the CEN-SAD region are summarised in the paragraphs below.

Macroeconomic trends CEN-SAD shows significant progress in terms of manufacturing productive and export structures. The region exhibits an MVA per capita growth rate above the African continent average. Positive dynamics can also be reported for the MVA share in GDP and employment, which increased between 2010 and 2019. These positive dynamics were only partly matched by export figures, as the level of per capita exports and manufacturing exports' growth rate were below the average.

Furthermore, while the region has experienced economic growth and poverty reduction, this trend was not accompanied by a decrease in inequality.

Manufacturing production The region exhibited the highest sectoral diversification of MVA and manufacturing exports among the RECs; yet, economic activities remain concentrated in a few industries. *Coke and refined petroleum products, foods and beverages*, and *chemical products* represent 46% of total MVA. In contrast, *basic precious and non-ferrous metals, refined petroleum products, and wearing apparel* constitute 50% of total manufacturing exports.

Similarly, the spatial concentration of MVA and manufacturing exports are very high. While Nigeria and Egypt account for 59% of total MVA, Egypt, Morocco and Tunisia contribute 58% of the manufacturing exports.

While the manufacturing share in total imports has decreased over the years, it remains high. More specifically, manufacturing imports per capita in CEN-SAD are the highest among all analysed RECs. The manufacturing sector is also characterised by a high degree of import dependency, characterised by manufacturing imports that exceed manufacturing exports. CEN-SAD economies import more final consumption goods than an average African economy.

Regional integration The CEN-SAD region presents a minimal policy scope for regional integration, particularly for RVCs promotion. Our research could find no policy documents, and the RECs official website is not active. According to the African Union's official website, regional value chain development is not among its main objectives. The absence of regional policy strategies suggests that insufficient efforts have been made to change this scenario.

Regional Value Chains The largest identified RVC of the region belongs to *refined petroleum products* and accounts for 16% of inter-regional trade. Sectors with RVC potential for the future are *wearing apparel* and *textiles* as well as the agro- and extractive industries.

The key RVC identified in the CEN-SAD region has seen robust and positive growth between 2012 and 2019, with the highest growth recorded in *refined petroleum products, processing and preserving of fish and fish products, fertilisers and nitrogen compounds*.

Key findings

Findings for the COMESA region

Key findings for the COMESA region are summarised in the paragraphs below.

Macroeconomic trends COMESA 's industrial structure has not shown significant progress in the past years. MVA per capita and its growth rate performed below Africa's average. MVA share on GDP remained almost stable, and industrial employment share on total employment contracted. The export front performed slightly better. Manufacturing exports per capita grew faster than the African average, and the manufacturing share in total exports also increased. While industrial growth positively contributes to employment growth, it only accounts for 5.5% of total economy-wide employment. In general, the region has experienced economic growth and poverty reduction; however, this trend was not accompanied by a decrease in inequality.

Manufacturing production Overall, sectoral manufacturing diversification is low in the COMESA region, with *coke and refined petroleum products, foods and beverages, and chemical products* accounting for 60% of total manufacturing value-added. The same is true for manufacturing exports, which are highly concentrated: *basic precious and non-ferrous metals, basic chemicals, and processed fish* account 91% of the manufacturing exports.

Similarly, spatial concentration of MVA and manufacturing exports are high, with Egypt alone accounting for 60% of MVA, and Egypt and DR Congo 55% of manufacturing exports in the region.

The manufacturing share in total imports is very high and has further increased over the years. Moreover, manufacturing imports per capita exceed exports per capita, which evidences a high manufacturing import dependency.

Regional integration As with all RECs, the primary mode of regional integration has been a market-led approach. This measure focuses on reducing or eliminating tariffs and other border measures that inhibit cross-border trade and investment. COMESA has several policy documents setting priorities, guidelines and actions to integrate the community further and develop its industrial structure. However, the scope of specific policies for value chain development is limited. Such intentions and some policy measures are presented on COMESA's *2021-2025 Medium Term Strategic Plan*, the *Industrialization Strategy 2017-2026*, and the *Action Plan for the Industrialization Plan 2019-2026*. However, little concrete information on the actual implementation is disclosed.

Regional Value Chains Trade in intermediate consumption goods, i.e., goods that have not yet been transformed into final consumption goods, is more prevalent in COMESA than in other RECs. The largest identified RVC of the region belongs to *refined petroleum products* and accounts for as little as 5% of inter-regional trade. This means there is notable diversification in RVC activity in this sector.

The sectors with the highest RVC potential for the future are *wearing apparel, chemicals* and the mineral sector. The growth performances of the key RVCs identified in this report have been robust. The two fastest-growing REC industries (fertilisers; basic precious and non-ferrous metals) have been growing notably with growth rates above 25%.

Key findings

Findings for the EAC region

Key findings for the EAC region are summarised in the paragraphs below.

Macroeconomic trends Over the past years,EAC's industrial evolution has failed to change the region's productive structure. On the one hand, the growth rate of MVA per capita and manufacturing exports increased faster than Africa's average. On the other hand, the contribution of manufacturing to MVA, employment and exports all saw a decline. This tendency of a decrease in manufacturing-related activities at more moderate levels of GDP is often referred to as premature deindustrialisation. While industrial growth positively contributes to employment growth, it only accounts for 5.5% of total economy-wide employment. Despite all the challenges, the region has experienced economic growth accompanied by poverty and inequality reduction.

Manufacturing production Overall, the sectoral diversification of the MVA and manufacturing exports is low. *Foods and beverages, textiles* and *chemical products* account for 62% of MVA. Conversely, *basic precious and non-ferrous metals, refined petroleum products, and processed fish* represent 59% of the manufacturing exports.

Spatial concentration of MVA and manufacturing exports are also very high, with Kenya and Tanzania accounting for 73% of MVA, 69% of manufacturing exports.

The manufacturing share in total imports is also substantial and has further increased over the years. Moreover, manufacturing imports per capita are higher than exports per capita, which evidences a high manufacturing import dependency.

Regional integration EAC's primary mode of regional integration has been a market-led approach, with a stronger focus on reducing or eliminating tariffs and other border measures that inhibit cross-border trade and investment. Notwithstanding, EAC is one of the few RECs that targets directly and tailors industrial policy measures specifically to encourage the flourishing and strengthening of RVCs. Such efforts are presented in the following policy documents: *EAC Vision 2050, EAC Industrialisation Policy 2012-2032, Industrialization Strategy 2012-2032, Action Plan for the implementation of the EAC Industrialization Policy and Strategy (2021-2026)*, and the *Sixths EAC Development Strategy 2021/22 – 2025/26*. Although the documents list a set of goals and concrete actions toward the development of the RVCs, the documents lack more precise information regarding their implementation, monitoring and future evaluation.

Regional Value Chains EAC has the second-highest share of imports in total trade. Final consumption imports into the region are larger than total EAC exports. The largest identified RVC of the region belongs to basic iron and steel and accounts for eight per cent of inter-regional trade.

The sectors with the highest RVC potential for the future are the agro- and extractive industries. Furthermore, the majority of the key RVCs have experienced positive growth. Sectors that have shown the most impressive growth performance over the past five years belong to the chemicals and refined petroleum products industries.

Key findings

Findings for the ECCAS region

Key findings for the ECCAS region are summarised in the paragraphs below.

Macroeconomic trends ECCAS' industrial progress has been rather modest. Both MVA per capita and its growth rate performed below Africa's average. While industrial employment as a share of total employment has decreased in recent years, the MVA share in GDP has increased. These dynamics are indicative of *jobless manufacturing growth*.

On the export front, the region has fared better as manufacturing exports per capita has been growing more than the African average, and the share of manufacturing in total exports rose as well.

Furthermore, the industrial sector has also contributed to employment growth; however, given the relatively small industrial foundation, its overall contribution to total employment remains muted at 4.1%. Despite all the challenges, the region has experienced economic growth accompanied by poverty and inequality reduction.

Manufacturing production The region has the highest sectoral concentration in value-added and manufacturing exports across all analysed RECs. More precisely, *foods and beverages, chemical products, and basic metals* account for 81% of MVA. Conversely, *basic precious and non-ferrous metals, basic chemicals, and sawmilling and planing of wood* represent 94% of the manufacturing exports.

Furthermore, spatial concentration of MVA and manufacturing exports is very high, with Angola and DR Congo accounting for 54% of MVA, and Congo DR and Congo Republic, 66% of manufacturing exports.

Lastly, the share of manufacturing in total imports is high and increasing. This result, together with the fact that manufacturing imports exceed exports, indicates high manufacturing import dependency.

Regional integration ECCAS' primary mode of regional integration has been a market-led approach, with a stronger focus on reducing or eliminating tariffs and other border measures that inhibit cross-border trade and investment. No current public policy documents could indicate the region's priorities and policies regarding RVCs development could be identified. However, according to the Pan-African Chamber of Commerce and Industry, the region's current priorities do not include the development of RVCs, nor are they mentioned on ECCAS' official website. The absence of regional policy strategies suggests that insufficient efforts have been made to change this scenario.

Regional Value Chains ECCAS is one of the two RECs where exports exceed imports. This results from extensive exports of primary and intermediate consumption goods. These products typically stand at the beginning of RVC-type trade, which indicates that the region is a provider of raw materials to the global market. At the same time, the degree of RVC engagement is the lowest among all analyses RECs, with a mere 65% of total trade.

The largest identified RVC of the region belongs to *refined petroleum products* and accounts for 28% of inter-regional trade. The sectors with the highest RVC potential for the future are the agro-food, leather, and extractive industries. *Basic precious and non-ferrous metals* is the sector that has seen the most extensive and positive export growth dynamics within the ECCAS region. Another highly dynamic yet somewhat smaller sector is *recycling of non-metal waste and scrap industry*, which has demonstrated impressive growth performance of around 50% over the past five years.

Key findings

Findings for the ECOWAS region

Key findings for the ECOWAS region are summarised in the paragraphs below.

Macroeconomic trends The productive industrial sector in ECOWAS has demonstrated headway. MVA per capita grew faster than Africa's average, and the share of manufacturing in GDP and total employment increased. On the other hand, manufacturing exports did not follow these positive trends and remained below the African average. Furthermore, the industrial sector has contributed to employment growth and stands at a notable share of 9.1% in total employment. In general, the region has experienced economic growth and poverty reduction; however, this trend was not accompanied by a decrease in inequality.

Manufacturing production Manufacturing diversification remains low. *Foods and beverages, furniture and other manufacturing, and coke and refined petroleum products* account for 52% of manufacturing value added. Diversification of the manufacturing exports is even lower, with *basic precious and non-ferrous metals, refined petroleum products, and cocoa and sugar confectionery* representing 79% of total manufacturing exports.

Spatial concentration of MVA is very high, with Nigeria alone accounting for 66%. Manufacturing exports are relatively more diversified but with a still high concentration level. Ghana, Cote d'Ivoire and Mali concentrate 66% of the total. Moreover, manufacturing imports per capita are higher than exports per capita, which evidences a high manufacturing import dependency.

Regional integration The primary mode of regional integration has been a market-led approach, with a stronger focus on reducing or eliminating tariffs and other border measures that inhibit cross-border trade and investment. A notably limited industrial policy scope with an unclear means of action is mentioned on the West African Common Industrial Policy (WACIP) and on the ECOWAS Strategic Framework for Private Sector and Enterprise Promotion 2015-2020.

Regional Value Chains ECOWAS is characterised by a high share of primary commodity exports. The region imports slightly more final consumption goods than the average African economy. The largest identified RVC of the region belongs to fabricated metal products and accounts for 17% of inter-regional trade. Also, the sectors with RVC potential for the future are the agro-sector, wearing apparel and minerals industries. Finally, robust growth has been observed for the *fabricated metal, refined petroleum and basic iron and steel* sector.

Key findings

Findings for the IGAD region

Key findings for the IGAD region are summarised in the paragraphs below.

Macroeconomic trends IGAD 's industrial evolution has not been sufficient to change the region's productive structure. Although the MVA per capita and manufacturing exports increased faster than the African average, they remain lower than across the continent. Furthermore, the contribution of manufacturing to MVA, employment and exports all saw a decline. This tendency of a decrease in manufacturing-related activities at more moderate levels of GDP is often referred to as premature deindustrialisation. The sluggish industrial dynamics have not translated into a large number of industrial jobs, and the share of manufacturing jobs in total employment fell to 4.4% in 2019. In general, the region has experienced economic growth and poverty reduction. However, this trend was not accompanied by a decrease in inequality.

Manufacturing production MVA sectoral diversification in the region is low. Foods and beverages, textile, and chemical products account for 56% of MVA. Also, manufacturing export diversification is particularly low, with basic precious and non-ferrous metals, vegetable and animal oils, and processed meat representing 79% of the manufacturing exports.

Furthermore, the spatial concentration of MVA and manufacturing exports is very high, with Kenya and Sudan accounting for 64% of MVA, and Kenya and Uganda, 68% of manufacturing exports.

Regional integration IGAD's priorities had been in agriculture, social development, peace and security. The development of industrial RVCs is not set as a priority in any policy document. Hence there is no specific strategy outlined for it. The lack of regional strategic plans reveals many difficulties for the region to advance a productive integration agenda.

Regional Value Chains For the IGAD region, imports are around 4.5 times larger than exports. Unlike other RECs, IGAD economies rarely import primary commodities that form the beginning of RVC-type trade. The largest identified RVC of the region belongs to vegetable and animal oils and fats and accounts for six per cent of inter-regional trade. Across all RECs, IGAD has the lowest share in RVC-type trade, making up around 30% of total trade.

The sectors with RVC potential for the future are the leather and extractive sector, medium/high-tech industries as well as chemicals and machinery and equipment. Refined petroleum, tobacco and pharmaceuticals are among the three most dynamic RVC sectors of the IGAD region.

Key findings

Findings for the SADAC region

Key findings for the SADAC region are summarised in the paragraphs below.

Macroeconomic trends Despite its advanced industrial structure, the analysis in this report presents some alarming signals for the SADC region. For one, MVA per capita decreased over time and now sits slightly below the African average. The manufacturing contribution to GDP and total employment has also shrunk, which, according to the literature, suggests a process of (premature) deindustrialization process. On the other hand, manufacturing export have performed better, and the share of manufacturing in total exports has also remained fairly stable.

The industrial sector contributes to overall job creation; however, since the manufacturing sector is growing more slowly than the rest of the economy, its share in total employment has also decreased to 4.6%. In general, the region has experienced economic growth and poverty reduction. However, this trend was not accompanied by a decrease in inequality.

Manufacturing production SADC is the most diversified region in terms of MVA; however, it is still very concentrated in a few sectors, with foods and beverages, coke and refined petroleum products, and furniture and other manufacturing accounting for 46%. Manufacturing exports are even more concentrated, with basic precious and non-ferrous metals, motor vehicles, and Jewelly and related articles being 68% of them.

The spatial concentration of MVA is very high and manufacturing exports extremely high, with South Africa alone accounting for 53% of the first and 78% of the latter.

Regional integration Regional integration in SADC has heavily relied on a market-led approach, with a stronger focus on reducing or eliminating tariffs and other border measures that inhibit cross-border trade and investment. Nevertheless, SADAC is the REC with the broadest scope of deliberate policies to promote regional value chains. The main guidelines and policies are disclosed in the following documents: the Revised Regional Indicative Strategic Development Plan (RISDP) 2015-2020, Regional Indicative Strategic Development Plan 2020-2030, SADC Industrialisation Strategy and Roadmap (2015–2063), Action Plan for the Industrialization Strategy and Roadmap, and SADC Regional Mining Vision (RMV).

Regional Value Chains SADAC is one of the two RECS that exports more than it imports. The region mainly exports primary and intermediate consumption goods. This indicates that some regional processing capacities exist and better integration into global production processes. The largest identified RVC of the region belongs to basic precious and non-ferrous metals and accounts for 15 per cent of inter-regional trade.

The sectors with the highest RVC potential for the future are the textile and leather industries and the extractive sector. The growth performance of SADC's most important sectors (basic precious and non-ferrous metals and basic chemicals) has been impressive, with growth rates above 25% over the last five years.

Key findings

Findings for the UMA region

Key findings for the UMA region are summarised in the paragraphs below.

Macroeconomic trends The sectors with RVC potential for the future are the agro-food and basic chemicals industries. The two key RVCs of the UMA region (basic chemicals, except fertilizers and nitrogen compounds; and basic precious and non-ferrous metals) have been showing maturation tendencies with low or negative growth rates over the past five years. The sugar industry will most likely gain notable RVC relevance in the UMA region, as it pairs a significant share in exports with remarkable export growth.

UMA is the only region to show levels of MVA per capita, and manufacturing exports per capita exceed the continental average. However, the region also exhibits MVA and manufacturing export growth rates below the average. Furthermore, despite being the largest among the regions, the manufacturing share in total employment fell to 11.5%. On a positive note, the region has experienced economic growth, poverty, and inequality reduction.

Manufacturing production The sectoral diversification of MVA in the UMA region remains low. Coke and refined petroleum products, foods and beverages, and chemical products account for 73% of total manufacturing value-added. In contrast, manufacturing exports are more diversified than MVA. Refined petroleum products, wearing apparel, and fertilizers represent 51% of the manufacturing exports.

Furthermore, the Spatial concentration of MVA is exceptionally high, with Nigeria alone accounting for 66% of total manufacturing value-added. On the other hand, manufacturing exports are more diversified but with a still high concentration level. Ghana, Cote d'Ivoire and Mali concentrate 66% of the total.

Regional integration UMA remains in the initial stages of cooperation between their respective member countries to jointly define regional policy priorities and develop strategies. Despite a long history of regional agreements, integration among the UMA countries is relatively low. Productive integration via RVCs development is not mentioned as a priority on UMA official website, and there is no policy document disclosed on the portal. The lack of regional strategic plans reveals many difficulties for the region to advance a productive integration agenda.

Regional Value Chains The UMA region exports roughly as many final consumption goods as it imports. The region also tends to import intermediate consumption goods associated with a higher degree of processing more frequently than other regions. The largest identified RVC of the region belongs to refined petroleum products and accounts for as much as 42% of inter-regional trade. This means there is a high concentration of RVC activity in this sector.

1 Introduction and Background

1.1 Purpose and objectives of the study

This study has been conducted by Global Policy Incubator (GPI) within the framework of a collaboration between the United Nations Industrial Development Organization (UNIDO) and the African Union Commission (AUC), to understand the status quo of Regional Value Chain development across all 8 African Regional Economic Communities (RECs).

It is widely acknowledged that stronger regional integration and the development of Regional Value Chains across the African continent have the potential to drive socio-economic development. However, while the vision to strengthen intra-regional production structures is shared among most observers of industrial development in Africa, it is unclear what role they actually play across African regions today. To the best of our knowledge, until today, no comprehensive assessment of the status quo of all existing Regional Value Chains in Africa has been conducted. Most existing reports either provide a very broad assessment of the continent's industrialisation patterns or analyse a small number of existing value chains within one country or region. While these investigations are of great value in understanding the intricacies of specific Regional Value Chains (e.g. leather goods), they do not allow us to draw comparative conclusions across value chains and/or regions.

Accordingly, the main purpose of this report is to overcome the lack of holistic information on the state of Regional Value Chain development in all 8 African RECs. Towards this aim, the study deploys a range of innovative analytical methods that allow us to provide the most complete picture on RVC development that is possible based on available data today. In particular, it provides an analysis of the following key questions:

- What is the current level of industrial performance across the 8 African RECs?
- In which RECs does the industrial sector perform relatively better/worse from an economic, social and environmental perspective?
- What is the current status of intra-regional trade in Africa?
- Which Regional Value Chains do currently already exist within each of the 8 RECs?
- How do RVCs operate in terms of the division of labour between individual countries within each REC?
- Which new RVCs could potentially emerge within the RECs in the near future?
- How could RECs prioritise RVCs for strategic support within their industrial policy interventions?

The study can largely be understood as a mapping exercise that takes stock of the complexity of RVC development in Africa. The main novelty is the introduction of an alternative value

chain analysis method that overcomes the data limitations that have prevented a comprehensive mapping of all RVCs in Africa. While prior VC studies have largely used input-output data, which implies very low country coverage in Africa, we work exclusively with international trade data. This allows us to understand the entire picture of RVC development with very few gaps in terms of data and time coverage. We believe that this innovative method could mark the beginning of a larger work pfome that would ensure comprehensive and timely access to RVC data for all value chains in all industrial sectors and across all African countries. Another advantage of this approach is, that the results presented in this study can easily be updated on a yearly and/or quarterly/monthly basis to allow for continuous monitoring of RVC development progress. This could provide the foundation for establishing a continental and/or regional "Value Chain Observatory" that could be used by policymakers and value chain analysts across the continent.

Based on the above, it deserves to be highlighted that this study mainly makes methodological and analytical contributions to the broader debate on the multifaceted topic of RVC development. Assessing the technical, financial, institutional and human capacity bottlenecks that have prevented a more dynamic RVC development on the continent is outside the scope of this report. The study does also not provide more in-depth case study-based assessments of individual value chains. In this context, it is also important to mention that the investigation exclusively relies on available macro-level data and does not include field research-based information that could shed more light on the intricacies of the private sector operations within specific value chains. Last but not least, the study does not have the mandate to develop in-depth industrial policy recommendations for RECs. In particular, the final definition of a list of priority RVCs that could be supported by regional policies and a definition of suitable packages of industrial policy instruments to strengthen them will require a more participatory policy decision-making process. However, it is hoped that the analytical findings and methods introduced in this study will be of significant value to ensure that this decision-making process will be based on a solid and comprehensive evidence base.

1.2 Potential benefits of regional integration and value chain development

There are several reasons why the continent and African RECs should pursue further economic integration and RVC development. While African trade with other world regions is heavily dominated by raw materials and unprocessed goods, around half of all of the regional blocks' intra-regional exports are manufactured goods. With the establishment of AfCFTA, the African market offers considerable unexploited potential, particularly for developing intra-regional value chains. Some arguments commonly made in favour of RVC development in Africa are summarized below:[1]

[1]This section is adapted from Hartwich and Hammer (2021): Africa's inter-regional trade and regional value chain integration: facts and considerations for future policy action. UNIDO: Vienna. (draft keynote).

- **Adding value to African products where it makes sense.** Africa's economies must move beyond the production of raw materials to build dynamic and competitive manufacturing sectors with higher value-added. Here, Africa must draw on the opportunities presented by participation in global and regional value chains.
- **Accelerating diversification.** Africa is home to eight of the world's 15 least diversified countries, according to the International Monetary Fund's Export Diversification Index (2020). Diversification, through both the expansion of existing economic sectors and the creation of new ones, is important for reducing dependency. This argument is underscored by the periodic boom and bust cycles of international commodity prices and, recently, by the oil price shock and other global supply and demand shocks triggered by the coronavirus pandemic.
- **Greater economic resilience.** The COVID-19 crisis has again demonstrated the degree of dependence of key African export sectors on international markets. For example, the Kenyan flower industry has succumbed to COVID-19 due to contractions in demand from European markets. By contrast, regional markets have a resilience that global markets often lack, primarily due to geographic proximity. Economic resilience can be achieved through diversification, import substitution and sourcing from and marketing to less distant places while building up local productive capacity in key priority sectors.
- **Local products benefit consumers.** RVCs are particularly well suited to serve regional tastes and cultural preferences. The food industry offers the clearest example of this. Several food crops, such as yam, cassava, potatoes and aquaculture products, face little international competition, partly due to their perishable nature and the methods of local preparation. Such products can be marketed via regional chains, partly protected by local tastes and habits.
- **Regional GVC integration.** Many efforts have been made to increase the participation of African countries in GVCs and to export to high-income country markets. This has included benefits of value capture, income and firm learning, but only for some. In turn, the region may have also become more exposed and prone to GVC-related shocks, as observed with the onset of the current COVID-19 crisis. A more rapid expansion of regional production capacity, by contrast, allows for diversification, increases the availability of goods that can be consumed in the region and reduces vulnerability.
- **Import substitution where it makes sense.** Developing RVCs can further help reduce the import of some goods or parts thereof from outside Africa, which could alternatively be produced on the continent. While importing goods can have many benefits, such as learning from imported technology, a range of goods could be produced directly on the continent, thus increasing both local value addition and self-sufficiency by reducing vulnerability.
- **Environmental costs.** Global production arrangements involve the long-distance transport of intermediate goods by ship or air, which entails a heavy environmental footprint. Organis-

ing production along RVCs as opposed to GVCs means benefiting from geographical proximity and, in turn, reducing transport-related carbon emissions.

1.3 The structure of this study

This study is composed of six chapters. After this introductory part, chapter 2 outlines the key methodological aspects, focusing on a description of the innovative analytical approach developed for the holistic mapping of all RVCs in Africa. Technical readers will also appreciate the detailed annexe that provides additional details on the new method that has been used.

The third chapter provides a detailed comparative assessment of the industrial performance of all 8 African RECs. It paints a complete picture of where African regions stand relative to one another by analysing the economic, social and environmental performance levels and dynamics of industrial development across the RECs. The chapter can be read by itself to receive a comprehensive yet compact update on the industrial development status in all regions. At the same time, it also provides a useful broader analytical foundation that helps contextualise the in-depth value chain mapping in chapter 4.

The fourth chapter presents the key results of identifying and assessing Regional Value Chains in Africa. It provides the main results for each REC while simultaneously providing a comparative perspective. Hence, it can be consulted by stakeholders of one specific REC that may want to focus only on the results identified for their specific regions. At the same time, it is also relevant for readers who are interested in a comparative analysis of RVC development across the continent. The chapter includes a brief assessment of intra-regional trade in Africa, identifying all relevant RVCs in each REC, assessing the division of labour between countries within these RVCs, identifying unused potential for RVC development and a methodological framework for the strategic prioritisation of value chains. The chapter is complemented by more comprehensive analytical details that can be found in the annexe.

The fifth chapter takes stock of the current industrial policy context for promoting RVCs across the continent. It provides an overview of the available secondary sources about Regional Value Chain promotion in all 8 RECs. It highlights some missing pieces in the RVC policy agenda that could be developed further in the future.[2]

The final chapter provides the main conclusions of the study. It outlines some opportunities to use its analytical results within the RVC policy development process for African countries, RECs and the African Union as well as the broader development cooperation landscape.

[2]The study team made efforts towards complementing these secondary sources with primary research on the status of RVC promotion across all RECs. However, while an online survey questionnaire was developed both in English and French, stakeholders' very limited response rate prevented the integration of this information into the study. The results of the survey may be analysed or integrated into this study at a later point. Hence, the findings of chapter 5 might not always reflect the most up-to-date and accurate portrait of the state of RVC-related industrial policies within the RECs.

2 Methodological Framework

This section describes the methodological framework of the study. It first briefly summarises the various methodologies applied in each chapter in Section 2.1. Then it introduces the innovative analytical methodology that was newly developed for this report and is applied in chapter 4. These quantitative elements of the report build on an expansive set of global trade data and a novel trade-data mapping procedure which is discussed in Section 2.2. This report's analysis is conducted for the set of countries and 8 RECs as provided in Table 15.

2.1 Methodologies applied by chapter

The chapters in this report apply a variety of innovative quantitative methods for comparative regional analysis of industrialisation dynamics across African RECs.

Chapter 3 of the report sets the stage by presenting a comprehensive quantitative analysis of the industrial performance of the 8 main African RECs. It uses a variety of international data sources and key performance indicators that allow a relative comparison of the industrial sector's economic, social and environmental performance across the regional communities. This benchmarking among RECs facilitates a better understanding of the continent's specific industrialisation stages and dynamics. The unique contribution of this chapter is the focus on regional aggregates. However, key countries' specific roles within the RECs are also highlighted where appropriate.

Chapter 4 presents an in-depth quantitative mapping of Regional Value Chains across all RECs. It starts with an overview of the intra-regional trade across Africa, before identifying all relevant industrial RVCs for each region based on the innovative methodology described in more detail below. It also illustrates the division of labor across countries within key RVCs and identifies future potentials that remain unused in the regions as of today. Finally, it provides a framework that RECs can apply to prioritise among RVCs within their industrial strategies.

Chapter 5 presents a brief summary of a qualitative analysis of the current policy framework for supporting RVCs in the continent before chapter 6 concludes with policy recommendations.

2.2 Analytical methodology in chapter 4

2.2.1 Data sources and classifications

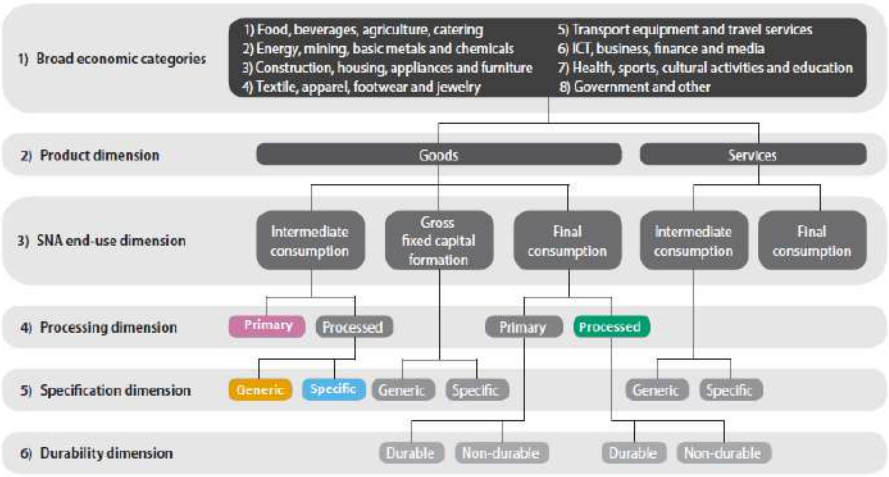
The main building block of the quantitative analysis of this report is trade data from UN-Comtrade (UN Comtrade, 2020). This commodity-based classification is then analysed by linking each commodity to its corresponding International Standard Industrial Classification (ISIC); see appendix A.4 for a more detailed discussion of the ISIC standard used in this report. Furthermore, this report introduces the new and novel concept of further disaggregating trade flows by their degree of processing by exploiting the new Broad Economic Categories Revision 5 (BEC5) classification (UNSD, 2018). Data extraction and mapping is done using the R package *comtradeRggregator*

(Amann, 2022). Please see appendix A.3 for more information on matching HS trade date with manufacturing data.

2.2.2 The Broad Economic Category Rev. 5 (BEC 5) classification

The main focus of analyses using the BEC classification has been describing, assessing and explaining observed patterns in international trade, tariff effects, trade policy and development economics. One of the most critical research areas has been intra-industry trade. Identifying a propensity for countries to trade similar products challenged some long-standing assumptions about comparative advantage and specialisation in international trade. Compared to previous revisions, BEC 5 is introducing a more transparent and more intricate relationship between economic categories than in previous revisions and makes it possible to identify end-use now as well as types of product-processing (UNSD, 2018). See Figure 1 for a visualisation of the BEC5 relationship and sub-classifications.

Figure 1: BEC 5 relationship and sub-classifications



Note: Conceptualisation of revised BEC5 classification discussed as discussed in appendix A.2.
Source: UNSD (2018).

While **intermediate consumption** considers goods that are used as production inputs, **capital goods** (also referred to as *gross fixed capital formation*) include fixed assets such as machinery, equipment, buildings or other structures that are used repeatedly or continuously in production over several accounting periods, that is, more than one year. The **distinction between intermediate consumption and capital goods** depends on whether the goods that form part of the production process are entirely used up in the accounting period or not. If they are, they are classified as intermediate consumption; if not, they enter the capital category. For this report, the differentiation between intermediate consumption and capital will be lifted for the sake of simplicity: *capital goods* are sub-classified as *intermediate consumption goods*.[3]

[3]Note that the general definition of *capital goods* also includes fixed assets such as buildings and other structures which are not defined in the context of trade data. This implies that, based on the type of trade data used for this report, capital goods can also be understood as a type of *final consumption for firms* which themselves could be the result

Final consumption consists of goods and services used by individual households or the community to satisfy their individual or collective needs or wants. The products can either be classified as *primary* (in which case they have experienced little or no processing), or *processed*, in which case they have passed through more extensive production processes and are typically drawn from goods that have served as intermediate inputs at some point during the production process.

Primary goods refer to produces of the primary sectors of the economy, that is, farming, forestry, fishing, and the extractive industries. However, some goods are created by other sectors, such as manufacturing, which underwent only minor changes. These are still classified as *primary* as long as most of the value generated for this particular good can still be attributed to one of the aforementioned primary sectors of the economy.[4] If a good is not defined as *primary*, it is classified as a *processed good*, which is further differentiated by their *degree of specificity* (processing). **The specification dimension** has the purpose of differentiating between *primary*, *generic* and *specific* traded goods and serves as a central tool for the Regional Value Chain analysis of this report: [5]

- **Specific intermediate consumption goods** are highly dependent on the industry for which the goods are made and, in some cases, include parts and components produced according to the specific requirements of one or a small number of buyers, with a single or a small number of downstream uses. For instance, most auto and aircraft parts and more highly integrated electronic components can be characterised as specified intermediate products. Even products made in large, standardised batches, such as pharmaceuticals, and in continuous process production methods, such as chemical and plastic stock, can be considered specific if they are protected by patents and produced according to a specified formula that others do not have access to for legal or technical capability reasons.

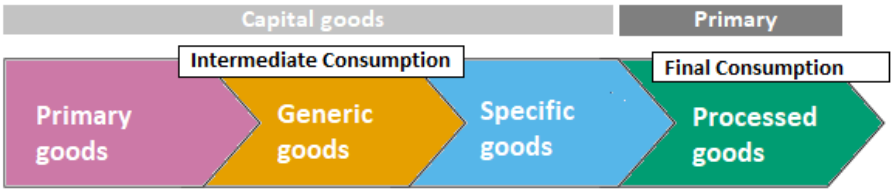
- **Generic intermediate consumption goods** typically lie farther upstream in the value-added chain (see Figure 2), have broader applicability across industries, and are therefore more indicative of arms-length trade rather than the explicitly coordinated trade making up the most dynamic portions of global value chains.

of value-chain processes (consider, for example, the assembly of a machine to manufacture production). However, a more detailed analysis of value-chain dynamics in relation to capital goods goes beyond the scope of this report.

[4]For an example, see UNSD (2018): *[C]otton undergoes a physical transformation when ginned, but as most of the value of the ginned cotton derives from the agricultural sector; it is classified, in BEC5, as a primary good.*

[5]The distinction between imports and exports becomes particularly important in this context: Exports of *specific* intermediates highlight a certain level of dependence on global integration, while imports of such goods are indicative of some level of control over a set of activities associated with the particular value chain and may either be related to production- or innovation-related activities. Linden et al. (2011) illustrates that enterprises that control and orchestrate the activities of the global value chain—while retaining control over product design, marketing, branding, and retailing earn much higher profits than most enterprises that act as suppliers in a global value chain. Such enterprises would tend to sit at the head of global value chains and import specified intermediate goods and services.

Figure 2: BEC Rev. 5 value-added chain



Note: Conceptualisation of revised BEC5 classification discussed as discussed in appendix A.2.
Source: UNSD (2018)

2.2.3 Using the Broad Economic Classification (BEC) for Global Value Chains (GVCs) analyses

With the focus on Global Value Chains (GVCs), the distinction between trade in intermediates and trade in final goods has become more critical. Understanding the dynamics of intermediate and final products is crucial when trying to analyse contemporary trends in international trade and globalisation in general and diversification and the specialisation of trade across regions, countries or commodity groups in particular. For example, global input-output tables and indicators of Trade in Value-Added (TiVA)[6] have been developed to paint a more complete picture of such economic and trade-related relationships. Figure 2 illustrates the categorisation of value-added chains which can be extracted from the structure of BEC Rev.5 (Figure 1) as recommended by UNSD (2018): This model begins with **primary intermediate commodities** in the processing dimension, followed by the increasing end-product specificity in the specification dimension (**generic** followed by **specific** processing), and ends with final consumption goods and services. Capital goods are included as another sub-type of intermediate consumption goods, while some final consumption goods are primary.

2.2.4 Implementation and challenges

The representation of results in this report builds on a reclassification of the raw BEC Rev. 5 classification, which is discussed in appendix A.2 and provides the reclassification of the raw BEC Rev. 5 aggregates to a more simplified approach, which serves as the foundation for all further empirical evaluations in this report. In appendix A.3 we provide a comprehensive list of raw BEC Rev. 5 mappings between HS 2012 and ISIC Rev. 3.1 using the concordance tables offered by WITS and UNSD; see Amann (2022) for more information on the compiled concordance tables. The colour coding matches the colours in Figure 1 and Figure 2 to retain consistency.

2.3 Expert interviews

As part of the qualitative analysis of this report, expert interviews in the form of an online questionnaire were conducted. The questions as well as response patterns per question for the English

[6] See `https://www.oecd.org/sti/ind/measuring-trade-in-value-added.htm`

or the French version of the report are summarised in Table 20. Given the low number of survey responses, an empirical analysis of the questionnaire is foregone.

2.4 Limitations

The main diagnostic tool of the approach proposed to identify regional trade networks is based on trade data and a commodity-based classification of traded products. As such, the method is sensitive to any issues arising when analysing trade data, such as delayed or incomplete or non-existent reporting as well as revisions of trade figures. A discussion on some of the most pressing issues and undertaken trade data transformation for this report is provided in appendix A.5. It is also important to note that the proposed trade data analysis does not allow one to draw any causal connection between trade flows and successful regional integration and that the analysis does not capture national production processes in a conventional Input-Output table format.

3 Industrial Performance of African Regions

This section provides a multi-dimensional analysis of the recent industrial performance and current status of the eight African Regional Economic Communities recognised by the African Union, namely: CEN-SAD, COMESA, EAC, ECCAS, ECOWAS, IGAD, SADC, and UMA. Each analysis compares the regions to each other and to the African average. Whenever necessary, country-level data are highlighted. The industrial performance dimensions analysed are: i) Economic performance, ii) Social performance, and iii) Environmental performance.

3.1 Economic performance of the industrial sector

The manufacturing sector is a crucial engine of socio-economic development as it provides greater opportunities to move to higher value-added activities with higher productivity gains, to generate and diffuse innovation and technology, to create more and better quality jobs, to increase income, and to encourage other sector's development through economic spillover effects. African countries have been deploying actions to advance their industrial development for decades. Nevertheless, the efforts have not been sufficient, and the continent as a whole still lags behind other developing regions in the globe. However, some significant differences exist among the RECs. The industrial performance analysis below captures the current status and recent evolution of the industrial production and export structures of the RECs, highlighting the main regional differences identified.

3.1.1 Industrial capacity

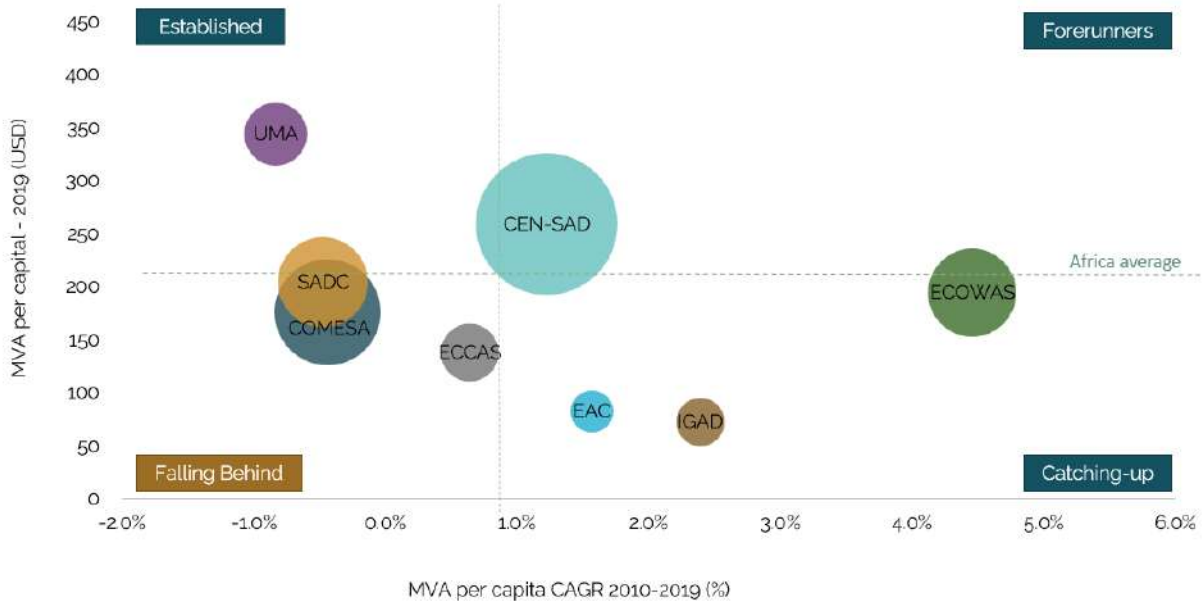
An essential indicator to assess the industrial capacity of countries or regions is the manufacturing value added per capita. Manufacturing value added is the net output of the manufacturing sector after adding up all outputs and subtracting intermediate inputs.[7] The indicator reveals the capacity of a region to enhance the economic value of intermediate products. By dividing MVA by population, the indicator considers the different sizes of the countries/regions and allows comparison across them. Figure 3 shows the compound annual growth rate (CAGR), and the level of MVA per capita of each REC in comparison to Africa's averages. Bubble sizes represent each region's total MVA value. Overall, most RECs show fairly similar industrial capacity levels. In contrast, only UMA has a significantly higher MVA per capita level than the African average [8]. It is worth noting that all the RECs that contribute the most to the total African MVA exhibit levels of

[7] It is calculated without making deductions for depreciation of fabricated assets or depletion and degradation of natural resources.

[8] UNIDO MVA database discloses a significantly lower MVA data for Algeria, and therefore for UMA, than what is registered in the World Bank WDI database. However, to ensure full comparability of data across the regions, only the data presented by the UNIDO MVA database was used.

MVA per capita that are very close to the African average. One fact that can partially explain this is the simultaneous presence of some countries in different communities, including large producers of manufactured goods, as in the case of Egypt, which belongs to both CEN-SAD and COMESA. However, surprisingly, also SADC and ECOWAS presented very similar industrial capacity levels - both slightly below the continental average - although they have no overlapping countries, demonstrating that other structural factors are driving the same results for those regions. ECCAS, EAC, and IGAD were the regions that showed the lowest levels of industrial capacity, in this order, with the last two having a capacity level which is less than half the African average.

Figure 3: Industrial capacity and growth: African Regional Economic Communities, 2010-2019



Note: Bubble sizes represent total MVA value (constant 2015 USD).
Data source: UNIDO MVA Database.

The industrial growth dynamics need to be considered for a more complete assessment of the industrial capacity differences of the African RECs. Towards that end, an analytical framework was applied to illustrate the regional dynamic contrasts. The RECs performances were classified according to their position concerning the MVA per capita level and CAGR averages of Africa, which was, respectively, $212 in 2019, and 0.8% per year between 2010 and 2019. The regions were clustered in the following types of performance:

1. **Established:** Regions that show a MVA level that exceeds the continental average but a growth rate below the average. Although these regions can add more value to manufacturing products than the African average, they are no longer growing rapidly. Data shows that this is the case of UMA. Moreover, their MVA per capita annual growth rate was -0.8%, revealing a reduction of the region's industrial capacity over the years.

2. **Forerunners:** Regions that exhibit at the same time a MVA level and CAGR that exceed the continental averages. Those regions are further increasing their industrial leadership role in the continent. CEN-SAD lies in this cluster, registering a level of $260 and a growth rate of 1.2% p.a.

3. **Catching-up:** RECs that perform at a lower level than the average of Africa, but their growth trend exceeds that of most other regions. These are regions that are demonstrating a catching-up movement within Africa's industrial performance. This is the case of ECOWAS, IGAD, and EAC, with CAGRs of 4.5%, 2.4%, and 1.6%, respectively. However, data also shows the last two regions still have a long way forward, since their MVA per capita levels are $73 (IGAD), and $83 (EAC). ECOWAS manufactured export per capita level was much higher, achieving $195 in 2019, positioning it at the margin to becoming a forerunner.

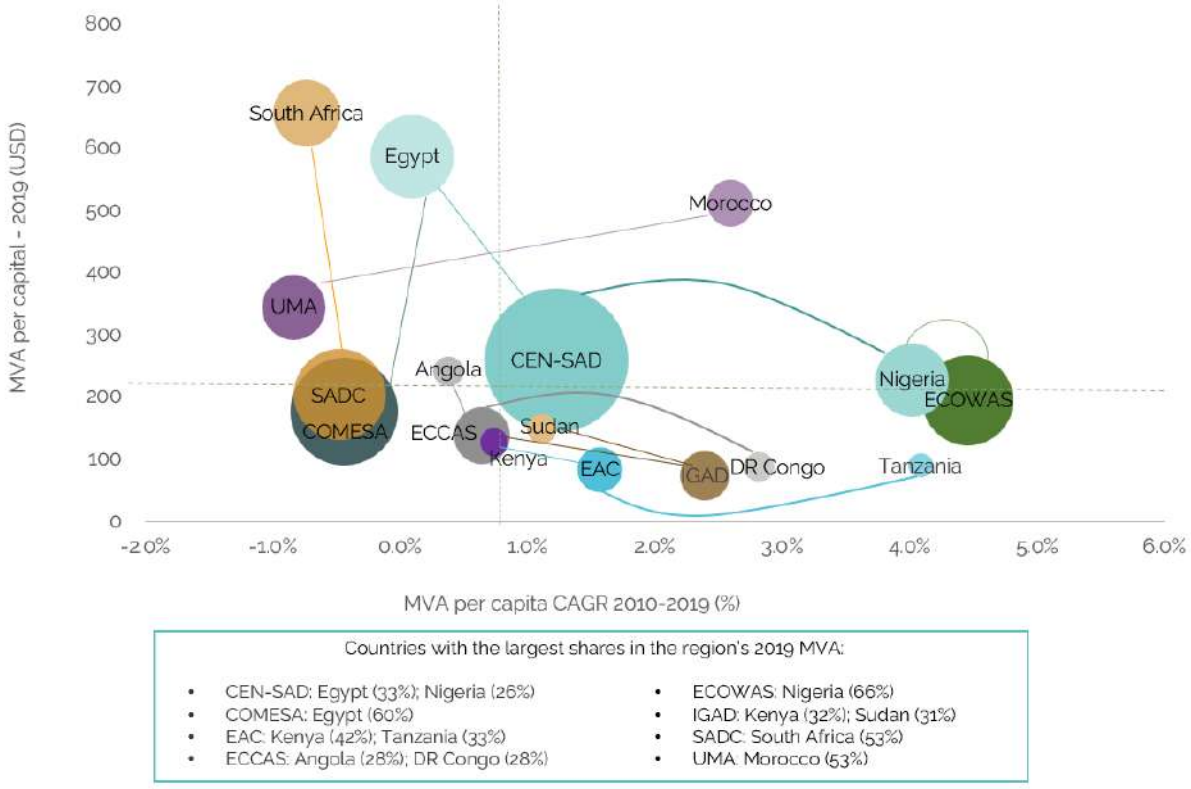
4. **Falling behind:** Regions that display both an industrial capacity level and growth rate below the continent's average. Due to their lower CAGR, the distance between their MVA per capita level and Africa's average is increasing over time. COMESA, SADC, and ECCAS fall in this category. Although SADC's MVA per capita level ($205), and EAC's CAGR (0.6%) were very close to the African averages, the negative growth rate of the first (-0.5%) and the low MVA per capita of the second ($139) signal serious challenges. COMESA, with a MVA of $177 per capita, and a growth rate of -0.4% p.a. encounters serious obstacles on both fronts.

It is important to highlight that on average, Africa's MVA per capita level of $212 is starkly lower than the average of all developing countries (excluding China [9]), which was $500 in 2019. Moreover, it decreased 0.4% annually between 2010 and 2019, showing that the gap with other developing economies has grown further. For the continent to catch up, it is crucial to establish a cohesive and well-designed arrangement of industrial policies, focusing on industrial capacity building and manufacturing sectors that add more value and have greater economic spillovers. To close the gap to other world regions, those policies would particularly need to benefit the African regions and countries with the lowest industrial performance.

Figure 4 corroborates to this conclusion. Notably, only one or two countries concentrate the majority of the industrial production in each regional community, resulting in only a small number of countries driving the industrial capacity and benefiting from it in Africa. ECOWAS and COMESA are the communities with the highest concentration, with Nigeria and Egypt accounting for 66% and 60%, respectively for each region. South Africa and Morocco play a similarly dominating role in their RECs. This makes using a proper set of industrial policies that favours the regions and countries with the lowest industrial capacity particularly critical. Otherwise, there will be a high risk of reinforcing the concentration tendency of African regional industrial structures.

[9] When China is included, the MVA per capita of the developing countries increases to $1,029

Figure 4: Industrial capacity and growth: Regional Economic Communities and selected countries, 2010-2019

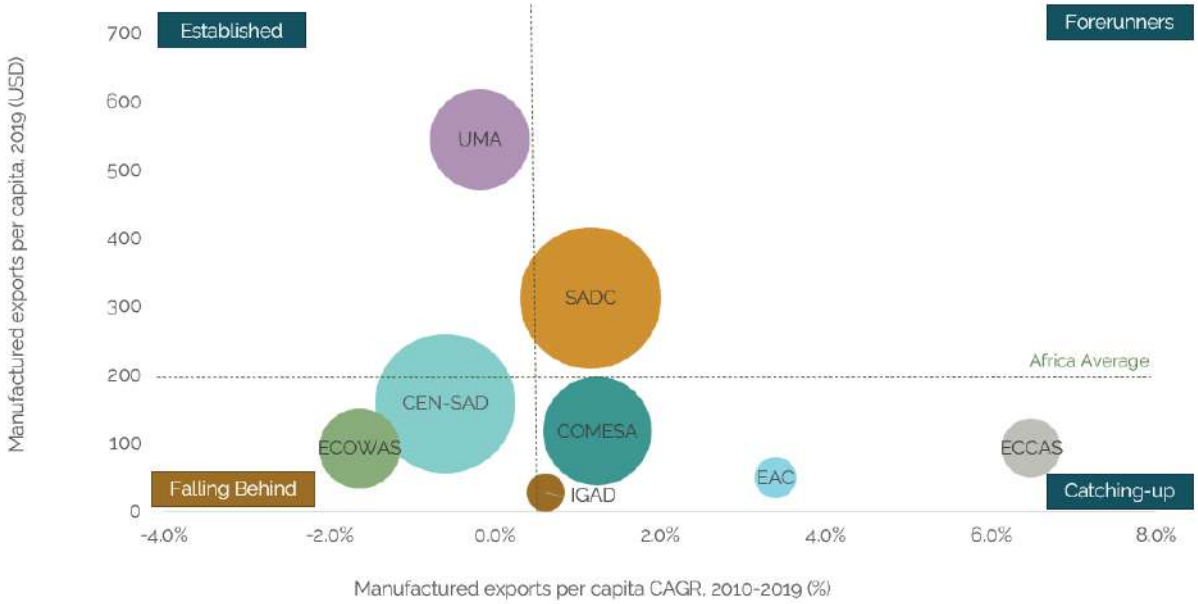


Note: Bubble sizes represent total MVA (constant 2015 USD).
Data source: UNIDO MVA Database.

3.1.2 Manufacturing export capacity

The industrial assessment provides a more complete diagnosis when it considers the manufacturing export capacity of the regions, which reflects the ability of the African RECs' manufacturing sectors to compete in global markets. A basic indicator for this purpose is the manufactured exports per capita. It indicates the capacity of the region to compete on the markets for manufactured products internationally while taking into account the different sizes of each region, thus, allowing comparison across them. Figure 5 addresses this question and shows that, in 2019, only UMA and SADC exhibited a manufactured export per capita level above the African average, registering $545, $313, respectively. The indicators of all the other economic communities were below the continent average, indicating a lower capacity to compete in international markets.

Figure 5: Manufacturing export capacity and growth, 2010-2019



Notes: Bubble sizes represent the total manufactured exports. Nomenclature ISIC Rev. 3, reported nomenclature HS 2002. For the countries, Sudan and South Sudan, data was used from 2013 and 2019.
Data source: UN Comtrade (2020) Database. Nomenclature ISIC Rev. 3, reported nomenclature HS 2002.

The same multi-dimensional analytical framework was employed here for the MVA per capita assessment. It compares the performance of the RECs with the African averages regarding the manufactured exports per capita in 2019 and the CAGR of the manufactured exports per capita between 2010 and 2019, which were $198, and 0.4% p.a. According to the methodology, the regions are classified in the following way:

1. **Established:** UMA exhibited a manufactured exports per capita level significantly above the African average ($545). However, the indicator's growth rate was below the continental average (0.4% p.a.), indicating the distance between the region's and Africa's manufacturing export capacity has decreased over the years.

2. **Forerunners:** SADC is the only region with both manufactured exports per capita level ($313) and growth rate (1.2% p.a.) higher than the African averages. This means that the community expanded its capacity to compete in international markets between 2010 and 2019, which was already superior to the continent's average.

3. **Catching-up:** COMESA, IGAD, EAC, and ECCAS presented a catching-up performance as their manufactured exports per capita CAGRs were above the African average while the levels were inferior. IGAD was the lowest performer among all the catching-up regions since the level was only $29 and the growth rate only marginally above the African average (0.6%). All things constant, at the current pace, it would take more than 965 years for the region to catch up with Africa's manufactured export per capita average. COMESA displayed a much

more elevated manufacturing export capacity level ($118 per capita) and twice the growth rate of IGAD (1.2%). At last, EAC, despite still exhibiting a low level of manufactured exports per capita ($50), showed a significant growth rate (3.4%). ECCAS was the region with the fastest growth, registering 6.5% p.a. Nevertheless, its manufactured exports reached $93 per capita, still less than half of the continent's level.

4. **Falling behind:** CEN-SAD, and ECOWAS performed below the African average in both dimensions. Respectively, the manufactured exports per capita levels were $158 and $93, and the CAGR -0.6% and -1.6%. The negative growth rates implicate a deteriorating contribution to Africa's overall manufacturing export capacity.

Comparing the analysis of the industrial capacity in production (MVA) to the manufacturing exports capacity, the following is observed:

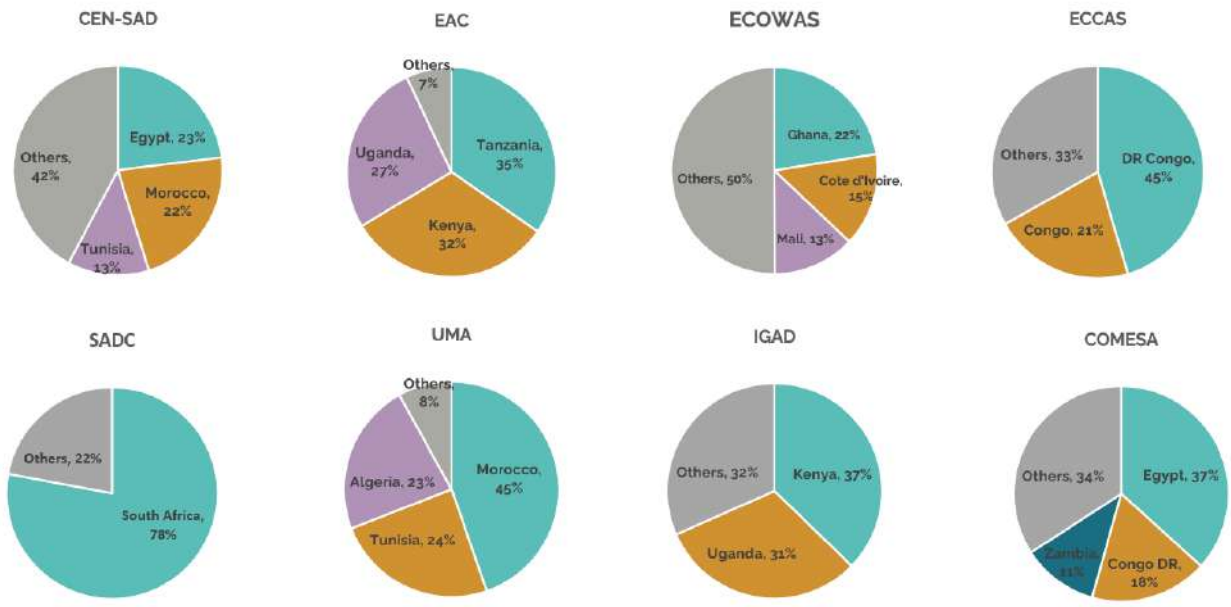
- UMA was the only REC positioned in the "established" cluster for both indicators, pointing out industrial and manufacturing export capacities higher than the African average.
- For the continent's performance, CEN-SAD, ECOWAS, and COMESA were better positioned when considering production (as "forerunners") than when considering exports (as "falling behind" for the first two regions, and "catching up" for the latter). This could partially be explained by industrial production (particularly in Nigeria) that targets the local rather than export markets.
- EAC, and IGAD are classified as catching up regions in both analytical dimensions. However, their distance from the African average is still very significant.
- SADC, and ECCAS had a better performance in the manufacturing export capacity analysis (as "forerunner" and "catching-up", respectively) than regarding the industrial capacity when they both were classified in the "falling behind" group. This means that, despite having a relatively stronger capacity than the African average to compete in global markets as manufacturing exporters, these countries are not performing as good in adding value to the manufacturing process. This discrepancy may indicate that these regions are primarily involved in low-value-added activities or stages of the export production process (e.g. resource-based industries).

At last, it is worth noting that Africa's manufactured exports per capita in 2019 were only 35% of the level registered by the low- and middle-income countries excluding China ($560). Even the best performing African REC (UMA) had an inferior result ($545). This corroborates the findings of the previous analysis that it is imperative to establish a holistic long-term industrial policy in Africa that favours largely regions and countries that are further down the industrial development ladder, so Africa as a whole can capture the benefits of industrialisation in the future.

Figure 6 sheds more light on that discussion. Replicating the pattern seen with MVA distribution, in every REC manufactured exports were massively concentrated in only a few countries.

In all RECs, the top three countries concentrated at least 50% of the regions' total manufacturing exports. The highest concentration is observed in SADC, where South Africa alone accounts for 78% of the region's manufactured exports. ECOWAS has the lowest concentration, although still very high, with three countries (Ghana, Côte D'Ivoire, and Mali) responsible for half of the industrial exports. Even if we consider the whole continent, five countries concentrate 53% of the total African manufacturing exports in 2019: South Africa (23%), Nigeria (10%), Algeria (7%), Angola (7%), and Egypt (6%). To foster regional value chains that prosper and benefit the regions and the continent as a whole, it is imperative to develop industrial capacities, especially among the least industrialised African regions and countries, so these economies can catch up with the leading African nations.

Figure 6: Country share of REC's manufactured exports, 2019



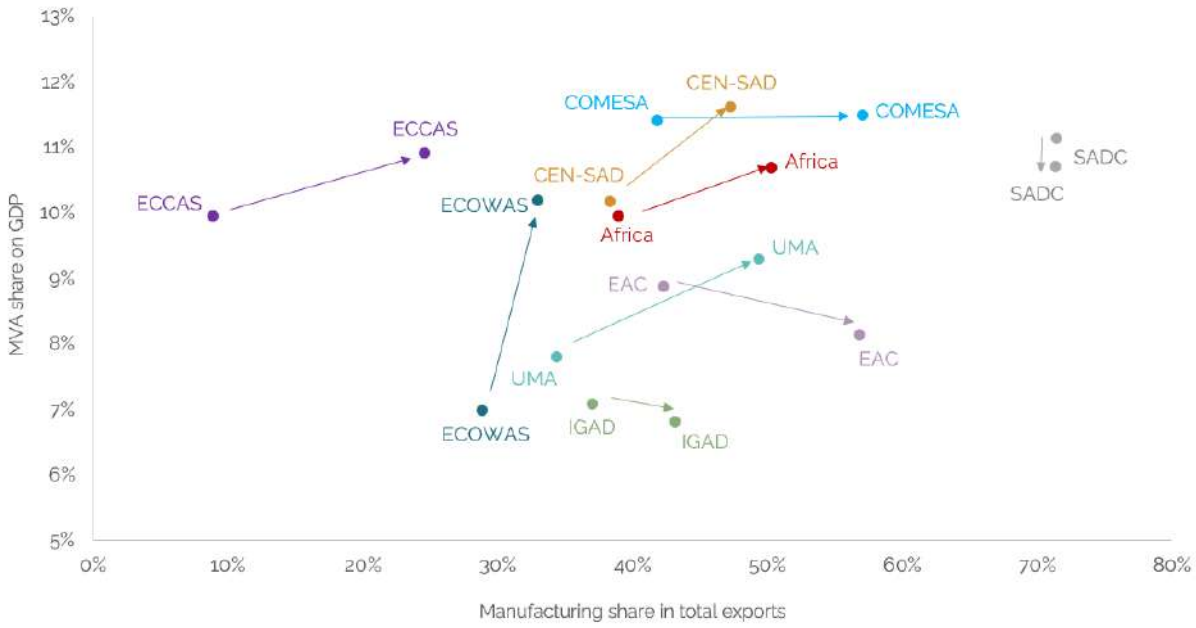
Data source: UN Comtrade (2020) Database. Nomenclature ISIC Rev. 3, reported nomenclature HS 2002.

3.1.3 Manufacturing's contribution to total value added and total exports

Figure 7 reveals the manufacturing contribution to the economic structures of each African REC in 2010 and 2019. The main indicators for this analysis are: MVA share in the region's GDP, and the manufacturing share in total exports. Over this period, Africa as a whole exhibited significant growth in the manufacturing share in total exports (from 39% in 2010 to 50% in 2019). On the other hand, the industry's contribution to national output increased just 0.7 percentage points, indicating no notable structural change happened on the production side in the continent during the last years. Moreover, the African MVA share in GDP is 3.5 percentage points below the average presented by the developing economies excluding China and 10 p.p. lower when China is included in the group.

In terms of regional manufacturing dynamics, all regions, except for SADC, saw an increase in their manufacturing share in exports, with ECCAS having the highest increase (from 9% to 25%). Nonetheless, only four regions also displayed an increase in the MVA share in GDP, namely: ECCAS, UMA, CEN-SAD, and, especially, ECOWAS. On the opposite side, that is, showing retraction of the manufacturing contribution to the productive structure, are EAC, IGAD, and SADC. As mentioned previously, the last also presented a slight reduction of the manufacturing share in total exports. COMESA presented no change in its productive structure from 2010 to 2019. Overall, the contribution of the industrial sector in the regions has not yet reached the size and growth dynamics that would be required for an effective structural transformation of African RECs, i.e. resources are not being directed significantly towards more productive activities such as manufacturing, since both MVA per capita and manufacturing exports per capita are in general very low, as illustrated by Figure 3 and Figure 5.

Figure 7: Manufacturing dynamics: Manufactured exports share on total exports and MVA share on total GDP, 2010 and 2019



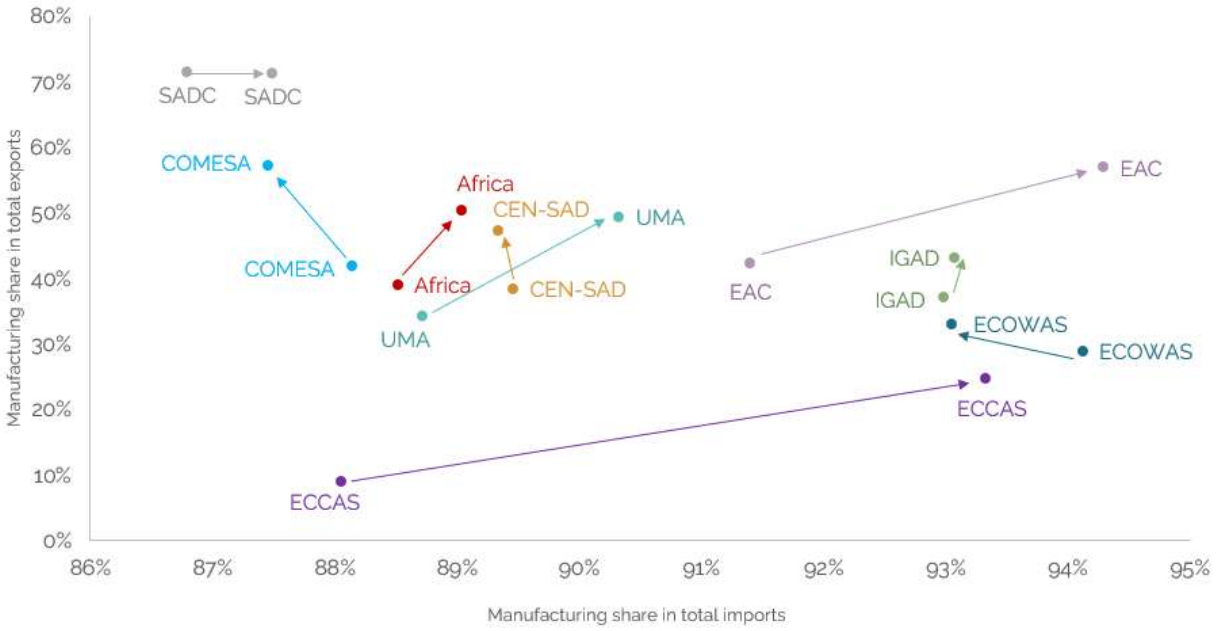
Data source: UNIDO MVA Database and UN Comtrade (2020) Database. Nomenclature ISIC Rev. 3, reported nomenclature HS 2002.

3.1.4 Manufacturing import dependency

One consequence of low industrial production capacity is a heavy dependence on imports for intermediate and final consumption of manufactured goods. Figure 8 reveals the massive manufacturing import dependency that all African RECs have today. Almost everything that African regions import today are manufactured products, while exports are still largely characterised by raw materials. The lowest manufacturing share in total imports is 87% presented by SADC, and the highest is 94% of EAC. Moreover, the figure also compares the manufacturing shares in total

imports to the manufacturing shares in total exports for each economic community in 2010 and 2019. Ideally, the regions should move up and to the left in the graph, where the manufacturing share in exports increases while the proportion in imports reduces. However, only COMESA, and ECOWAS present that pattern, and even so, the reduction in imports was only 1 percentage point. The percentages of CEN-SAD and IGAD remained basically unchanged, despite the manufacturing share in exports having expanded. In the cases of SADC, EAC,UMA, and, ECCAS the share in imports increased, especially for the latter.

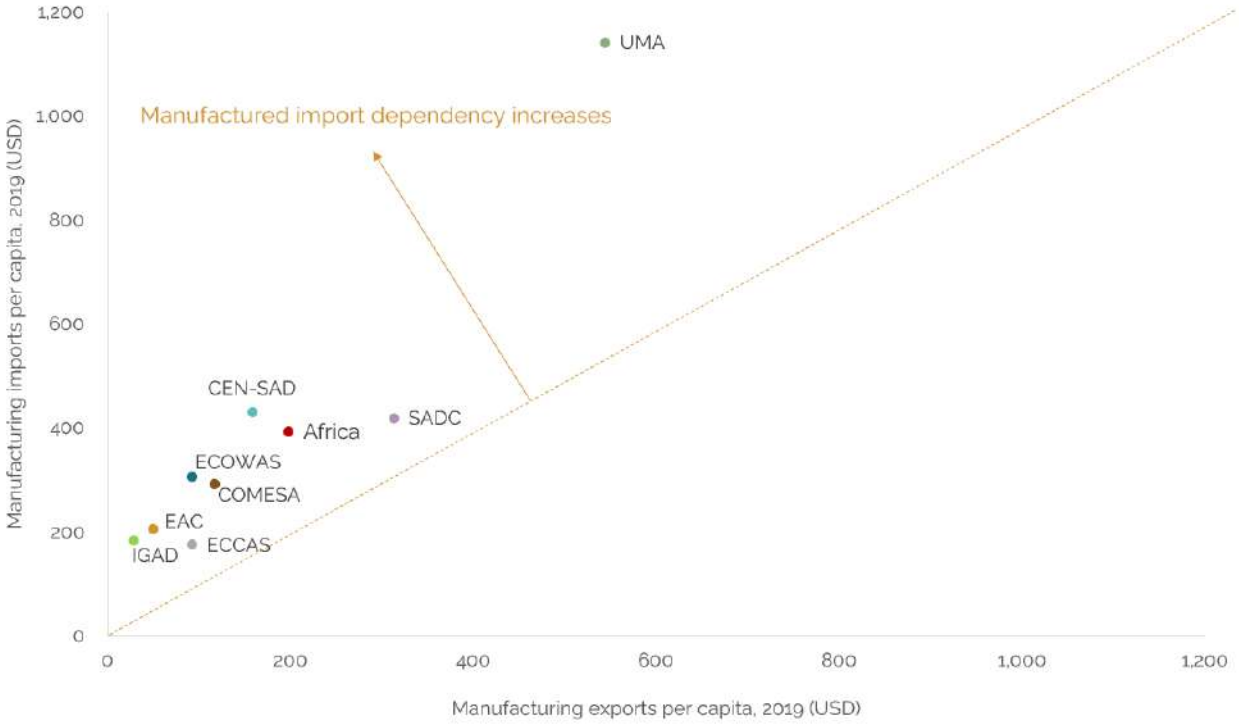
Figure 8: Trade dynamics: Manufacturing share on total exports and imports, 2010 and 2019



Data source: UN Comtrade (2020) Database. Nomenclature ISIC Rev. 3, reported nomenclature HS 2002.

Figure 9 corroborates the findings above. It confronts manufacturing export per capita versus manufacturing imports per capita in 2019, identifying higher levels for the first compared to the second indicator for all the economic communities. In some regions, the manufacturing import dependency is even more expressive, such as with IGAD, EAC, and ECOWAS, where manufactured exports per capita were more than 6, 4, and 3 times the manufactured exports per capita exhibited by these regions, respectively. Although most regions showed a small or negative growth of the manufacturing imports per capita, this is largely related to population growth rather than a reduction of the overall imports.

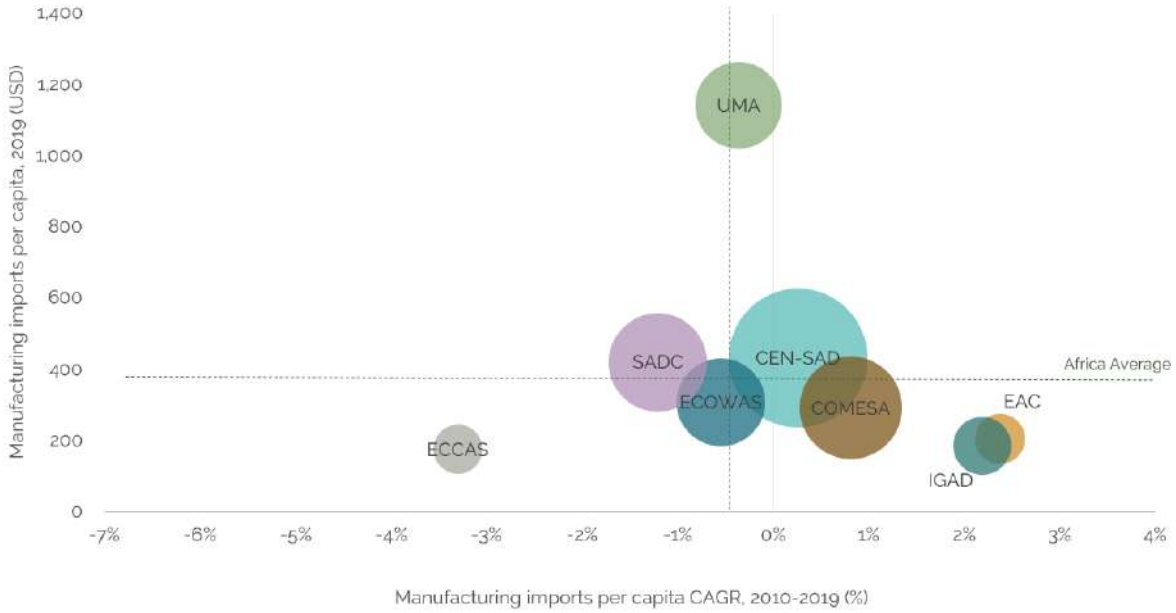
Figure 9: Manufacturing export per capita vs manufactured imports per capita, 2019



Data source: UN Comtrade (2020) Database. Nomenclature ISIC Rev. 3, reported nomenclature HS 2002.

Figure 10 shows that, despite the high manufactured import per capita levels, the Compound Annual Growth Rates (CAGRs) of the majority of the RECs and the Africa average was very low, meaning the indicator levels did not significantly expand or decline between 2010 and 2019. The exceptions were ECCAS, where the manufactured imports per capita decreased 3.3% annually, and IGAD, and EAC, where the growth rates were 2.2% and 2.4%, respectively. Hence, evidence suggests that African regions did not significantly reduce their manufacturing import dependency between 2010 and 2019. Among the eight RECs, ECOWAS was the region that exhibited a better performance in this regard. The most negative evolution was witnessed by EAC, where manufactured imports expanded faster than total imports and the population (which also increased), resulting in a higher manufacturing import share in total imports and higher manufactured imports per capita.

Figure 10: Manufacturing imports dependency – level and growth - 2010-2019



Notes: Bubble sizes represent the total manufactured imports.
Data source: UN Comtrade (2020) Database. Nomenclature ISIC Rev. 3, reported nomenclature HS 2002.

3.1.5 Industrial diversification and resilience

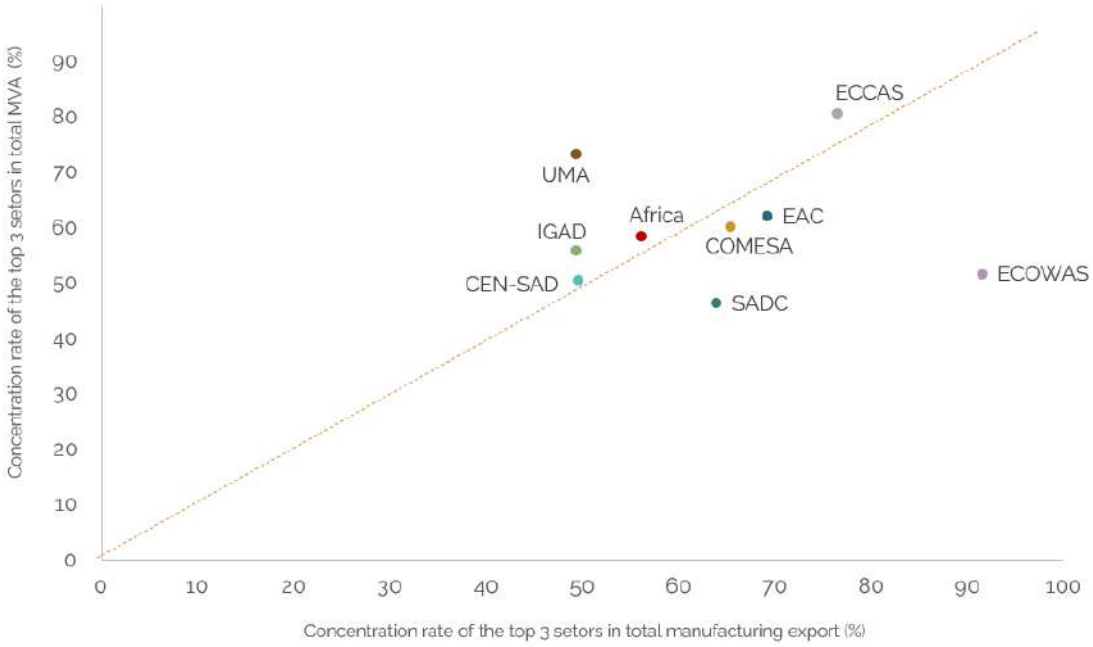
Another crucial dimension to be considered in the industrial performance analysis is the degree of diversification of the African RECs' manufacturing production and export structures. On the domestic side, this means manufacturing a greater variety of products from different sub-sectors, which indicates a more diverse industrial production capacity. On the export side, it means greater capacity for the region to compete in a greater variety of industrial product markets. Greater production and export diversification also reduces the vulnerability of the regions to external shocks in specific product markets, enhancing economic resilience.

A simple way to measure the degree of diversification (or its inverse: concentration) of the productive structure of a country or region is to calculate the share of the largest sub-sectors in total MVA and in total manufactured exports. Figure 11 illustrates the region's overall concentration level based on the share of the top 3 sectors in the total manufacturing value added and exports in 2019 (sub-sectors disaggregated at II-digit level) [10]. As one can observe, all regions have very high concentration levels (low diversification) in both dimensions, with ECCAS having the highest regarding MVA (and the second highest for manufacturing exports), and ECOWAS, the highest in

[10] It would also be possible to calculate the share of the largest 5 or 10 sub-sectors in total MVA. However, the degree of sub-sectoral disaggregation would need to be high. Since most of the country-level MVA data is available only at a more aggregated level (II-dig level), using more than the top 3 sub-sectors would not offer a solid analytical result, as the top 5 would encompass a very large number of activities. For the manufactured exports, there is country-level data at the IV-digit level available. However, to allow the comparison with MVA data, we also use sectoral disaggregation at the II-digit level.

terms of exports. IGAD and CEN-SAD have the most diversified (least concentrated) MVA among all RECs, while the latter also presents the second most diversified manufacturing structure. ECCAS, IGAD, CEN-SAD, and, especially UMA exhibits a higher concentration level of the MVA than of the exports (as illustrated by their positioning to the left of the 45 degrees line in the graph). On the opposite side, EAC, SADC, COMESA, and, especially, ECOWAS present higher concentration on manufacturing exports. Of all regions, SADC is the most diversified (less concentrated) in regards to manufacturing exports. The analysis below adds more detail to this discussion.

Figure 11: Diversification Index: Concentration rate of the manufactured exports and total MVA, 2019 (%)

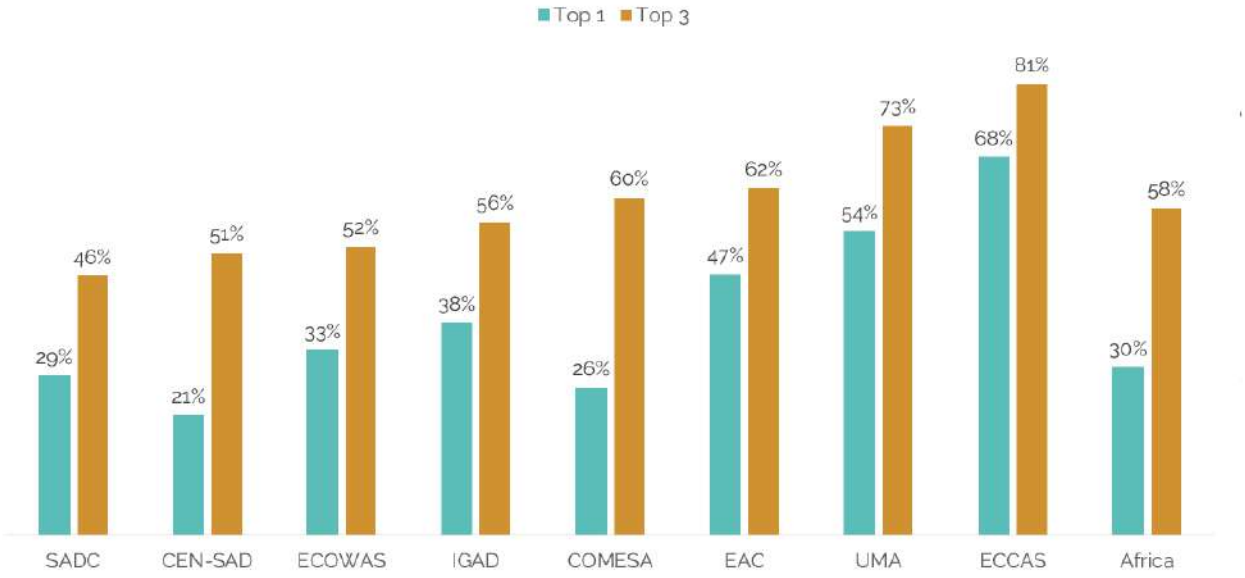


Data source: UNIDO INDSTAT database and UN Comtrade (2020) database. Nomenclature ISIC Rev. 3, reported nomenclature HS 2002.

Industrial production diversification Figure 12 reveals the share of the top 1 and 3 sub-sectors in the region's total MVA in 2019. Except for SADC, the largest 3 sub-sectors of all RECs represent more than half of the region's MVA. For UMA, and ECOWAS they represent extremely high levels of 73% and 81%, respectively. For these two countries, the first sub-sector alone accounts for 54%, and 58% of the MVA. SADC is the region with the highest MVA diversification regarding the top 3 ratio, although they still account for 46% of the total.

It is important to point out that industrial production across all RECs largely relies on three main sectors. Food and Beverages is one of the largest sub-sectors in terms of manufacturing value added for all regions. Chemical products are placed second in terms of frequency of appearance (it is in the top 3 of 6 RECs), followed by coke and refined petroleum products (5 RECs).

Figure 12: Domestic industrial diversification Index - Share of top 1 and 3 sub-sectors in region's total MVA, 2019* (ISIC rev.3 II-digit level)



Top 3 sub-sectors of each Regional Economic Community:

CEN-SAD: 1 – Coke, refined petroleum products (21%)
2 – Food and beverages (19%)
3 – Chemical products (11%)

COMESA: 1 – Coke, refined petroleum products (26%)
2 – Food and beverages (23%)
3 – Chemical products (11%)

EAC: 1 – Food and beverages (47%)
2 – Textiles (8%)
3 – Chemical products (7%)

ECCAS: 1 – Food and beverages (68%)
2 – Chemical products (8%)
3 – Basic metals (5%)

ECOWAS: 1 – Food and beverages (33%)
2 – Furniture; manufacturing n.e.c. (12%)
3 – Coke, refined petroleum products (7%)

IGAD: 1 – Food and beverages (38%)
2 – Textiles (9%)
3 – Chemical products (9%)

SADC: 1 – Food and beverages (29%)
2 – Coke, refined petroleum products (10%)
3 – Furniture; manufacturing n.e.c. (8%)

UMA: 1 – Coke, refined petroleum products (54%)
2 – Food and beverages (12%)
3 – Chemical products (6%)

Notes: Due to the lack of South Sudan's data at the II-digit level, EAC excludes the country. Data source: UNIDO INDSTAT.

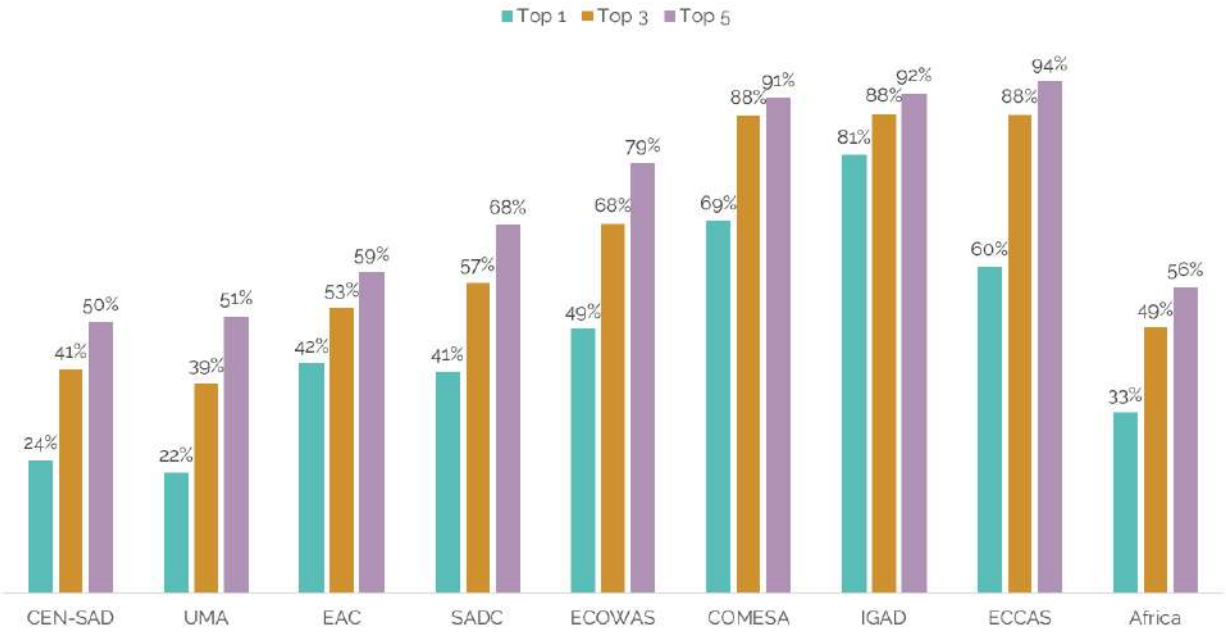
Manufacturing export diversification Following the same methodology applied in the previous analysis, but at a further disaggregated level (IV-digit), Figure 13 illustrates the concentration rate of the top 1, 3 and 5 sub-sectors in the region's total manufactured exports in 2019. [11] Again, the high concentration level of the regions is very noticeable, especially for ECOWAS, COMESA, IGAD, and ECCAS. ECCAS is the region with the highest concentration when considering the top 3 and top 5 sub-sectors, which account for 88% and 94% of total manufacturing exports, respectively. Regarding only the top-3 shares, IGAD and COMESA tie in the first position with 88%. For IGAD, the leading sub-sector represents 81% of the total manufacturing exports. The most diversified

[11] Giving the availability of manufactured export data at the IV-digit level, it was possible to include the top-5 shares in the analysis.

regions concerning manufacturing exports are: CEN-SAD and UMA, where the top 3 and 5 sub-sectors concentrate around 40% and 50% of the manufactured exports.

Regarding the top manufacturing export sub-sectors, basic precious and non-ferrous metals are the leading sub-sectors for all the RECs except for UMA, where refined petroleum products contribute the highest share. Petroleum products is also the second most frequent sector among the list of major sectors. Both sub-sectors are largely based on natural resource extraction and closely related to mining activities, which generally have a lower potential to add value to the economy and promote the development of other sectors. Hence, it is evident that the regions need to carry out industrial policies that increase their capacities of industrial production and exports in other sub-sectors than those that already account for most of their manufactured exports.

Figure 13: Manufacturing export concentration - Share of top 1, 3 and 5 sub-sectors in the region's total manufactured exports, 2019 (ISIC rev.3 IV-digit level)



Top 3 sub-sectors of each Regional Economic Community:

CEN-SAD: 1 – Basic precious and non-ferrous metals (24%)
2 – Refined petroleum products (10.8%)
3 - Wearing apparel, except fur apparel (6.2%)

COMESA: 1 – Basic precious and non-ferrous metals (69%)
2 – Basic chemicals, except fertilizers (17%)
3 – Processing of fish and fish products (3%)

EAC: 1 – Basic precious and non-ferrous metals (42%)
2 – Refined petroleum products (7%)
3 – Processing of fish and fish products (4%)

ECOWAS: 1 – Basic precious and non-ferrous metals (49%)
2 – Refined petroleum products (13%)
3 – Cocoa, chocolate and sugar confectionery (6%)

ECCAS: 1 – Basic precious and non-ferrous metals (60%)
2 – Basic chemicals, except fertilizers (23%)
3 – Sawmilling and planing of wood (6%)

IGAD: 1 – Basic precious and non-ferrous metals (81%)
2 – Vegetable and animal oils and fats (5%)
3 – Processing of meat and meat products (3%)

SADC: 1 – Basic precious and non-ferrous metals (41%)
2 – Motor vehicles (10%)
3 – Jewellery and related articles (7%)

UMA: 1 – Refined petroleum products (22%)
2 – Wearing apparel, except fur apparel (9%)
3 – Fertilizers and nitrogen compounds (8%)

%)

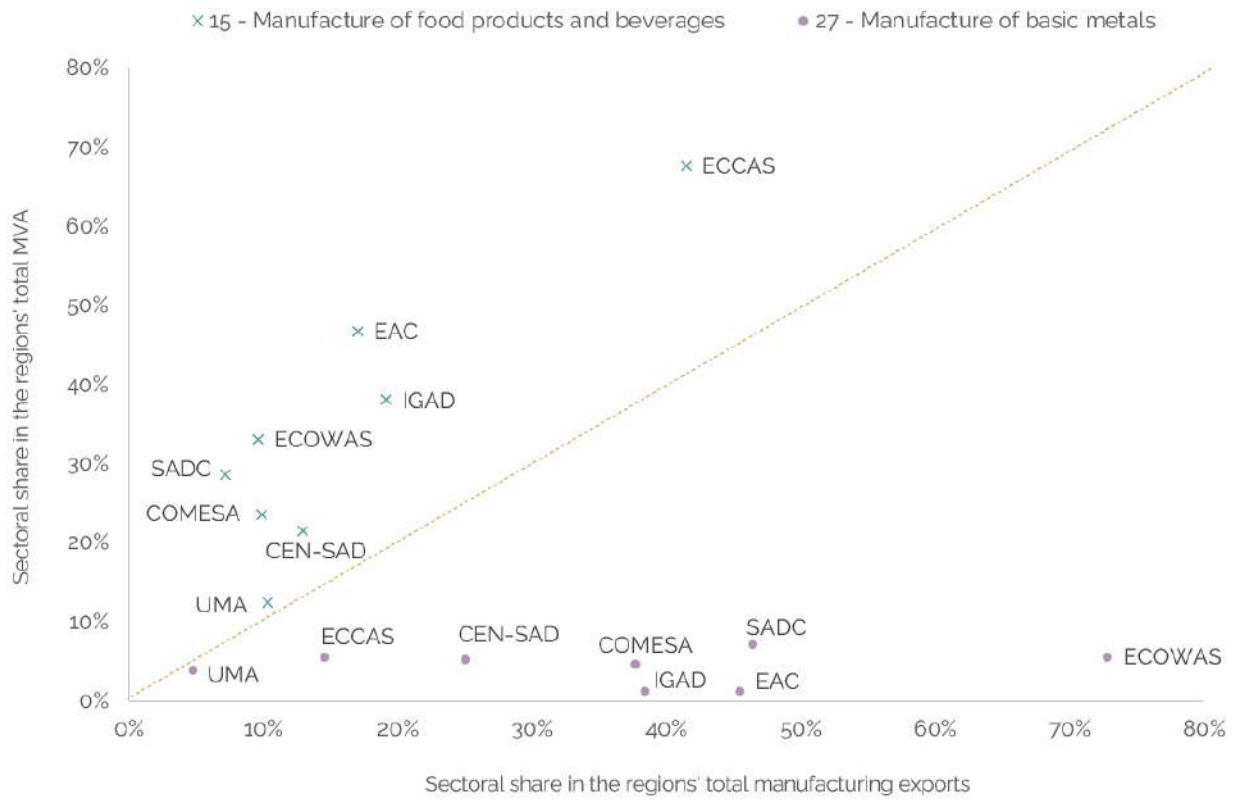
Data source: UN Comtrade (2020) Database. Nomenclature ISIC Rev. 3, reported nomenclature HS 2002.

Figure 14 supports the argument above. It compares the share in total MVA and total manufactured exports of the leading sub-sectors of both dimensions (MVA, and manufactured exports). It is clear that the leading exporter among all manufactured sub-sectors of most regions (basic metals) contributes very little to value addition across all RECs. The highest contribution is seen in SADC, with 7% of the total manufacturing value added. Even in ECOWAS, where basic metal represents 73% of total manufactured exports, it accounts only for 6% of total MVA.

On the other hand, food products and beverages, the leading sub-sector for most of the RECs in manufacturing value addition, contributes much less to manufactured exports. EAC, IGAD, and SADC are the main exponents of this relationship, with foods and beverages accounting for 47%, 38%, 30% of the MVA, but only 17%, 19%, and 7% of the manufactured exports, respectively. This suggests that, despite the robust capacity to increase domestic output for domestic markets, the sub-sector may have lower competitiveness in international markets.

From a policy perspective, this points to the dilemma that the strongest export sectors across all RECs do not contribute much to value added (e.g. metals). In contrast, the sectors with higher value addition are not yet very integrated with regional and global markets (e.g. food). The promotion of RVCs will hence need to carefully way off the relative potential of specific chains to contribute to exports and value addition for the regions. Furthermore, industrial policies for regional value chains could be designed and implemented so that the targeted sectors would acquire international competitiveness and, over time, boost their presence in the manufacturing export basket. This strategy would promote structural change in the regions and manufacturing export diversification.

Figure 14: Sub-sectoral share in total manufactured exports and in total MVA: food and beverages, and basic metal - 2019



Data source: UNIDO INDSTAT database and UN Comtrade (2020) database. Nomenclature ISIC Rev. 3, reported nomenclature HS 2002.

3.2 Social performance of the industrial sector

This section maps the social performance of the industrial sector in the regional economic communities. The dimensions are analysed: manufacturing employment, female employment, and inequality.

3.2.1 Manufacturing employment and structural change

As mentioned before, one of the reasons why economies should promote industrialisation is due to the high potential of the manufacturing sector in creating more and better jobs (formalised jobs with higher income and benefits), especially at earlier stages of development, hence having large social benefits.

Manufacturing employment elasticity Figure 15 analyzes the employment elasticity of industrialisation between 2010 and 2019, which is calculated by dividing the manufacturing employment CAGR by the MVA CAGR. By comparing the trends, it is possible to observe how quickly the regions are industrialising and generating manufacturing employment. A higher employment

elasticity signals that industrial growth is creating a relatively larger number of jobs. In contrast, a low elasticity means that production growth does not go hand in hand with employment growth.

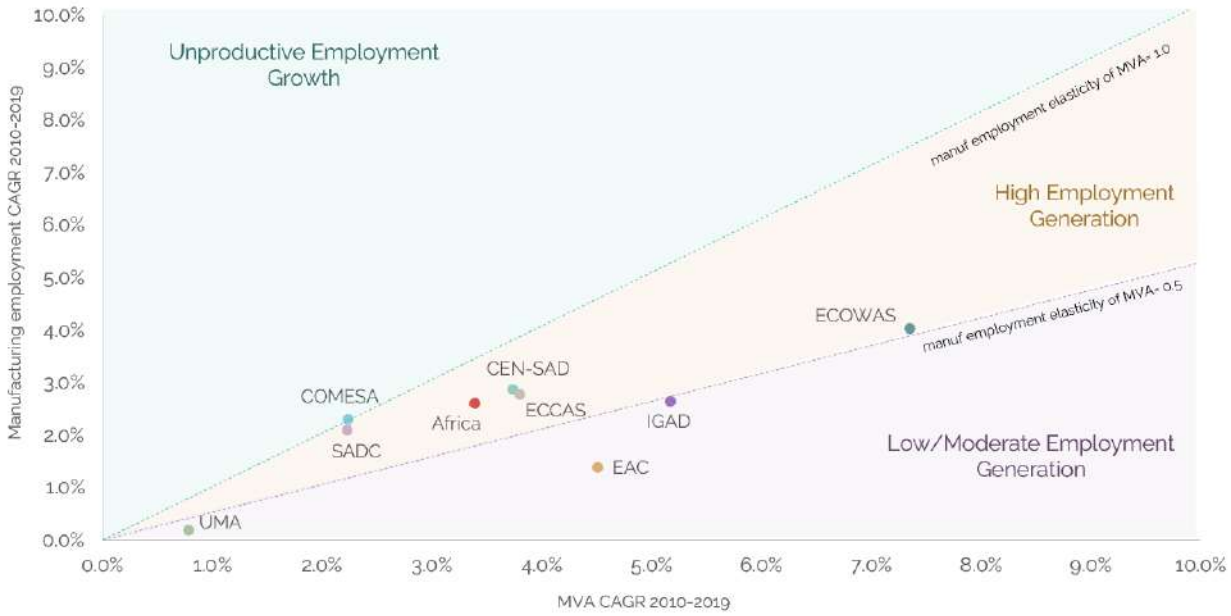
Based on evidence from East Asia, (Khan, 2001) argues that developing countries should ideally aim at an elasticity of around 0.7 (each 1% growth of MVA leads to 0.7% growth of manufacturing employment) or a bit higher until these economies attain upper-middle-income status. Particularly at earlier stages of development, when there is a high level of poverty, it is desirable to see a high employment elasticity, as this will help rising living standards. However, elasticities higher than 1.0 for a long period are not welcome, as they indicate deteriorating productivity. As countries become more developed and less labour abundant, employment elasticities are expected to fall. Building on this empirical evidence, UNIDO (2015) developed a methodological framework to interpret the employment elasticity of MVA, which was applied to Figure 15. Considering that all regions exhibited positive MVA CAGR, the following was observed:

- The RECs that have a manufacturing employment elasticity of MVA equal to or lower than 0.5 are considered to have low to moderate employment generation. This is the case of IGAD, EAC, and UMA. Particularly in the last two, the manufacturing employment elasticity (0.3) was the lowest among all African communities. This means that these regions are the ones who struggle the most to generate industrial jobs. Hence the social benefits from the manufacturing expansion are lower.

- For all the other regions, the manufacturing employment elasticity of MVA was between 0.5 and 1.0, which is classified as the high employment generation range. SADC and COMESA exhibited the highest numbers: 0.9 and 1.0. CEN-SAD and ECCAS were more close to the ideal elasticity mentioned by Khan (2001), with 0.8 and 0.7, respectively. ECOWAS displayed the lowest elasticity of the group, only slightly above 0.5.

- No REC is positioned in the unproductive growth area (manufacturing employment elasticity of MVA higher than 1.0), which indicates that generating positive social outcomes is much more challenging for African RECs than generating positive economic effects.

Figure 15: Employment Elasticity of Industrialisation: MVA CAGR vs. Manufacturing employment CAGR, 2010-2019



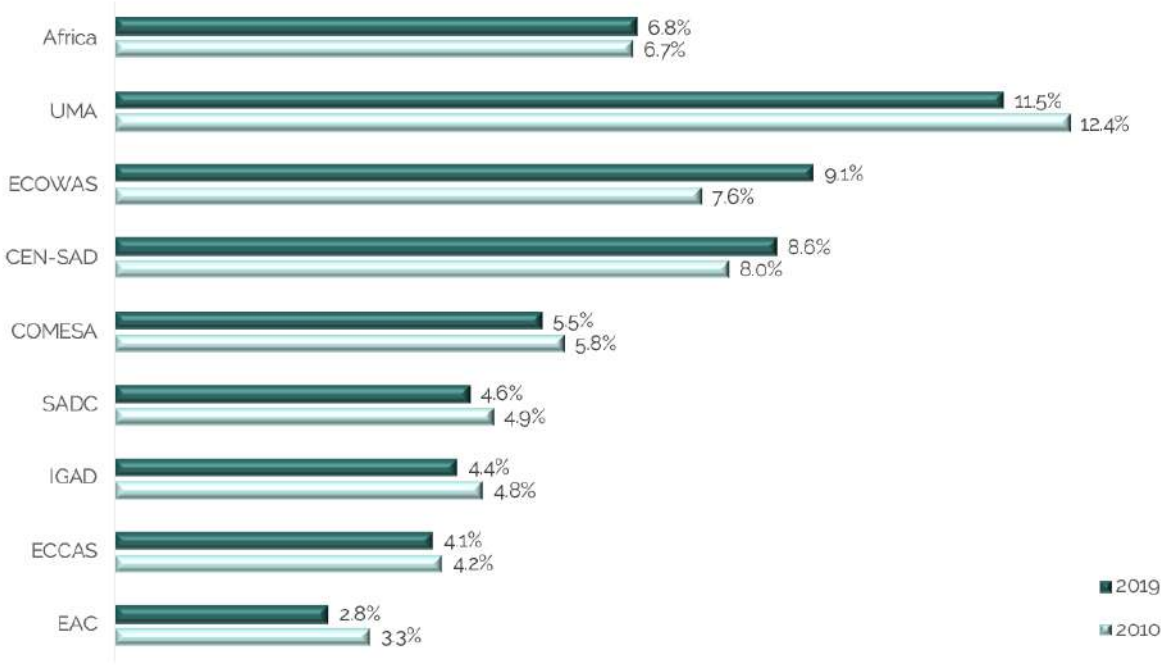
Data source: ILOSTAT estimates and UNIDO MVA Database. Methodology based on UNIDO EQUIP Tool 5

One reason for the fact that some regions have shown low manufacturing employment elasticity is the nature of the leading manufacturing activities in these regions. Activities that rely more on natural resources and/or capital and are less intensive on labour will always have a lower employment elasticity. As shown in Figure 12, UMA's MVA is heavily concentrated in coke and refined petroleum products, a capital-intensive sector. EAC data shows MVA has a high concentration in Foods and Beverages - a sector traditionally more labour intensive. Nonetheless, some specific sub-sector activities can be less labour intensive, and the region's production could be concentrated on them. Since there is no sectoral MVA data on a more disaggregated level (IV-digit), it is impossible to confirm if this is indeed the case for the region. In any case, implementing policies that promote manufacturing sub-sectors or specific activities that are more labour-intensive can potentially elevate the regional employment elasticities and contribute to increasing the employment generation capacity of industrial growth.

Manufacturing employment share Despite showing positive growth rates for manufacturing employment between 2010 and 2019, some regions still could not change their employment structure toward a higher contribution of the industrial sector. Figure 16 shows that all regions, except for CEN-SAD, and ECOWAS, in fact, observed a reduction of the manufacturing share in total employment, which indicates that their MVA growth rate and/or manufacturing employment elasticity was not high enough to generate the necessary manufacturing jobs to shift aggregate employment composition towards manufacturing. This movement is especially insufficient

when the manufacturing employment growth rate is lower than the population's trend (the case of COMESA, EAC,ECCAS, SADC, and UMA).

Figure 16: Manufacturing share of total employment



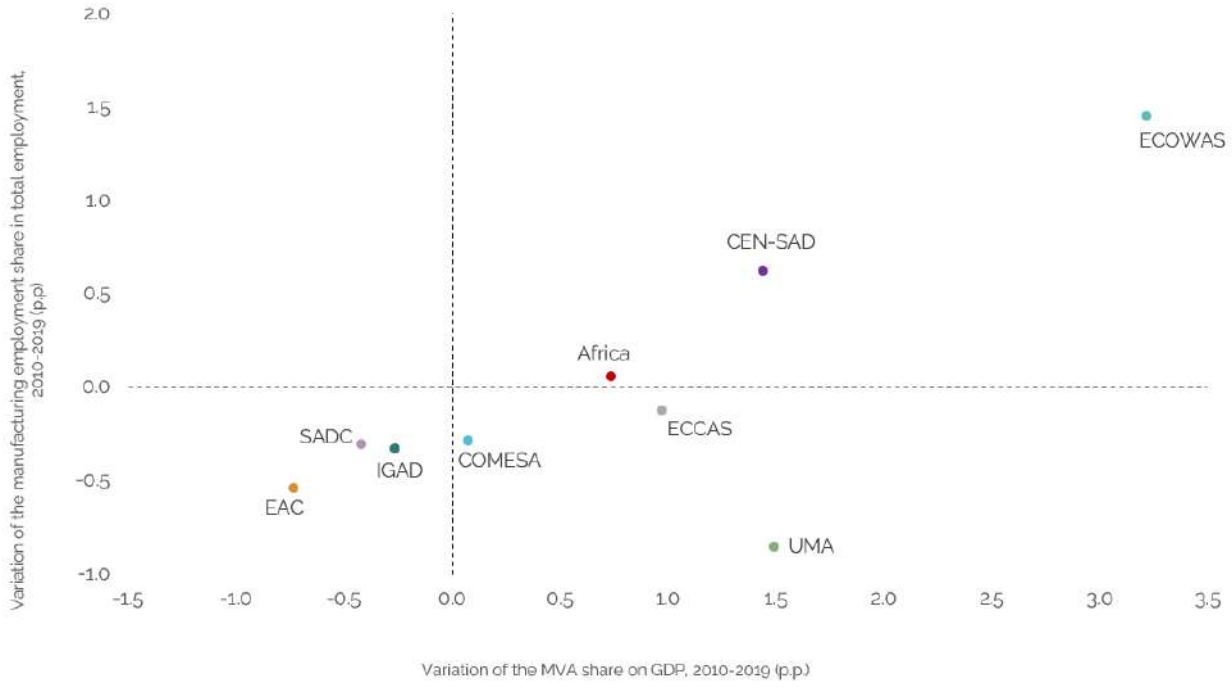
Data source: ILOSTAT estimates.

Concerning the share of manufacturing in total employment, UMA presented the largest drop in percentage points (-0.9). However, the region has the highest manufacturing share among all the RECs (11.5%). In relative terms, EAC had the poorest performance, with a decline of 1.5% of the industrial share in employment. It is also the community with the lowest manufacturing contribution to employment (2.8%). Compared to the average of the low- and middle-income countries excluding China (11.6%), all regions but UMA perform below this benchmark. Considering the entire continent, the manufacturing share in total employment stagnated at a very low level (6.8%). Besides UMA, ECOWAS and CEN-SAD are above that threshold. On the opposite side, lie COMESA, SADC, IGAD, ECCAS, and EAC all below the average.

Structural change in production and employment "Structural change" in production is the ability of an economy to move towards new fast-growing activities characterized by higher value-added and productivity and increasing returns to scale, to the detriment of previous existing activities. In general, manufacturing offers larger opportunities for that than other sectors. Thus, it is the cornerstone of structural transformation (UNIDO, 2013). Ideally, industrialisation should also drive change in the employment structure in order to be able to fully deliver its potential social benefits. Not by chance, one of the UN Sustainable Development Goals (SDG (target 9.2) is not only significantly raising the industry's share of gross domestic product but also the sector's contribution to employment to promote inclusive and sustainable industrialisation.

Our analysis in Figure 17 reveals that, between 2010 and 2019, only CEN-SAD and ECOWAS were able to expand the manufacturing share in both GDP and total employment. ECCAS, UMA, and to a much lower extent, COMESA exhibited a structural change in production; however, manufacturing employment lost ground to other sectors in the employment structure. IGAD, SADC, and EAC show the most worrying trend, with a reduction of the industrial share in both GDP and employment, hence, suggesting a process of (premature) deindustrialisation [12].

Figure 17: Variation of the industrial share in GDP and total employment, 2010-2019



Data source: ILOSTAT estimates and UNIDO MVA Database

3.2.2 Gender inclusion

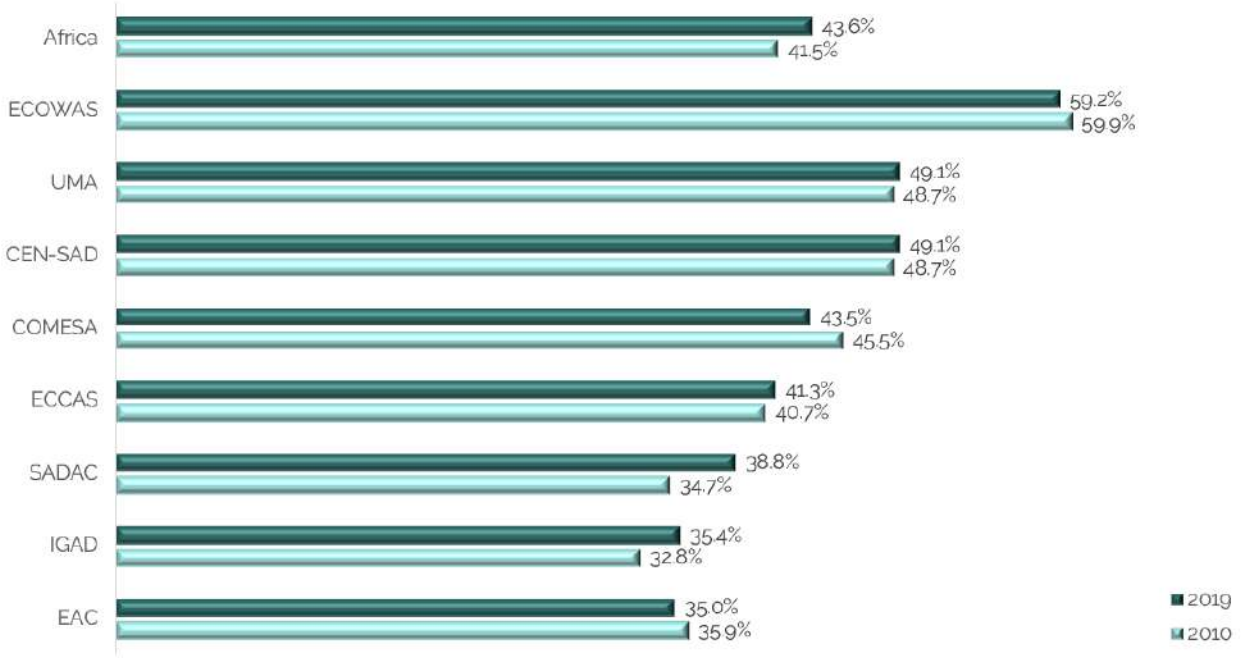
Women's economic empowerment is one of the most powerful mechanisms for poverty alleviation. Especially in low and middle-income countries, women with access to financial resources tend to spend on family-targeted durable goods, food, basic needs fulfilment and invest in children's schooling. Through inter-sectoral linkages and spillover effects, women's expenditures have the power to develop other sectors, therefore boosting economic growth and poverty alleviation.

Figure 18 illustrates the female share in manufacturing employment in the African regions in 2010 and 2019. In all communities, the proportion of females was higher than that registered on average by low- and middle-income countries (27.7%). The average of Africa in 2019 achieved 43.6%, with ECOWAS (59.2%), UMA (49.1%), and CEN-SAD (49.1%) recording higher values. The

[12] Recent literature defines deindustrialisation as a sustained decline in both the share of manufacturing in total employment and the share of manufacturing in GDP.

lowest numbers were observed in EAC (35%), IGAD (35.4%), and SADC (38.8%). While regions like ECOWAS, COMESA, and EAC have experienced a slight decrease on the ratio, the presence of women in the manufacturing sector has increased in the other RECs. The largest change is seen in SADC, where the proportion rose from 34.7% to 38.8%.

Figure 18: Female share in total manufacturing employment



Data source: ILOSTAT estimates.

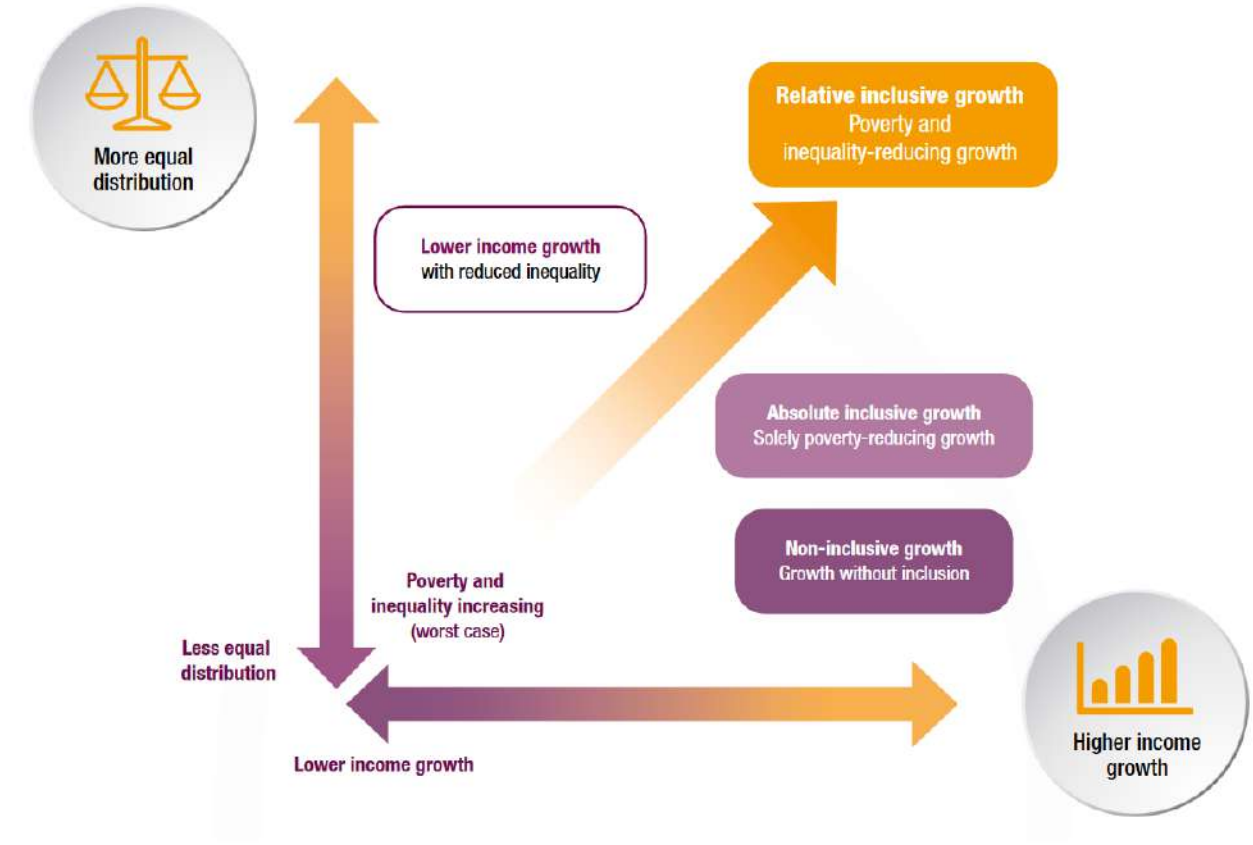
3.2.3 Inequality and inclusive growth

Inclusive growth, reducing poverty and income inequality, is one of the most desired outcomes of socio-economic development. For that reason, two of the SDG (goals 1 and 10) are directly targeted. To assess whether economic growth (GDP) in Africa was followed by inequality and poverty reduction, UNCTAD (2021) estimated inequality indices and analyzed them via-à-vis poverty indicators for all countries between 2000 and 2020. Figure 19 illustrates the methodology used to analyse the possible growth pathways. Economies that presented economic growth are classified in clusters as below:

- **Non-inclusive growth:** Countries with economic growth without inclusion.
- **Absolute inclusive growth:** Countries that had economic growth and poverty reduction only.
- **Relative inclusive growth:** Countries with economic growth, poverty, and inequality reduction.

- **Relative inclusive growth:** Countries with economic growth, poverty, and inequality reduction.

Figure 19: Possible Growth Pathways

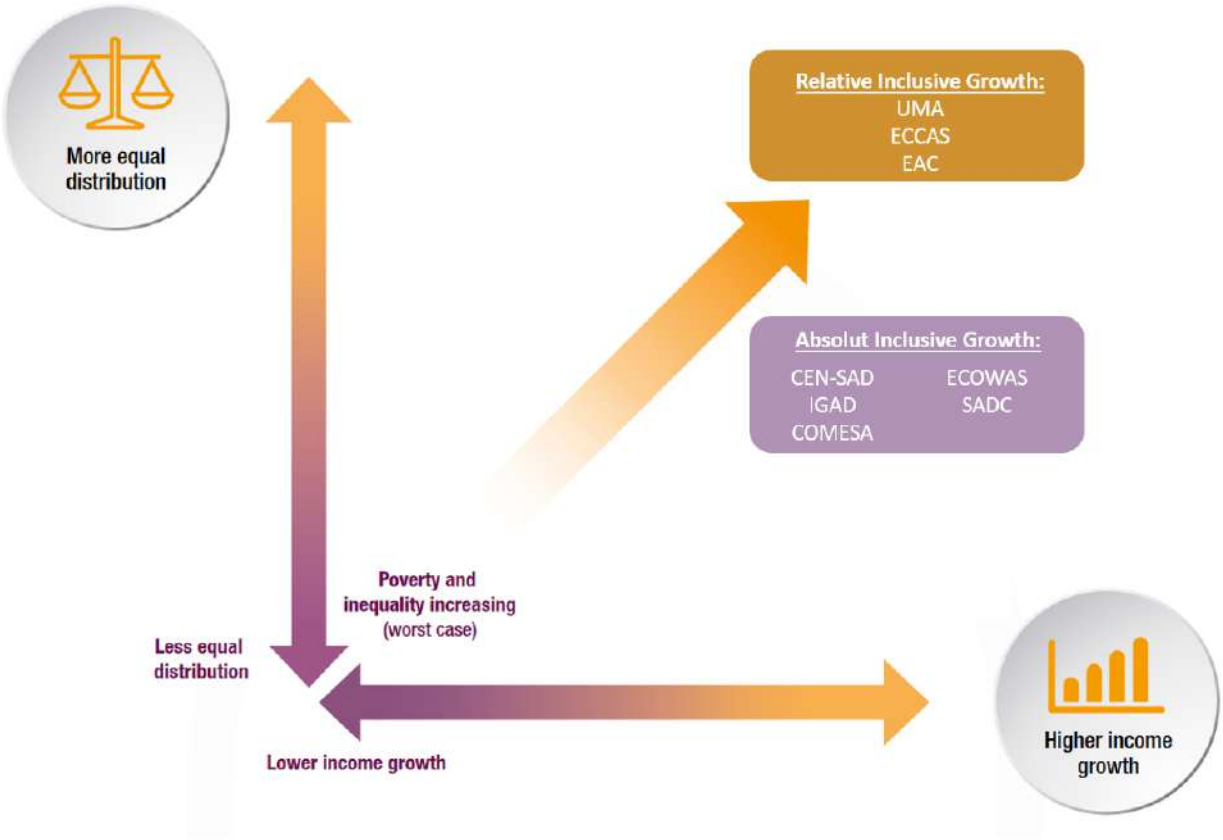


Data source: UNCTAD (2021) p.18

For our analysis, the country-level results presented by UNCTAD (2021) [13] were weighted by population in order to obtain an estimate of regional performances. Figure 20 reveals that no REC has exhibited a non-inclusive growth path. The majority of the regions were clustered as having absolute inclusive growth. The only communities that presented economic growth with poverty and inequality reduction (relative inclusive growth) were UMA, ECCAS, and EAC. Hence, industrialisation still has more potential to accelerate the region's social transformation and especially contribute to reducing inequality by generating formal, higher-income, and better-quality jobs.

[13] See appendix B.1 for the country-level results presented by UNCTAD (2021).

Figure 20: Growth Pathways of the African RECs



Data source: Own calculations based on UNCTAD (2021)

3.3 Energy and environmental performance

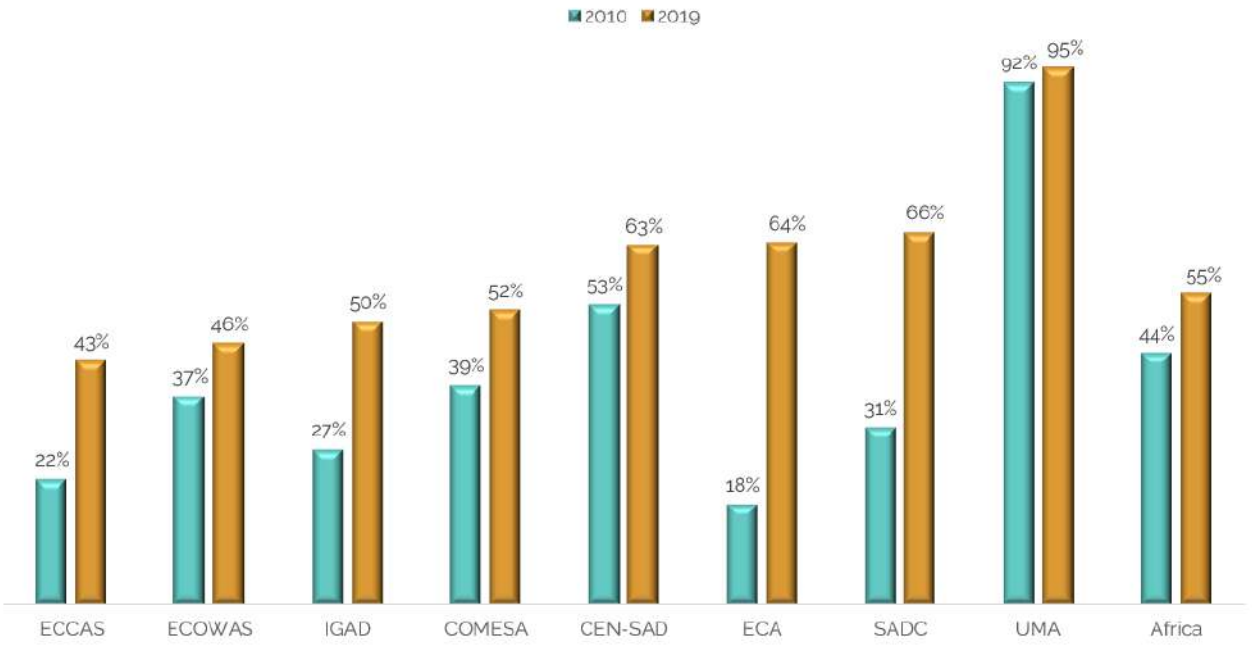
Abundant and reliable access to affordable electricity is crucial for socio-economic development and poverty alleviation. It is also essential for developing a robust and competitive industrial sector. Furthermore, in the face of climate change, it is imperative that production is increasingly cleaner, based on renewable energy sources, and with low emission of greenhouse gas, especially CO2. Sustainable energy is paramount for transitioning from subsistence economies to more modern societies. This section investigates the position of the RECs concerning these topics, specifically regarding access to electricity, renewable sources of energy output and consumption, and cleaner production.

3.3.1 Energy

Access to electricity SDG target 7.1 seeks to ensure universal access to affordable, reliable, and modern energy services and uses as a key monitoring indicator the share of the population with access to electricity. Figure 21 illustrates the RECs' performances regarding that target. In general, access to electricity in Africa is still far below the necessary to conduce socio-economic development, despite increasing from 44% to 55% between 2010-2019. UMA is the only region to

exhibit a high proportion of the population accessing electricity (95%). CEN-SAD, EAC, and SADC registered ratios above the African average, but well below the first place (63%, 64%, and 66%, respectively). ECCAS (43%) and ECOWAS (45%) have the largest electricity access gap to close.

Figure 21: access to electricity



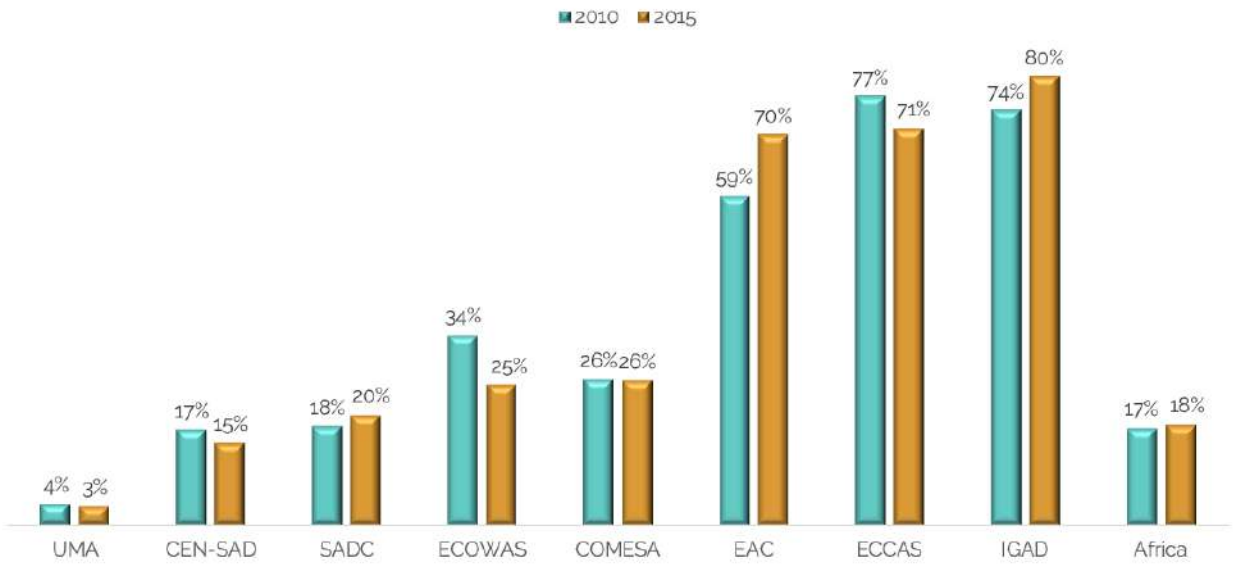
Data source: WDI Database.

However, it should be pointed out that all regions displayed a positive evolution over the years. The most remarkable progress was shown by EAC, with an increase of 48 p.p.. SADC comes immediately after with 35 p.p. UMA showed the lowest rise (3.3 p.p.); however, it is the region with the highest level already. COMESA's performance is somewhat worrying. The regions have the second lowest percentage of people with access to electricity and showed the second-lowest growth between 2010 and 2019. At this pace, it will be outperformed by ECCAS very soon and enlarge its gap to the other regions.

Renewable energy output Renewable sources of energy offer the opportunity to supply the energy needed without compromising future generations. Countries are strongly encouraged to strengthen their efforts to move towards new and clean energy technologies. Figure 22 reveals Africa as a continent still has a long way to go in generating renewable energy, contributing to only 18% of the total electricity output. Moreover, it increased to only one p.p. from 2010 to 2015. Among all the regions, the highest shares belong to IGAD (80%), ECCAS (71%), and EAC (70%). Far below are SADC, ECOWAS, COMESA, and CEN-SAD within the range of 15% to 26%. At the bottom of the rank is UMA, where renewables account only for 3% of the total electricity output, after decreasing one p.p. in the period. Three regions exhibited expansion of the indicator. The

first placed was EAC (11 p.p.), followed by IGAD (6 p.p.) , and SADC (2 p.p.). On the opposite end, ECOWAS, ECCAS, and CEN-SAD saw the renewables' contribution reduced by 9, 6, and 2 p.p.. COMESA remained stable.

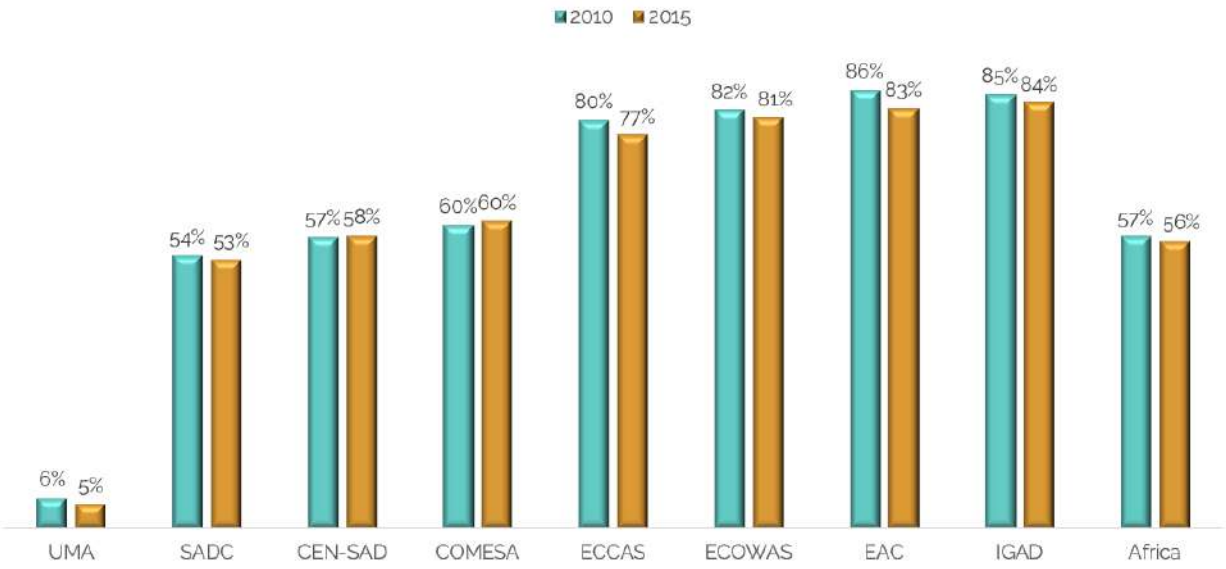
Figure 22: Renewable energy share in total electricity output



Note: 2015 is the most recent available. *Data source:* WDI Database.

Renewable energy consumption Increasing the share of renewable energy consumption is also a priority on the international development agenda (SDG 7). Figure 23 shows the renewable energy share in total final energy consumption was higher than 50% in all RECs, except for UMA, where renewables accounted for only 5% in 2015, after declining one p.p. since 2010. SADC, CEN-SAD, and COMESA presented shares between 53% and 60%. The highest performers were IGAD (84%), EAC (83%), ECOWAS (81%), and ECCAS (77%). No region exhibited a significant increase in the indicator. As a matter of fact, it slightly declined in six of them, with ECCAS and EAC having the most expressive decline (-3 p.p. for both).

Figure 23: Renewable energy share in total final energy consumption

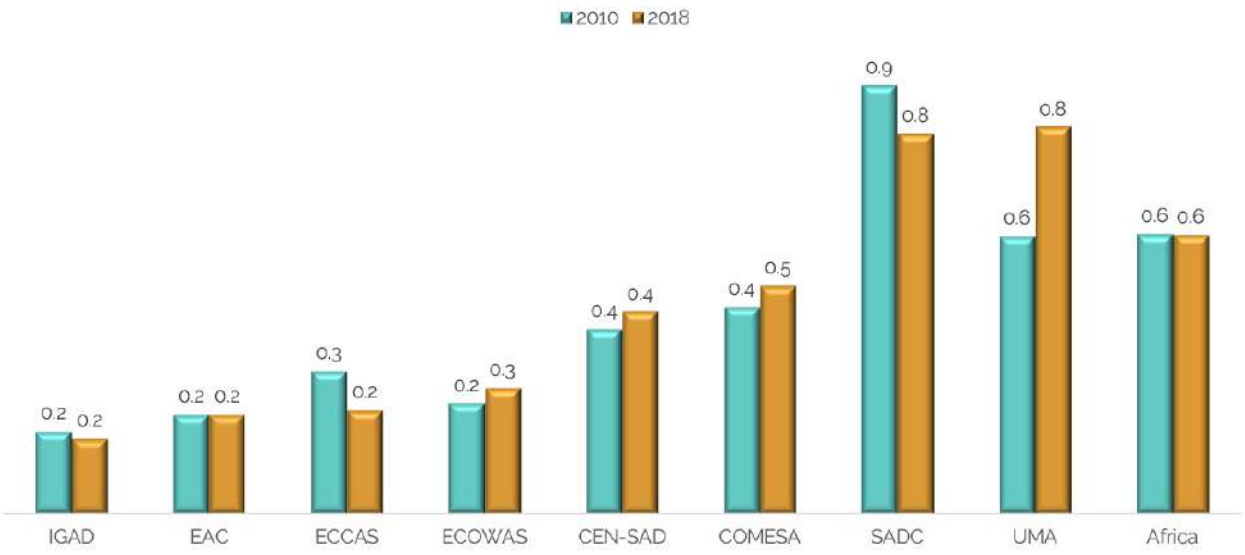


Data source: WDI Database.

3.3.2 Cleaner production

CO2 emissions intensity Figure 24 shows the CO2 emissions generated for every US$ of GDP in each REC. Again, the differences among the regions are substantial. IGAD, EAC, and ECCAS have the lowest emissions (0.2 kg per US% of GDP), closely followed by ECOWAS. CEN-SAD, and COMESA displayed intermediate proportions (0.4 and 0.5). SADC and UMA were the leading ones, with 0.8 each. UMA's high dependence on petroleum products and SADC's relatively higher degree of industrialisation help explain their larger emissions. It is also worth noting that UMA was the region with the highest increase between 2010 and 2018 (0.2 p.p.). SADC and ECCAS exhibited slight reduction (0.1 p.p.) One should point out that the regions are still positioned in the first stages of industrialisation. Therefore these levels can increase proportionally as they move forward with their development process if not tackled quickly. Promoting renewable energies and cleaner industrial processes in the region can prevent these levels from rising significantly in the near future.

Figure 24: CO2 Emissions (kg per 2015 US$ of GDP)



Data source: WDI Database.

4 Identification and Assessment of RVCs in African Regions

This section provides an in-depth analysis for the identification and assessment of RVCs in African regions. It does so by first analysing the status and dynamics of intra-regional trade in Africa before taking stock of already existing regional value chains (RVCs) in the eight Africa RECs. In a next step, the chapter explains how these identified RVCs operate by evaluating the roles individual national economies play within these RVCs. Finally, the section elaborates on the potential emergence of new regional RVCs and proposes an assessment framework for RVC prioritisation.

4.1 Status and dynamics of intra-regional trade in Africa

Main findings Section 4.1

1. African economies are trading more extensively in commodities of a lower degree of processing than global trends.
2. For most RECs, imports exceed exports to the global market.
3. Exports predominantly consist of primary commodities that serve as inputs for the final production of goods.
4. Conversely, by and large, African economies have a high share in final consumption imports and more processed, intermediate commodities.
5. At the same time, the RECs analysed in this report show notable differences in the trade composition compared to each other:

- **CEN-SAD:** Has the most similar trade structure to COMESA but trades more extensively in products with a higher degree of processing. At the same time, CEN-SAD economies import more final consumption goods than an average African economy.
- **COMESA:** Has the most similar trade structure to CEN-SAD. Intermediate consumption goods, which are used for RVC-type trade, are exchanged more extensively than other RECs.
- **EAC:** Has the second-highest share of imports in total trade. Final consumption imports into the region exceed EAC exports in magnitude.
- **ECCAS:** One of the two RECs where exports exceed imports is due to the massive export of primary, intermediate consumption goods, which stand at the very beginning of RVC-type trade and indicates that the region is a provider of raw materials to the global market.
- **ECOWAS:** Characterised by a disproportional share of primary commodity exports as well as notable imports of final consumption goods, which is slightly above the African average.
- **IGAD:** Imports are around 4.5 times larger than exports. Unlike other RECs, IGAD economies rarely import primary commodities that form the beginning of RVC-type trade.
- **SADC:** One of the two RECS where exports exceed imports with a focus on primary and intermediate consumption goods exports indicating some processing capacities within the region and better integration into global production processes.
- **UMA:** Exports by and large as many final consumption goods as it imports and also tends to import intermediate consumption goods that are associated with a higher degree of processing.

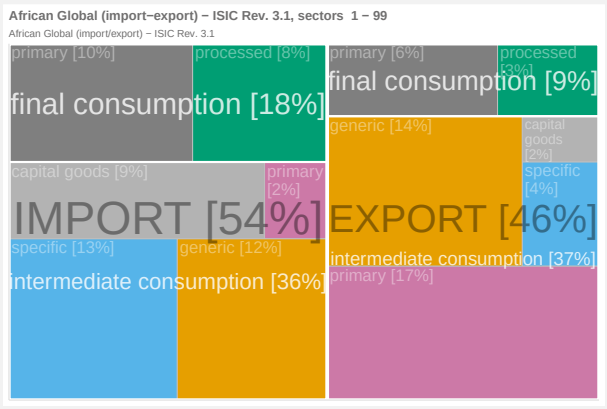
This section analyses the status and dynamics of intra-regional trade dynamics in Africa. In a first step, the section provides a short overview of African and global trade dynamics to highlight the similarities between African and global trade in Section 4.1.1. Next, it delves into intra-regional trade dynamics in Africa in Section 4.1.2 by exploring trade dynamics for both total trade and manufacturing-related trade only.

Box 1: Analytical vehicle 1: Treemap.

The treemap is a simple conceptual tool to visualise hierarchical and nested relationships alongside proportions.[a] Treemaps visualise hierarchical (tree-structured) data using sets of nested rectangles. Each branch of the data belongs to its rectangle, which is then tiled with smaller rectangles representing sub-branches. Each coloured block (also referred to as a "node") has an area proportional to the specified dimension of the data. In the case of the treemaps used in this study, the node's size corresponds to the trade volume of each coloured block relative to total trade.

Furthermore, the hierarchical and nested relationship of the trade data is emphasised numerically: In Figure 25 primary (10%) and processed (8%) final consumption imports can be aggregated up to total final consumption imports by a simple addition of both percentage numbers (10% + 8% = 18%). One can do the same for intermediate consumption (36%), which is the sum of primary (2%), generic (12%), specific (13%) and capital (9%) intermediate consumption goods. Together with final consumption imports, they make up total global imports into Africa (18% + 36% = 54%). Given that this number is larger than 50%, this implies that in the year 2019, African economies have imported more from the global market than they have exported to the global market. One can also make the same comparison at a more detailed level. For example, with 15% of total African exports to the global market, primary, intermediate commodities make up a much larger share of Africa's export basket to the global market (Figure 26a).

Figure 25: Analytical vehicle 1: Threemap



[a] See `http://www.cs.umd.edu/hcil/treemap-history/index.shtml` for more information.

4.1.1 African trade vs. Global trade dynamics

Figure 26 visualises the difference in global total trade (Figure 26a) with intra-African trade (Figure 26b) using *treemap* graphs; see box 1 for more information on this visual vehicle.

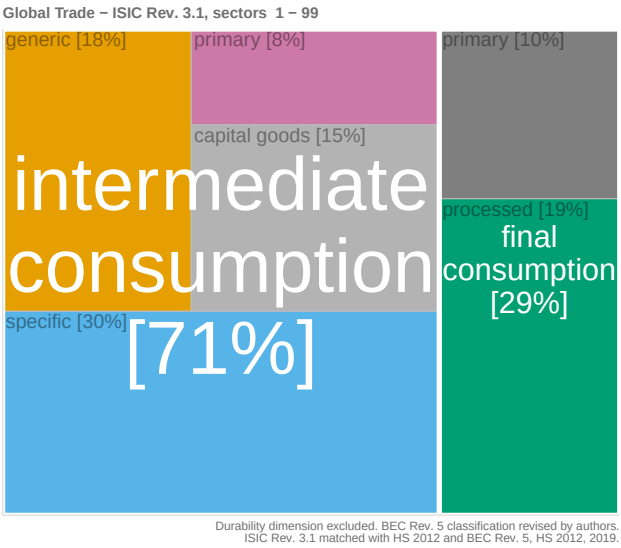
While the composition between intermediate and final consumption is relatively similar, the type of traded goods varies very notably depending on their degree of processing. While globally, 19% of traded final consumption goods are processed, only 9% are within Africa. There, primary final goods make up the bulk of traded consumption goods. Similarly, intra-African trade typically contains a higher proportion of primary and generic intermediate products and fewer specific intermediate consumption goods or capital goods. This finding indicates that the degree of processing of goods traded within the African continent is significantly lower than in other world regions.

Figure 26c further separates the African Global trade flows into import and export flows.[14] The figure illustrates that African economies export overwhelmingly more primary commodities than they import from the global market (17% vs 2%). At the same time, they also import a higher share of specific intermediate consumption goods (13% vs 4%) and capital (9% vs 2%) than they export. Furthermore, the share of final consumption goods in imports is twice as much as that of African exports to the global market. (18% vs 4%). In a nutshell, Africa mainly sells primary commodities and products with a low processing degree to other regions while importing higher value added processed goods.

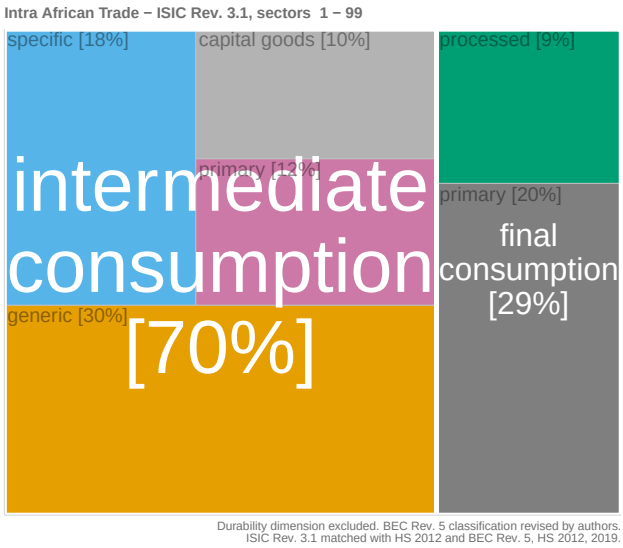
After this general overview, Section 4.1.2 will contrast global trade dynamics between the various RECs covered in this report.

[14]Note that the in Figure 26a and Figure 26b the shares of imports and export will be numerically identical as global export volumes will by construction correspond to global import volumes. The same is true for intra-African trade.

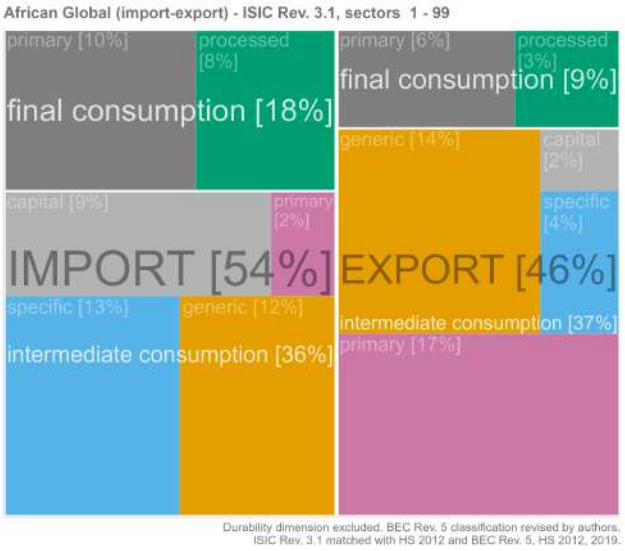
Figure 26: Total Trade Composition



(a) Global Trade Composition



(b) Intra-African Trade Composition



(c) African Global Trade Composition

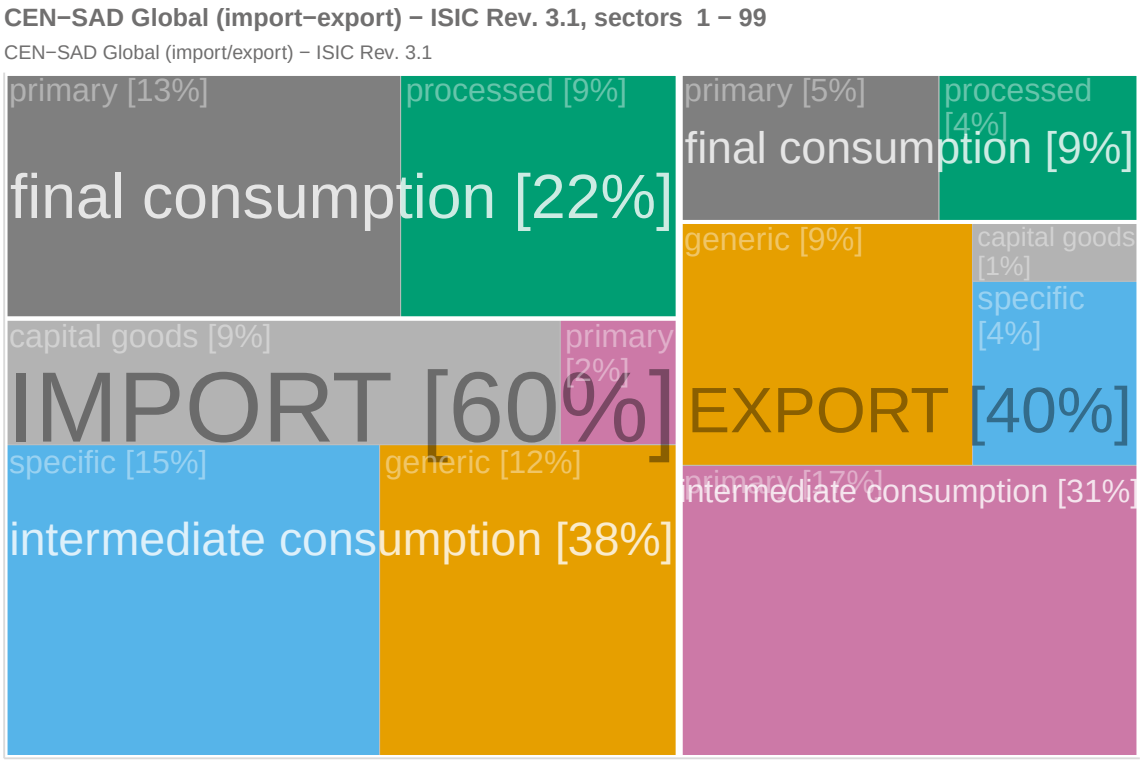
Note: Traded US$ in by ISIC Rev. 3 IV-digit industry. For a particular ISIC Rev. 3 IV-digit industry, shares correspond to commodities' contributions to total exports in relation to each II-digit industry. Area drawn proportionally to traded volumes.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

4.1.2 Intra-regional trade dynamics in Africa

CEN-SAD. Compared to the aggregate African trade patterns with the world, CEN-SAD economies have a higher share of imports, particularly for final consumption goods. While the composition of final consumption is similar to that of the African aggregate in terms of composition (9 per cent of exports constitute final consumption goods), the share of primary commodity exports designated for intermediate production processes is close to half of total exports. It is notably higher

than when considering total African trade to the world. Furthermore, with 9 per cent of total trade, capital imports dwarf capital exports (1 per cent) very notably. This result illustrates that CEN-SAD economies are net importers of capital equipment. Comparing the trade composition of the CEN-SAD region with that of the other RECs analysed, one can observe the most similar trade structure for the COMESA region. While CEN-SAD economies have a notably higher share of primary, intermediate consumption exports than COMESA, it trades less intensively in commodities with a limited degree of processing.[15] For a complete list comparing the differences in aggregates across RECs, please see Table 21.

Figure 27: CEN-SAD Trade Composition



Note: Traded US$ in by ISIC Rev. 3 IV-digit industry. For a particular ISIC Rev. 3 IV-digit industry, shares correspond to commodities' contributions to total exports in relation to each II-digit industry. Area drawn proportionally to traded volumes.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) reclassification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

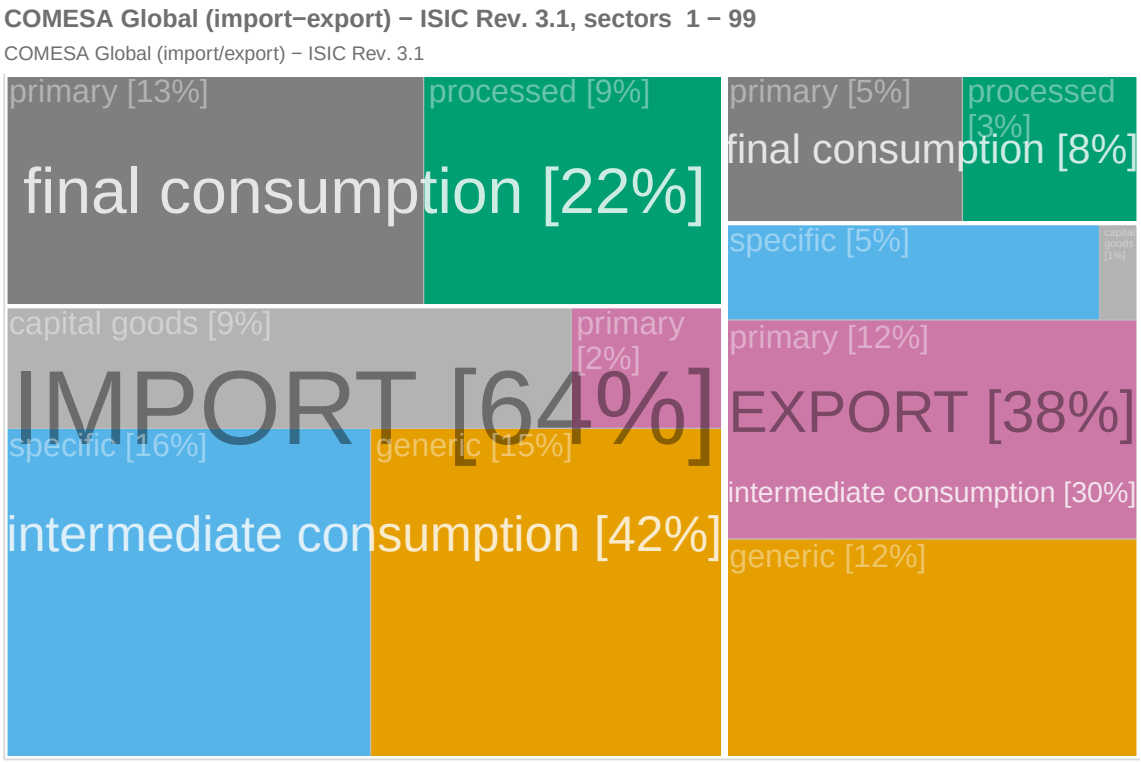
COMESA. The *balance of trade* for COMESA economies when trading with global partners is skewed towards imports and features a slight tilt towards the import of final consumption goods. As far as export goes, COMESA countries have a notably more balanced export mix of intermediate commodities compared to average African export trade.[16] Compared to other RECs in Africa, COMESA economies are trading more in generic and specific intermediate commodities which

[15] That is, five out of the seven other RECs report a higher share of generic intermediate exports than the CEN-SAD region

[16] That is, 12 per cent primary *and* generic intermediate goods for COMESA economies vs 17 and 14 per cent for total African trade).

is indicative of the existence of higher processing capacities within the region. Furthermore, intermediate consumption goods are exchanged more extensively compared to other RECs. For a complete list comparing the differences in aggregates across RECs, please see Table 22.

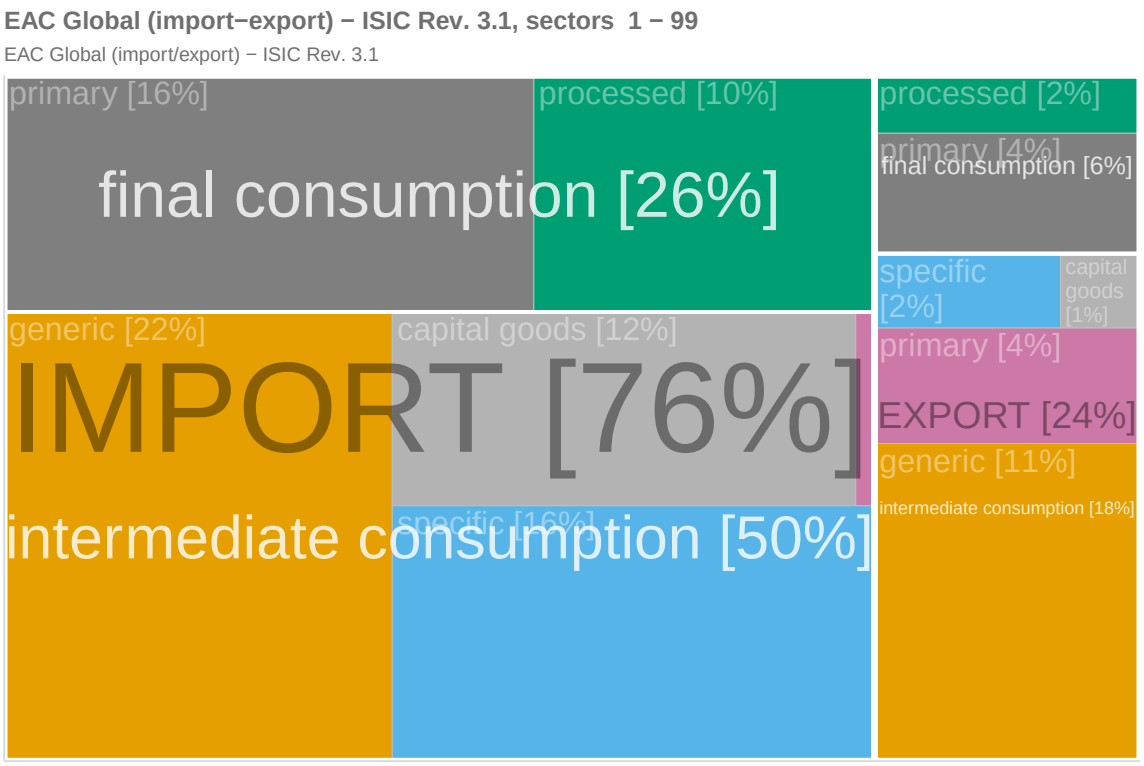
Figure 28: COMESA Trade Composition



Note: Traded US$ in by ISIC Rev. 3 IV-digit industry. For a particular ISIC Rev. 3 IV-digit industry, shares correspond to commodities' contributions to total exports in relation to each II-digit industry. Area drawn proportionally to traded volumes.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

EAC. Across all RECs considered in this study, EAC has the second-highest share of imports in total trade with 76 per cent compared to 24 per cent of exports. More notably, 26 per cent of total EAC trade flows are dedicated to importing final consumption. This inflow is so extensive that it exceeds total exports of the EAC region in magnitude (which constitute 24 per cent of total trade). Furthermore, every second traded commodity between EAC and global partners includes intermediate consumption goods. There, particularly the import of capital goods and generic intermediate consumption goods surpass the imports of average African import patterns most notably. Compared to all other RECs analysed in this report, EAC economies engage in little primary commodity trade. This is particularly true for primary products, which typically stand at the beginning of a value chain. At the same time, EAC economies import a much higher share of intermediate consumption goods. In contrast, the difference in final processed goods is less pronounced. For a complete list comparing the differences in aggregates across RECs, please see Table 23.

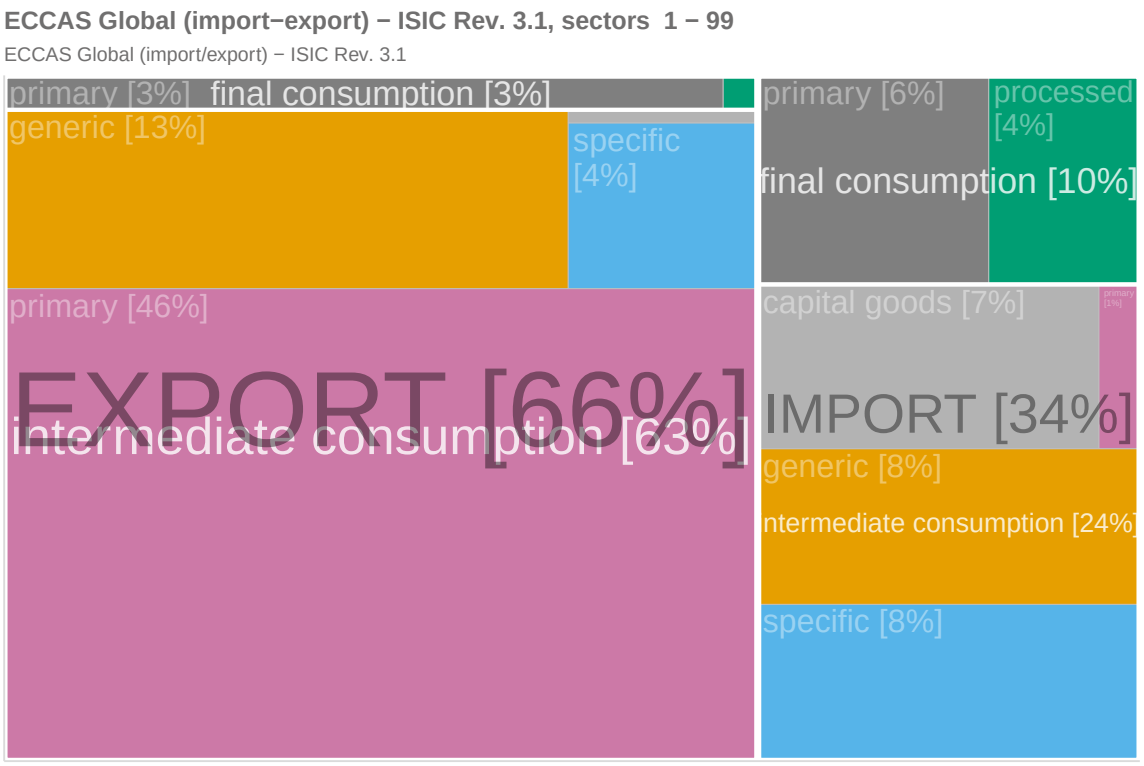
Figure 29: EAC Trade Composition



Note: Traded US$ in by ISIC Rev. 3 IV-digit industry. For a particular ISIC Rev. 3 IV-digit industry, shares correspond to commodities' contributions to total exports in relation to each II-digit industry. Area drawn proportionally to traded volumes.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

ECCAS. The ECCAS region is one of the two Africans RECs analysed for this report that exhibits a positive balance of trade (where exports exceed imports). This result is the consequence of massive export of primary intermediate consumption goods, which make up almost 50 per cent of total trade observed for this economic region. Generic and specific commodity exports are in line with that of the African average. However, the share of final consumption exports to the world is minuscule. This result indicates the predominance of ECCAS to be, first and foremost, a provider of raw materials to the global market. This observation also holds in the African context (and even though African economies are typically situated at the earlier stages of production processes and are providers of raw materials for production). ECCAS's primary material exports as part of the production processes dwarf all other RECs analysed in this report. At the same time, commodity trade in more processed (or final) goods is notably lower compared to other RECs. In short, ECCAS retains the typical trade characteristics previously associated with general African trade dynamics even within Africa and compared to other regional economic zones. For a complete list comparing the differences in aggregates across RECs, please see Table 24.

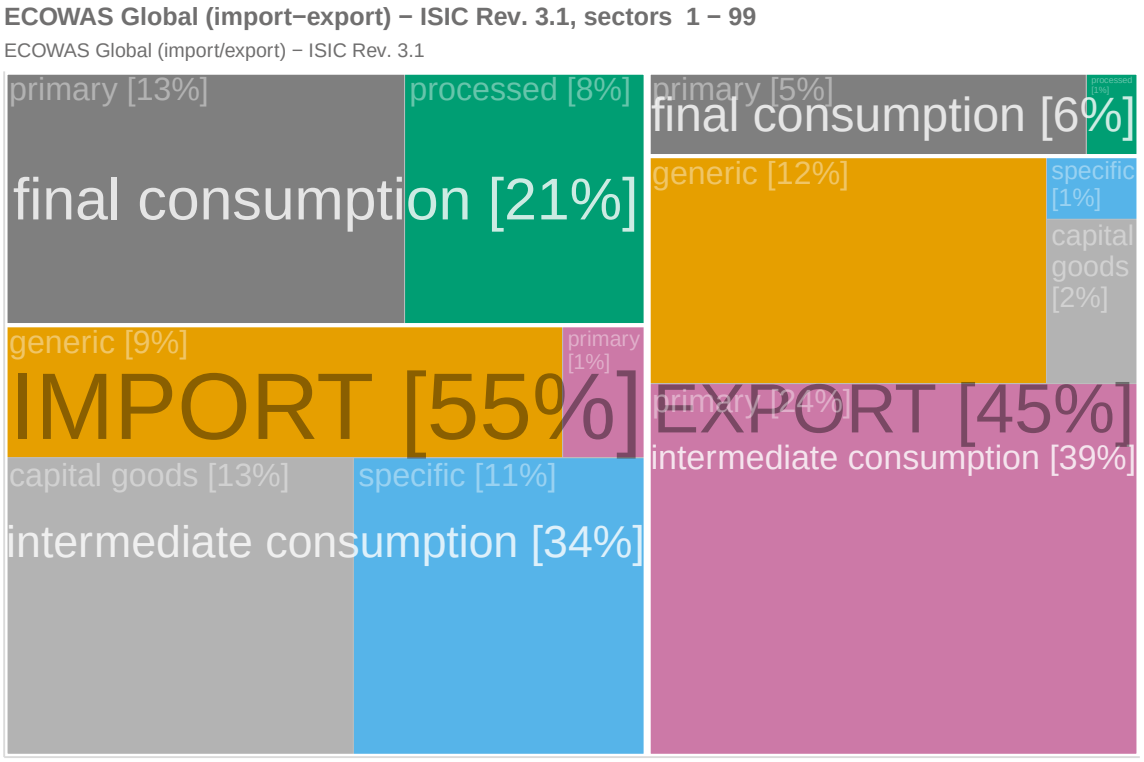
Figure 30: ECCAS Trade Composition



Note: Traded US$ in by ISIC Rev. 3 IV-digit industry. For a particular ISIC Rev. 3 IV-digit industry, shares correspond to commodities' contributions to total exports in relation to each II-digit industry. Area drawn proportionally to traded volumes.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

ECOWAS. Another REC with a disproportional share of primary commodity exports that stand at the beginning of a RVC is the ECOWAS region. Primary intermediate consumption commodity exports make up 39 per cent of total trade compared to 17 per cent for the African average. Unlike other extraction-extensive RECs, ECOWAS is also characterised by a notable import stream of final consumption products. This influx is slightly higher than what is typically observed across African economies (21 per cent vs 18 per cent). For a complete list comparing the differences in aggregates across RECs, please see Table 25.

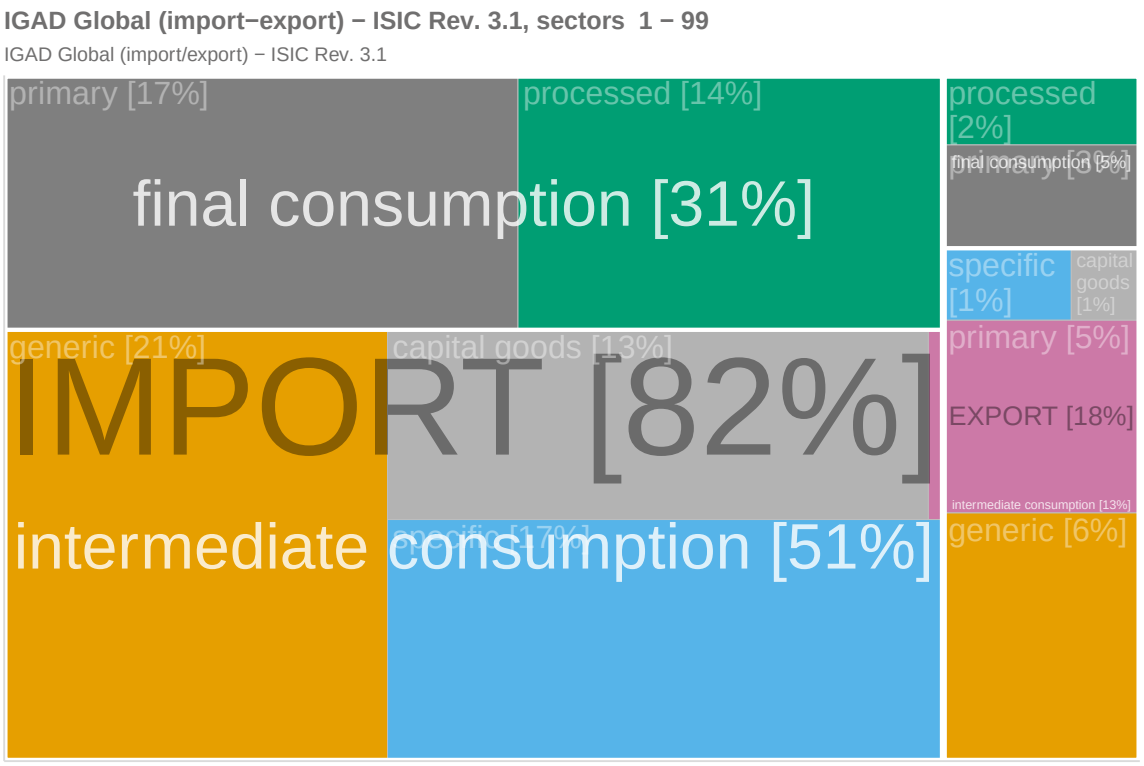
Figure 31: ECOWAS Trade Composition



Note: Traded US$ in by ISIC Rev. 3 IV-digit industry. For a particular ISIC Rev. 3 IV-digit industry, shares correspond to commodities' contributions to total exports in relation to each II-digit industry. Area drawn proportionally to traded volumes.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

IGAD. The REC with the highest difference between imports and exports, i.e., negative balance of trade, across all RECs considered in this report is the IGAD region. There, 82 of total trade between IGAD economies and global market partners are imports. In contrast to the other RECs considered, IGAD economies rarely import primary commodities that are part of the value-chain production process. These dynamics are also reflected when comparing IGAD's trade dynamics with the other RECs analysed in this report. Apart from raw materials, IGAD economies import more (export less) than any other economic region in Africa. For a complete list comparing the differences in aggregates across RECs, please see Table 26.

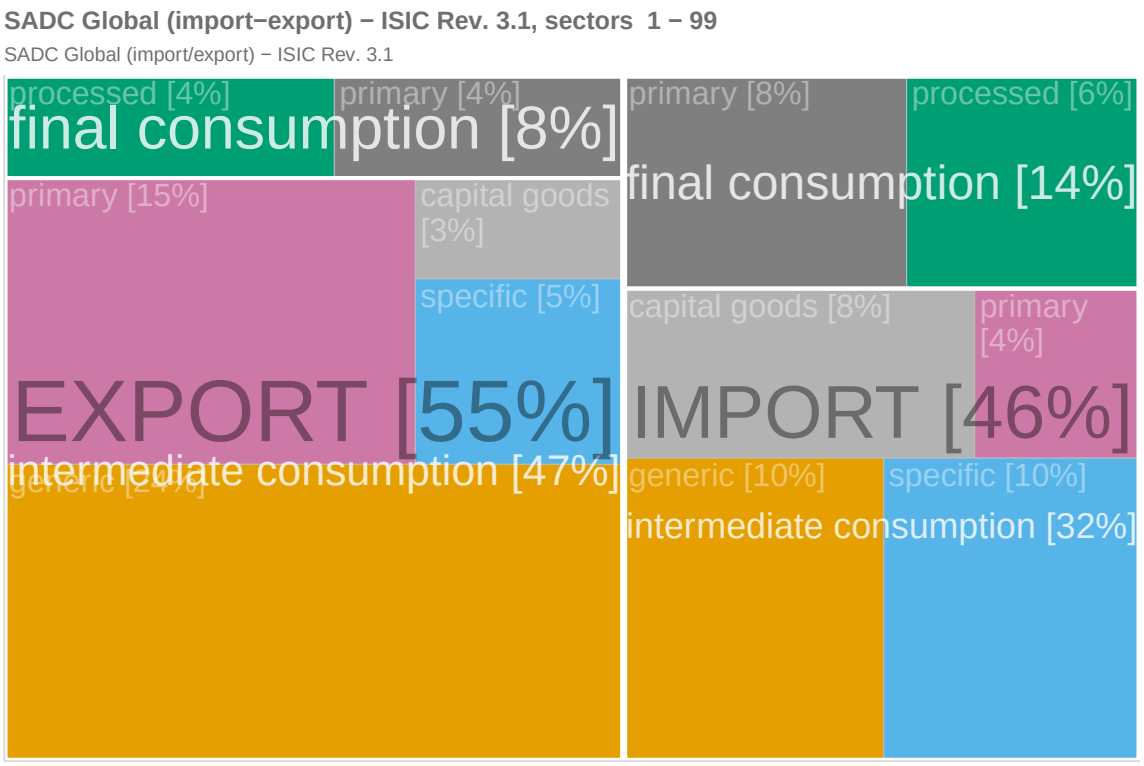
Figure 32: IGAD Trade Composition



Note: Traded US$ in by ISIC Rev. 3 IV-digit industry. For a particular ISIC Rev. 3 IV-digit industry, shares correspond to commodities' contributions to total exports in relation to each II-digit industry. Area drawn proportionally to traded volumes.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

SADC. Together with ECCAS, SADC is the only other REC analysed in this report with a positive trade balance with a share of exports in total trade of 55 per cent. Compared to the cross-African average, SADC is further characterised by a larger share of intermediate consumption exports (47 compared to 37 per cent). This finding indicates some processing capacity of intermediate consumption goods, particularly at the earlier stage of the production cycle. With 24 per cent of total trade, the share of generic intermediate consumption exports of SADC to the world is almost twice that of the average African economy (14 per cent). Compared to the other RECs analysed in this report, SADC economies export fewer intermediate goods (generic and specific). This indicates that SADC economies seem to be more partially integrated into global production processes. The SADC region is also found to export more and import fewer processed final goods than any other REC. For a complete list comparing the differences in aggregates across RECs, please see Table 27.

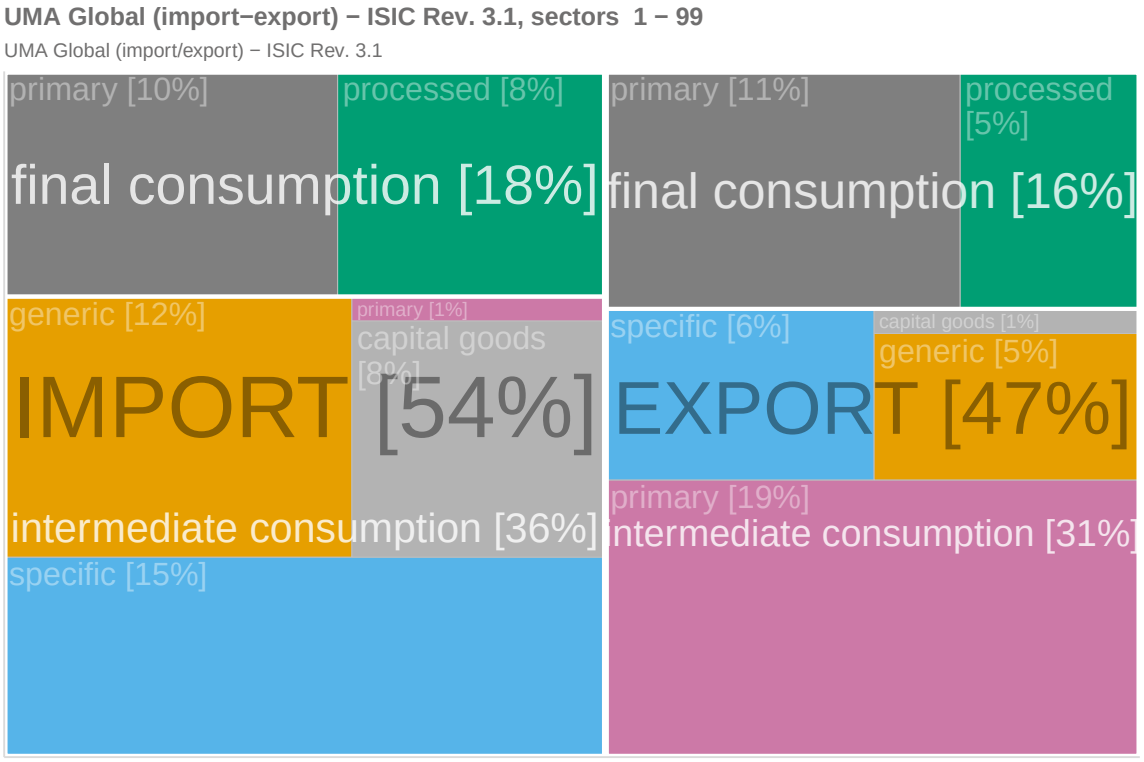
Figure 33: SADC Trade Composition



Note: Traded US$ in by ISIC Rev. 3 IV-digit industry. For a particular ISIC Rev. 3 IV-digit industry, shares correspond to commodities' contributions to total exports in relation to each II-digit industry. Area drawn proportionally to traded volumes.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

UMA. For the UMA region, the trade patterns indicate a very distinct pattern. Unlike the average African economy, UMA economies export by and large as many final consumption goods as they import (18 vs 16 per cent). At the same time, the intermediate consumption imports and export streams vary widely. While around 2/3 of intermediate consumption exports are located at the beginning of any value-chain process (the share of primary intermediate consumption goods is 19 per cent), UMA tends to import commodities that are typically associated with a higher degree of processing. This observation also holds when comparing UMA trade patterns for more processed goods with that of the other RECs. UMA economies consistently export more specific intermediate commodities and processed final items than any other REC. UMA economies also outperform all other RECs in exporting raw materials used to produce final products. Finally, trade associated with the earlier production stage (of generic intermediate consumption goods) is, in stark contrast to all other RECs, largely absent in the UMA region. For a complete list comparing the differences in aggregates across RECs, please see Table 28.

Figure 34: UMA Trade Composition



Note: Traded US$ in by ISIC Rev. 3 IV-digit industry. For a particular ISIC Rev. 3 IV-digit industry, shares correspond to commodities' contributions to total exports in relation to each II-digit industry. Area drawn proportionally to traded volumes.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

4.2 Which RVCs exist? - Identification of existing RVCs within regions

Main findings Section 4.2

1. The degree of RVC engagement varies very notably across regions. It can be as little as 30 per cent (IGAD) to as much as 65 per cent (ECCAS).
2. The degree to which RECs economies are dependent on a particular RVC varies widely: The most prominent RVC across RECs can make up as much as 42 per cent (in UMA) to as little as 5 per cent (in COMESA) in total trade.
3. Certain RVCs are relevant across the majority of RECs and include:
   - Vegetable and animal oils and fats;
   - Refined petroleum products;
   - Soap and detergents as well as cleaning and polishing preparations, perfumes and toilet preparations;
   - Plastic products;
   - Basic iron and steel.
4. Within identified RVCs, African economies rely on trade of goods that are of a lower degree of processing which they trade more intensively than their global partners.[a]

[a] Typically trade commodities that are of lower degree of processing and this trade accounts for a higher share of their trade than compared to average global trade.

This section identifies existing RVCs across African RECs and contrasts their characteristics with that of globally observed dynamics. Unless stated otherwise, the report focuses on intra-REC trade and uses other aggregates to draw comparisons.[17] Based on the evaluation criteria of RVC trade as summarised in box 2, Section 4.2.1 provides an overview of the characteristics and composition of RVCs across Africa. Furthermore, Section 4.2.2 provides an overview of the existing prominent RVCs across the set of RECs analysed in this report.

Box 2: Definition of Regional Value Chains (RVCs) in this report.

Throughout the report,[a] the definition of Regional Value Chains (RVCs) is as follows:

1. Trade between at least two REC member countries has to be recorded. This requirement is met by construction. The analysis in this report builds on trade data that requires trade between at least two economies.

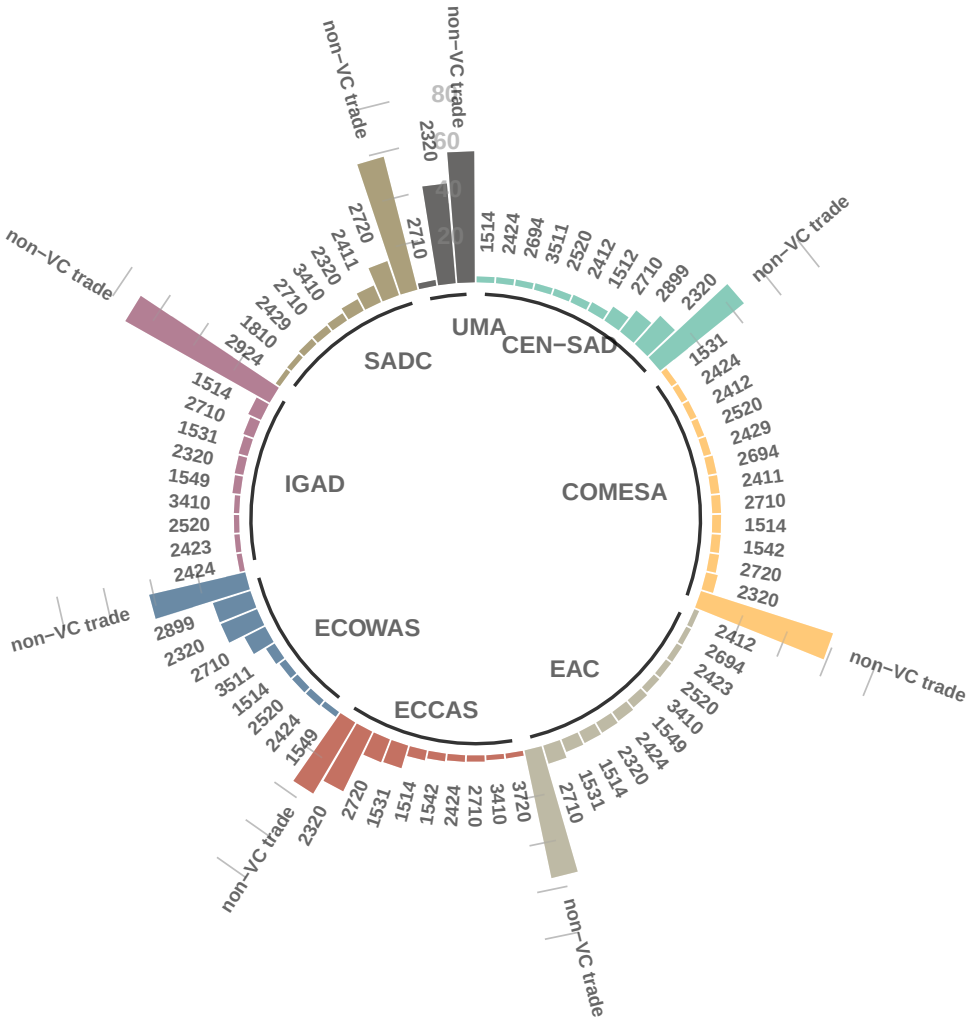
[17] For example, Section 4.2.1 identifies characteristics of intra-REC specific trends, while Section 4.2.2 compares REC-specific RVC configurations with global trends.

2. Some degree of product upgrading within a particular sector is recorded. The identification of product upgrading is derived from the BEC Rev. 5 classification as highlighted in Section 2.2.
3. To talk about a notable RVC, a certain trade volume between countries/products has to be recorded. Unless stated otherwise, the cutoff value to identify a substantial trade volume is set to one per cent in *total trade* and two per cent in *manufacturing only* trade. The shares are calculated based on aggregate national (or REC-specific) commodity trade of a particular ISIC Rev. 3 4-digit sector in total ISIC-recorded trade. In other words, only trade that can be mapped on the 4-digit level is used in this report. See appendix A.3 for more information.

[a] Unless stated otherwise in the relevant table, figure or footnotes.

4.2.1 Comparison of RVC development status between regions

Figure 35: Share of RVC trade by region and sector across RECs



Note: Traded US$ in by ISIC Rev. 3 IV-digit industry. Non-VC trade failed to miss the criteria in box 2.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

Figure 35 summarises the key RVCs based on the ISIC 3 IV-digit classification according to the selection criteria highlighted in box 2. The figure indicates stark differences along multiple lines. The degree of RVC engagement varies very notably across regions. It can be as little as 30 per cent (IGAD) to as much as 65 per cent (ECCAS) of total intra-REC trade. Secondly, while there are particular industries (such as *2710 - basic iron and steel*) which are prominent across all eight RECs analysed in this report, certain particularities also exist. For example, sector *1514 - vegetable and animal oils and fats* ranks as the most essential RVC (by trade volume in 2019) for IGAD but

remains absent for both UMA and SADC. Across the analysed RECs, the most frequently observed sectors associated with regional value chain processes are summarised in Table 1.

Table 1: Summary of identified RVC sectors across RECs

ISIC Rev. 3.1 4-digit sector	Identified RECs
1512 - preserving of fish and fish products	CEN-SAD
1514 - vegetable and animal oils and fats	EAC, ECCAS, ECOWAS, CEN-SAD, COMESA, IGAD
1531 - grain mill products	EAC, ECCAS, COMESA, IGAD
1542 - sugar	ECCAS, COMESA
1549 - other food products n.e.c.	EAC, ECOWAS, IGAD
1810 - wearing apparel, except fur apparel	SADC
2320 - refined petroleum products	EAC, ECCAS, ECOWAS, CEN-SAD, COMESA, UMA, IGAD, SADC
2411 - basic chemicals, except fertilizers and nitrogen compounds	COMESA, SADC
2412 - fertilizers and nitrogen compounds	EAC, CEN-SAD, COMESA
2423 - pharmaceuticals, medicinal chemicals and botanical products	EAC, IGAD
2424 - soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations	EAC, ECCAS, ECOWAS, CEN-SAD, COMESA, IGAD
2429 - other chemical products n.e.c.	COMESA, SADC
2520 - plastics products	EAC, ECOWAS, CEN-SAD, COMESA, IGAD
2694 - cement, lime and plaster	EAC, CEN-SAD, COMESA
2710 - basic iron and steel	EAC, ECCAS, ECOWAS, CEN-SAD, COMESA, UMA, IGAD, SADC
2720 - basic precious and non-ferrous metals	ECCAS, COMESA, SADC
2899 - other fabricated metal products n.e.c.	ECOWAS, CEN-SAD
3410 - motor vehicles	EAC, ECCAS, IGAD, SADC
3511 - repairing of ships	ECOWAS, CEN-SAD
3720 - recycling of non-metal waste and scrap	ECCAS

Note: Traded US$ in by ISIC Rev. 3 IV-digit industry. Non-VC trade failed to miss the criteria in box 2.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) reclassification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

Finally, Figure 35 also illustrates notable differences in the weight of certain RVCs across the regions. For example, almost 43 per cent of VC-related trade in UMA is associated with one particular sector (*2320 - refined petroleum products*). On the other hand, the same sector also constitutes the most important VC-related sector in COMESA; however, it only comprises 5 per cent of total trade. This result indicates that some RECs are much more vulnerable to changes in macroeconomic fluctuations associated with a particular RVC. Therefore, they are more vulnerable to exogenous factors that might be detrimental to developing a particular RVC, while more diversified RECs are more resilient.[18] A more extensive summary of the results visualised in Figure 35 is also presented in Table 2 for easier reference.

[18]The high risk to foreign exposure is further exacerbated when, for example, a country not only focuses on a particular commodity which it trades not only with very few international partners, but in particular if this trade only occurs with a small set of selected firms. In such cases, the success of such a RVC is closely linked to the economic performance of a foreign private company. It goes without saying that this exposes the country to a notable amount of risk and uncertainty. As such, a high degree of processing may not necessarily be seen as uniquely positive but also bring about a substantial degree of risk.

Table 2: Share of RVC trade by region and sector across RECs

ISIC Rev. 3.1 4-digit sector	Trade volume 2019 (mil. USD)	Share in total trade
CEN-SAD		
non-VC trade	9014	45.4
2320 - refined petroleum products	3170	16.0
2899 - other fabricated metal products n.e.c.	2222	11.2
2710 - basic iron and steel	1368	6.9
1512 - preserving of fish and fish products	790	4.0
2412 - fertilizers and nitrogen compounds	663	3.3
2520 - plastics products	576	2.9
3511 - pairing of ships	542	2.7
2694 - cement, lime and plaster	508	2.6
2424 - soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations	501	2.5
1514 - vegetable and animal oils and fats	491	2.5
COMESA		
non-VC trade	5308	58.5
2320 - refined petroleum products	454	5.0
2720 - basic precious and non-ferrous metals	357	3.9
1542 - sugar	341	3.8
1514 - vegetable and animal oils and fats	337	3.7
2710 - basic iron and steel	337	3.7
2411 - basic chemicals, except fertilizers and nitrogen compounds	329	3.6
2694 - cement, lime and plaster	327	3.6
2429 - other chemical products n.e.c.	288	3.2
2520 - plastics products	255	2.8
2412 - fertilizers and nitrogen compounds	252	2.8
2424 - soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations	242	2.7
1531 - grain mill products	240	2.6
EAC		
non-VC trade	1703	55.1
2710 - basic iron and steel	245	7.9
1531 - grain mill products	175	5.7
1514 - vegetable and animal oils and fats	163	5.3
2320 - refined petroleum products	153	5.0
2424 - soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations	140	4.5
1549 - other food products n.e.c.	120	3.9
3410 - motor vehicles	93	3.0
2520 - plastics products	83	2.7

Table 2: Share of RVC trade by region and sector across RECs *(continued)*

REC	ISIC Rev. 3.1 4-digit sector	Trade volume 2019 (mil. USD)	Share in total trade
	2423 - pharmaceuticals, medicinal chemicals and botanical products	80	2.6
	2694 - cement, lime and plaster	68	2.2
	2412 - fertilizers and nitrogen compounds	66	2.1
ECCAS			
	non-VC trade	325	34.9
	2320 - refined petroleum products	261	28.0
	2720 - basic precious and non-ferrous metals	96	10.3
	1531 - grain mill products	93	9.9
	1514 - vegetable and animal oils and fats	40	4.3
	1542 - sugar	30	3.2
	2424 - soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations	26	2.7
	2710 - basic iron and steel	24	2.6
	3410 - motor vehicles	19	2.0
	3720 - n-metal waste and scrap	19	2.0
ECOWAS			
	non-VC trade	5334	41.7
	2899 - other fabricated metal products n.e.c.	2126	16.6
	2320 - refined petroleum products	2112	16.5
	2710 - basic iron and steel	1244	9.7
	3511 - pairing of ships	538	4.2
	1514 - vegetable and animal oils and fats	392	3.1
	2520 - plastics products	383	3.0
	2424 - soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations	369	2.9
	1549 - other food products n.e.c.	306	2.4
IGAD			
	non-VC trade	1678	70.0
	1514 - vegetable and animal oils and fats	140	5.8
	2710 - basic iron and steel	108	4.5
	1531 - grain mill products	94	3.9
	2320 - refined petroleum products	87	3.6
	1549 - other food products n.e.c.	81	3.4
	3410 - motor vehicles	53	2.2
	2520 - plastics products	53	2.2
	2423 - pharmaceuticals, medicinal chemicals and botanical products	52	2.2
	2424 - soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations	51	2.1
SADC			

Table 2: Share of RVC trade by region and sector across RECs *(continued)*

REC	ISIC Rev. 3.1 4-digit sector	Trade volume 2019 (mil. USD)	Share in total trade
	non-VC trade	22724	57.9
	2720 - basic precious and non-ferrous metals	5953	15.2
	2411 - basic chemicals, except fertilizers and nitrogen compounds	2996	7.6
	2320 - refined petroleum products	2127	5.4
	3410 - motor vehicles	1393	3.5
	2710 - basic iron and steel	1229	3.1
	2429 - other chemical products n.e.c.	1141	2.9
	1810 - wearing apparel, except fur apparel	871	2.2
	2924 - machinery for mining, quarrying and construction	810	2.1
UMA			
	non-VC trade	2104	55.3
	2320 - refined petroleum products	1606	42.3
	2710 - basic iron and steel	91	2.4

Note: Traded US$ in by ISIC Rev. 3 IV-digit industry. Non-VC trade failed to miss the criteria in box 2.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) reclassification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

4.2.2 Overview of major existing RVCs in each region

Based on the evaluation criteria in box 2, this section identifies and discusses the top-5 RVCs for each REC. In contrast to the analysis in Section 4.2.1 the remainder of this report will only consider *manufacturing*, that is it focuses on activities classified as *manufacturing trade* following the ISIC Rev. 3 standard.[19] The section highlights the main results for each REC in the main text while a complete list of all the tables used for this analysis is provided in appendix C.2.

Box 3: Interpretation of tables summarising global vs intra-REC RVCs by composition; see appendix C.2.

This box quickly illustrates how to analyse the supplemental tables used in this section to compare RVC compositions between RECs and global trends. A complete list of these tables is provided in appendix C.2. The table below dissects the CEN-SAD region's top RVC (by trade volume 2019) along the following lines:

- *Within sector*, the shares associated with the different degrees of processing illustrate how much of the trade of sector 2320 is associated with a certain degree of processing. For example, for CEN-SAD, 98.0 per cent of trade in 2320 are primary, final consumption goods. In contrast, on the global scale, this number is 96.9 per cent. This means that the *percentage point difference of within trade of sector 2320* is $98.0 - 96.9 = 1.1$. This information is summarised in the second to last column in the table below. In other words, CEN-SAD exports more primary final consumption commodities in sector 2320 than the global average. Also, note that within each sector and region, the provided percentage numbers fully reflect

[19] Manufacturing trade only considers HS trade that can be mapped to ISIC manufacturing activities, i.e., they belong to ISIC Rev. 3 codes 15 to 37. The previous analysis in Section 4.2.1 considered the economy in its entirety.

the *production dimension* of each sector. For example, again for Intra-CEN-SAD trade, the percentage shares for intermediate primary, intermediate specific and final primary goods sum up to 100 percent: $0.1 + 1.9 + 98.0 = 100$.

- While a particular processing stage may be very dominant within a particular sector; this commodity may not be substantial in terms of the *trade volume* for a given region. This idea is expressed in the *trade volume* columns which report the share of each commodity type by the degree of processing as part of total trade. For example, primary final consumption trade in sector 2320 constitutes 19.1 per cent of Intra-CEN SAD *manufacturing* trade in 2019.[a] Continuing with the example, one can see that primary, final consumption commodities constitute 19.1 per cent of the total manufacturing trade volume of CEN-SAD economies but only 4.7 on the global stage. In other words, this type of commodity trade is much more prevalent for CEN-SAD economies than it is for the average global economy. This metric is again summarised the *percentage point difference in trade volume* which is $19.1 - 4.7 = 14.4$ in this particular case.
- Considered jointly, the *within sector* and *trade volume* percentage point difference indicates how similar REC-specific characteristics are compared to global trends. If a particular sector is very similar to the global average, both percentage point differences will be equal to zero. Suppose a particular sector is notably more (less) important for an economy. In that case, the percentage point differences will be large and positive (negative). Large deviations again highlight distinct and individual patterns, which indicate both a high degree of specialisation and potential vulnerabilities and should therefore be analysed in great detail.

Table 3: Regional Value Chain by composition: Global and Intra-CEN SAD

	Percentage share in traded commodites					
	Within sector		Trade volume		Percentage point differences	
Type	Intra-CEN SAD	Global	Intra-CEN SAD	Global	Within sector	Trade volume
2320 - refined petroleum products - trade volume in mil.USD: 3170.						
I/C - primary	0.1	0.0	0.0	0.0	0.1	0.0
I/C - specific	1.9	3.0	0.4	0.1	-1.1	0.3
F/C - primary	98.0	96.9	19.1	4.7	1.1	14.4

[a] Manufacturing trade only considers ISIC Rev. 3 codes 15 to 37, while the previous analysis in Section 4.2.1 considered the economy in its entirety.

CEN-SAD. Compared to global patterns, sectors 2320 (refined petroleum products) and 2899 (other fabricated metal products) of the CEN-SAD region are highly concentrated. On the one hand, final primary consumption makes up the overwhelming majority of CEN-SAD trade in sector 2320 (98 per cent). Also, it takes up a large share of that country's total manufacturing trade volume (19.1 per cent). In both cases, this is notably more than what is observed for the global average. Similarly, generic intermediate consumption products of other fabricated metal products are an essential component of the metal RVC. In this segment, CEN-SAD economies are very dominant. Most interestingly, this is only true for generic intermediate products. At a higher processing stage (of specific intermediate consumption goods), CEN-SAD economies fall behind in

their respective sector contribution compared to the global average.[20] This is indicative of enormous upgrading potential in this sector. For more information, see Table 29.

COMESA. For countries in the COMESA region, trade in sector 2320 (refined petroleum products) is typically less processed and more tilted towards trade in primary final consumption goods rather than value-chain related commodities. This general trend is also observed for the other top RVCs such as basic precious and non-ferrous metals (2720), 1514 (vegetable and animal oils and fats), basic iron and steel (2710) or other chemical products (2429). COMESA economies observe a higher share of less processed intermediate commodities than the global average in all these sectors. For more information, see Table 30.

EAC. Compared to the global average, EAC economies typically observe lower degrees of processing across all their most relevant RVCs than the worldwide average. In the case of EAC, grain mill products (1531), which also constitutes the second-largest sector by trade volume in 2019, is of particular interest. EAC trades notably more commodities processed at a lower degree than primary final goods of this sort. Typically, trade in this region is geared towards generic intermediate consumption products of the grain mill products sector compared to the global average. This observation is indicative of an intense concentration on a very narrow group of products. Similar specialisation tendencies are also observed in the vegetable and animal oils and fats industry (1514). Considerable potential for product upgrading is most notably observed in the soap and detergents sector (2424). For more information, see Table 31.

ECCAS. ECCAS' trade in sugar (1542) is highly specialised and focuses on processed, final consumption products, which make up 92.2 per cent of the sectoral composition within the region (compared to only 46 per cent globally). Furthermore, refined petroleum products (2320) as well as precious and non-ferrous metals (2720) and vegetable and animal oils and fats (1514) again show the tendency to be more strongly related to primary and unspecified production processes. For more information, see Table 32.

ECOWAS. For the ECOWAS economies, fabricated metal products are the most crucial RVC in trade volume, followed by refined petroleum products and basic iron and steel. Within the fabricated metal category, intra-regional trade is dominated by generic intermediate consumption goods, constituting almost 99 per cent of all intra-ECOWAS trade. This number is much higher than global trade patterns, where generic intermediate products only make up 28 per cent. At the same time, intra-ECOWAS trade is characterised by a lower degree of processing compared to global patterns. Similarly, ECOWAS member countries predominantly trade final consumption primary goods associated with the refined petroleum sector. While this indicates a low degree of

[20] While intermediate specific commodities only constitute 1.9 per cent of the within sector contribution of other fabricated metal products in CEN-SAD, the corresponding number is 55.6 per cent for the global average. This means that CEN-SAD economies undergo significantly less processing in sector 2899 than their international counterparts.

processing (as primary final consumption products are, by definition, to be consumed by households without further product upgrading), these patterns are similar to what is observed on the global stage. In other words, the possibilities of production upgrading for ECOWAS economies remain limited in the refined petroleum sector if global averages are considered a benchmark. However, at the same time, intra-ECOWAS trade relies more heavily on trade in refined petroleum products than the worldwide average. This result underscores the relative reliance on a sector with limited upgrading potential. For more information, see Table 33.

IGAD. A strong focus on agro-related products characterises Intra-IGAD trade. Three of the top five most critical RVCs (based on trade volume in 2019) belong to this category. In particular, vegetal and animal oils and fats (1514) and grain mill products (1531) are the two most critical food-related commodities traded amongst IGAD economies. Trade in generic intermediate consumption goods accounts for more than 80 per cent of these sectors. Particularly for the grain mill products sectors, this is notably higher than the world average (where intermediate generic consumption goods make up only 20 per cent of trade). Compared to global patterns, intra-IGAD trade is less concentrated in the trade of raw materials *or* more specific commodities. At the same time, it is more pronounced for intermediate generic commodity goods. This observation also holds for basic iron and steel (2710), where intermediate generic goods are traded more frequently within the IGAD region than globally (85.8 per cent vs 75.7 per cent). Generic intermediate consumption also makes up a more substantial bulk in overall trade in the region (6.4 per cent) vis-a-vis international trends (2.1 per cent). For more information, see Table 34.

SADC. The three most dominant value-chains (by trade volume in 2019) in the SADC region are basic precious and non-ferrous metals (2720), basic chemicals (2411) and refined petroleum products (2320). Compared to average global trade patterns, basic precious and non-ferrous metals take up a much more dominant role in intra-SADC trade (18.2 per cent in intra-SADC trade vs 4.7 per cent for the global average). Furthermore, structurally speaking, the sector is mainly characterised by trade in generic intermediates, which take up 96.3 per cent of international trade in this sector and 99.5 per cent for the SADC region. A more distinct pattern that indicates more product upgrading in the SADC region is the basic chemicals sector (2411). There, SADC countries trade overwhelmingly in specific intermediates (98.4 per cent) and less in generic intermediates (1.4 per cent) compared to the global average (90.5 and 9.5, respectively). Compared to the worldwide average, specific intermediate consumption goods also account for a much higher share in overall manufacturing-related trade (9.0 per cent for the SADC region vs 2.7 per cent globally). This indicates a higher degree of specialisation of within-SADC trade and a higher degree of coordination and integration of production processes across the region. Other relevant RVCs are motor vehicles (3410), basic iron and steel (2710), chemical products (2429) as well as wearing apparel (1810). For more information, see Table 35.

UMA. The two RVCs that are identified for the UMA region are refined petroleum products (2320) and basic iron and steel (2710). In line with global patterns, refined petroleum product trade within the UMA region is dominated by primary final consumption goods, i.e. commodities, that reach the final consumer without further processing or product upgrading. On the global stage, such trade accounted for 96.9 per cent in 2019. For the UMA region, this share is close to 100 per cent. While there is no big difference in the type of traded commodities between UMA economies and the global average, refined petroleum product trade makes up for a much larger share in intra-UMA trade than globally (48.3 per cent vs 4.7 per cent). Regarding the second relevant RVC of the UMA region, i.e. basic iron and steel (2710), intra-UMA trade is characterised by a lower degree of more specialised intermediate consumption goods (13.9 vs 23.5) and a higher degree of generic consumption goods (86.1 vs 75.7 per cent) than the global average. In terms of traded volume, intra-UMA trade is similar to global average trade. Considered jointly, basic iron and steel trade in the UMA region has a similar economic structure to global trade in this sector. However, it is also subject to less product upgrading and typically produces less specialised commodities. For more information, see Table 36.

4.3 How do the RVCs operate? - The division of labour in key regional value chains

Main findings Section 4.3

1. Depending on the type of goods and degree of complexity, different countries serve as dominant trading hubs within an RVC and region.
2. For unprocessed material or final consumption goods, trade patterns are typically more one-directional (from one country to another) and have weaker intra-regional networks.
3. Notable differences in agglomeration are observed: Depending on the region, certain economies dominate trade and serve as either an attractor of commodities (for example, South Africa in SADC) or export hub (Kenya in EAC or COMESA).
4. Trading networks are typically characterised by either a high degree of duality (two separate and not interconnected groups of countries trading different types of commodities within the same RVC) or concentration (one particular country serving as the main exporter/importer of goods).
5. Well connected and reciprocal relationships between multiple countries trading similar products within the same sector and REC are observed more rarely.

This section delves further into analysing the division of labor among countries in key RVCs across the RECs. It does so by mapping the role within regional value chains of a particular country in Section 4.3.1 before analysing the division of labour between supply and processing hubs in Section 4.3.2.

4.3.1 Mapping of country roles within regions

This section identifies the role of a particular country within the regional value chains of the RECs. The visual vehicle to summarise the main results of this chapter is introduced in box 4. For each REC, a network figure of the RVC with the highest trade share is shown for this section. Furthermore, for each REC, a table of the most significant five RVCs in terms of their trade volume is produced in appendix C.3.

Box 4: Analytical vehicle 2: Network graph.

The network graph is a visual vehicle to summarise trade flows between different countries. In Figure 36, the arrows are drawn in the direction of the respective goods flow (exports) of all Intra-CEN SAD trade in sector *2423 - Pharmaceuticals*. The different panels differentiate trade in this sector by the degree of processing. From left

to right, these are *primary intermediate consumption*, *generic intermediate consumption*, *specific intermediate consumption*, *processed final consumption* as well as *primary final consumption*. The first four panels depict the typical value-added chain process and follow the conceptualisation as well as colour coding of Figure 2. For the network analysis, only trade streams that exceed at least 4 per cent of total regional trade by sector and degree of processing are recorded.

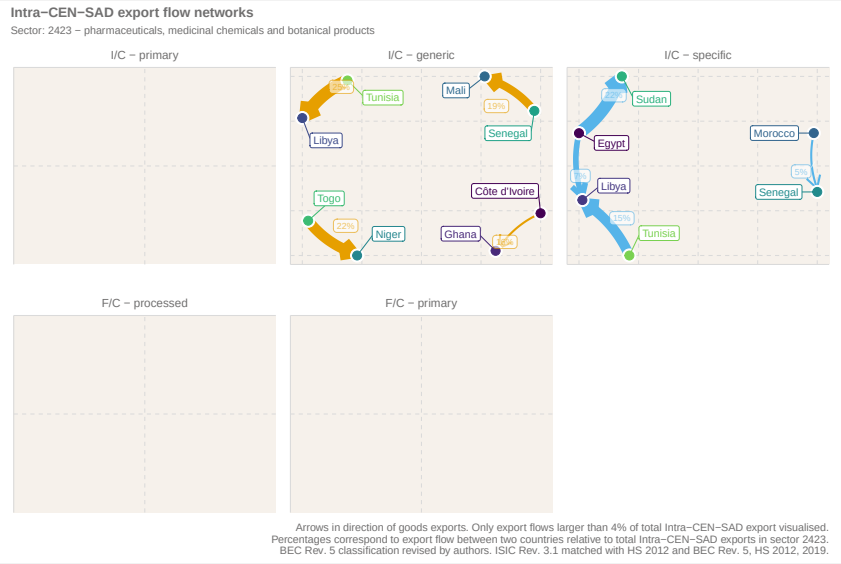
In the particular example, only generic and specific intermediate consumption goods in Intra-CEN SAD trade are identified, with trade flows surpassing the 4 per cent threshold. Only unilateral flows (from one country to another) are observed for generic intermediate consumption goods. In contrast, Egypt serves as an export hub with strong ties to Sudan and Libya for specific intermediate consumption goods, while Libya is also receiving specific intermediate pharmaceutical products from Tunisia. The same information visualised in Figure 36 can also be presented in a simple table; see Table 4.[a]

For each REC, a network figure of the RVC with the highest trade share is shown for this section. Furthermore, for each REC, a table of the most significant five RVCs in terms of their trade volume is produced in appendix C.3.

Table 4: Regional Value Chain differential: Global vs CEN-SAD

		Share in traded commodity by degree of processing	
Reporter	Partner	I/C - generic	I/C - specific
Côte d'Ivoire	Ghana	16	
Egypt	Libya		7
	Sudan		22
Morocco	Senegal		5
Senegal	Mali	19	
Togo	Niger	22	
Tunisia	Libya	25	15

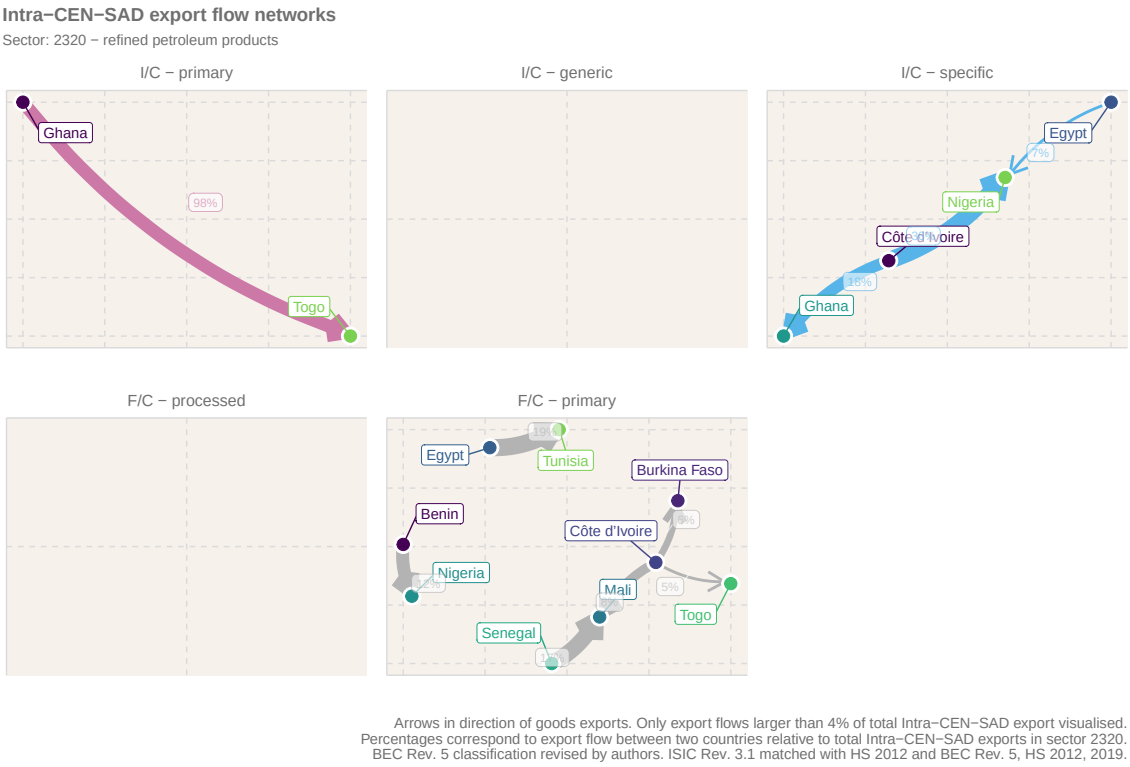
Figure 36: Analytical vehicle 3: Network graph



[a]Sector selection: Top ISIC Rev. 3.1 4-digits with the highest absolute trade volume selected. Only country-level trade is more extensive or equal than 4 per cent of sector-level trade is highlighted. Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (CEN-SAD) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

CEN-SAD. Trade in refined petroleum products (2320) is concentrated in primary and specific intermediate consumption products as well as final primary consumption. The most substantial trading ties can be observed for the specific intermediate consumption category, where Cote d'Ivoire serves as an export hub to Ghana and Nigeria. Cote d'Ivoire is also a notable trading hub for primary final consumption products. It trades with Burkina Faso, Mali, and Togo. For primary final consumption goods, a strongly fragmented trading network is also visible. Only Cote d'Ivoire exports primary final consumption goods to more than one destination, and only Mali receives such commodities from more than one exporting partner (Cote d'Ivoire and Senegal). Any other trading patterns are only dual and one-directional. For more information and details on other key RVCs of the region, see Table 37.

Figure 37: Intra-CEN-SAD regional value chain division

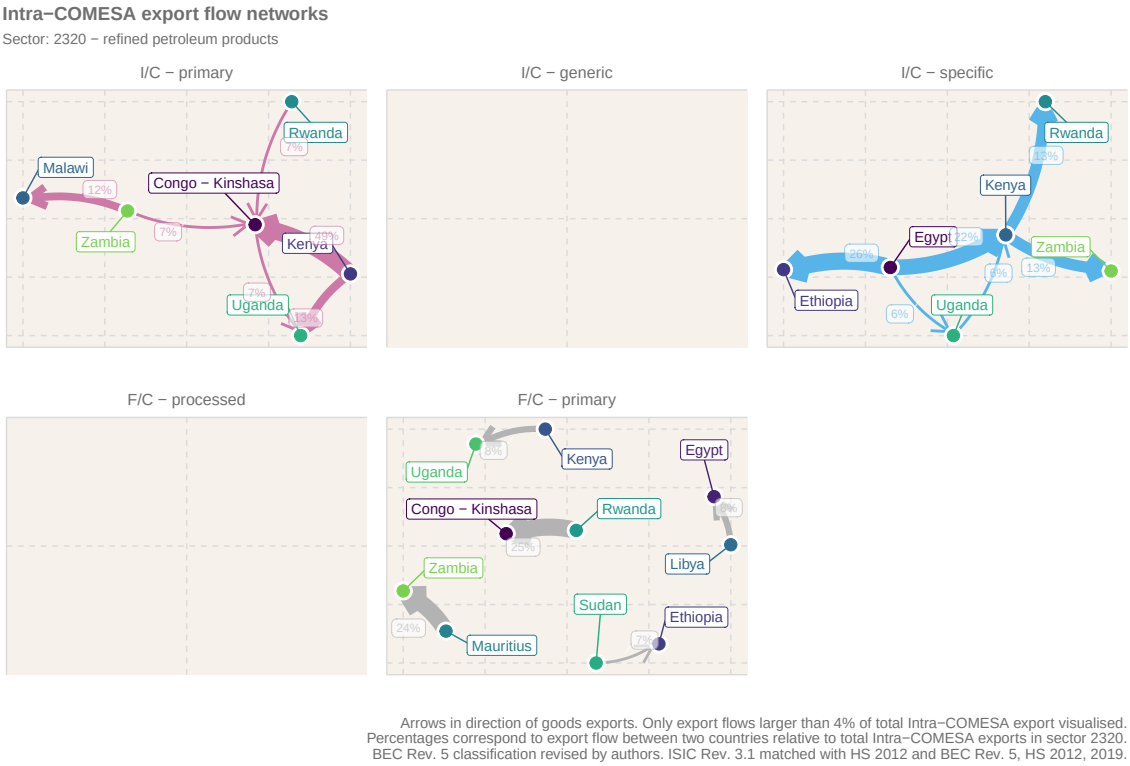


Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

COMESA. Refined petroleum product trade in the COMESA region varies depending on the degree of processing. DR Congo (Congo - Kinshasa) is a central import hub for primary, intermediate goods, which receives primary refined petroleum from three origins (Rwanda, Kenya and Zambia). For more specialised intermediate consumption goods, both Kenya and Egypt are central exporting hubs accounting for around 75 per cent of total intermediate consumption trade in the COMESA region. The respective destinations are Ethiopia, Uganda and Kenya for the case of Egypt, as well as Zambia, Rwanda and Uganda for Kenya. The analysis indicates a lack of any

notable and complex trade network for unprocessed final consumption products. Any other type of trade is one-directional and only includes separate country pairs. For more information and details on other key value chains of the region, see Table 38.

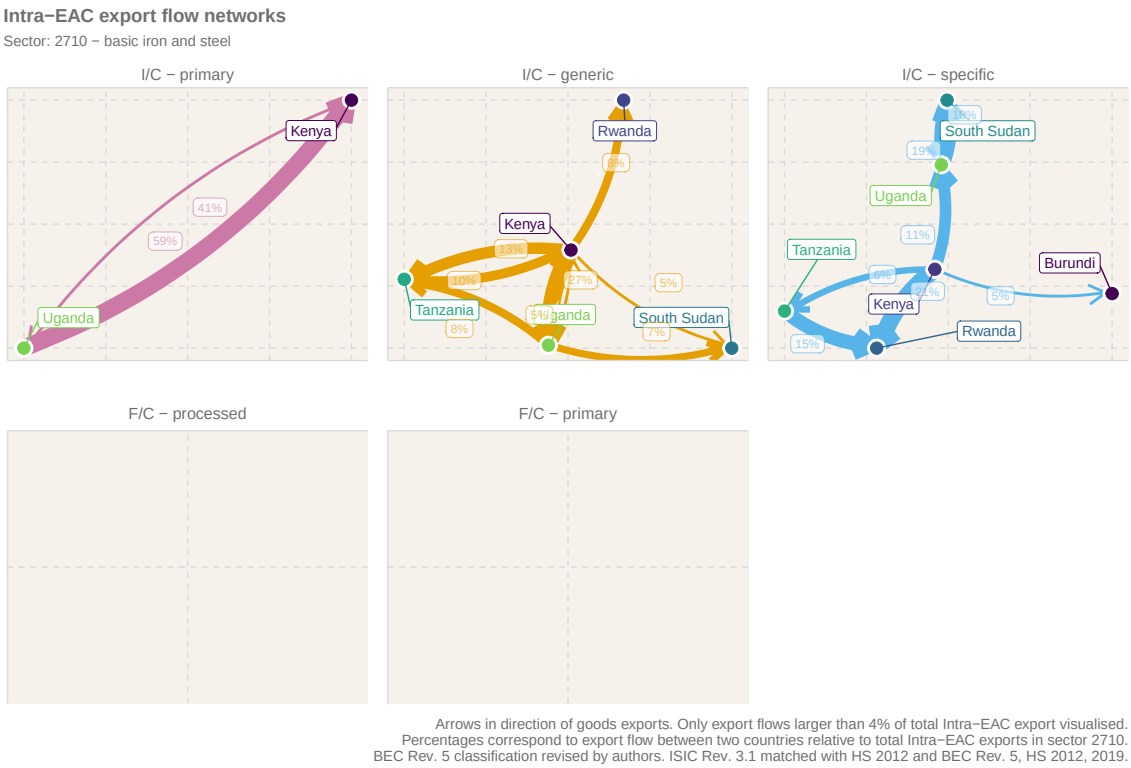
Figure 38: Intra-COMESA regional value chain division



Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

EAC. Kenya dominates the EAC region's basic iron and steel trade along the value-added production chain. Kenya and Uganda form a reciprocal relationship in trading the vast bulk of these commodities among EAC economies for primary, intermediate consumption goods. Kenya serves as an essential export hub for more processed, generic products. The country is exporting around 1/3 of commodities into the EAC region. Strong bi-directional trading ties further exist between Kenya and Tanzania. At the same time, Uganda serves as an export hub itself, with its trade to South Sudan and Tanzania making up 15 per cent of the total trade of generic intermediate consumption goods within the EAC region. For specific intermediate consumption products, one can observe a robust trading network between Kenya, Tanzania and Rwanda, accounting for around 43 per cent of total inter-regional trade in this sector and commodity type. Further strong trading ties are upheld between Uganda and South Sudan and Kenya and Uganda. For more information and details on other key value chains of the region, see Table 39.

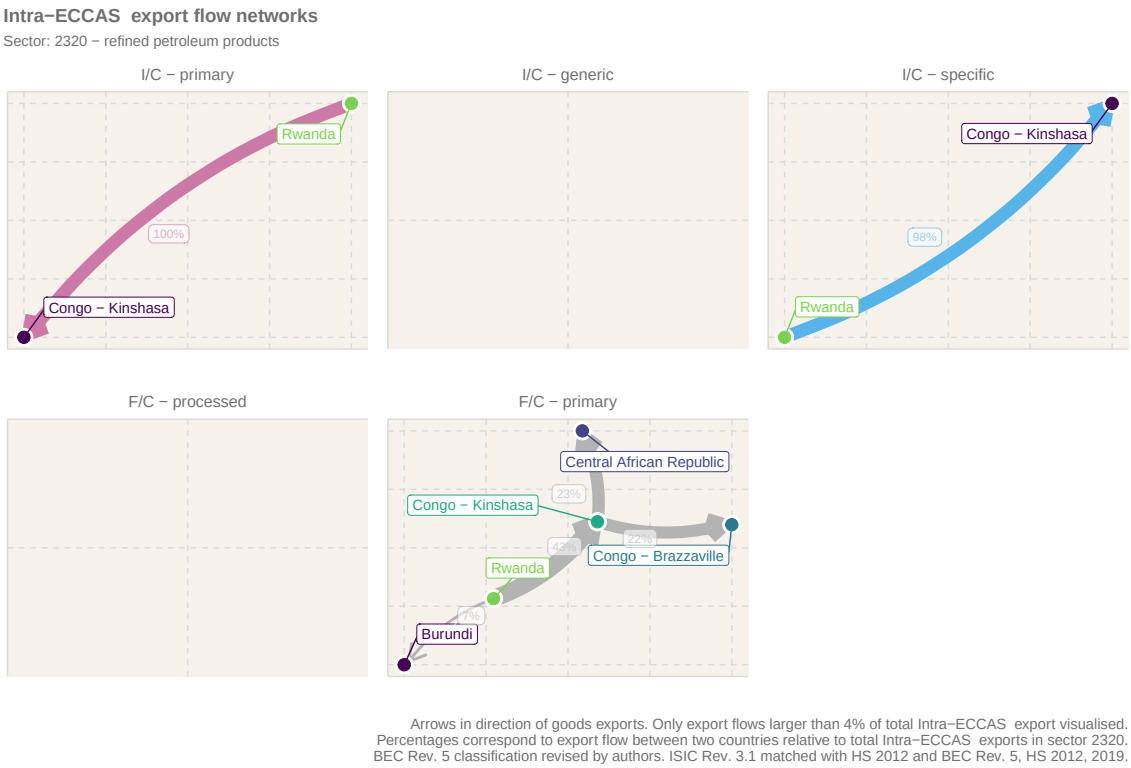
Figure 39: Intra-EAC regional value chain division



Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

ECCAS. Trade in refined petroleum products in ECCAS is concentrated between Rwanda and DR Congo (Congo-Kinshasa). This pattern is true for primary final consumption goods and primary and specific intermediate goods. The most vital trade flows are between Rwanda and DR Congo for the latter two. Rwanda also remains an essential trading partner for DR Congo for primary final consumption goods. However, it also upholds strong trading ties with the Central African Republic and the Republic of the Congo (Congo - Brazzaville). For more information and details on other key value chains of the region, see Table 40.

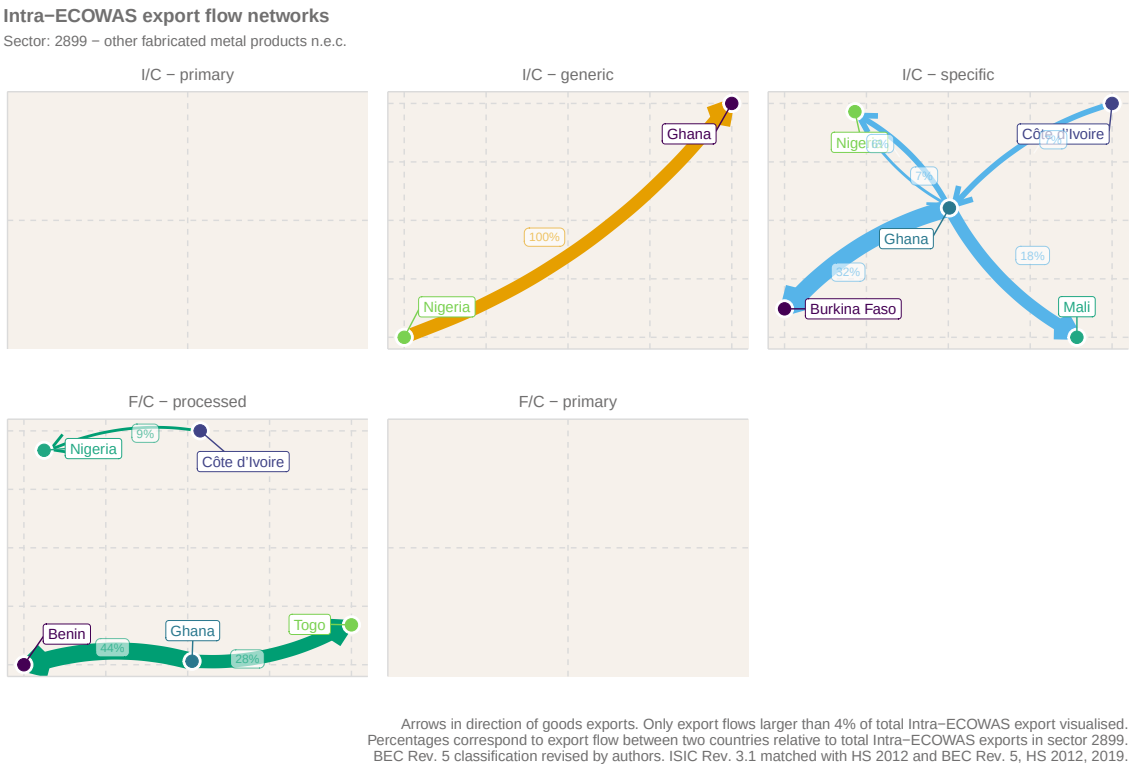
Figure 40: Intra-ECCAS regional value chain division



Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

ECOWAS. Ghana is the central trading hub for fabricated metal products in the ECOWAS region along the value-added chain. While almost all trade in generic intermediate consumption goods in that sector happens from Nigeria to Ghana, specific intermediate consumption commodities are traded more evenly between Ghana and Nigeria. At the same time, Ghana serves as an important export hub for specific intermediate consumption goods where it is responsible for around 60 per cent of total trade (to Mali, Burkina Fason and Nigeria). Also, Ghana accounts for approximately 75 per cent of the total intra-ECOWAS trade for the finalised processed commodities. These results indicate that Ghana plays a notable role in the value-added upgrading along the fabricated metal RVC in the ECOWAS region. For more information and details on other key RVCs of the region, see Table 41.

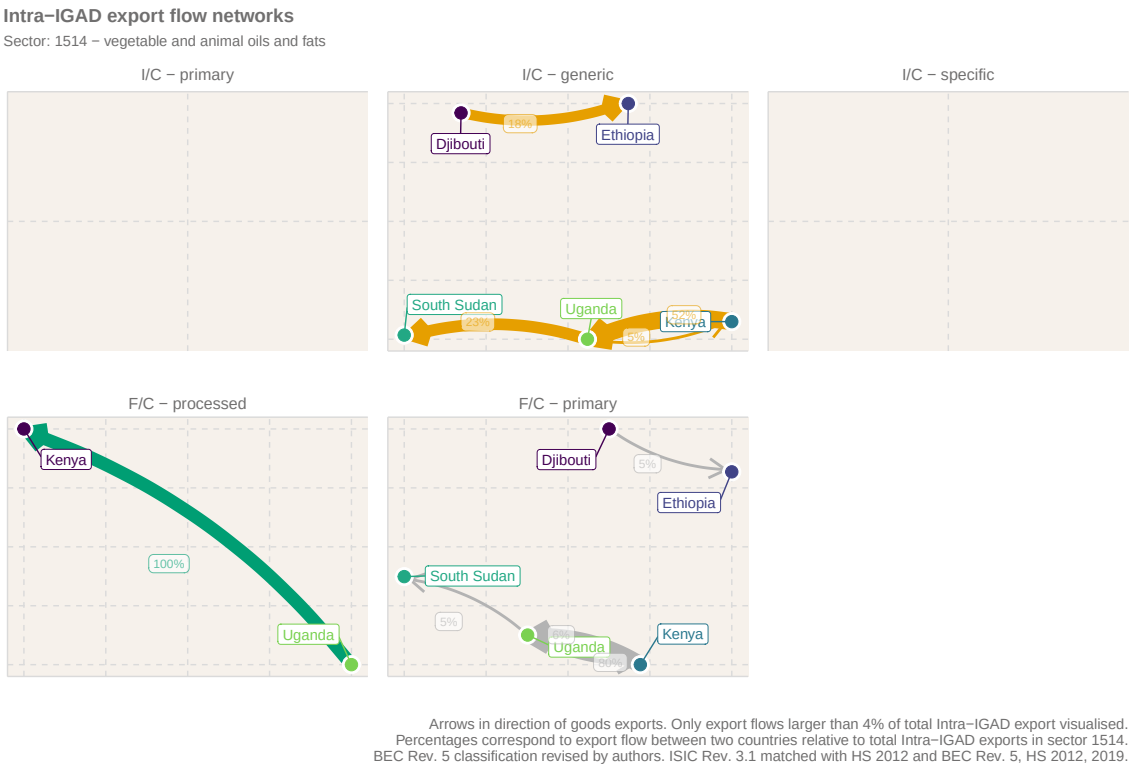
Figure 41: Intra-ECOWAS regional value chain division



Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

IGAD. A substantial duality characterises the vegetable and animal oils and fats RVC (1514) with two trading centres for intermediate generic and final processed and primary products. These three goods types have strong trading ties between Uganda and Kenya. These linkages also extend to South Sudan for generic intermediate and final primary products. Additionally, a separate trading relation between Djibouti and Ethiopia is observed for primary final consumption goods and generic intermediate consumption commodities. This result is indicative of a strong economic bond between Kenya and Uganda along the value-added chain for vegetable and animal oils and fats commodities. Uganda imports generic intermediate items (from Kenya) and exports final processed commodities back to Kenya. Such commodity upgrading ties are less visible for other economies of the IGAD region. For more information and details on other key RVCs of the region, see Table 42.

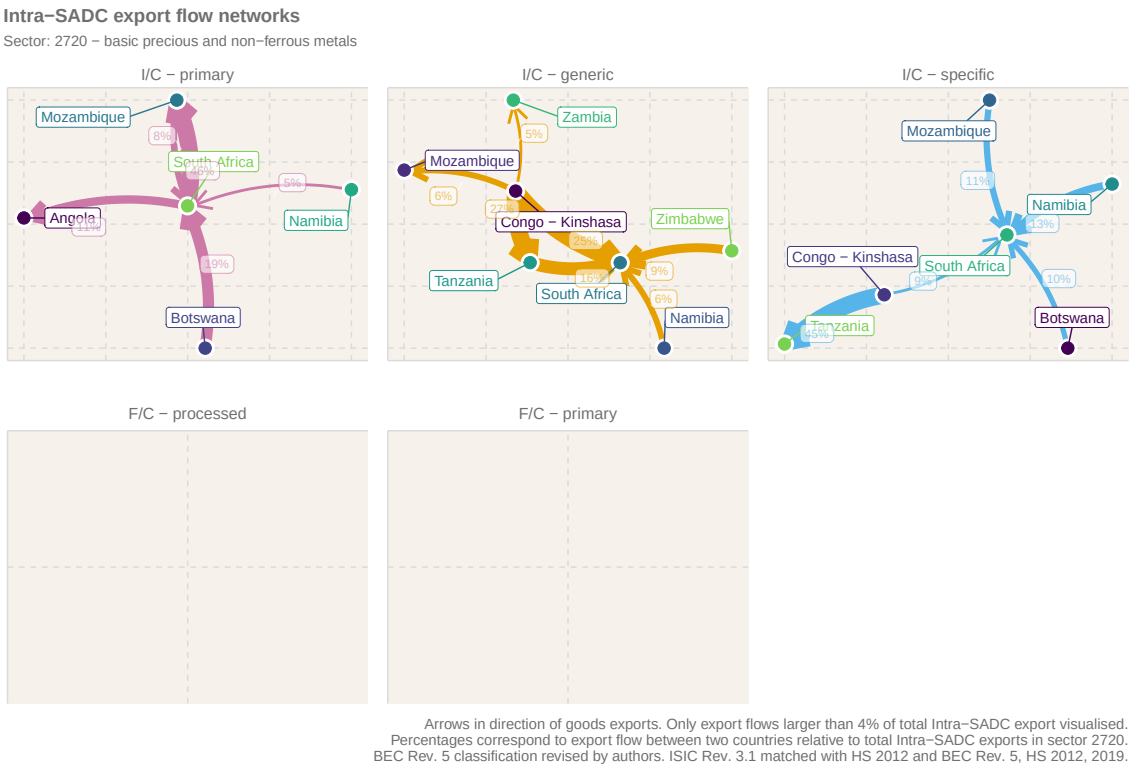
Figure 42: Intra-IGAD regional value chain division



Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

SADC. Trade patterns for the basic precious and non-ferrous metals sector (2720) in the SADC region are characterised by an intense trade concentration into South Africa along the value-added chain. While Mozambique, Namibia and Botswana are the most notable importer of primary, intermediate consumption goods into South Africa. At the same time, South Africa also constitutes the most notable exporter of primary, intermediate consumption goods to Mozambique, with 46 per cent of associated intra-SADC trade. DR Congo (Congo - Kinshasa) accounts for around 2/3 of all intra-SADC exports for generic intermediate consumption goods. The most prominent trading destinations are Tanzania (27 per cent), followed by South Africa (25 per cent) as well as Mozambique (6 per cent) and Zambia (5 per cent). Being the central importing hub, South Africa receives a further 16 per cent of the trade from Tanzania and 9 per cent from Zimbabwe and 6 per cent from Namibia. For specific intermediate consumption goods, a strong centralisation of trade flows to South Africa (approximately 45 per cent of sector-specific trade coming from Mozambique, Botswana, Namibia and DR Congo) and Tanzania (45 per cent from DR Congo) are observed. To this extent, DR Congo (Congo - Kinshasa) constitutes the most pronounced exporting hub of generic and specific intermediate goods with strong trading ties to Tanzania and South Africa. For more information and details on other key RVCs of the region, see Table 43.

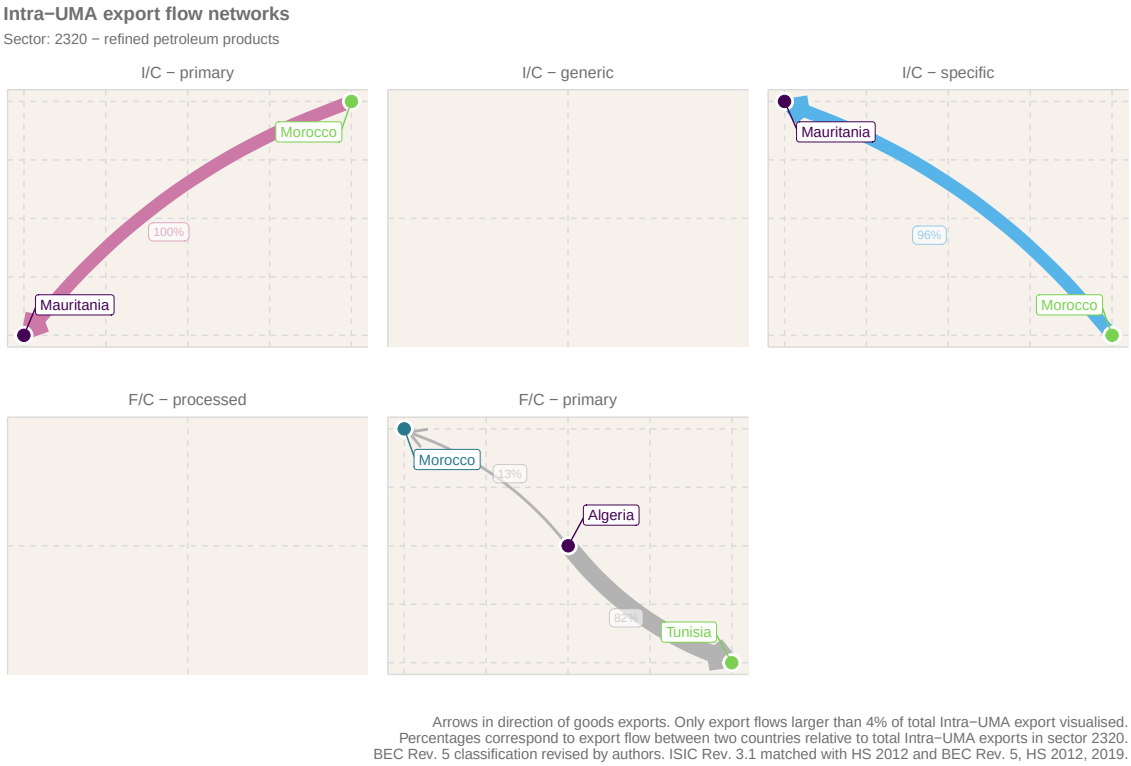
Figure 43: Intra-SADC regional value chain division



Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

UMA. Most of the trade of primary and specific intermediate consumption products of sector 2320 - refined petroleum products occurs between Morocco and Mauritania in the UMA region. For primary consumption commodities of the same sector, Algeria serves as the most pronounced export hub with solid ties to Tunisia (82 per cent of primary final consumption trade of refined petroleum products (2320) in the UMA region takes place between these two countries) as well as Morocco (with 13 per cent). For more information and details on other key RVCs of the region, see Table 44.

Figure 44: Intra-UMA regional value chain division



Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.

Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

4.3.2 Division of labour between supply and processing hubs

This section provides a more detailed analysis of the intra-regional division of labour and is a logical continuation of the previous section. It offers a visual and descriptive summary of the *largest and most interconnected* RVC[21]. Alternative ways to break down the division of labor within an RVC even further are possible. For example, box 5 provides a snapshot of an alternative route by illustrating the division of labour along the plastic RVC. While a more detailed and granular study on the division of labour between supply and processing hubs as highlighted in box 5 may be highly informative, this would go well beyond the scope of the present report and will be left for future work on this topic.

CEN-SAD. Within the CEN-SAD region, a strong duality in the RVCs of fabricated metal products (2899) can be observed. On the one hand, Ghana serves as a vital processing hub. It imports most generic intermediate consumption goods from Nigeria and exports either further processed specific intermediate goods to Burkina Faso or final consumption goods to Benin and Togo. A completely separate value-added chain becomes visible, with Egypt as the most dominant player responsible for approximately 50 per cent of intra-CEN-SAD trade in processed, final fabricated metal products (to Sudan, Morocco and Libya) and 20 per cent of trade in specific intermediate goods. A more extensive trading network in intermediate final consumption goods is observed among the North African economies of Egypt, Libya, Tunisia and Morocco, the latter of which also entertains extensive export trade with Cote d'Ivoire. For more information and details on other key RVCs of the region, see Table 37.

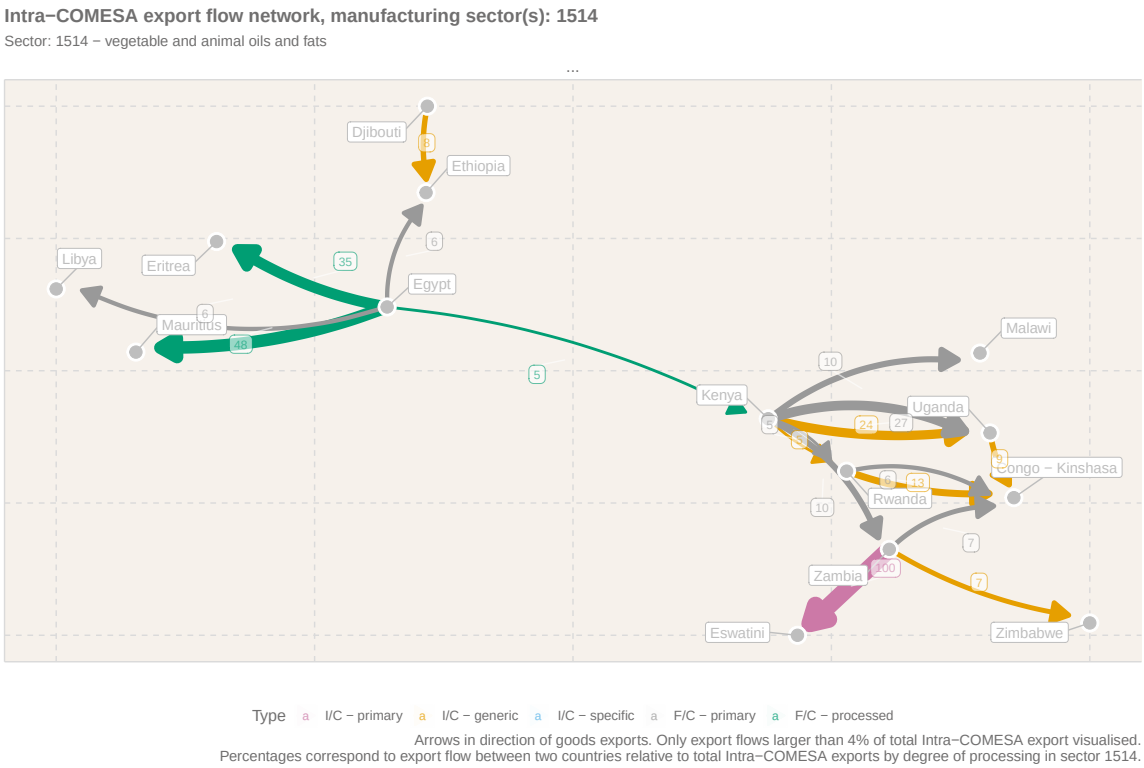
[21]The term "interconnected" refers to the number of times a particular country within a REC is identified as a trading hub based on the degree of processing of commodities associated with a specific ISIC Rev. 3.1 IV-digit sector. The term "largest" refers to the same filtering process described in box 4.

Figure 45: Intra-CEN SAD regional value chain division

Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

COMESA. Within the COMESA region, trade in the vegetable and animal oils and fats sector (1514) is highly centred around three export hubs, i.e. Egypt, Kenya and Zambia. Around 85 per cent of processed final consumption trade within the COMESA region embarks from Egypt (with destinations Eritrea with 35 per cent and Mauritius with 48 per cent). The remaining exports of Egypt are of final unprocessed commodities and are due to Libya and Ethiopia. For these kinds of items, Kenya is the most notable export hub of the COMESA region as it entertains strong trading ties with Malawi, Uganda and Rwanda. However, Kenya trades not only raw final consumption commodities with these economies but also generic intermediate consumption products. The most considerable export stream of said commodities is between Kenya and Uganda. It accounts for roughly 1/4th of the total trade of this particular type of commodity. An additional noteworthy export hub is Zambia, that trades primary intermediate consumption goods very heavily with Eswatini. It also entertains export ties with Zimbabwe and DR Congo. The analysis reveals that instead of particular countries being processing centres at different stages of the value-added chain, a handful of countries are identified as processing hubs trading commodities that vary by their degree of processing with various intra-regional partners. For more information and details on other key RVCs of the region, see Table 38.

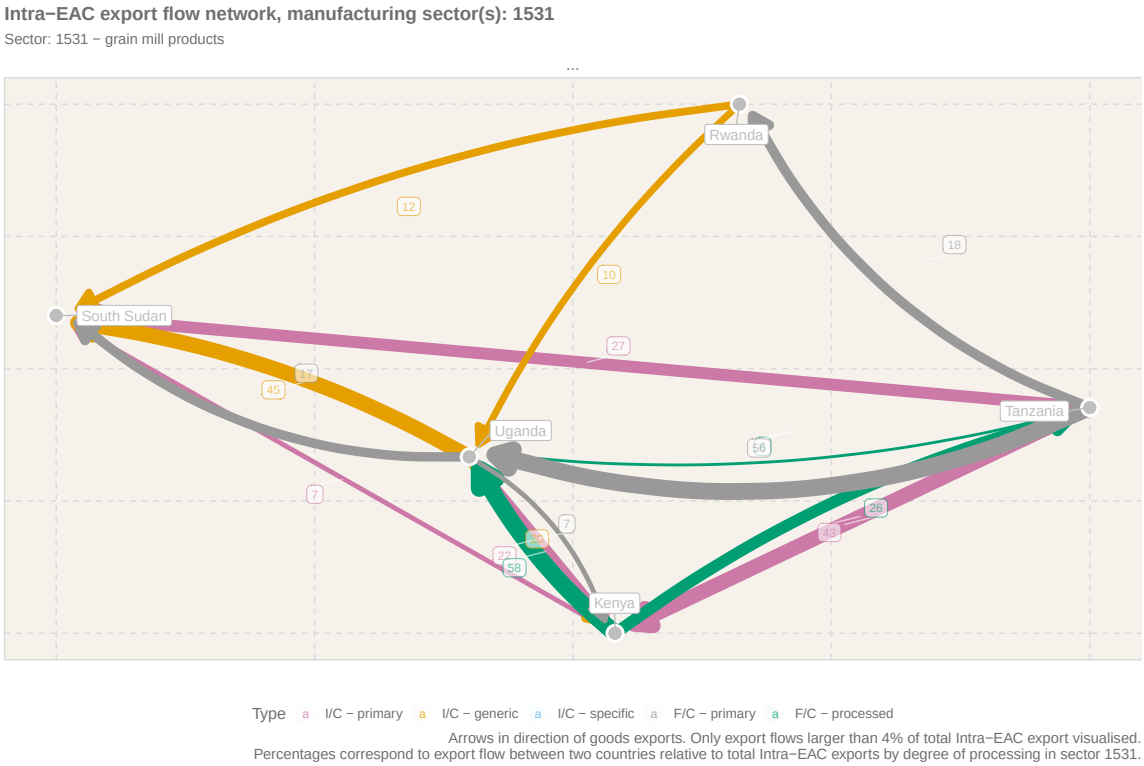
Figure 46: Intra-COMESA regional value chain division



Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

EAC. Intra-EAC trade in the grain mill products RVC (1531) is characterised by complexity. The main buyers of primary commodities that are part of the grain mill products RVC are Kenya and South Sudan. In both cases, the trading partner is Tanzania which accounts for 70 per cent of primary, intermediate consumption goods of grain mill commodity exports in the EAC region. At the same time, Kenya itself is responsible for the remaining 30 per cent of this type of trade to Uganda. The importance of Kenya as a critical trading and processing hub in this sector is underscored by the observation that the vast majority of trade in processed final consumption goods (over 80 per cent) within the region originates in Kenya and is either bound for Tanzania or Uganda. Other significant exporters of generic intermediate consumption goods are Uganda and Rwanda, which account for roughly 2/3 of trade of this commodity type within the EAC region. For more information and details on other key RVCs of the region, see Table 39.

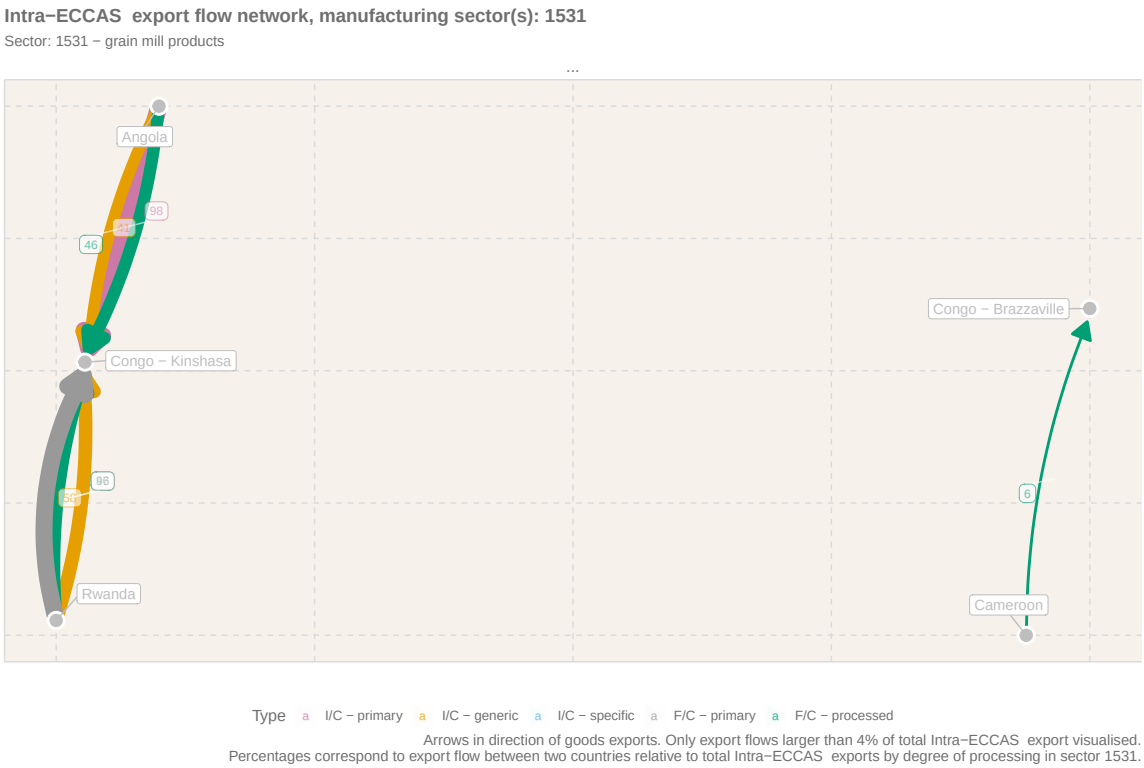
Figure 47: Intra-EAC regional value chain division



Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

ECCAS. Compared to the EAC region, the trade network for ECCAS economies in the grain mill products sector (1531) is not characterised by a strongly interconnected grid. Instead, it is characterised by two very distinct and isolated import streams. Most notable is the firm reliance of DR Congo on imports of final and intermediate (generic) consumption goods from Rwanda and Angola. Instead of a well-functioning interconnected trading network, the dynamics visualised in Figure 48 depict a substantial reliance of DR Congo on grain mill product imports associated with various degrees of processing from its inter-regional partners. For more information and details on other key RVCs of the region, see Table 40.

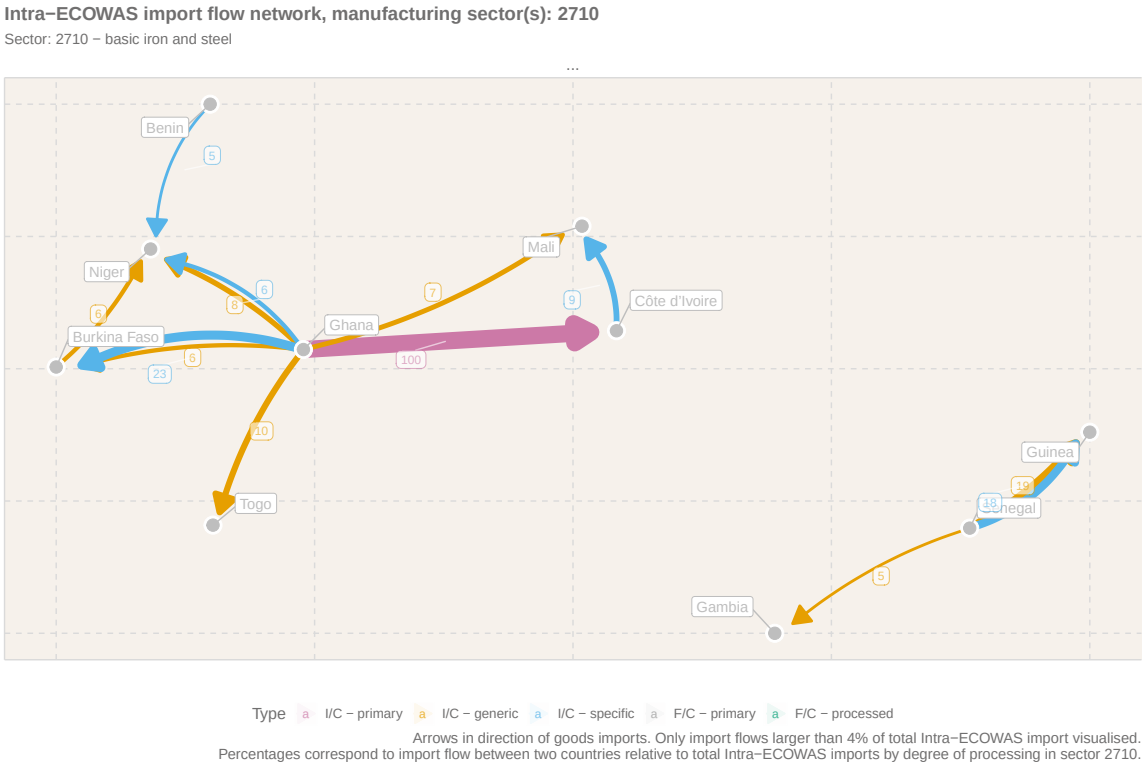
Figure 48: Intra-ECCAS regional value chain division



Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

ECOWAS. Ghana is the most notable export hub in the ECOWAS region within the basic iron and steel sector. It accounts for almost all trade in primary intermediate consumption commodities (to Cote d'Ivoire). It also exports around 30 per cent of generic and specific intermediate consumption products to the regional market. While Ghana possesses the production capacities to transform basic iron and steel products along the value-added chain, little product processing is happening outside of Ghana. The only exception to this observation is Cote d'Ivoire, which accounts for around 9 per cent of specific intermediate consumption trade. For more information and details on other key RVCs of the region, see Table 41.

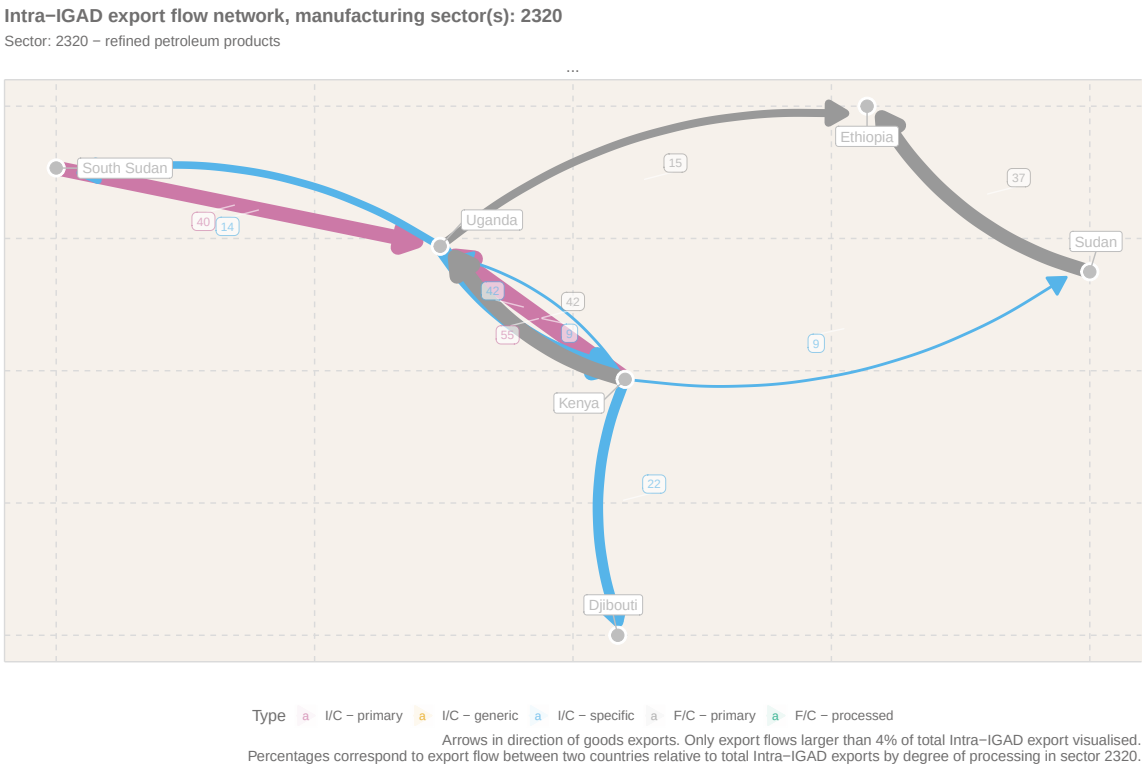
Figure 49: Intra-ECOWAS regional value chain division



Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

IGAD. Central trading hubs for refined petroleum products within the IGAD region are Uganda and Kenya, which account for the vast majority of primary (intermediate and final consumption) trade. Both these countries trade amongst themselves and are responsible for around 50 per cent of specific intermediate consumption trade across all IGAD economies. Most notably, the only two economies exporting semi-processed petroleum products within the IGAD region are the afore-mentioned Uganda and Kenya. All other economies with notable trade streams in the areas either export primary intermediate consumption goods (South Sudan) or final primary commodities ready for consumption (Uganda and Sudan). This observation highlights the reliance of the IGAD region on a small number of centralised processing hubs for intra-regional value-added upgrading in the refined petroleum products sector. For more information and details on other key RVCs of the region, see Table 42.

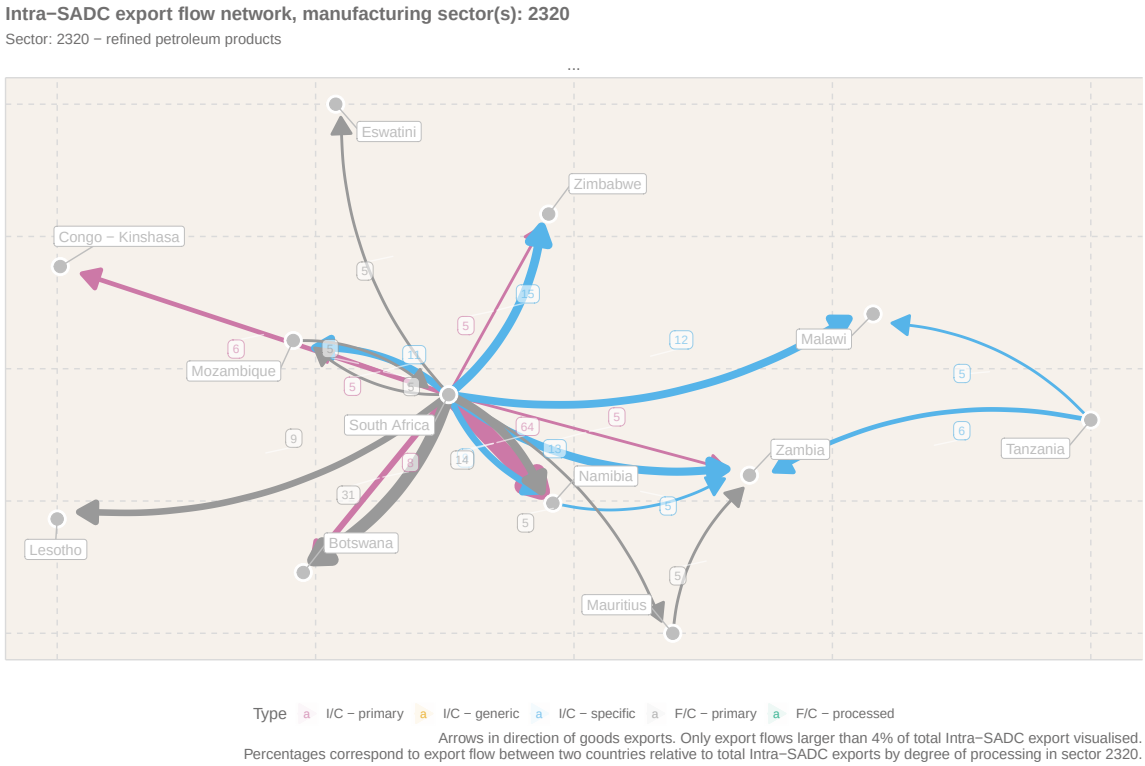
Figure 50: Intra-IGAD regional value chain division



Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

SADC. The refined petroleum products sector (2320) in the SADC region is characterised by a high degree of centrality where South Africa is the leading exporter of primary and intermediate processed goods. It entertains strong trading bonds with Botswana, Eswatini, Lesotho, Mozambique, DR Congo, Zimbabwe, Namibia, Zambia and Malawi. The only other notable export notes within the SADC regions are Mauritius and Tanzania. The latter accounts for a substantial share of 11 per cent of specific intermediate consumption goods exports to Malawi and Zambia. A further particular feature of the refined petroleum products sector is that trade in (semi-) processed commodities is initiated by either South Africa or Tanzania. For more information and details on other key RVCs of the region, see Table 43.

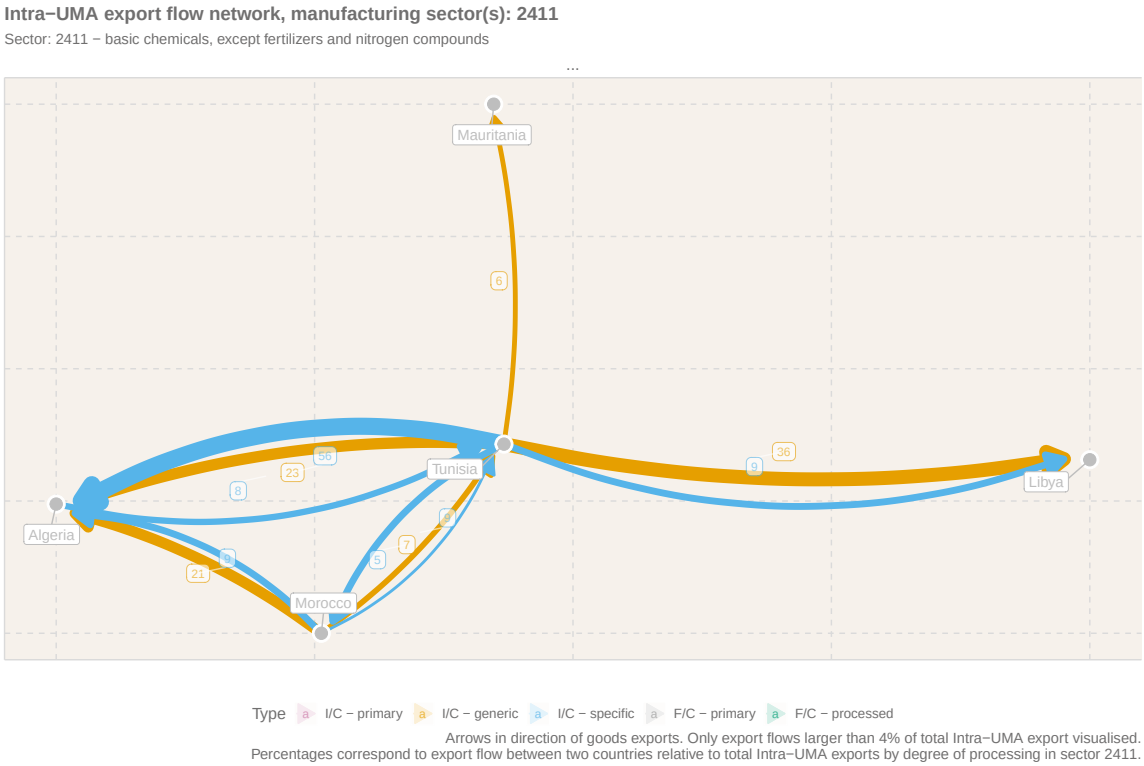
Figure 51: Intra-SADC regional value chain division



Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

UMA. Strong inter-regional trading ties in the basic chemicals sector (2411) are observed between Algeria, Morocco and Tunisia. These three economies trade extensively in generic and specific intermediate consumption products. Trade from Tunisia to Algeria accounts for 23 (56) per cent of generic (specific) intermediate consumption trade in basic chemicals across the UMA region. Besides their strong interlinkage, Tunisia also serves as an extended export hub to other countries, i.e., Libya and Mauritania. For more information and details on other key RVCs of the region, see Table 44.

Figure 52: Intra-UMA regional value chain division

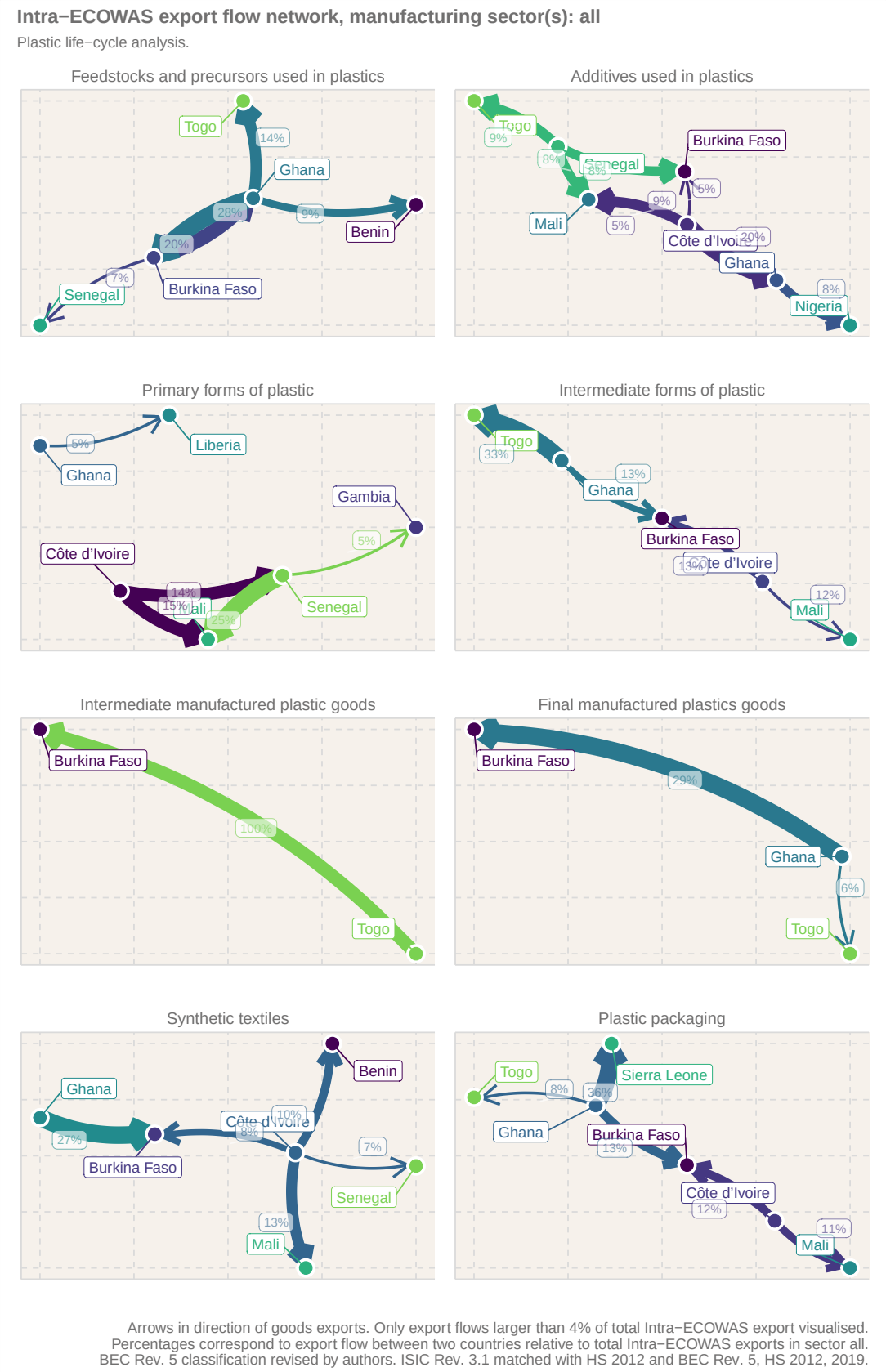


Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

Box 5: Division of labor along the plastic RVC (alternative method).

Section 4.3.2 has analysed the division of labour by evaluating the extent to which certain countries trade certain commodities depending on their degree of processing. An alternative route is to categorise certain traded items by their degree of processing *within a specific group of products*. For such an approach, very detailed information on the respective production processes of the analysed products is needed. While such a thorough and granular analysis is highly insightful, it would go beyond the scope of the present study and is therefore left for future work on this topic. However, this box illustrates the potential of such a granular analysis. For illustrative purposes, it provides a snapshot of such an analysis. It follows the work of (Barrowclough et al., 2021) to capture the breadth of trade across the life cycle of plastic by categorising the corresponding HS codes by stages of the plastic life cycle. The plastic life-cycle includes, among others, the following categorisations: (1) Feedstocks and precursors used in plastics; (2) Additives used in plastics; (3) Primary forms of plastic; (4) Intermediate forms of plastic; (5) Intermediate manufactured plastic goods (6) Final manufactured plastics goods; (7) Synthetic textiles; (8) Plastic packaging; Note that the categories (1) to (6) follow the progression of the plastic production cycle from raw materials to final manufactured products as laid out in (Barrowclough et al., 2021). On the other hand, categories (7) and (8) are to be considered more specific and separate plastic product categories. Figure 53 illustrates the plastic RVC for ECOWAS.

Figure 53: The ECOWAS plastic RVC



Arrows in direction of goods exports. Only export flows larger than 4% of total Intra−ECOWAS export visualised. Percentages correspond to export flow between two countries relative to total Intra−ECOWAS exports in sector all. BEC Rev. 5 classification revised by authors. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

4.4 Which new RVCs could emerge? - Identification of unused potential for RVCs

Main findings Section 4.4

1. Size: For most RVCs, international trade by and large dwarfs intra-regional trade in terms of size.
2. Different kind of trading ties: Within a REC, different economies are more present in intra-regional vs international trade. Internationally present African economies typically form hubs and entertain stronger export relations with multiple global economies. This is generally true for more advanced African economies.
3. High degree of reliance: The formation of "global trade tandems" is commonly observed. In this case, one African economy exports to one isolated outside economy. REC-to-global network ties (where multiple REC members export to the same global economies) are rarely observed.
4. Even within successful regional trading networks, RVC-type trade is often limited to a particular kind of commodity. Accordingly, future potential for better trade integration exists and is particularly salient for more high-value components in the agro- and extractive sector.
5. Future, potential RVC, as highlighted in Section 4.4.2 with their respective industry codes, based on their degree of trade interactions are:[a]

   - **CEN-SAD:** Wearing apparel and textile sector, as well as the agro- and extractive industries.
   - **COMESA:** Wearing apparel, chemicals and the mineral sector.
   - **EAC:** Agro- and extractive sectors.
   - **ECCAS:** Agro-food as well as leather and extractive industries.
   - **ECOWAS:** Agro-sector as well as wearing apparel and minerals.
   - **IGAD:** Leather, extractive sector and medium/high-tech sectors including chemicals and machinery and equipment.
   - **SADC:** Textile and leather industries and the extractive sector.
   - **UMA:** Agro-food and basic chemicals.

[a] Note that these patterns are in line with research on structural change which highlights the relevance of the agro/food sector as well the wearing apparel industries at earlier stages of economic development (Haraguchi and Amann, 2020). The mineral and extractive sector furthermore offers great potential for African economies as a result of their resource endowment and current global trade networks.

The earlier sections of this study have focused on mapping the currently existing RVCs in each REC. However, transformative industrial policy needs to look beyond the status quo and also consider future potentials for industrialization that have not yet been exploited. To contribute to answering the question *"Which new RVCs could emerge in each region in the future?"*, this section

presents an analysis of additional potential for the development of RVCs across African RECs. It starts with identifying potentials for shifting current Global Value Chain connections of REC member states towards regional value addition. In a second step it looks at potentials for RVCs to substitute current import products of RECs.

Future, potential RVCs in each REC can be identified by looking at tables 7 to 12 in Section 4.4.2 which highlight the commodity-specific trade interactions of each REC with non-REC economies. In other word,s these tables summarise, which commodity type within a particular REC experiences the most notable goods transfer (export out of REC of one commodity type and import from outside the REC of the same commodity type); see box 7 for a more detailed discussion on the proposed methodology.[22]

A note on future RVC development and research

One colossal potential for RVC development lies in processing mining and agriculture commodities in the region. This result has been brought to the forefront by this report, which, however, is only carried out for the *manufacturing sector*. Furthermore, the analysis in Section 4.1 has illustrated that African RECs are a dominant exporter of primary commodities, which typically stand at the beginning of any value-chain type production process.

A more detailed analysis that goes beyond the identification of manufacturing-related RVC trends would therefore be highly beneficial to deepen the understanding of RVC development potentials in Africa and should be eagerly pursued in future work on this topic.

4.4.1 Identifying future RVC potential based on current REC-to-global trade patterns

This section identifies potential options for regional processing integration by comparing intra-REC trading patterns with global trading connections with non-REC economies. This section specifies to what extent regional value chains represent the structure of the respective RECs overall trade and elaborates on any notable differences between intra-REC trade and global trade of a particular REC. For example, a country may only partly integrate into intra-REC trade but trade extensively internationally. In other words, GVCs trump RVCs. Conversely, suppose an economy is successfully integrated into intra-regional trade. In that case, it does not follow that this will also make the country successful on an international level (RVCs do not lead to GVCs). Therefore, understanding the similarities and differences between inter-national and intra-regional trade will shed light on the differences between the different countries' regional and global trading patterns forming part of a REC. This is important as the existence of global trading networks that are currently not linked to any regional value chain may inform the potential of RVC development in the

[22] Note that one could break down this analysis even further identify exactly between which countries these bilateral goods exchanges occur. Given the high level of specificity of such an analysis, such an endeavour would go well beyond the scope of this report and is therefore left for future work. However, some of the most important trading partners by type of commodity can be deduced for each REC and key RVC by considering the results in the tables presented in appendix C.4.1.

future. In particular, REC member states could decide to re-orient their GVC trade towards RVC trade.

Overall it becomes visible that the global value chain integration of all RECs is especially pronounced within resource-based sectors (sectors based on agricultural and mining raw materials). For each REC, the top five value chains with particularly large international ties are identified. In most of these, regional value addition only plays a very minor role today, pointing to significant future potential. Box 6 discusses how the analysis in this section corresponds to previous parts of the report before the next part of this section will discuss one VC per REC in greater detail. A comprehensive set of tables which summarise intra-regional and inter-national trading patterns is provided in appendix C.4.

Box 6: Analytical vehicle 3: Combined network graph.

The analytical vehicle of this section compares intra-REC trading networks with trading relationships respective REC economies have with countries that are *outside* the same REC. For example, a country may only partly integrate into intra-REC trade but trade extensively internationally. Conversely, suppose an economy is successfully integrated into intra-regional trade. In that case, it does not follow that this will also make it successful on an international level. Finally, understanding the similarities and differences between inter-national and intra-regional trade will shed light on the differences between the different countries' regional and global trading patterns forming part of a REC. This distinction is important as the existence of global trading networks that are currently not linked to any regional value chain may inform the potential of RVC development in the future. The analytical tool for this purpose is the *combined network graph* which is illustrated for CEN-SAD's refined petroleum sector (2320) in Figure 54. There, the arrows are drawn in the direction of the respective goods flow (exports) of all CEN-SAD trade in sector 2320 - refined petroleum products that surpass the threshold level of 4 per cent of sector-level trade per type of commodity. The different panels differentiate trade in this sector by the degree of processing for *intra-CEN-SAD trade* in the first row and *CEN-SAD to global trade* in the second row. Differences in the degree of processing are visualised by moving from the panels left to right. These are primary, intermediate consumption, generic intermediate consumption, specific intermediate consumption, processed final consumption, and final primary consumption. The first four panels depict the typical value-added chain process and follow the conceptualisation as well as colour coding of Figure 2.

Figure 54 illustrates that intra-CEN-SAD trading ties are only partly reflective of trading patterns of CEN-SAD economies with their global counterparts. For primary, intermediate consumption commodities, it becomes visible that the most dominant trade stream originating within the CEN-SAD region is from Nigeria to India, with the second-biggest stream being intra-CEN-SAD trade between Ghana and Togo. This result is indicative of a duality between intra-regional and global trade within the CEN-SAD block. One can also observe similar tendencies for specific intermediates and primary final consumption goods, where Egypt is identified as the most prominent CEN-SAD exporter to the global market with few intra-regional trading ties. Note that for the export of primary, final consumption commodities, the idea of identifying *unused potential for RVC development* does not apply as there is no further processing of this type of commodity. As such, results such as the one presented in Figure 54 are there to highlight the potential for better outward-looking integration through a more extensive use of already existing REC-to-global trading ties for multiple REC economies.

The same information visualised in the lower panel of Figure 54 can also be represented in a simple table; see Table 5.[a] There, all non-regional trading partners are highlighted in red. A comprehensive set of tables which summarise intra-regional and inter-national trading patterns is provided in appendix C.4.

Table 5: Regional Value Chain and degree of global integration: CEN-SAD

		Share in traded commodity by degree of processing				
Reporter	Partner	I/C - primary	I/C - generic	I/C - specific	F/C - primary	F/C - processed
2320 - refined petroleum products - trade volume in mil.USD: 3170.						
Côte d'Ivoire	Ghana			9		
	Nigeria			17		
Egypt	Germany			27		
	Malta				9	
	Tunisia				6	
Ghana	Togo	20				
Nigeria	India	78				
Senegal	Mali				6	
Togo	Angola				5	

Figure 54: Analytical vehicle 3: Combined network graph

[a]Sector selection: Top ISIC Rev. 3.1 4-digits with the highest absolute trade volume selected. Only country-level trade is more extensive or equal than 4 per cent of sector-level trade is highlighted. Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (CEN-SAD) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

CEN-SAD. The basic iron and steel sector (2710) in the CEN-SAD region is strongly characterised by a notable difference between intra-REC as well as global trade patterns. On a general note, one can typically describe the trading networks in this sector as somewhat fragmented, with a selective group of countries having one-directional trading relations with other economies and a general lack of trade across the different economies within the REC. This result becomes visible for the intra-CEN-SAD trading networks of generic and specific intermediate goods. However, the same characteristics also come out very notably when considering the global trade patterns of

CEN-SAD economies. For one, Egypt emerges as one of the most important exporters of primary and generic intermediate consumption goods to the global market. Another important economy for global export is Tunisia which exports primary and generic and specific intermediate consumption goods to the world. Another striking observation of the CEN-SAD network of the basic iron and steel sector is that separate CEN-SAD economies seem to entertain close trading ties with separate global economies. For example, Libya is one of the most vibrant exporters of specific intermediate consumption goods among the CEN-SAD economies with robust ties to Turkey. At the same time, Tunisia trades very heavily with France and Serbia. Across all analysed VCs, global trade heavily dominates intra-regional trade in the CEN-SAD region. For more information and details, see Table 45.

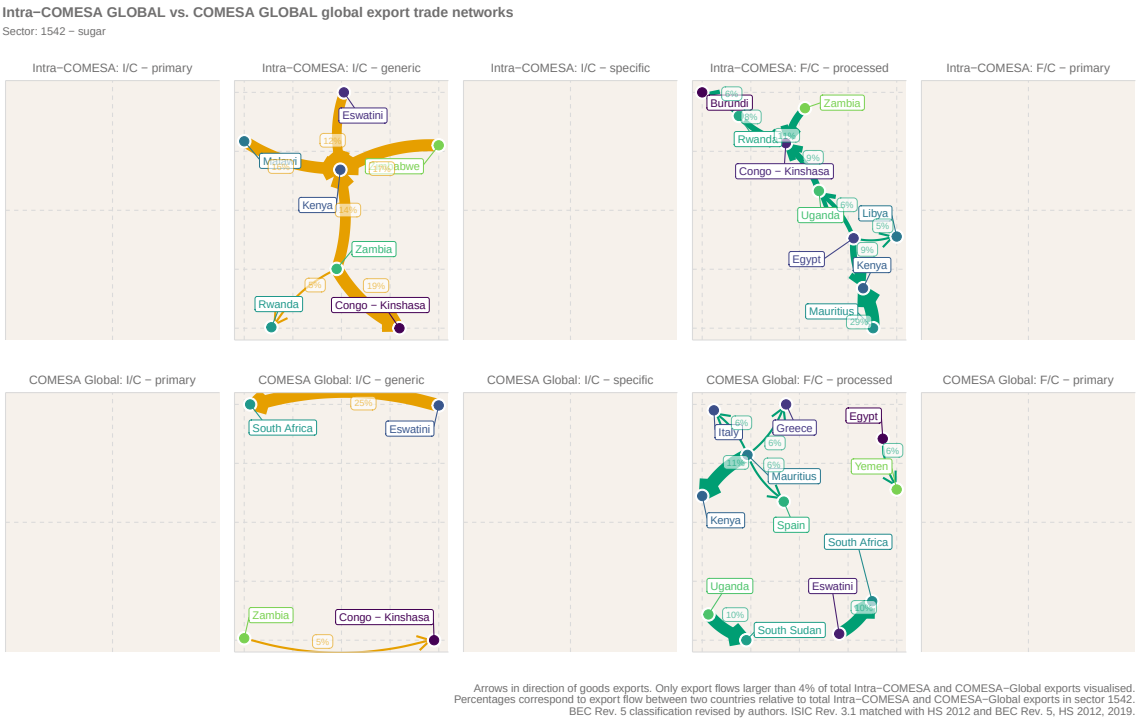
Figure 55: Intra-CEN SAD vs global value chains

Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) reclassification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

COMESA. Intra-COMESA trade in sugar (1542) is characterised by solid import inflows into Kenya. This pattern is particularly pronounced for intermediate generic commodities where the country draws from four intra-regional sources (Eswatini, Malawi, Zambia and Zimbabwe). The most notable export hub of that goods category is Zambia which exports to three regional economies. At the same time, the global trade of COMESA economies in this commodity is restricted to Eswatini, which accounts for 25 per cent of the respective goods exports to the worldwide market with destination South Africa.

One can also observe similar patterns for processed final sugar goods. Intra-regionally, a well-connected trading network with robust export ties between Mauritius and Kenya is observed. Contrasted with global trade patterns of COMESA economies, strongly separated trade patterns become visible again. While the intra-regional trade between Mauritius and Kenya remains notable because of its high trade volume even when considering international trade patterns, all notable COMESA exporters to the global market export selectively to very few destinations. Only Mauritius retains a more extensive trade network (exporting outside the COMESA region to Italy, Greece, and Spain), while Uganda, Eswatini and Egypt again only entertain trading ties to a single economy situated outside the COMESA region. Lastly, global exporters of the COMESA region (such as Uganda, Eswatini or Egypt) do not have robust trading ties within the COMESA region. This is true for the example of the sugar industry (1542) and other key RVCs. Across all analysed chains, global trade heavily dominates intra-regional trade in the COMESA region. Please see Table 46 for more information.

Figure 56: Intra-COMESA vs global value chains

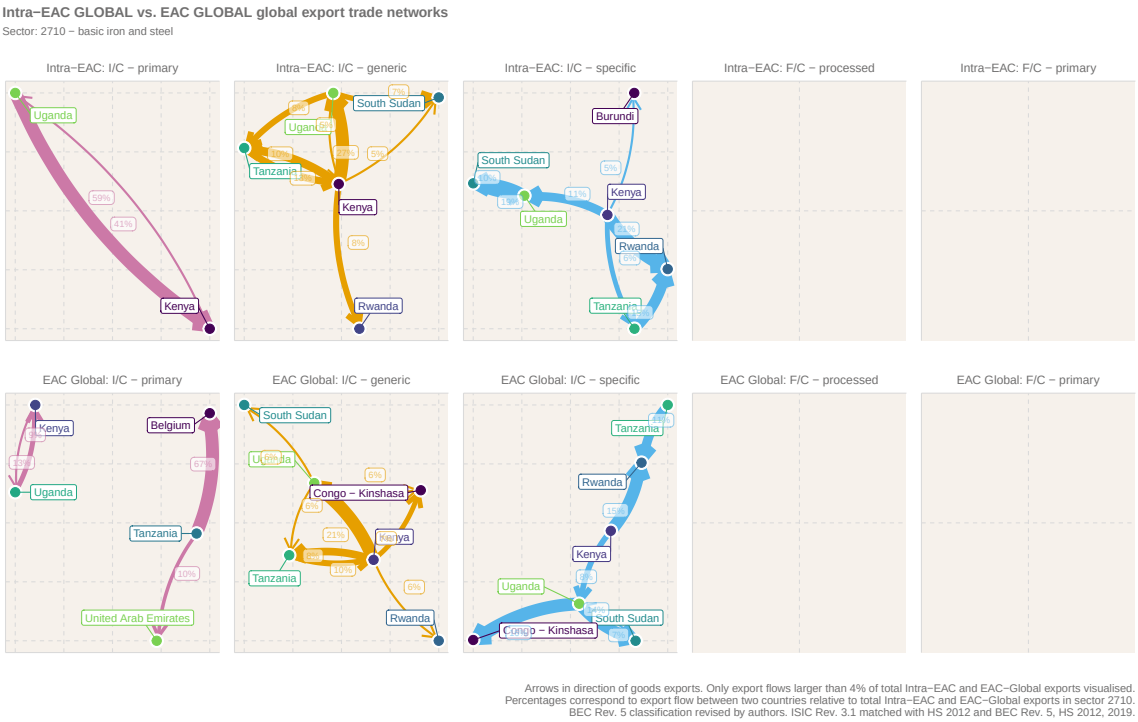


Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

EAC. Intra-EAC trade in primary basic iron and steel (2710) is dwarfed by international trade of the same commodity type. The strongest trade tie is held between Tanzania and Belgium, around five times larger than the biggest intra-EAC trade of primary commodities in that sector (between Kenya and Uganda). While international trade is dominated by a strong outward focus (i.e., exports outside the EAC region), more integrated and regionally-focused goods transfer is observed

for more processed basic iron and steel products. For both these goods commodities, very little outside trade is observed. Similarly, strong intra-regional trading ties are observed for grain mill products (1531) and vegetable and animal oils and fats (1514), while refined petroleum products (2320) and soaps and detergents (2424) are characterised by more global-oriented trading patterns. Across all analysed sectors, trade with DR Congo (Congo - Kinshasa) is notable for numerous EAC economies. For more information and details, see Table 47.

Figure 57: Intra-EAC vs global value chains



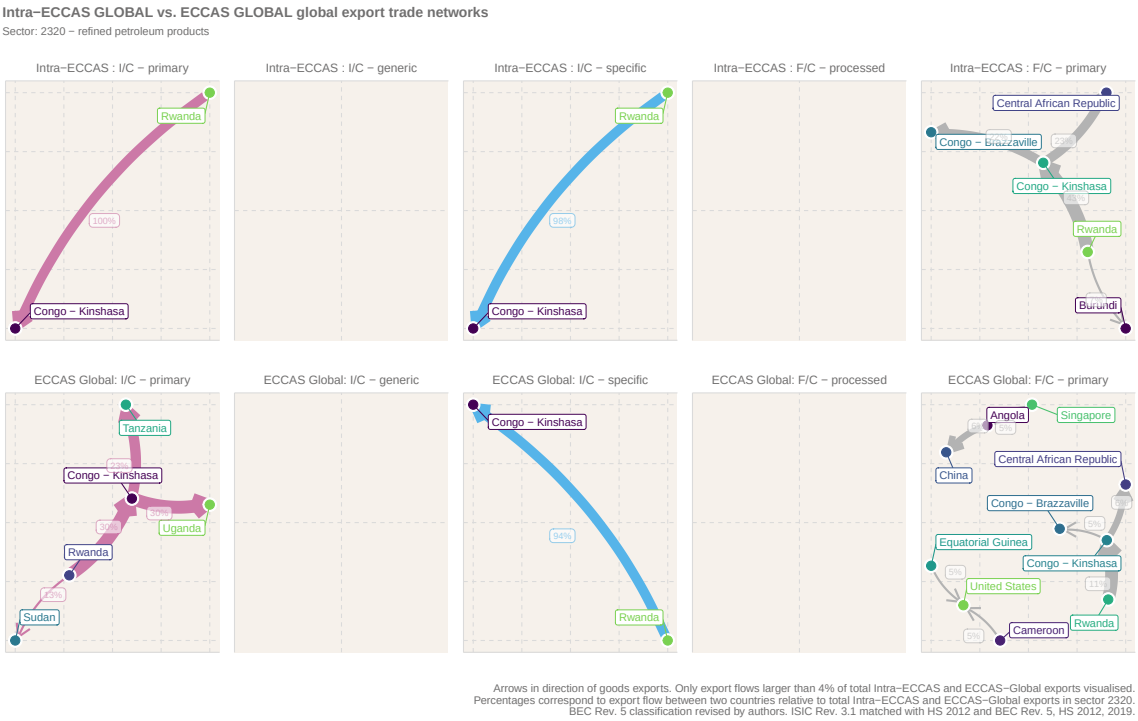
Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) reclassification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

ECCAS. Within the refined petroleum products sector (2320), DR Congo serves as one of the most important trading hubs within the ECCAS region. On the one hand, it is one of the main import destinations for the region's primary and specific refined petroleum goods. On the other hand, it also serves as an export hub to non-regional economies. Most importantly, DR Congo entertains strong trading ties to Tanzania and Uganda and intra-regional ties to the Central African Republic and the Republic of Congo (Congo - Brazzaville). The ECCAS region exports, most notably petroleum products in their primary form for final consumption.[23] Similar to previously observed patterns, the international trade of ECCAS economies is focused on a particular set of few isolated trading partners. While Angola entertains trading relations with Singapore and China,

[23] Note that for the export of primary, final consumption commodities, the idea of identifying *unused potential for RVC development* does not apply as there is no further processing of this type of commodity. As such, results such as the one presented in Figure 58 are there to highlight the potential for better outward-looking integration through a more extensive use of already existing REC-to-global trading ties for multiple REC economies.

Cameroon and Equatorial Guinea export to the United States. At the same time, neither of the aforementioned ECCAS economies, (i.e. Angola, Equatorial Guinea or Cameroon) are tied to any intra-regional trading network underscoring the isolated nature of this sector. In general, intra-ECCAS remains less relevant than global trade, which dominates all analysed RVCs. Across all analysed chains, the most prominent global exporters are Angola, Cameroon, DR Congo, the Republic of Congo and Rwanda. For more information and details, see Table 48.

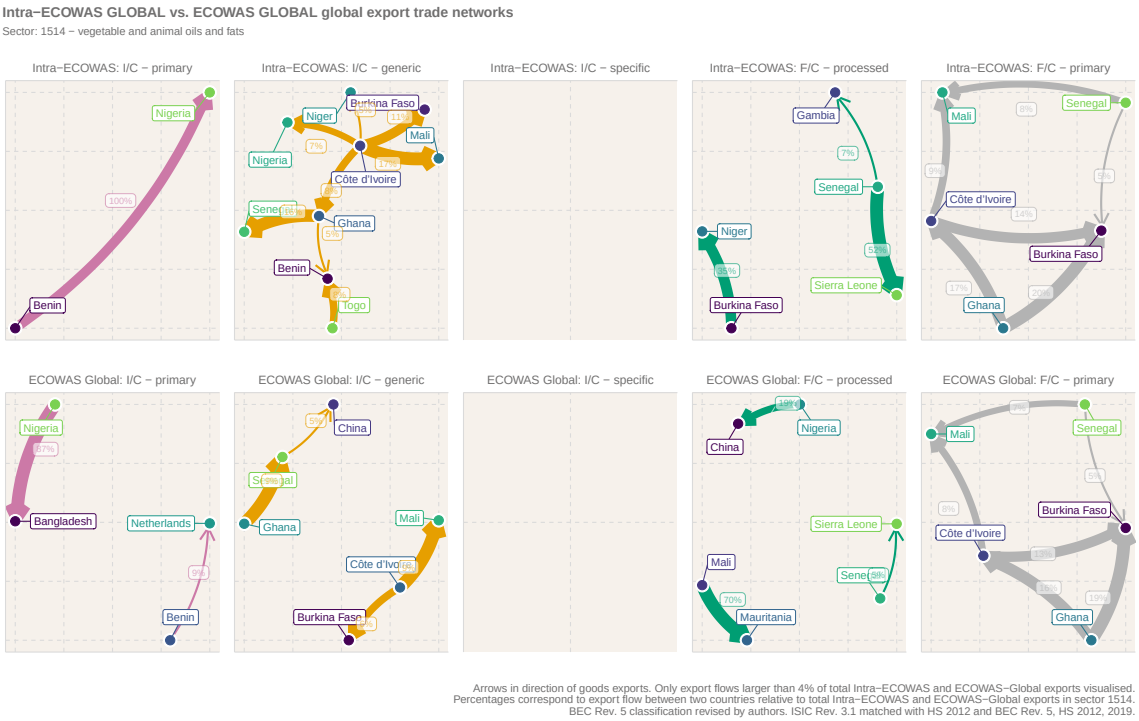
Figure 58: Intra-ECCAS vs global value chains



Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) reclassification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

ECOWAS. The vegetable and animal oils and fats sector in the ECOWAS region shows starkly varying trade dynamics depending on the degree of processing. On the one hand, the final consumption primary goods trade is well established within the region with little international trade. At the same time, intermediate consumption trade remains much more divided, with different countries playing a more important role along the RVC. Most notably, Cote d'Ivoire, Nigeria, Mali and Senegal serve as an important trading location for intermediate and processed oils and fats, with the latter being highly relevant for international trade. International trade patterns are observed to be rather fragmented and vastly different to within-ECOWAS trade for processed commodities. This pattern is observed among most analysed key RVCs for the ECOWAS region. For more information and details, see Table 49.

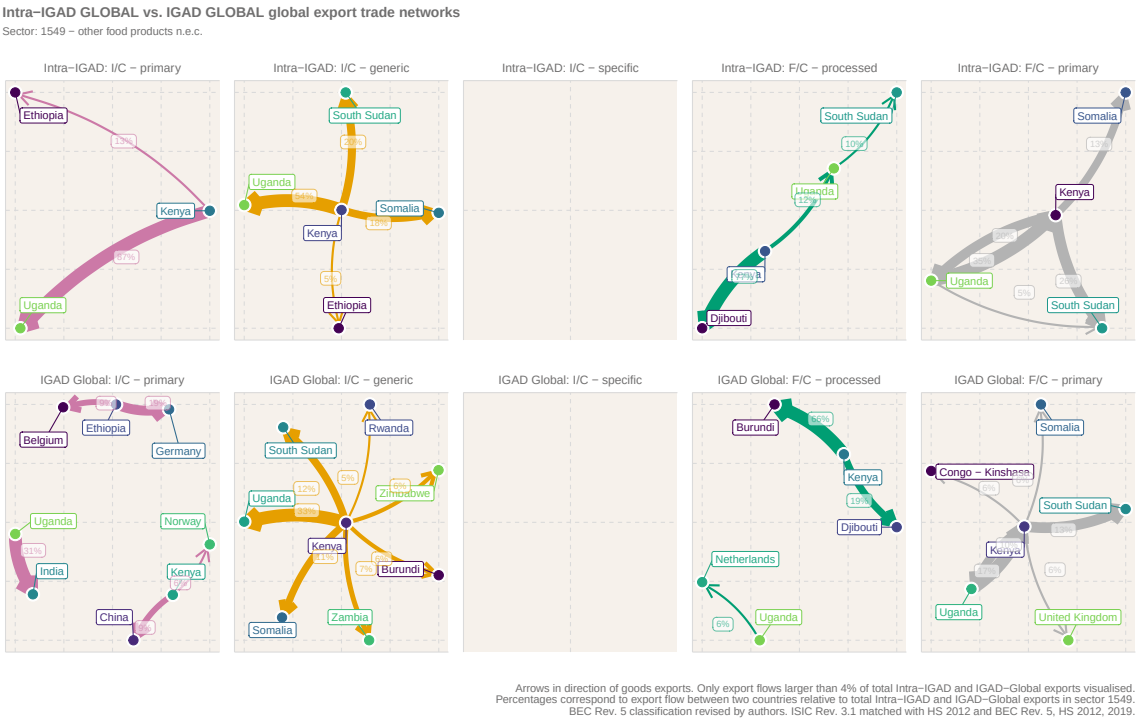
Figure 59: Intra-ECOWAS vs global value chains



Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

IGAD. In the other food products sector (1549), Kenya is the most central trading hub for intra-IGAD as well as global trade in the region. This result holds irrespective of the degree of processing. Kenya's trading partners are predominantly located within the African continent. Uganda is another important trading hub with more international engagement. It entertains its strongest export ties with India and the Netherlands and notably fewer inter-regional trading partners. International trading ties overshadow within-regional trade across the key RVCs analysed for this report. This is also true for Kenya, with more than half of its most important trading partners lying outside the IGAD region across all key regional value chains analysed. For more information and details, see Table 50.

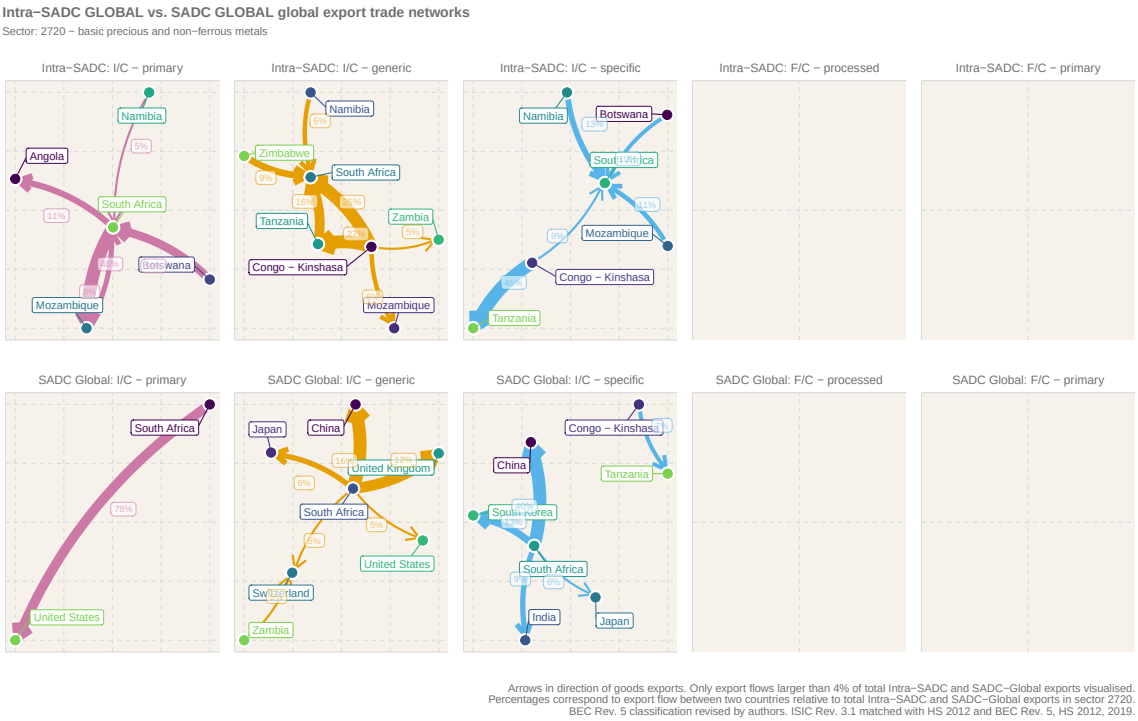
Figure 60: Intra-IGAD vs global value chains



Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

SADC. The trade dynamics within the basic precious and non-ferrous metals sector in the SADC region are very streamlined: Within the SADC region, South Africa serves as an attractor of primary, generic as well as specific intermediate consumption goods. A second notable recipient of within-REC trade in this sector is Tanzania. There, strong trading ties are observed with DR Congo (Congo Kinshasa). Considering international trade of SADC countries, the role of South Africa has changed to the most essential and central trading hub of metal products to the global market, including Asia, the Americas and Europe. As seen in Table 51, the same pattern holds for all analysed RVCs, underscoring the pivotal and central role of South Africa as a regional market force as well as an international trading hub for the region.

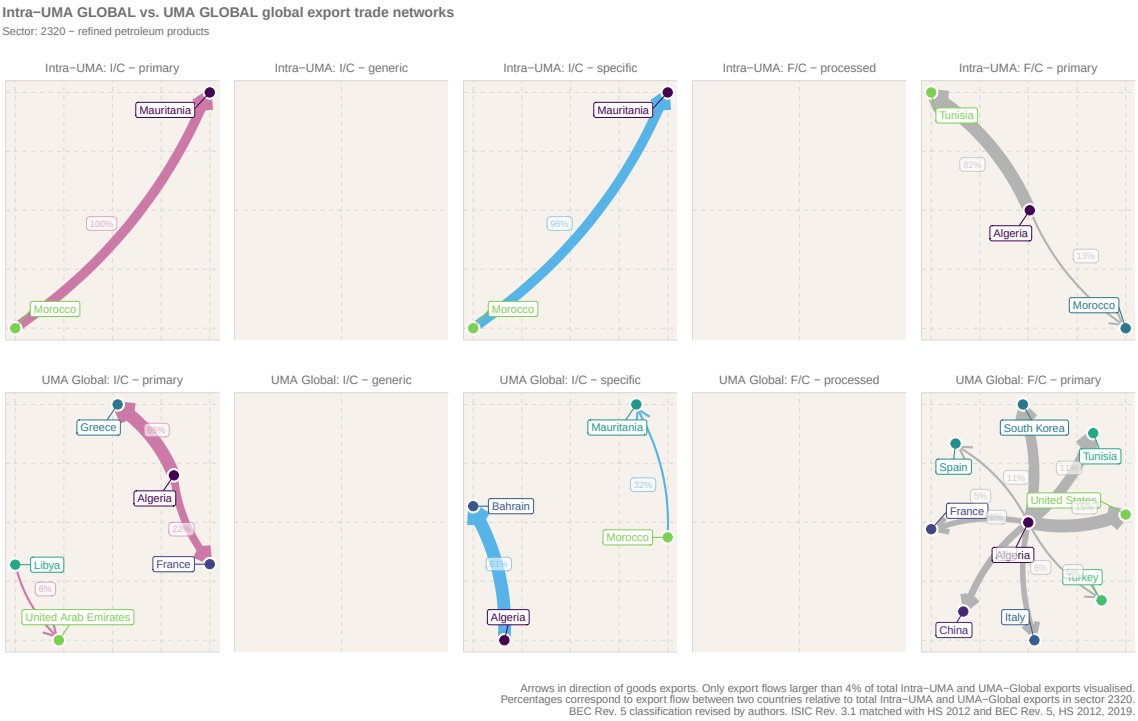
Figure 61: Intra-SADC vs global value chains



Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

UMA. For the UMA region, within-region trade in refined petroleum products (2320) is relatively streamlined, with Morocco as well as Algeria being the most dominant intra-regional exporters. The rather limited inter-regional integration is also observed when considering UMA to global trade. There, separate and isolated trading ties to the Gulf Region and Europe are present. The most important international trader in the UMA region is Algeria which entertains its most diversified trading network for primary final consumption goods. For this goods category, Algeria exports to multiple Asian and European economies and the United States. One can also observe strongly outward-looking trade patterns for all other key VCs analysed for this report. All major trading hubs (Algeria, Morocco, Tunisia) trade most intensively with Asian and European economies. For more information and details, see Table 52.

Figure 62: Intra-UMA vs global value chains



Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

4.4.2 Analysing cross-regional exchanges of goods to foster regional integration

This section is dedicated to mapping the trade interactions between the RECs and other regions across various processing stages within key value chains. This analysis is done to identify the potential to foster further regional integration. The concept used to identify potential and future regional integration is outlined in box 7. In short, the analysis builds on the idea that if a particular type of good is exported from a REC to a particular non-REC region, while the *same type of commodity* is imported from that particular non-REC region back into the respective REC, the potential of more extensive and swift intra-REC integration may be possible based on the fact that supply as well as demand and the necessary production and distribution capacities are already present within the respective REC.

Based on these assumptions, the tables in this section list the top-20 sectors by traded commodity type for each REC. They are analysed to illustrate the potential for further regional integration within each of the eight RECs analysed in this report. Furthermore, one of the top-20 sectors is then analysed in greater depth to illustrate the detailed trading streams *within* a particular sector along the value-added chain. This exercise is done for all eight RECs and is provided in figures

64 to 71, respectively.[24] A more detailed explanation on the concepts and a specific example for the CEN-SAD region is provided in box 7. Finally, a comprehensive visualisation of all ISIC Rev. 3 4-digit sectors for all RECs analysed in this report is provided in appendix C.4.2.

Box 7: Analytical vehicle: Regional trade integration.

The purpose of the analysis of this section is to identify if for a particular type of good further regional integration may be possible: The analysis builds on the idea that if a particular type of good is exported from a REC to a particular non-REC region, while the *same type of commodity* is imported from that particular non-REC region back into the respective REC, the potential of more extensive and swift intra-REC integration may be possible based on the fact that supply as well as demand and the necessary production and distribution capacities are already present within the respective REC.

Given the fact that trade data analysed for this report is detailed at a very granular level[a], this analysis highlights the potential of future regional integration: Instead of exporting the *same type of commodity* which it simultaneously imports from outside the REC, member states of that region may instead choose to further foster intra-regional integration. Given the previously outlined trade flow, one can deduce that both supply and demand and the necessary production capacities are already present in the respective REC member states. This implies that strong and potentially intensive trade relations might form between REC more quickly if the REC members envision a more extensive intra-regional good exchange.

The way this concept is measured analytically is highlighted in Table 6 for the case of CEN-SAD. Almost all exports in the wearing apparel (1810) sector that are specific intermediate consumption goods are exported from CEN-SAD countries to trading partners that are not members of the CEN-SAD region. That is, the share of non-REC trade in export is 100 per cent. In turn, CEN-SAD members also import almost all specific wearing apparel for intermediate consumption from outside the CEN-SAD region, i.e., the share of non-REC trade in imports into the CEN-SAD region is 100 per cent. The difference between these two percentage numbers is summarised in columns *PP-Difference* (percentage point difference). In short, if the shares of non-REC trade in exports and imports are very high (goes to 100 per cent), the percentage point difference between them is meagre, strong trade interactions with the potential to foster intra-regional trade are identified. In the remainder of the chapter, the top-20 sectors by traded commodity type identified in this way are analysed to illustrate the potential for further regional integration through mapping trade interactions across regions. Furthermore, a comprehensive visualisation of *all* ISIC Rev. 3 4-digit sectors for all RECs analysed in this report is provided in appendix C.4.2.

Note that this analysis does not identify the *specific region* with whom the respective REC is tied up closely. A more comprehensive analysis of the detailed trading streams within a particular sector along the value-added chain is also possible: For example, Figure 64 provides a visual representation of the disaggregated trading flows between region for the dressing and dyeing of fur sector (1820). The analysis shows that particularly for processed, final consumption commodities from the CEN-SAD area are almost exclusively exported to Europe (96 per cent of CEN-SAD exports in this sector go to Europe). At the same time, 2/3 of imports of the same type of commodity also originate in Europe.

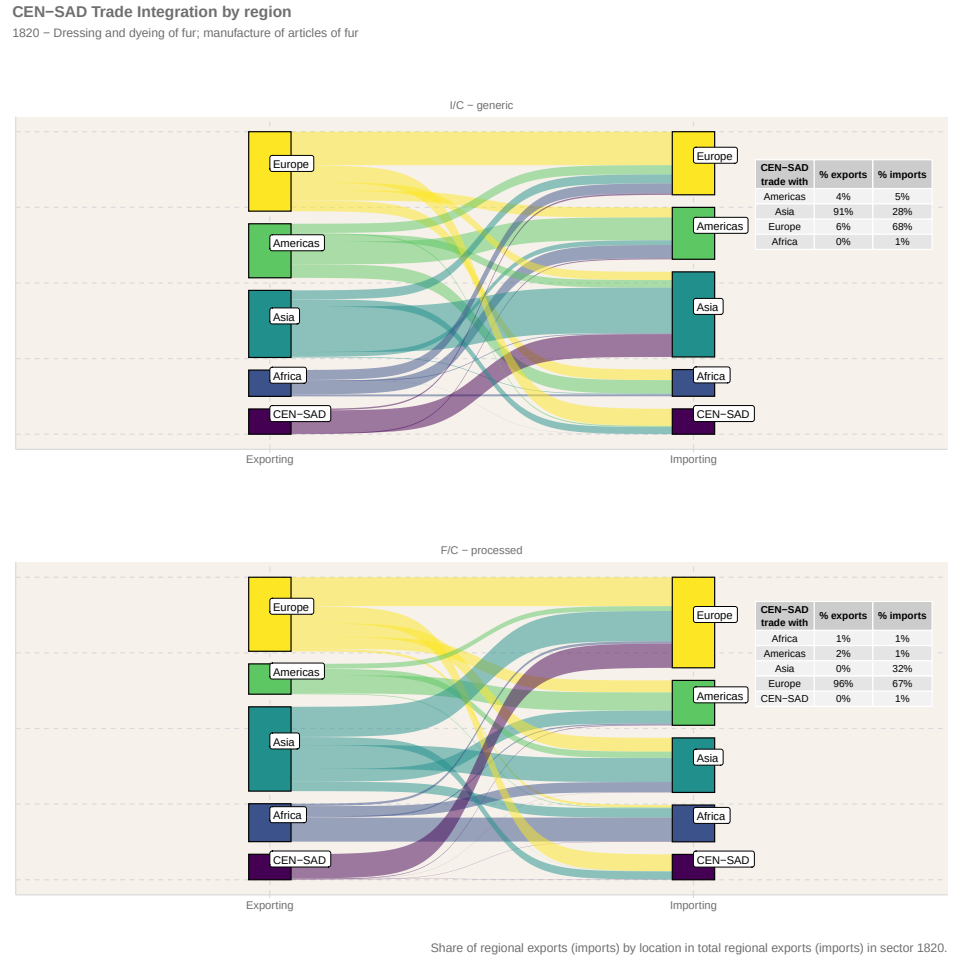
For the purpose of this report, a similar exercise is performed for all eight RECs in figures 64 to 71, respectively.[b] Finally, a comprehensive visualisation of all ISIC Rev. 3 4-digit sectors for all RECs analysed in this report is provided in appendix C.4.2.

[24] Note that one could break down this analysis even further identify exactly between which countries these bilateral goods exchanges occur. Given the high level of specificity of such an analysis, such an endeavour would go well beyond the scope of this report and is therefore left for future work. However, some of the most important trading partners by type of commodity can be deduced for each REC and key RVC by considering the results in the tables presented in appendix C.4.1.

Table 6: Regional trade interactions CEN-SAD

ISIC Rev. 3.1 4-digit sector	Type	Share of non-REC trade		PP-Difference
		Export	Import	
1810 - wearing apparel, except fur apparel	I/C - specific	100.00	100.00	0.00
1820 - Dressing and dyeing of fur; manufacture of articles of fur	I/C - generic	100.00	100.00	0.00

Figure 63: CEN-SAD trade integration by region, example



[a]Fur the purpose of this report, HS trade data at the 6-digit level. An even more granular analysis may only be possible in particular cases as countries only classify products in the same way up to the six-digit level consistently.

[b]Note that one could break down this analysis even further identify exactly between which countries these bilateral goods exchanges occur. Given the high level of specificity of such an analysis, such an endeavour would go well beyond the scope of this report and is therefore left for future work. However, some of the most important trading partners by type of commodity can be deduced for each REC and key RVC by considering the results in the tables presented in appendix C.4.1.

CEN-SAD. Within the CEN-SAD region, the potential for future regional integration is possible for several sectors, including the wearing apparel and textile sector, as well as the agro- and extractive industry. Most notably, the sectors identified to have a robust goods exchange between

the region and non-CEN-SAD economies also feature some of the previously identified key manufacturing sectors, such as the basic iron and steel sector (see Table 7).

Table 7: Regional trade interactions CEN-SAD

		Share of non-REC trade		
ISIC Rev. 3.1 4-digit sector	Type	Export	Import	PP-Difference
1810 - wearing apparel, except fur apparel	I/C - specific	100.00	100.00	0.00
1820 - Dressing and dyeing of fur; manufacture of articles of fur	I/C - generic	100.00	100.00	0.00
2029 - other products of wood; manufacture of articles of cork, straw and plaiting materials	I/C - primary	100.00	100.00	0.00
3530 - aircraft and spacecraft	I/C - specific	100.00	100.00	0.00
2812 - tanks, reservoirs and containers of metal	I/C - generic	100.00	99.97	0.03
3691 - jewellery and related articles	I/C - generic	100.00	99.83	0.17
2430 - man-made fibres	I/C - primary	100.00	99.55	0.45
3512 - Building and repairing of pleasure and sporting boats	F/C - processed	100.00	99.15	0.85
1820 - Dressing and dyeing of fur; manufacture of articles of fur	F/C - processed	100.00	99.11	0.89
2710 - basic iron and steel	I/C - primary	100.00	99.09	0.91
2310 - coke oven products	I/C - specific	100.00	84.19	15.81
1512 - Processing and preserving of fish and fish products	I/C - primary	100.00	79.29	20.71
1912 - luggage, handbags and the like, saddlery and harness	I/C - specific	99.99	99.60	0.39
3691 - jewellery and related articles	F/C - processed	99.96	99.99	-0.03
3330 - watches and clocks	I/C - specific	99.94	99.88	0.06
1920 - footwear	I/C - specific	99.94	99.46	0.48
2422 - paints, varnishes and similar coatings, printing ink and mastics	F/C - processed	99.88	99.96	-0.08
3190 - other electrical equipment n.e.c.	I/C - specific	99.88	99.33	0.55
3610 - furniture	I/C - specific	99.83	98.52	1.31
1543 - cocoa, chocolate and sugar confectionery	I/C - primary	99.83	92.26	7.57

Note: Sector selection: Top-20 ISIC Rev. 3.1 4-digits by type shown. Share of exports (imports) to non-CEN-SAD economies in per cent shown right (left) of dashed line. PP-Difference: Percentage point difference between export and import shares to non-CEN-SAD economies. Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (CEN_SAD) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

As illustrated in Figure 64, this sector exchanges primary intermediate consumption goods with Europe and Asia (73 and 27 per cent of all primary, intermediate goods exports of the CEN-SAD region go to these two global regions). At the same time, CEN-SAD economies overwhelmingly import primary consumption goods from these two economic zones (41 per cent from Asia, 59 per cent from Europe). Intra-CEN-SAD trade on the level of primary commodity goods, on the other hand, is barely present but becomes more noticeable for generic intermediates. One out of four items exported by CEN-SAD economies is traded within the region. Every third commodity entering or leaving the CEN-SAD area is through trade with Asian economies. At the same time, generic intermediate goods imports from Europe into the CEN-SAD region constitute the largest share (with almost 2/3 of import trade). Finally, for more specific intermediate consumption goods, a strong focus on goods exchanges with the two central trading regions (Asia and

Europe) is again observed: About 50 per cent (33 per cent) of exports to and imports into the CEN-SAD region are with Europe (Asia), respectively. The intra-regional trade of commodities of similar types remains minuscule in comparison. For a complete mapping of CEN-SAD to global goods exchanges by sector and degree of processing, see Figure 93.

Figure 64: CEN-SAD trade integration by region

Note: Traded US$ in by ISIC Rev. 3 IV-digit industry. Trade streams in shares which may not represent the magnitude of the difference between the shares of exports/imports correctly depending on size of trade flow.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

COMESA. Table 8 shows that the most potential for further regional integration is possible in the wearing apparel, chemical as well as mineral sector. Furthermore, the extractive industries in the metal sectors (basic iron and steel, 2710; basic precious and non-ferrous metals, 2720) are

also identified to have considerable potential for further regional integration. This is particularly noteworthy as these sectors belong to the top-5 key RVCs previously identified.

Table 8: Regional trade interactions COMESA

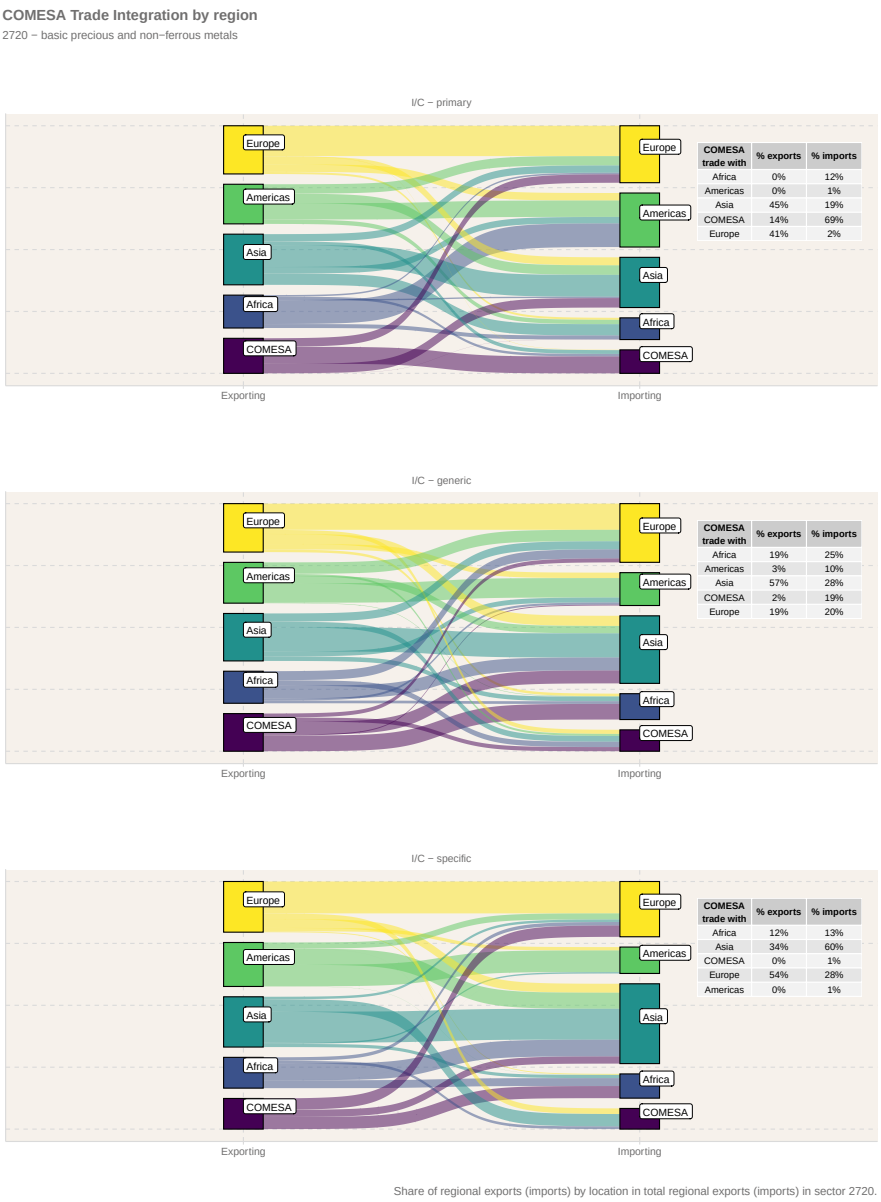
		Share of non-REC trade		
ISIC Rev. 3.1 4-digit sector	Type	Export	Import	PP-Difference
1820 - Dressing and dyeing of fur; manufacture of articles of fur	I/C - generic	100.00	100.00	0.00
2310 - coke oven products	I/C - specific	100.00	100.00	0.00
2430 - man-made fibres	I/C - primary	100.00	100.00	0.00
2691 - non-structural non-refractory ceramic ware	I/C - generic	100.00	100.00	0.00
2699 - other non-metallic mineral products n.e.c.	I/C - primary	100.00	100.00	0.00
2720 - basic precious and non-ferrous metals	I/C - specific	100.00	100.00	0.00
1911 - Tanning and dressing of leather	I/C - primary	100.00	99.87	0.13
3691 - jewellery and related articles	I/C - generic	100.00	99.84	0.16
1512 - Processing and preserving of fish and fish products	I/C - primary	100.00	99.20	0.80
2029 - other products of wood; manufacture of articles of cork, straw and plaiting materials	I/C - primary	99.99	100.00	-0.01
3330 - watches and clocks	I/C - specific	99.99	99.99	0.00
2710 - basic iron and steel	I/C - primary	99.88	100.00	-0.12
1912 - luggage, handbags and the like, saddlery and harness	I/C - specific	99.87	99.81	0.06
2330 - Processing of nuclear fuel	I/C - specific	99.83	100.00	-0.17
3693 - sports goods	I/C - specific	99.74	100.00	-0.26
1730 - knitted and crocheted fabrics and articles	F/C - processed	99.74	99.63	0.11
1911 - Tanning and dressing of leather	I/C - generic	99.73	96.74	2.99
2927 - weapons and ammunition	F/C - processed	99.69	100.00	-0.31
2927 - weapons and ammunition	I/C - specific	99.57	100.00	-0.43
1820 - Dressing and dyeing of fur; manufacture of articles of fur	F/C - processed	99.55	99.99	-0.44

Note: Sector selection: Top-20 ISIC Rev. 3.1 4-digits by type shown. Share of exports (imports) to non-COMESA economies in per cent shown right (left) of dashed line. PP-Difference: Percentage point difference between export and import shares to non-COMESA economies. Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (COMESA) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

A more detailed analysis of the trade streams associated with the basic precious and non-ferrous metals sector (2720) in Figure 65 reveals that the overwhelming majority of intra-COMESA trade in this commodity takes place at a very early stage of processing: 14 per cent of primary, intermediate consumption gods of the basic metal sector are exported to other COMESA economies. The fact that intra-COMESA trade accounts for almost 70 per cent of imports of this commodity implies that exports of this kind of commodity are around 4.5 times larger than imports. The regions which the most substantial trading ties are Asia and Europe. Particularly for generic intermediate goods, the trade integration with Asia is most prominent. Two out of three exported commodities are for the Asian market, while every third of imported goods originates in Asia. One can observe a stronger focus on exports to Europe and imports to Asia for specific intermediate goods with little to no intra-regional trade. This result underscores the previous observation that the COMESA region entertains robust trading ties to Europe for specific intermediate commodity

products, particularly Turkey and Italy, as can be deduced from Table 46. For a complete mapping of COMESA to global goods exchanges by sector and degree of processing, see Figure 94

Figure 65: COMESA trade integration by region



Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.Trade streams in shares which may not represent the magnitude of the difference between the shares of exports/imports correctly depending on size of trade flow.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

EAC. Table 9 reveals that the most potential for regional integration can be found in the agro- as well as extractive sectors. One of the key RVC sectors (vegetable and animal oils and fats, 1514) identified in earlier parts of the analysis of this report is also prominent as a potential candidate for further regional integration.

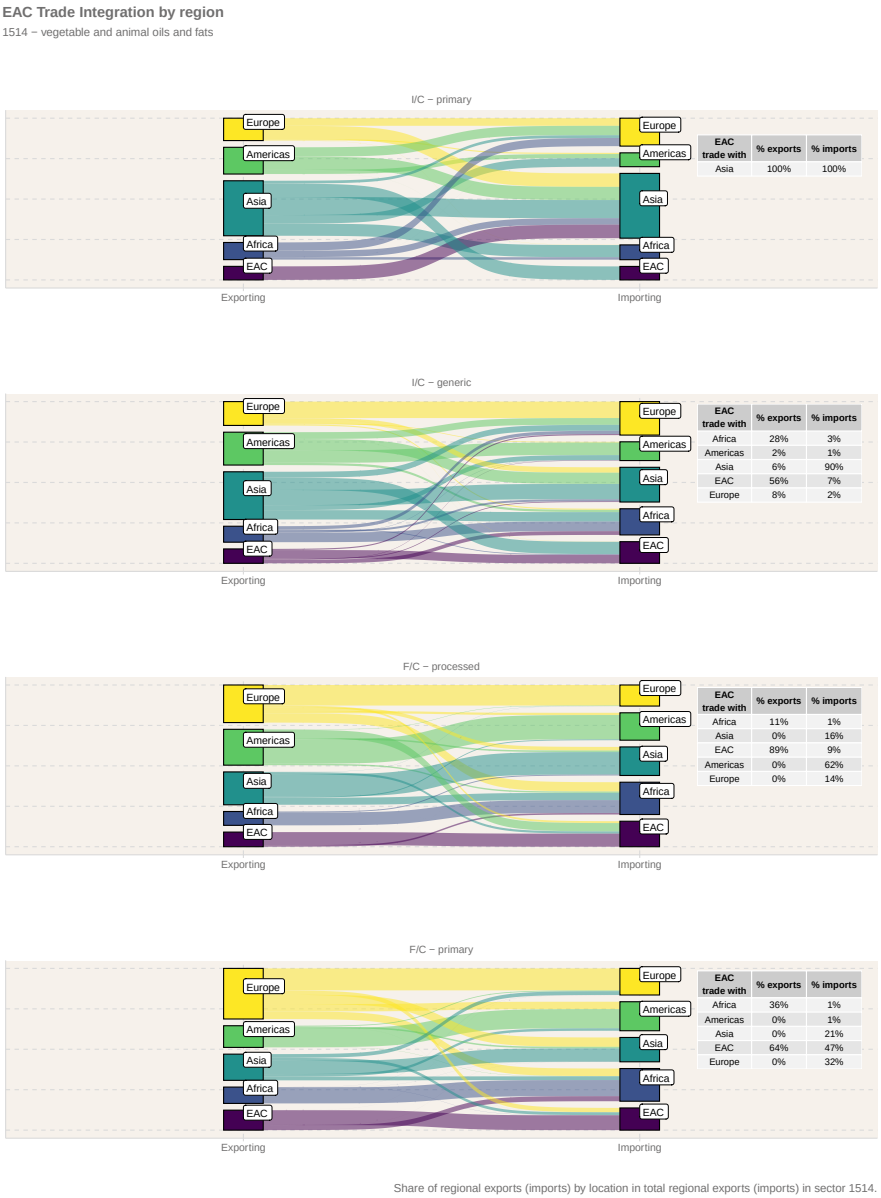
Table 9: Regional trade interactions EAC

ISIC Rev. 3.1 4-digit sector	Type	Share of non-REC trade		PP-Difference
		Export	Import	
1514 - vegetable and animal oils and fats	I/C - primary	100.00	100.00	0.00
1912 - luggage, handbags and the like, saddlery and harness	I/C - specific	100.00	100.00	0.00
2310 - coke oven products	F/C - primary	100.00	100.00	0.00
2330 - Processing of nuclear fuel	I/C - specific	100.00	100.00	0.00
2699 - other non-metallic mineral products n.e.c.	I/C - primary	100.00	100.00	0.00
2720 - basic precious and non-ferrous metals	I/C - specific	100.00	100.00	0.00
2927 - weapons and ammunition	F/C - processed	100.00	100.00	0.00
2927 - weapons and ammunition	I/C - specific	100.00	100.00	0.00
1533 - prepared animal feeds	I/C - primary	100.00	96.72	3.28
1911 - Tanning and dressing of leather	I/C - primary	100.00	82.74	17.26
1512 - Processing and preserving of fish and fish products	I/C - primary	100.00	78.18	21.82
1551 - Distilling, rectifying and blending of spirits; ethyl alcohol production from fermented materials	I/C - generic	100.00	5.64	94.36
3691 - jewellery and related articles	I/C - generic	99.89	100.00	-0.11
3693 - sports goods	I/C - specific	99.71	99.95	-0.24
1820 - Dressing and dyeing of fur; manufacture of articles of fur	I/C - generic	99.53	100.00	-0.47
2699 - other non-metallic mineral products n.e.c.	I/C - generic	99.40	99.97	-0.57
2691 - non-structural non-refractory ceramic ware	I/C - generic	99.34	100.00	-0.66
3190 - other electrical equipment n.e.c.	I/C - primary	99.25	99.96	-0.71
1711 - Preparation and spinning of textile fibres; weaving of textiles	F/C - primary	99.24	98.81	0.43
1549 - other food products n.e.c.	I/C - primary	99.23	93.12	6.11

Note: Sector selection: Top-20 ISIC Rev. 3.1 4-digits by type shown. Share of exports (imports) to non-EAC economies in per cent shown right (left) of dashed line. PP-Difference: Percentage point difference between export and import shares to non-EAC economies. Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (EAC) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

As revealed in Figure 66, this is primarily because the composition of trade flows in this sector varies widely depending on the degree of processing. On the one hand, all primary, intermediate consumption goods are traded with Asia. To be more precise, Table 47 reveals the critical destination for primary EAC-trade in vegetable and animal oils and fats to be China. At the same time, the share of generic and processed commodity transfers within the region is much higher, and particularly for final consumption goods, 89 per cent of exports of EAC economies are bound for the regional market. At the same time, it has to be noted that this sector relies more heavily on imports, particularly at the final processing stage, where imports exceed exports by around a factor of ten. For a complete mapping of EAC to global goods exchanges by sector and degree of processing, see Figure 95.

Figure 66: EAC trade integration by region



Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.Trade streams in shares which may not represent the magnitude of the difference between the shares of exports/imports correctly depending on size of trade flow.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

ECCAS. Potential for stronger intra-regional integration in the ECCAS region is observed for the agro-sector as well as the leather industry and the extractive sectors. There particularly the basic precious and non-ferrous metal (2720) sector is identified to have a robust goods exchange of commodities of similar degree of processing into/out of the ECCAS region; see Table 10.

Table 10: Regional trade interactions ECCAS

ISIC Rev. 3.1 4-digit sector	Type	Share of non-REC trade		PP-Difference
		Export	Import	
1512 - Processing and preserving of fish and fish products	I/C - primary	100.00	100.00	0.00
1543 - cocoa, chocolate and sugar confectionery	I/C - primary	100.00	100.00	0.00
1912 - luggage, handbags and the like, saddlery and harness	I/C - specific	100.00	100.00	0.00
2691 - non-structural non-refractory ceramic ware	I/C - generic	100.00	100.00	0.00
2720 - basic precious and non-ferrous metals	I/C - primary	100.00	100.00	0.00
2812 - tanks, reservoirs and containers of metal	I/C - generic	100.00	100.00	0.00
2927 - weapons and ammunition	F/C - processed	100.00	100.00	0.00
2927 - weapons and ammunition	I/C - specific	100.00	100.00	0.00
3691 - jewellery and related articles	I/C - generic	100.00	100.00	0.00
1543 - cocoa, chocolate and sugar confectionery	I/C - generic	100.00	99.73	0.27
3420 - bodies (coachwork) for motor vehicles; manufacture of trailers and semi-trailers	F/C - processed	100.00	94.33	5.67
1514 - vegetable and animal oils and fats	I/C - primary	100.00	NA	NA
2010 - Sawmilling and planing of wood	I/C - primary	99.99	100.00	-0.01
3530 - aircraft and spacecraft	I/C - generic	99.99	100.00	-0.01
2720 - basic precious and non-ferrous metals	I/C - specific	99.99	99.95	0.04
2010 - Sawmilling and planing of wood	I/C - generic	99.98	68.68	31.30
1911 - Tanning and dressing of leather	I/C - generic	99.97	99.98	-0.01
2411 - basic chemicals, except fertilizers and nitrogen compounds	I/C - specific	99.96	99.73	0.23
3530 - aircraft and spacecraft	I/C - specific	99.95	99.99	-0.04
1549 - other food products n.e.c.	I/C - primary	99.94	100.00	-0.06

Note: Sector selection: Top-20 ISIC Rev. 3.1 4-digits by type shown. Share of exports (imports) to non-ECCAS economies in per cent shown right (left) of dashed line. PP-Difference: Percentage point difference between export and import shares to non-ECCAS economies. Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (ECCAS) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

Looking at the basic precious and non-ferrous metal (2720) sector in more detail, Figure 67 illustrates a firm reliance on intra-African imports of primary, intermediate consumption material into the region. At the same time, strong trading ties with Asia and Europe are observed: Three out of four primary basic metal products are sold to the Asian market, while the remaining item is reserved for Europe. The most extensive exchange of goods of similar types of processing in this sector happens between ECCAS economies and their Asian counterparts during the generic processing stage. There, ECCAS economies export around 60 per cent of their total export volume to the Asian market. Finally, for the trade of specific intermediate consumption goods, ECCAS economies are particularly reliant on trade with Europe, accounting for almost all goods imports in this sector. While intra-regional trade between ECCAS members remains somewhat absent for this type of commodity, the region does trade extensively with other African economies, with around 57 per cent of exports bound for destinations within the continent. For a complete mapping of ECCAS to global goods exchanges by sector and degree of processing, see Figure 96.

Figure 67: ECCAS trade integration by region

Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.Trade streams in shares which may not represent the magnitude of the difference between the shares of exports/imports correctly depending on size of trade flow.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

ECOWAS. The most substantial potential for more extensive regional integration in the ECOWAS region is reported for the agro- as well as wearing apparel sector as well as the mineral sector. Furthermore, Table 11 reveals that the potential of more robust regional integration in ECOWAS is less closely tied to previously observed critical industries except for the basic precious and non-ferrous metals (2720) sector.

Table 11: Regional trade interactions ECOWAS

ISIC Rev. 3.1 4-digit sector	Type	Share of non-REC trade		PP-Difference
		Export	Import	
1532 - starches and starch products	F/C - primary	100.00	100.00	0.00
1820 - Dressing and dyeing of fur; manufacture of articles of fur	I/C - generic	100.00	100.00	0.00
1911 - Tanning and dressing of leather	I/C - primary	100.00	100.00	0.00
2330 - Processing of nuclear fuel	I/C - specific	100.00	100.00	0.00
3512 - Building and repairing of pleasure and sporting boats	F/C - processed	100.00	100.00	0.00
2923 - machinery for metallurgy	I/C - generic	100.00	99.98	0.02
2812 - tanks, reservoirs and containers of metal	I/C - generic	100.00	99.95	0.05
2813 - steam generators, except central heating hot water boilers	I/C - generic	100.00	99.92	0.08
3691 - jewellery and related articles	I/C - generic	100.00	97.54	2.46
1820 - Dressing and dyeing of fur; manufacture of articles of fur	F/C - processed	100.00	97.17	2.83
2430 - man-made fibres	I/C - primary	100.00	96.40	3.60
1543 - cocoa, chocolate and sugar confectionery	I/C - primary	100.00	92.26	7.74
1512 - Processing and preserving of fish and fish products	I/C - primary	100.00	28.45	71.55
3530 - aircraft and spacecraft	I/C - specific	99.98	100.00	-0.02
1730 - knitted and crocheted fabrics and articles	F/C - processed	99.98	99.98	0.00
2010 - Sawmilling and planing of wood	I/C - primary	99.93	97.13	2.80
3691 - jewellery and related articles	F/C - processed	99.89	99.98	-0.09
2720 - basic precious and non-ferrous metals	I/C - specific	99.88	94.64	5.24
1543 - cocoa, chocolate and sugar confectionery	I/C - generic	99.84	70.22	29.62
1911 - Tanning and dressing of leather	I/C - generic	99.83	95.45	4.38

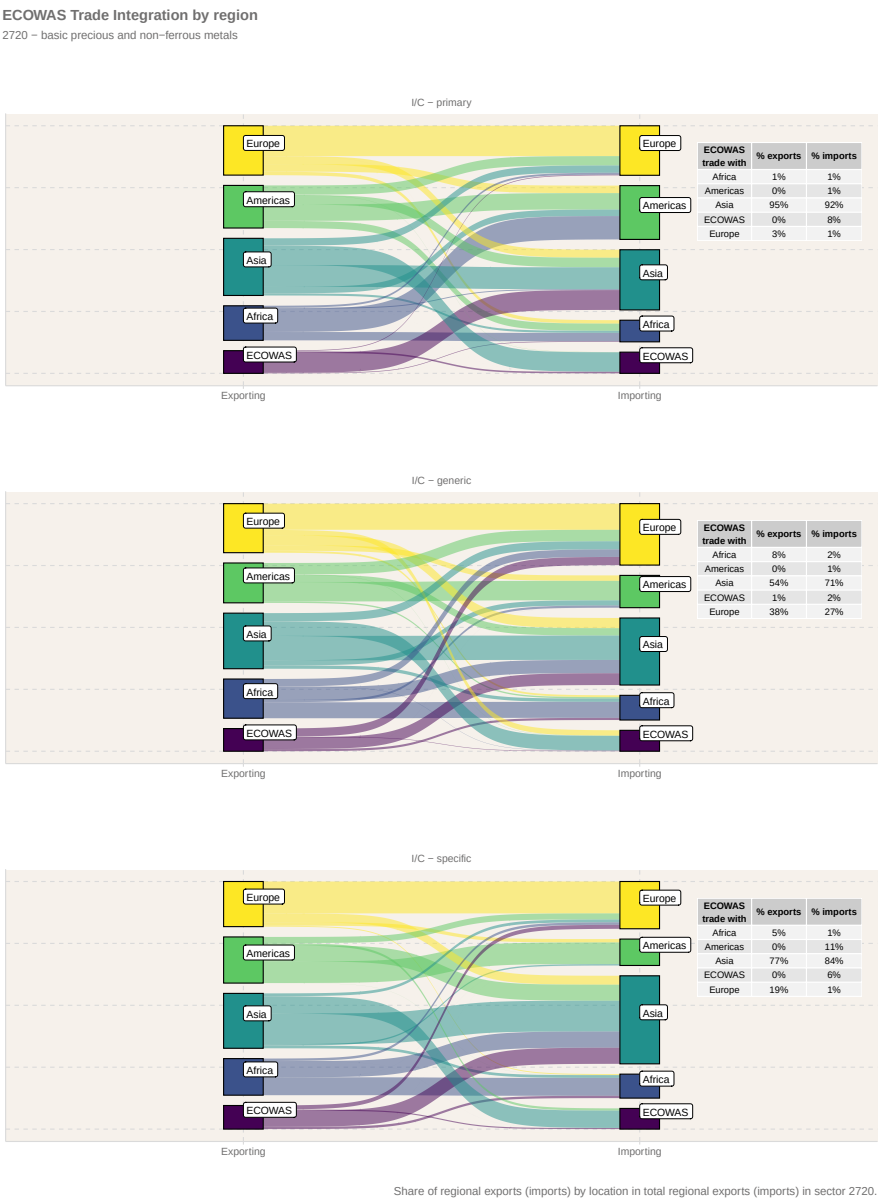
Note: Sector selection: Top-20 ISIC Rev. 3.1 4-digits by type shown. Share of exports (imports) to non-ECOWAS economies in per cent shown right (left) of dashed line. PP-Difference: Percentage point difference between export and import shares to non-ECOWAS economies. Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (ECOWAS) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

A more detailed analysis of the basic precious and non-ferrous metals (2720) sector, as seen in Figure 68, is insightful: On the on hand, a very stark difference in trade patterns of the ECCAS region (compare Figure 67) can be observed. For ECCAS economies, intra-regional and African trade contributes to the transfer of goods in this sector. Furthermore, changing trading relations depending on the degree of specificity are observed. For example, while 100 per cent of primary imports into ECCAS are generated from within the African continent, 99 per cent of specific intermediate goods are imported from Europe.

For the ECOWAS region, on the other hand, Figure 68 reveals a much more robust integration with Asian trading partners. This is true irrespective of the degree of processing of basic precious and non-ferrous metal products: Trade with Asia accounts for 95 (92) per cent of primary exports (imports) and 77 (84) per cent of specific intermediate consumption exports (imports). In turn, the import share of specific intermediate consumption goods from Europe stands at a mere 1 per cent (compared to 99 per cent of the equivalent commodity flow for the ECCAS region. Given the high degree of goods exchange with Asia along the value-added chain, paired with limited intra-regional trade, considerable potential for further intra-regional integration seems to be present.

For a complete mapping of ECOWAS to global goods exchanges by sector and degree of processing, see Figure 97.

Figure 68: ECOWAS trade integration by region



Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.Trade streams in shares which may not represent the magnitude of the difference between the shares of exports/imports correctly depending on size of trade flow.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) reclassification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

IGAD. As illustrated in Table 12, the most extensive potential for further intra-regional integration in the IGAD region is located in the leather industry as well as the extractive and medium/high tech sectors (chemicals, 24; machinery and equipment, 29). Furthermore, with vegetable and animal oils and fats (1514), one of the previously identified key RVC sectors is flagged for its high potential for further regional integration.

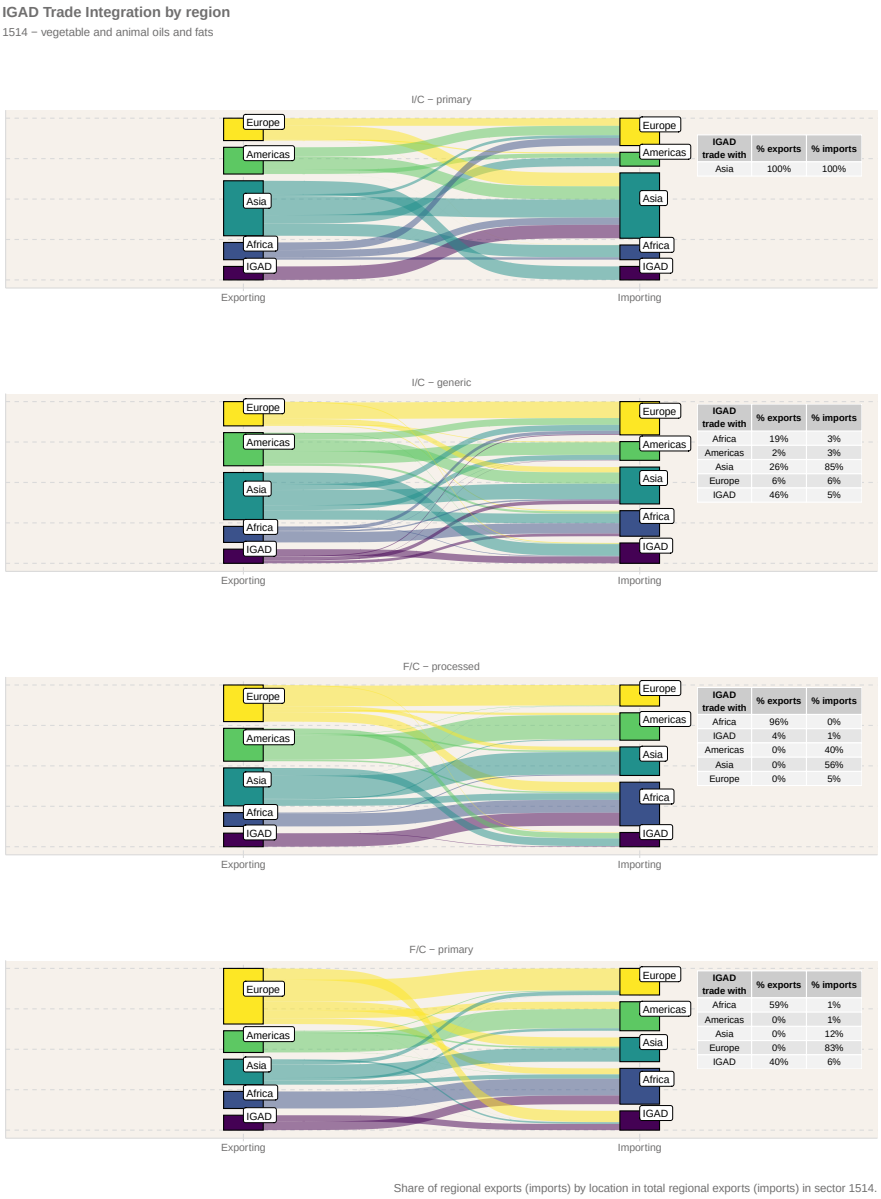
Table 12: Regional trade interactions IGAD

ISIC Rev. 3.1 4-digit sector	Type	Share of non-REC trade		PP-Difference
		Export	Import	
1514 - vegetable and animal oils and fats	I/C - primary	100.00	100.00	0.00
1912 - luggage, handbags and the like, saddlery and harness	I/C - specific	100.00	100.00	0.00
2029 - other products of wood; manufacture of articles of cork, straw and plaiting materials	I/C - primary	100.00	100.00	0.00
2310 - coke oven products	F/C - primary	100.00	100.00	0.00
2330 - Processing of nuclear fuel	I/C - specific	100.00	100.00	0.00
2430 - man-made fibres	I/C - primary	100.00	100.00	0.00
2519 - other rubber products	F/C - primary	100.00	100.00	0.00
2691 - non-structural non-refractory ceramic ware	I/C - generic	100.00	100.00	0.00
2699 - other non-metallic mineral products n.e.c.	I/C - generic	100.00	100.00	0.00
2699 - other non-metallic mineral products n.e.c.	I/C - primary	100.00	100.00	0.00
2720 - basic precious and non-ferrous metals	I/C - specific	100.00	100.00	0.00
2911 - engines and turbines, except aircraft, vehicle and cycle engines	I/C - generic	100.00	100.00	0.00
2914 - ovens, furnaces and furnace burners	F/C - processed	100.00	100.00	0.00
2927 - weapons and ammunition	F/C - processed	100.00	100.00	0.00
3512 - Building and repairing of pleasure and sporting boats	F/C - processed	100.00	100.00	0.00
3691 - jewellery and related articles	I/C - generic	100.00	100.00	0.00
1533 - prepared animal feeds	I/C - primary	100.00	99.71	0.29
1911 - Tanning and dressing of leather	I/C - primary	100.00	82.74	17.26
1512 - Processing and preserving of fish and fish products	I/C - primary	100.00	47.89	52.11
1511 - Production, processing and preserving of meat and meat products	I/C - primary	99.99	100.00	-0.01

Note: Sector selection: Top-20 ISIC Rev. 3.1 4-digits by type shown. Share of exports (imports) to non-IGAD economies in per cent shown right (left) of dashed line. PP-Difference: Percentage point difference between export and import shares to non-IGAD economies. Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (IGAD) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

A more detailed analysis of the vegetable and animal oils and fats in Figure 69 reveals that strong REC-specific trade is typically concentrated on generic intermediate as well as primary final products. For both these cases, within-IGAD exports account for at least 40 per cent of exports of IGAD economies. On the other hand, primary, intermediate commodities are exclusively traded with Asian economies; more specifically, India as Table 50 reveals. For a complete mapping of IGAD to global goods exchanges by sector and degree of processing, see Figure 98.

Figure 69: IGAD trade integration by region



Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.Trade streams in shares which may not represent the magnitude of the difference between the shares of exports/imports correctly depending on size of trade flow.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

SADC. Economies within the SADC region show their most considerable potential for future regional interaction in the textile and leather sector as well as agro-food industries and the extractive manufacturing sectors (see Table 13). Apart from the relatively well established extractive sectors, among the sectors with high potential for regional integration is the tanning and dressing of leather (1911) sector which also constitutes a sector with future growth potential (see Section 4.5 for more information). The more detailed analysis of this sector in Figure 70 identifies a pervasive primary goods transfer between the SADC region and Asian economies: 73 per cent of all

SADC exports of primary tanning and dressing of leather goods are bound for Asia, with the other notable trading block being the Americas (26 per cent). In turn, 94 per cent of goods imports of similar type originate in Asia. Compared to these trading streams, the contribution of intra-SADC trade is minuscule.

Table 13: Regional trade interactions SADC

		Share of non-REC trade		
ISIC Rev. 3.1 4-digit sector	Type	Export	Import	PP-Difference
1911 - Tanning and dressing of leather	I/C - primary	99.91	99.98	-0.07
1543 - cocoa, chocolate and sugar confectionery	I/C - primary	99.77	95.33	4.44
1552 - wines	I/C - generic	99.61	6.28	93.33
1912 - luggage, handbags and the like, saddlery and harness	I/C - specific	99.47	98.88	0.59
2029 - other products of wood; manufacture of articles of cork, straw and plaiting materials	I/C - primary	99.41	93.91	5.50
3691 - jewellery and related articles	I/C - generic	99.04	94.27	4.77
2330 - Processing of nuclear fuel	I/C - specific	99.01	96.64	2.37
2927 - weapons and ammunition	F/C - processed	98.96	99.39	-0.43
3330 - watches and clocks	I/C - specific	98.73	98.36	0.37
2720 - basic precious and non-ferrous metals	I/C - primary	98.20	69.00	29.20
2430 - man-made fibres	I/C - primary	96.62	89.42	7.20
3693 - sports goods	I/C - specific	95.63	97.64	-2.01
1711 - Preparation and spinning of textile fibres; weaving of textiles	I/C - primary	95.08	89.72	5.36
1820 - Dressing and dyeing of fur; manufacture of articles of fur	I/C - generic	95.04	97.41	-2.37
3410 - motor vehicles	F/C - processed	94.84	93.34	1.50
1549 - other food products n.e.c.	I/C - primary	94.73	91.99	2.74
1514 - vegetable and animal oils and fats	I/C - primary	94.35	99.48	-5.13
3210 - electronic valves and tubes and other electronic components	I/C - generic	94.30	98.31	-4.01
1512 - Processing and preserving of fish and fish products	I/C - generic	93.90	34.64	59.26
2610 - glass and glass products	I/C - specific	93.86	75.61	18.25

Note: Sector selection: Top-20 ISIC Rev. 3.1 4-digits by type shown. Share of exports (imports) to non-SADC economies in per cent shown right (left) of dashed line. PP-Difference: Percentage point difference between export and import shares to non-SADC economies. Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (SADC) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

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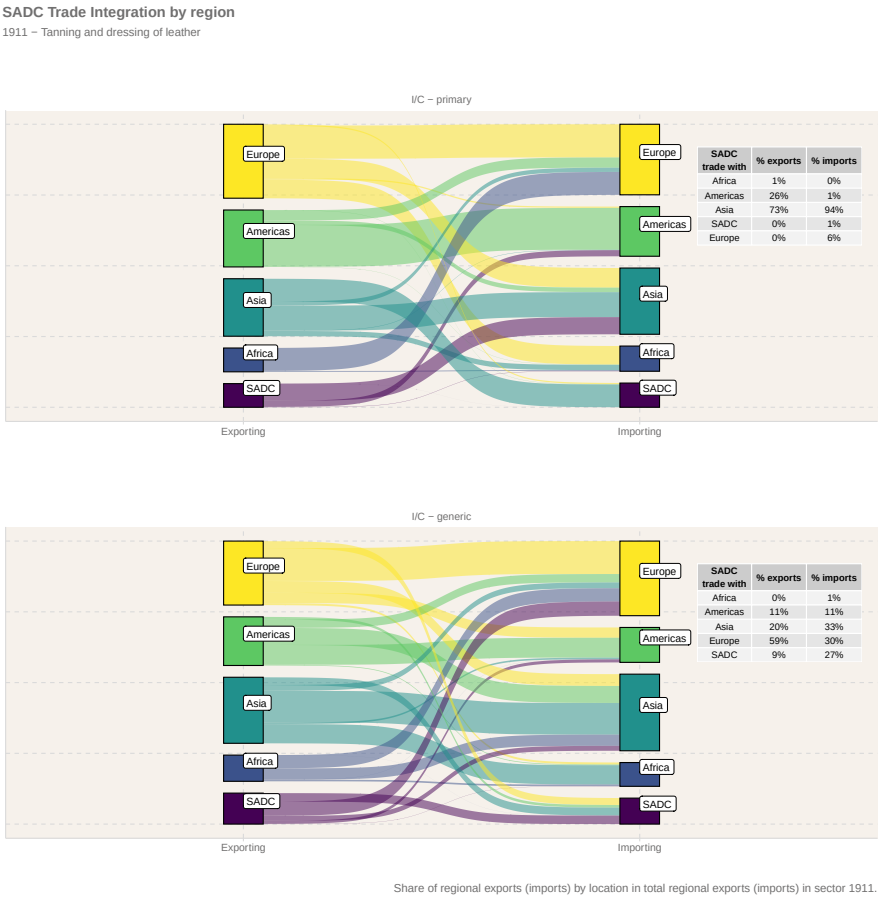
As for more complex commodities, trade with Asian and European economies remains essential. While around 60 per cent of generic intermediate consumption exports are shipped to Europe, intra-SADC trade becomes more noticeable as it constitutes around ten per cent of overall SADC exports. Furthermore, it should be noted that intra-African trade is by and large absent from this sector. For a complete mapping of SADC to global goods exchanges by sector and degree of processing, see Figure 99

Figure 70: SADC trade integration by region



Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.Trade streams in shares which may not represent the magnitude of the difference between the shares of exports/imports correctly depending on size of trade flow.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

UMA. As shown in Table 14, the potential for further regional integration in the UMA region is particularly strong in the agro-food sector. Another sector with very considerable potential is basic chemicals, except fertilisers and nitrogen compounds (2411) which over the past five years has been showing more sluggish growth in terms of export (see Section 4.5 for a more extensive discussion). To understand the trade integration and potential for a more dynamic export growth outcome, Figure 71 provides an in-depth analysis of the associated trade flows by region and degree of processing. As this analysis reveals, almost all primary, intermediate consumption material in the UMA region originates in Europe and is imported into the REC. On the other hand, primary goods exports from UMA countries are almost exclusive to Africa.

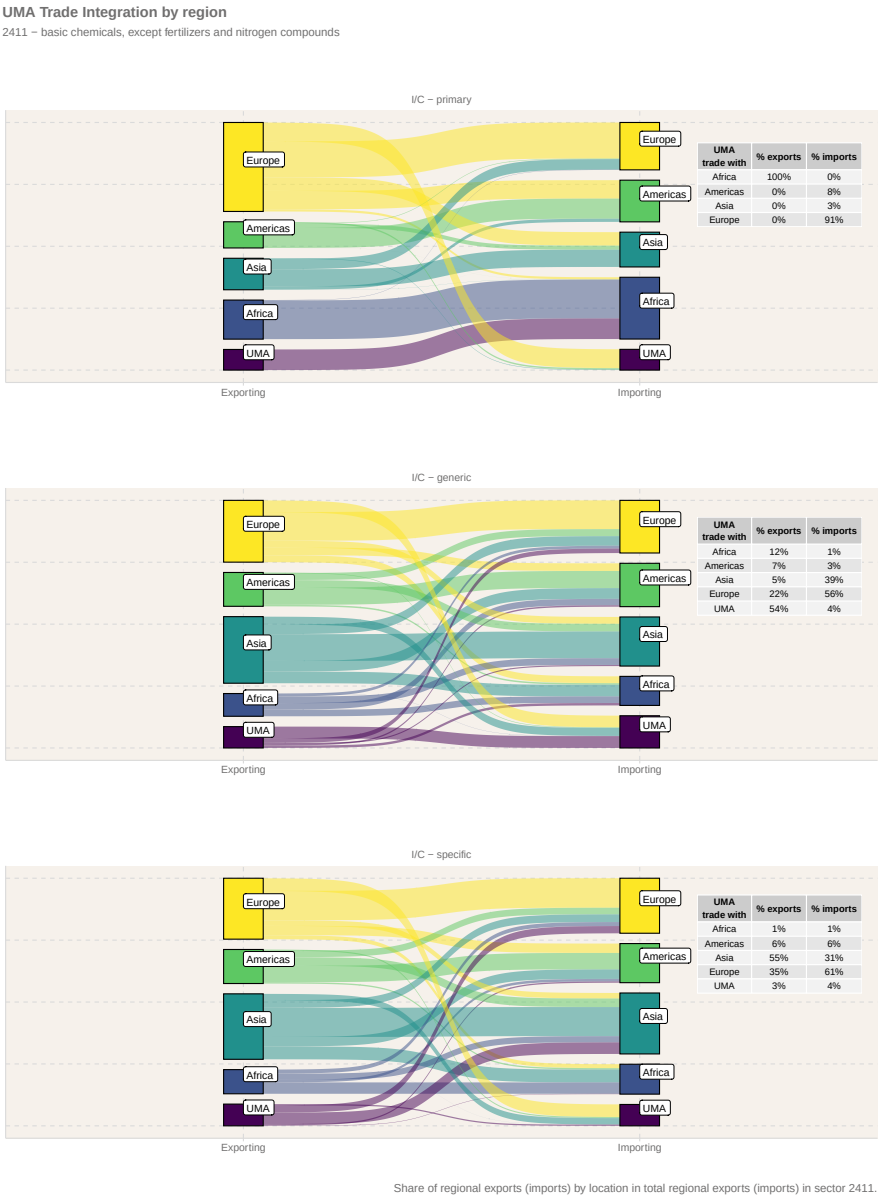
Table 14: Regional trade interactions UMA

ISIC Rev. 3.1 4-digit sector	Type	Share of non-REC trade		PP-Difference
		Export	Import	
1511 - Production, processing and preserving of meat and meat products	I/C - generic	100	100	0
1512 - Processing and preserving of fish and fish products	I/C - primary	100	100	0
1513 - Processing and preserving of fruit and vegetables	I/C - primary	100	100	0
1514 - vegetable and animal oils and fats	I/C - primary	100	100	0
1551 - Distilling, rectifying and blending of spirits; ethyl alcohol production from fermented materials	F/C - primary	100	100	0
1551 - Distilling, rectifying and blending of spirits; ethyl alcohol production from fermented materials	I/C - generic	100	100	0
1551 - Distilling, rectifying and blending of spirits; ethyl alcohol production from fermented materials	I/C - specific	100	100	0
1553 - malt liquors and malt	F/C - primary	100	100	0
1553 - malt liquors and malt	I/C - generic	100	100	0
1711 - Preparation and spinning of textile fibres; weaving of textiles	F/C - processed	100	100	0
1820 - Dressing and dyeing of fur; manufacture of articles of fur	I/C - generic	100	100	0
2029 - other products of wood; manufacture of articles of cork, straw and plaiting materials	I/C - primary	100	100	0
2411 - basic chemicals, except fertilizers and nitrogen compounds	I/C - primary	100	100	0
2519 - other rubber products	F/C - primary	100	100	0
2710 - basic iron and steel	I/C - primary	100	100	0
2812 - tanks, reservoirs and containers of metal	I/C - generic	100	100	0
3000 - office, accounting and computing machinery	F/C - processed	100	100	0
3420 - bodies (coachwork) for motor vehicles; manufacture of trailers and semi-trailers	F/C - processed	100	100	0
3520 - railway and tramway locomotives and rolling stock	I/C - specific	100	100	0
3530 - aircraft and spacecraft	I/C - specific	100	100	0

Note: Sector selection: Top-20 ISIC Rev. 3.1 4-digits by type shown. Share of exports (imports) to non-UMA economies in per cent shown right (left) of dashed line. PP-Difference: Percentage point difference between export and import shares to non-UMA economies. Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (UMA) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

With higher degrees of processing, trade becomes less concentrated. However, UMA economies still rely on Europe as their main source of material import to the sector. Particularly for generic intermediate consumption goods, intra-UMA trade becomes noticeable (54 per cent of UMA exports are destined for the UMA region). In comparison, the sector itself remains reliant mainly on material imports (these 54 per cents account for roughly 4 per cent of imports of this commodity type). More substantial intra-regional trade may be a potential tool to foster economic engagement in the region and revitalise export growth of this sector. For a complete mapping of UMA to global goods exchanges by industry and degree of processing, see Figure 100.

Figure 71: UMA trade integration by region



Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.Trade streams in shares which may not represent the magnitude of the difference between the shares of exports/imports correctly depending on size of trade flow.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

4.5 How can we prioritise RVCs? – Methods for comparative assessments & selection

Main findings Section 4.5

1. The majority of top RVCs that were identified for all RECs in earlier sections of this report belong to sectors that have experienced positive export growth. This signals a good potential for further export gains if these RVCs are strengthened in the future.
2. There are no signs for a maturation process (characterised by a high concentration in trade and low growth dynamics) in the top RVCs identified across the eight RECs in this report.
3. The potential for new key RVCs to develop is limited to a few cases in each REC but these could be expected to bring about positive socio-economic developments in terms of value-added, employment and wage growth.
4. While some RVCs can contribute strongly to achieving other policy objectives beyond exports within the RECs (e.g. value added, employment and wage performance), some RVCs most likely do not offer very significant gains in these dimensions despite their large export size. This is particularly visible with respect to limited employment levels and trends for some of the largest RVCs in terms of exports (e.g. refined petroleum products).
5. Overall, the analytical findings of this section can be used during a RVC prioritisation process within each REC. However, the decision making framework has to be tailored to reflect the key policy objectives of the REC and the analysis needs to be complemented with additional quantitative and qualitative elements to ensure a holistic assessment.

This section elaborates on the prioritisation of regional value chains. It first discusses strategic considerations for the prioritisation process of RVCs. It then evaluates and compares export performance patterns of RVCs that can inform the prioitisation process within the different RECs. In the third part, the likely socio-economic implications concerning regional value chain prioritisation are analysed. The main results of this chapter including a comprehensive list of all manufacturing sectors exceeding an intra-regional export share of one per cent are provided in appendix C.5.3 for further reference. This list can serve as a key input for an in-depth prioritisation process within the RECs.

4.5.1 A framework for strategic prioritisation of RVCs

A strategic prioritisation of those RVCs that should be particularly supported by industrial policy interventions in each African REC goes beyond the scope of this report. The analysis presented here can however inform a strategic decision making process within each REC. In particular the following analytical contributions can be distinguished:

1. The identification of the main existing RVCs as well as potential future ones (based on potentials for shifting from GVCs to RVCs and by replacing global imports with regional supply) from the earlier sections of chapter 4.

2. The relative contribution to REC export performance (in terms of size and dynamism) that the key RVCs as well as future ones could be expected to bring about. This analysis can help to prioritise RVCs mainly from an export angle and is presented in the following sub section 4.5.2.

3. The socio-economic impact that specific RVCs may bring about in terms of contributions to value addition, employment and wage development in the respective REC. This analysis can broaden the strategic decision making process beyond trade (exports) and allow for a more holistic understanding of RVC development dynamics and is presented in sub section 4.5.3.

These analytical inputs would need to be complemented by additional quantitative and qualitative research on specific RECs. In particular it would be relevant to consider also the *relative inclusiveness impact* of each RVC. Some key RVCs are mainly dominated by one country within the RECs, making that country most likely the main beneficiary of the strengthening of the REC. In addition, *other industrial policy objectives* (beyond export growth, value added, employment and wages) could be considered, e.g. to understand the relative environmental impact or the economic resilience contributions of specific RVCs. Overall, this decision making process will require additional data sources that are not readily available from international databases and would hence need to be identified and/or developed in close collaboration with the RECs and member states. Most importantly, the prioritisation process within each REC will need to be conducted in a highly participatory manner in order to allow for inputs from all key public and private sector stakeholders. We are however confident that the results of this section will be of immense value to ensure that these processes will be conducted in a evidence-based manner.

A note on strategic considerations for RVC prioritisation

It has to be noted that a simple classification such as the one proposed in this section only serves as a first analytical tool to conceptualise and categorise the performance patterns of different manufacturing sectors of an economy. As such, it should only be seen as a starting point for a more comprehensive analysis. A more comprehensive examination would require the identification of a selected group of relevant sectors chosen for further analyses and an in-depth study of these sectors to learn more about their respective challenges and opportunities. Such work can only be done through a comprehensive region/country-level study and requires the inclusion of national counterparts and a mix of quantitative as well as qualitative research, including field visits and interviews.

Similarly, the identification of potential future RVCs depends not only on past and future export growth performance but also on the existence and further development of RVC-related characteristics as defined in box 2.

A future, more detailed analysis on the importance of future RVC developments would aim to identify sectors with the most dynamic trading ties between regional members that have not grown to more dominant sector in the respective economies. Identifying their potential would then serve as a precursor for a more qualitative and granular analysis that aims at identifying and eliminating potential bottlenecks to help these sectors grow to their full potential.

4.5.2 Considering export dynamics of RVCs in the prioritisation process

In this section, strategic considerations for the prioritisation of RVCs are discussed by evaluating and comparing sector-level export performance patterns in terms of the relative size and dynamism of value chain exports. The analytical vehicle for this analysis is the *corridor plot* which is introduced in box 8. The remainder of this section is dedicated to an in-depth discussion of the performance patterns of all eight RECs analysed in this report. The findings of this section are also summarised in columns *RVC classification* and *Dynamism classification* in the tables belonging to appendix C.5.3. In these tables, the results of the applied methodology used in this section (please see box 8 for reference) are summarised in a comprehensive manner.

Box 8: Analytical vehicle 5: Corridor plots.

The analytical vehicle used in this section is the *corridor plot*, which is presented in Figure 73 for the case of the UMA region. The figure plots the relative export size of each ISIC Rev. 3.1 4-digit manufacturing sector as a share of total manufacturing exports in 2019. The sector contribution to total manufacturing exports decreases from right to left (the most significant sector being identified by the most right outward point). Only shares larger than 0.01 are plotted. On the y-axis, estimated time trends, i.e., annual percentage changes, are plotted. For more information on the technical aspects of the estimation, please see appendix C.5.1. A high positive number on the y-axis means a high positive growth rate. In contrast, a negative number means that exports of a particular sector have been contracting over time. This dynamic reflects a reduction of a specific industry in the country's export basket.
Based on the performance of the manufacturing sectors in terms of their export growth and relative size, distinct classifications are established:

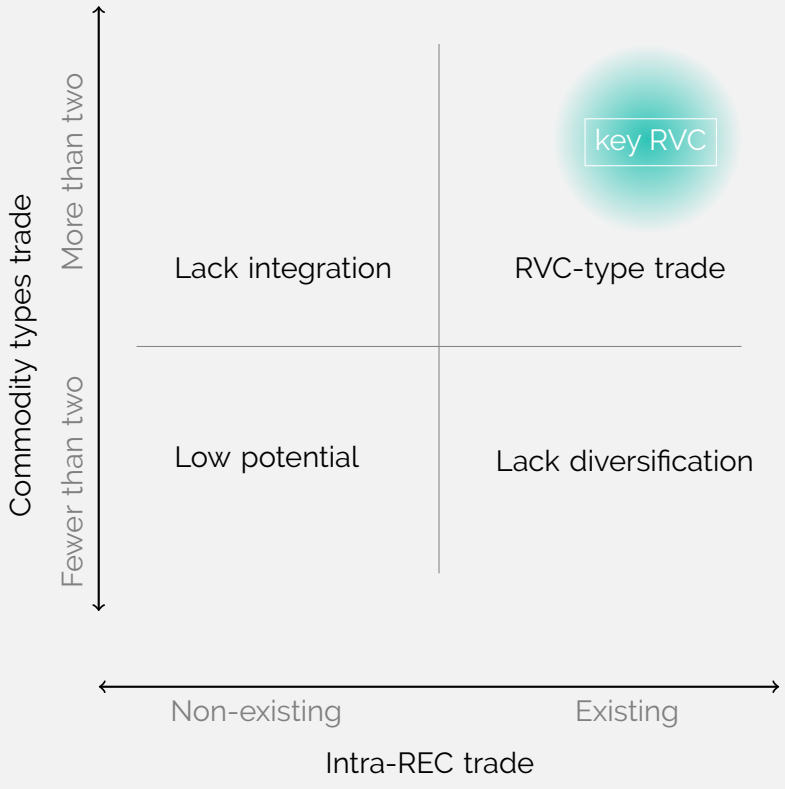
- *Stars:* These sectors are characterised by a high relative share in total manufacturing exports (above at least 1 per cent) as well as positive growth over time. These sectors are both critical for a region and show healthy growth dynamics.
- *Rising stars:* These sectors are characterised by a low relative share in total manufacturing exports (below the 1 per cent threshold) but feature positive growth over time. These sectors still make up a relatively small share in the overall export basket of the country but are showing healthy growth dynamics. These sectors may become *stars* in the future if their positive growth continues over time.
- *Questionmarks:* These sectors are characterised by a low relative share in total manufacturing exports (below the 1 per cent threshold) and also display a negative growth in terms of their export dynamics. These sectors are of relatively minor importance in terms of the *current* export configuration of the country, and past export trends do not seem indicative of a turnaround. A more detailed analysis of these sectors and further understanding of the implications of their further decline are needed.
- *Matured:* These sectors are characterised by a high relative share in total manufacturing exports (of at least 1 per cent) but display a negative growth in terms of their export dynamics. Sectors characterised in this way have become a notable building block of the country's exports. Still, they are currently facing a decline in their growth dynamics. These sectors require future analysis to understand the reasons for their downfall and the potential socio-economic implications brought about by a future contraction.

On top of the above classification, Figure 73 also evaluates each sector based on its RVC classification introduced in box 2. Using this RVC classification, manufacturing industries can be classified as follows (please see Figure 72 for visualisation of the concept):

- According to box 2, RVC are identified if more than two commodity types are traded within a ISIC 4-digit sector and REC. Among all these RVCs, the key RVCs are selected if they exceed a share of two per cent in total trade. In Figure 73, the two per cent cut-off is visualised by the grey dashed line.
- If an ISIC Rev 3 4-digit sector trades more than two commodity types but only with economies that *do not belong to the same REC*, this sector is classified as having a *lack of (RVC) integration*.
- Sectors with a *lack of diversification* are the ones where intra-REC (between at least two REC members) exist but they trade fewer than two types of commodities per sector. Note that this also includes all industries for which only fewer than two types of commodities (by their degree of processing) are observed.
- Finally, sectors that do not trade intra-regionally and also trade fewer than two commodities per ISIC Rev. 3 4-digit code are classified as having *low potential* for RVC upgrading. Note that these sectors are *not identified* in this report.

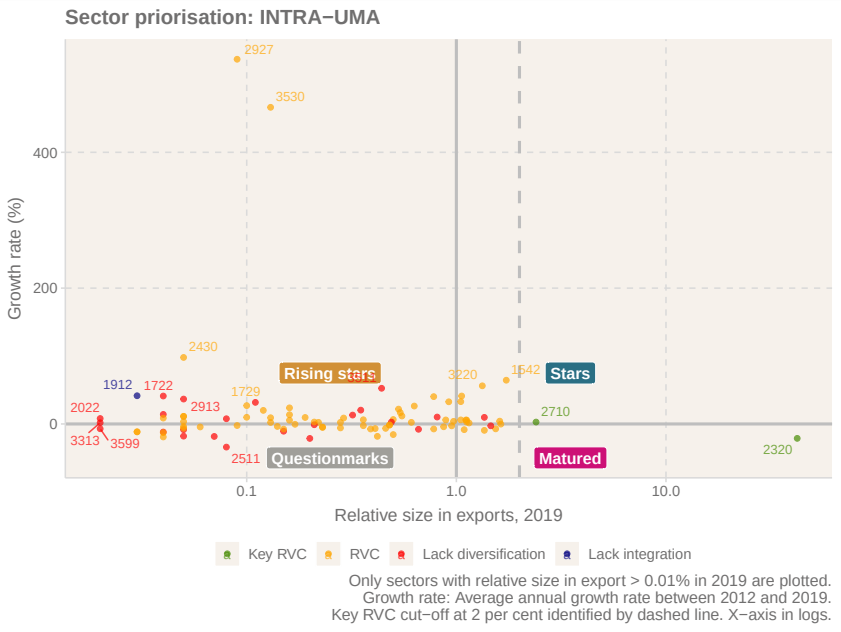
These four evaluation criteria are also introduced in Figure 73 using colours. For the full list of identified sectors and their respective ISIC Rev. 3 4-digit codes, pleas see appendices C.3 and C.4.

Figure 72: Sector classification based on RVC identification



Because of the selection mechanism employed in this report, key RVC sectors would naturally have a large relative size in exports in 2019, i.e. would be situated further to the right on the x-axis. At the same time, not all sectors with a large relative export size in 2019 are expected to be key RVC sectors because they might not meet the criteria for a RVC as outlined above. Finally, sectors with RVC-type trade but a relatively low export market share, i.e., below the threshold value of two per cent, are of particular interest for future development if they also feature high growth rate. In Figure 73 below, one such case would be the sugar (1542) sector.

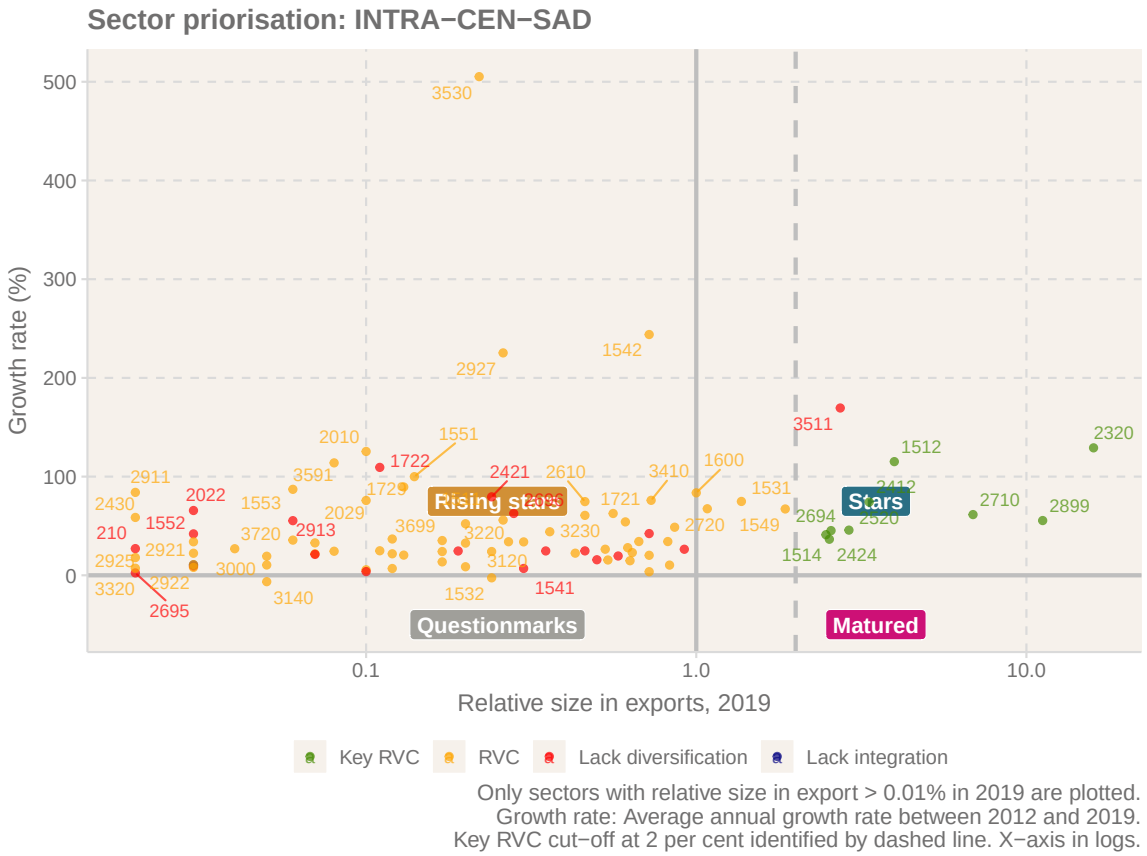
Figure 73: Analytical vehicle 5: Corridor plots



CEN-SAD. Figure 74 illustrates that all key RVC identified in the CEN-SAD region have seen robust and positive growth between the periods 2012 and 2019, with the highest growth recorded in the refined petroleum products (2320), processing and preserving of fish and fish products (1512) and fertilisers and nitrogen compounds (2412). At the same time, all considered RVCs with an export share larger than one per cent qualify as a *star*, emphasising the robust growth performance of CEN-SAD economies in terms of export growth. Finally, while the building and repairing of ships sector (3511) has shown excellent growth performance, it is also characterised by a lack of diversification; that is, intra-CEN-SAD trade does not take place over multiple processing stages of this particular commodity.[25] The sectors with the highest growth rates that feature RVC-type trade in the CEN-SAD region are: 3530 - aircraft and spacecraft; 1542 - sugar; 2927 - weapons and ammunition. See Table 53 for a complete summary of the RVC prioritisation analysis.

[25]Note that the building and repairing of ships sector (3511) does only contain gross capital transfers and product upgrading can therefore not be measured with the methodology proposed in this report. A more detailed and granular analysis of capital goods would be needed in this case, which, however, goes beyond the scope of this report.

Figure 74: Sector Priorisation CEN-SAD

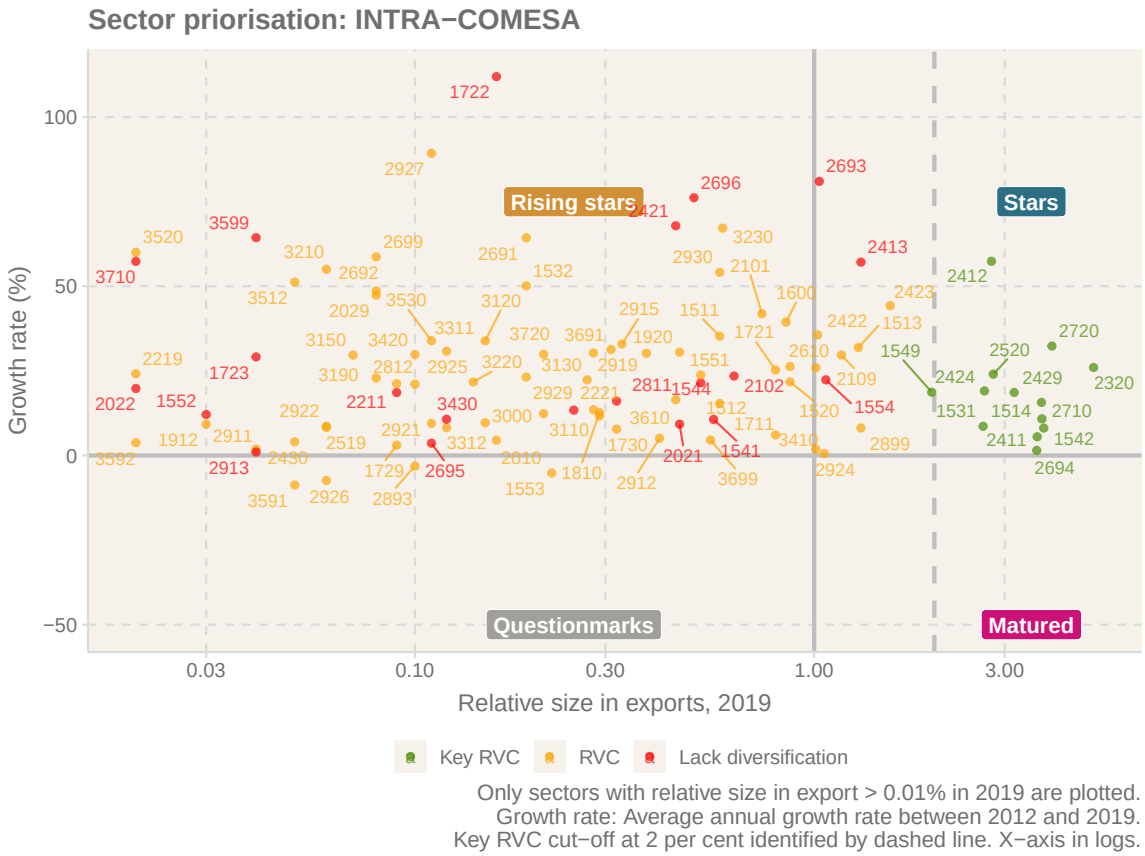


Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

COMESA. As can be seen in Figure 75, growth performances for identified key RVCs have been less dynamic over the past five years. The two fastest-growing REC industries (fertilisers, 2412, and basic precious and non-ferrous metals, 2720) have been growing modestly with growth rates above 25 per cent. All other identified key RVCs show positive yet more moderate growth performance. Among the sectors with more substantial positive growth are the plastics sector (2413), cement (2693) as well as pharmaceutical (2423) sectors. While the latter pairs RVC-type trade with solid export growth and are therefore likely to become a key RVC sector in the COMESA region in the foreseeable future, the former two industries are characterised by a lack of diversification, that is, fewer than two types of commodities are traded.[26] The sectors with the highest growth rates that feature RVC-type trade in the COMESA region are: 2927 - weapons and ammunition; 3230 - television and radio receivers; 2691 - non-structural non-refractory ceramic ware; 2699 - other non-metallic mineral products. See Table 54 for a complete summary of the RVC prioritisation analysis.

[26]For both these sectors, global trade patterns also do not have RVC-type trade as defined by the BEC 5 classification indicating that the method of measuring value-added upgrading through trade is not applicable for these two sectors.

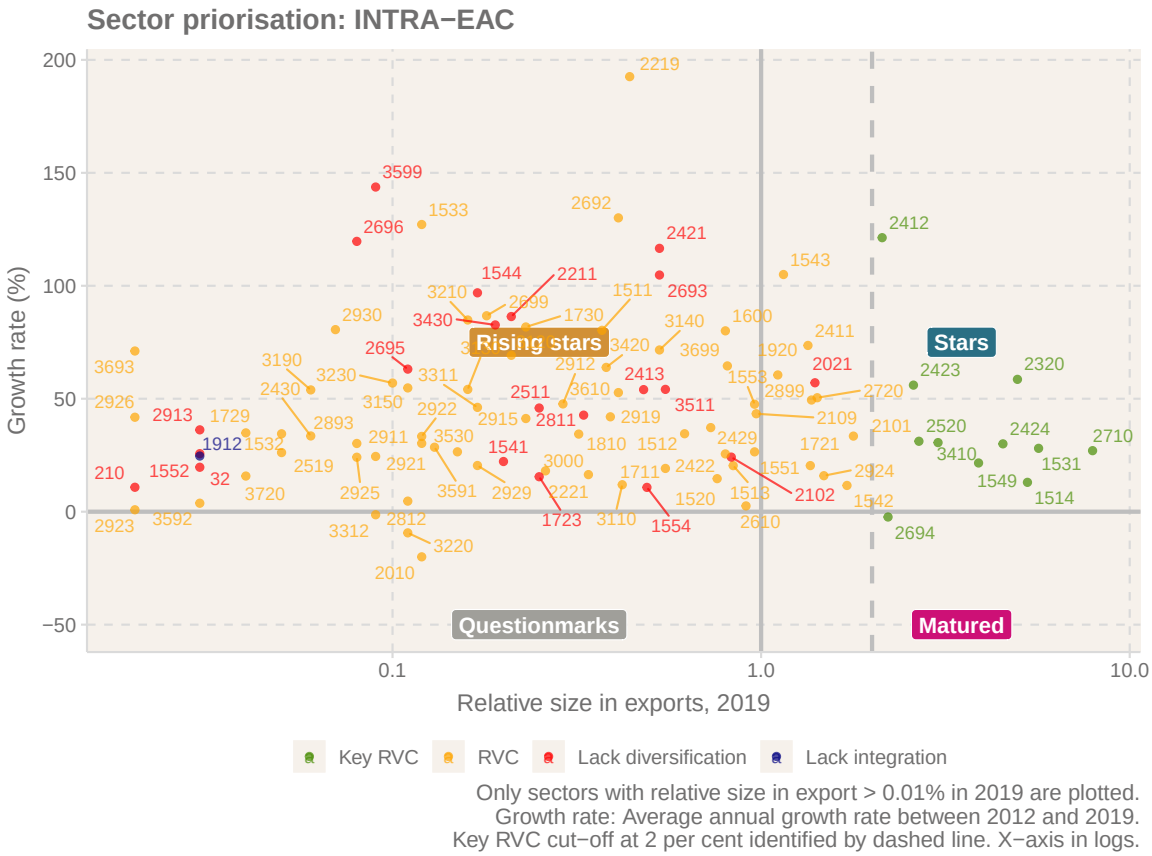
Figure 75: Sector Priorisation COMESA



Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

EAC. Figure 76 illustrates that the majority of key RVCs identified in this report are subject to positive growth. Sectors that have shown the most impressive growth performance over the past five years belong to the chemicals sector (24) and the refined petroleum products industry (2320). This includes basic chemicals (2411), which is likely to grow into a more prominent regional RVC because of its dynamic growth and moderate size. Similar tendencies may also be possible for cocoa, chocolate and sugar confectionery, even though the sector remains moderately small at the time of writing this report. Among the RVC industries, only the cement, lime and plaster sector (2694) exhibits signs of maturation. It is likely to fall behind the other RVC sectors in the EAC economy because of its contractionary export growth over the past five years. The sectors with the highest growth rates that feature RVC-type trade in the EAC region are: 2219 - general purpose machinery; 2692 - refractory ceramic products; 2412 - fertilisers and nitrogen compounds; 1533 - prepared animal feeds. See Table 55 for a complete summary of the RVC prioritisation analysis.

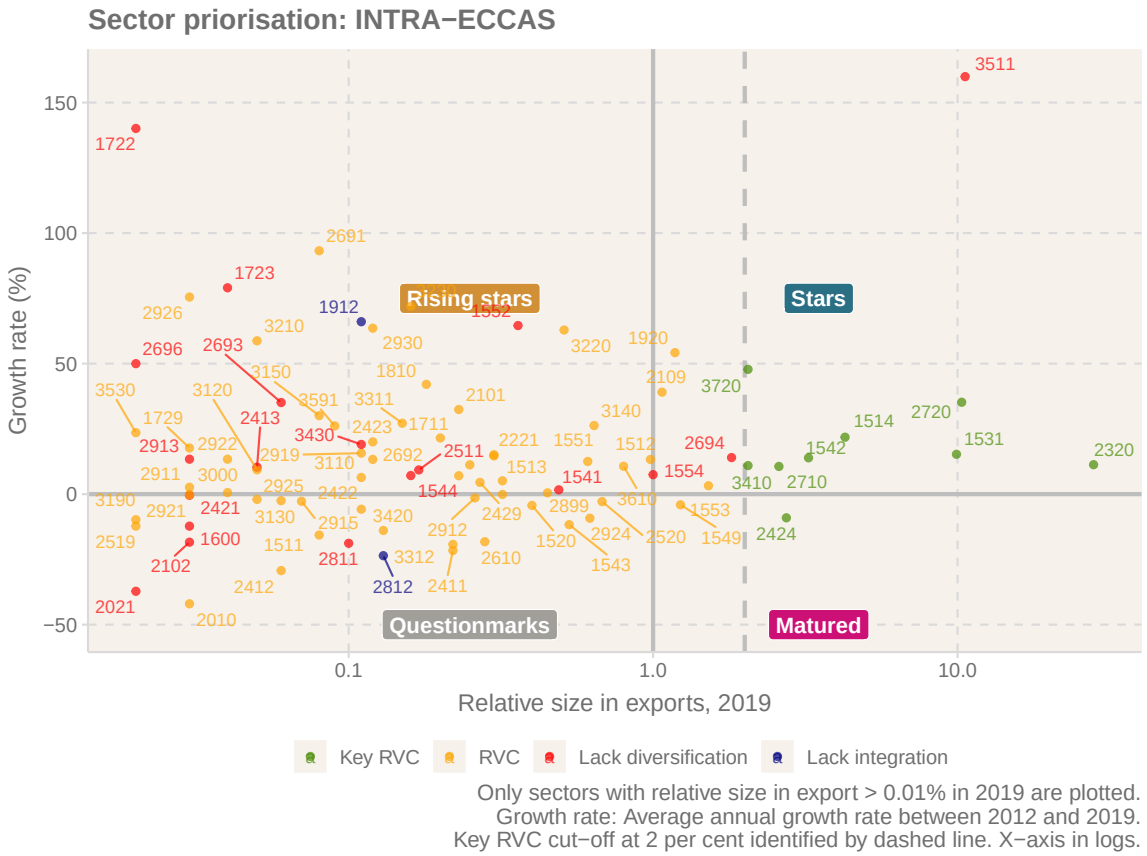
Figure 76: Sector Priorisation EAC



Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

ECCAS. Figure 77 reveals that the basic precious and non-ferrous metals sector (2720) has seen the most extensive and positive export growth dynamics across the mayor RVCs. Another highly dynamic yet somewhat smaller sector is recycling of non-metal waste and scrap (2720), which has demonstrated impressive growth performance of around 50 per cent over the past five years. While the ECCAS region does show robust growth performance for most of the significant RVCs identified in the report, maturation tendencies with negative export growth are observed for the soap and detergents (2424) sector as well as the somewhat smaller agro sectors 1553 (malt liquors and malt) and 1549 (other food products. Given the current sector dynamics, it is not likely that any new manufacturing sectors will gain notable RVC relevance quickly. However, despite their moderate share in current relative size, sectors that pair RVC-type trade with robust growth dynamics and might become relevant RVC in the future are the footwear (1920) and paper and paperboard (2109) sectors. The sectors with the highest growth rates that feature RVC-type trade in the ECCAS region are: 2691 - non-structural non-refreactory ceramic ware; 2926 - machinery for texiles, apparel and leather production; 2930 - domestic appliances; 3220 - television and radio transmitters. See Table 56 for a complete summary of the RVC prioritisation analysis.

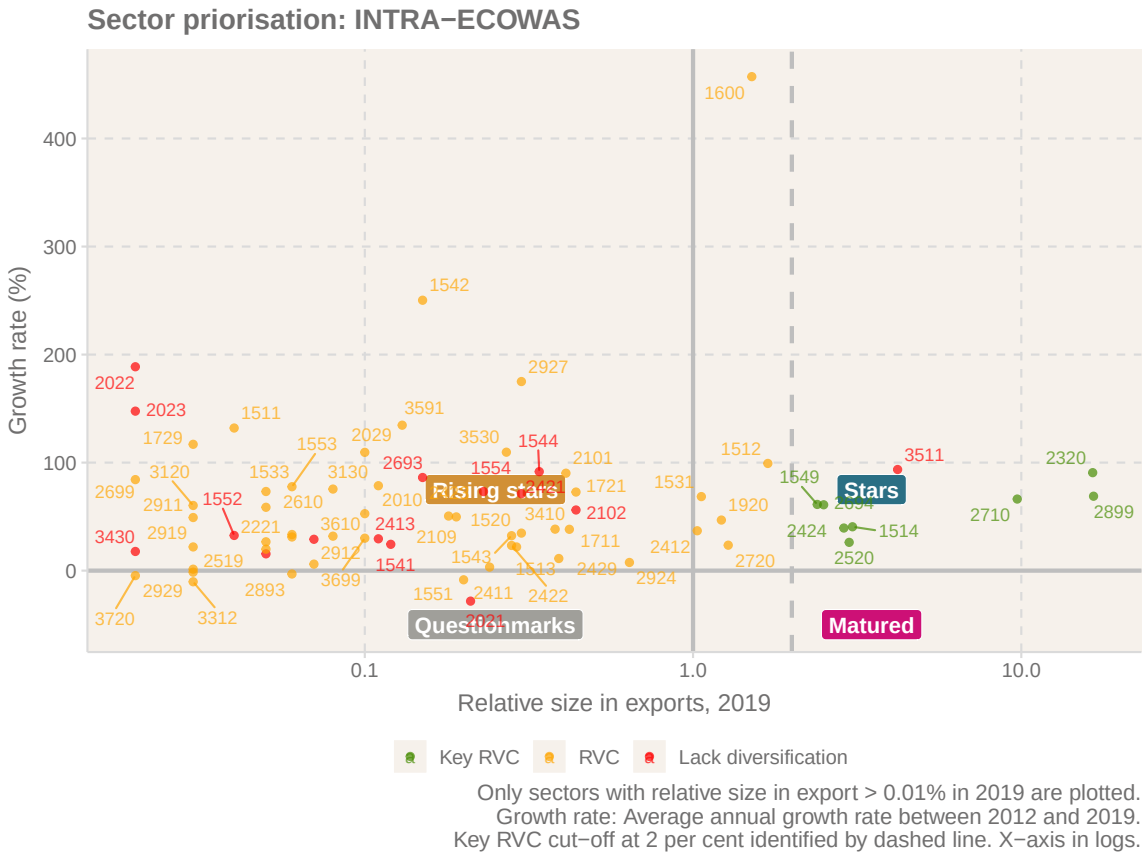
Figure 77: Sector Priorisation ECCAS



Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

ECOWAS. As Figure 78 reveals very robust and notable growth performance patterns for the three significant RVCs: fabricated metal (2899), refined petroleum (2320) and basic iron and steel (2710). All other RVCs identified in this report also follow robust growth patterns and do not appear to drift into a stage of maturation any time soon. Among the sectors that might gain RVC-relevance in the foreseeable future, particularly the agro sector with processing and preserving of fish and fish products (1512) and grain mill products (1531) stand out. Another notable candidate pairs RVC-type trade with notable export growth is the footwear sector (1920). The sectors with the highest growth rates that feature RVC-type trade in the EAC region are: 1600 - tobacco; 1542 - sugar; 2927 - weapons and ammunition; 3591 - motorcycles. See Table 57 for a complete summary of the RVC prioritisation analysis.

Figure 78: Sector Priorisation ECOWAS

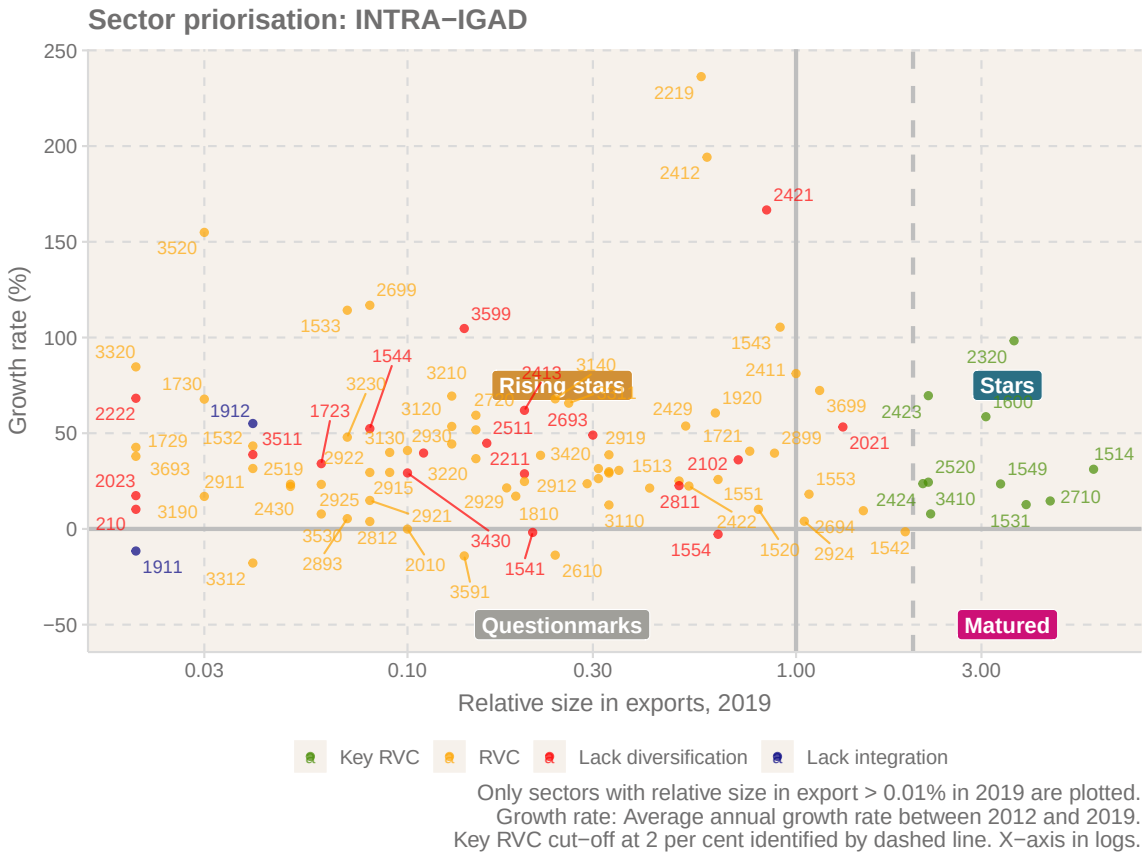


Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.

Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

IGAD. Figure 79 identifies refined petroleum (2320) and tobacco (1600) as well as pharmaceuticals (2423) to be among the three most dynamic RVC sectors of the IGAD region. While these three sectors have shown the most notable growth effects, equally impressive dynamics can be observed for the other RECs identified for the IGAD region. The only notable sector showing signs of maturation is the sugar industry (1542) which accounts for a substantial share of almost 2 per cent of total exports in 2019. Sectors characterised by RVC-type trade and are likely to increase in relevance because of their export dynamics are cement, lime and plaster (2694) and malt liquors and malt (1553). The sectors with the highest growth rates that feature RVC-type trade in the IGAD region are: 2219 - general purpose machinery; 2412 - fertilisers and nitrogen compounds; 3520 - railway and tramway locomotives and rolling stock; 2699 - other non-metallic mineral products. See Table 58 for a complete summary of the RVC prioritisation analysis.

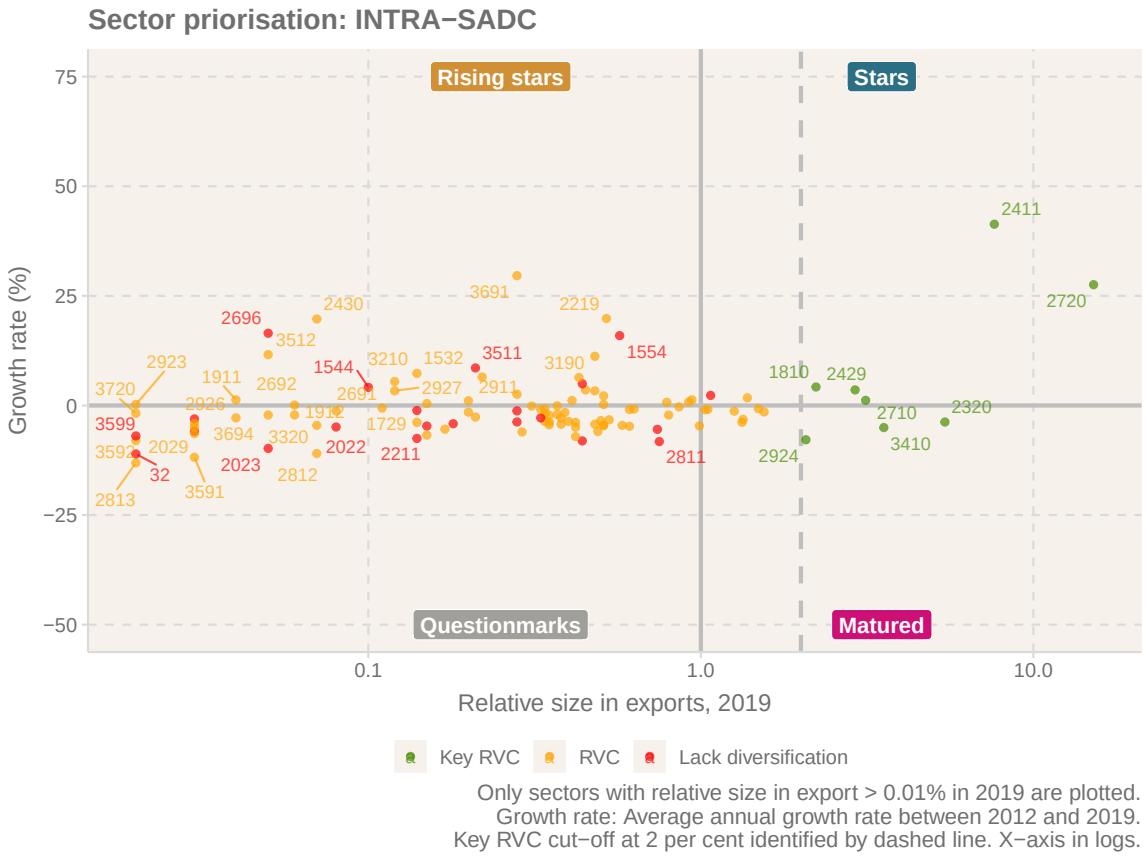
Figure 79: Sector Priorisation IGAD



Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

SADC. Figure 80 reveals that the growth performance of SADC's most important sectors (basic precious and non-ferrous metals, 2720; basic chemicals, 2411) has been nothing but impressive with growth rates above 25 per cent over the last five years. While these are very substantial numbers, similarly positive results cannot be found for any of the other sectors with RVC-type trade to become key RVC sectors in the future. For these sectors, notable signs of maturation with low or negative growth rates have been observed, indicating a potentially strong degree of sector-level concentration in the chemicals and metals sector for SADC economies in the future. The sectors with the highest growth rates that feature RVC-type trade in the SADC region are: 3691 - jewellery and related articles; 2219 - other publishing; 2430 - nuclear fuel; 3512 - building and repairing of pleasure and sporting boats. See Table 59 for a complete summary of the RVC prioritisation analysis.

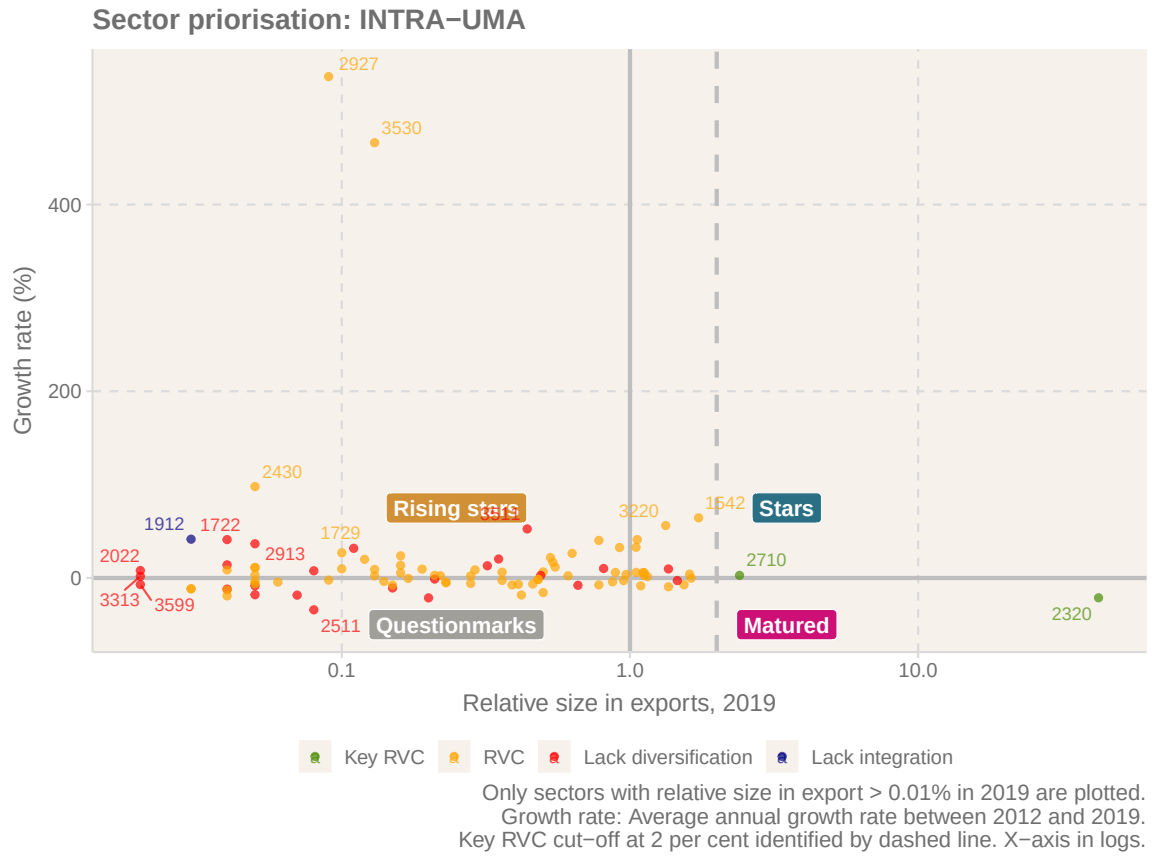
Figure 80: Sector Priorisation SADC



Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

UMA. Figure 81 reveals that the two key RVCs of the UMA region have been showing maturation tendencies with low or negative growth rates over the past five years. The sector most likely to gain notable RVC relevance in the UMA region is the sugar industry (1542) which pairs a significant share in exports with remarkable export growth. The same is true to a lesser extent for the television and radio transmitters sector (3220) is smaller and less dynamic than the sugar industry yet still shows all the signs of a potential key RVC sector in the future. The sectors with the highest growth rates that feature RVC-type trade in the UMA region are: 2927 - weapons and ammunition; 3530 - aircraft and spacecraft; 2430 - nuclear fuel; 1542 - sugar. See Table 60 for a complete summary of the RVC prioritisation analysis.

Figure 81: Sector Priorisation UMA



Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

4.5.3 Considering the socio-economic impacts of RVCs in the prioritisation process (value added, employment and wages)

This section assesses the socio-economic implications concerning regional value chain prioritisation. It allows RECs to consider the likely impacts that specific RVCs may have in terms of strengthening value added, employment and wage performance in the region. This analysis considers both the overall level (size) and dynamism (elasticity) of value added, jobs and wage performance relative to export performance. Each REC can use these results in a tailor-made manner. E.g. while some regions will put a premium on value added effects, others will prioritise job creation or wage growth. The analytical vehicle for this analysis is the *elasticity plot* which is introduced in box 9. The remainder of this section is dedicated to an in-depth discussion of the performance patterns of all eight RECs analysed in this report. The findings of this section are also summarised in columns *Elasticities* in the tables belonging to appendix C.5.2. In these tables, the results of the applied methodology used in this section (please see box 8 for reference) are summarised in a comprehensive manner.

Box 9: Analytical vehicle 6: Elasticity plots.

The analytical vehicle used in this section is the *elasticity plots*, which is presented in Figure 82 for the case of the SADC region. In each panel, the figure plots the *average* level of employment, value-added and wages on the y-axis against the export volume (on the x-axis) for all ISIC Rev. 3 4-digit sectors between 2012 and 2019 in 100 thousand USD. Also, note that the data displayed in this section uses global manufacturing data instead of Africa- or REC-specific data; see appendix C.5.2 for more information on the technical aspects of the analysis. A positive relationship (depicted by the upward-sloping orange line) indicates that increases in the export volume are associated with higher employment, value-added, and wages.[a] Suppose a certain scatter point falls *above* the orange line. In that case, this means that the domestic effect (on either employment, value-added or wages) is above the average of what one would expect given the average global export engagement. In other words, if all key RVC sectors of a REC are found to be above the orange regression line, this means that these sector have, on average, a *higher* contribution to all socio-economic metrics (employment, value-added, wages), than the average manufacturing sector at a given level of exports. These sectors are therefore assumed to have a *higher socio-economic impact* on the domestic economy. The size and colour of the bubble represent *elasticities* and measure the sensitivity of one of the socio-economic variables to a change in exports. Put simply, by using global data on the sensitivity of how socio-economic variables (employment, value-added or wages) react to changes in exports, one can understand how more robust regional integration will likely affect domestic socio-economic outcomes. For example, the high elasticity of .2 (identified by a big bright scatter) of value-added in the basic precious and non-ferrous metals sector (2720) indicates that a ten percentage increase in exports would correspond to a two percentage increase in value-added generation in the respective industry under the assumption that production technologies remain unchanged. The elasticities for all socio-economic variables of all RVCs (wit a relative export share larger than 1 per cent) are also summarised in columns *Elasticities* in the tables belonging to appendix C.5.2.

Figure 82: Analytical vehicle 6: Elasticities

[a] In figures 83 to 90, the x- and y-axes show the average sector size in exports (x-axis) and either of the socio-economic indicators (employment, value-added and waves) on the y-axis between 2012 and 2019 in 100,000 current USD.

Data limitations and advice for future research on socio-economic factors.

Because of a lack of comprehensive data on the manufacturing industries of African economies at the ISIC Rev.3 4-digit level, the elasticities obtained in this section are calculated using global panel data; please see appendix C.5.2 for more information.

Consequently, the projected elasticities in this section have to be understood as *approximate average, global average dynamics* which may only be partly reflective of the manufacturing sector performance patterns of African economies.

In order to improve the accuracy of analyses such as the one presented in this section of the report, a unified push to collect and harmonise national manufacturing data on critical metrics such as value-added, employment or wages would be of great advantage. Such a data set may be hugely beneficial for future strategic policy planning as it would provide the foundation of an in-depth understanding of the currently unavailable African manufacturing development patterns.

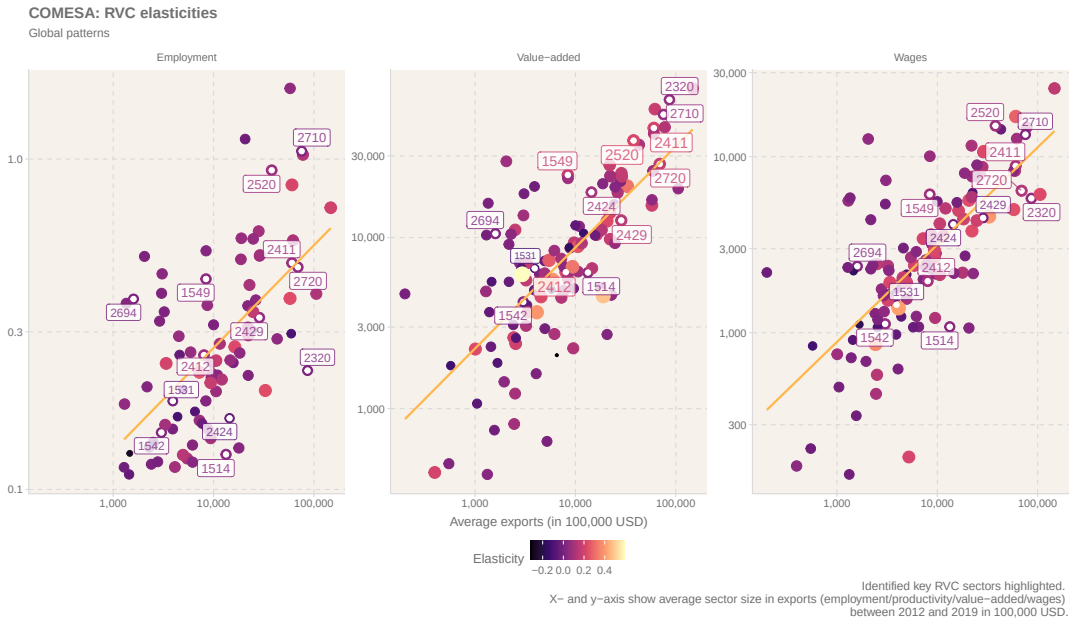
CEN-SAD. The overwhelming majority of key RVC sectors identified for the CEN-SAD region are expected to grow in terms of their value-added, employment and wage contribution when these sectors expand their export activity (Figure 83). As illustrated in Table 53, the highest value-added elasticities based on global trends can be observed for the fertilizer (2412) and the plastic products (2520) sector, which account for a combined significant share of around 7 per cent in REC-specific exports. At the same time, CEN-SAD economies are present in RVCs with above-average contributions to employment, wages and value-added based on global patterns (more key RVCs above the orange line). The sectors with the lowest socio-economic impact that are situated most notably below the orange line are vegetable and animal oils and fats (1514), preserving of fish and fish products (1512), refined petroleum products (2320) and soap and detergents (2424).

Figure 83: Sector Priorisation CEN-SAD

Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

COMESA. The projected global elasticities for the RVCs in the COMESA region are characterised by having lower socio-economic impacts (more key RVCs below the orange regression line in Figure 84). As illustrated by the elasticity figures in Table 54, among the key RVCs, the most substantial value-added increases can be expected for the basic chemicals (2411) as well as the fertiliser sector (2412) and basic precious and non-ferrous metals. In terms of the most considerable potential to foster employment and wage growth in the foreseeable future is the plastics sector. Among the sectors with high potential to become a strong RVC in the future, particularly the pharmaceuticals (2423) sector and machinery for mining (2924), is expected to bring about notable increases in value-added and employment and wages. The sectors with the lowest socio-economic impact that are situated most notably below the orange line are vegetable and animal oils and fats (1514), sugar (1542), refined petroleum products (2320) and soap and detergents (2424).

Figure 84: Sector Priorisation COMESA



Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

EAC. Compared to projected global elasticities, the RVCs identified for the EAC region are expected to bring notable employment, value-added and wage growth into the region, as is visible in Figure 85; there are more sectors with above-average socio-economic effects identified by being above the orange line. As can be seen in Table 55, the most prominent sector (basic iron and steel, 2710) is characterised by solid and positive value-added, employment and wage elasticities. Among the RVCs with similar performance are motor vehicles (3410), plastic products (2520) as well as pharmaceuticals (2423). Among the sectors with the highest potential to become future key RVCs in the region (identified by RVC-type trade and a high export growth rate), particularly precious metal (2720) and basic chemicals (2411) are expected to bring notable socio-economic effects to the region. Finally, while the cacao, chocolate and sugar confectionery sector (1543) shares all the characteristics of also becoming a notable value-chain sector in the region, its lower value-added and wage elasticities indicate its potentially limited effect on socio-economic development within the region; see Table 55 for more information. The sectors with the lowest socio-economic impact that are situated most notably below the orange line are vegetable and animal oils and fats (1514), refined petroleum products (2320) and soap and detergents (2424).

Figure 85: Sector Priorisation EAC

Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

ECCAS. The socio-economic impact (particularly on employment and wages) for the RVCs identified in the ECCAS region remains below the globally expected average (fewer RVCs for employment and wages below the orange lines in Figure 86 than above). Furthermore, Table 56 illustrates that the sectors which are expected to bring the most extensive increase in value-added in response to increased regional integration are the basic precious and non-ferrous metals sector (2720) as well as the soap and detergents industry (2424). In terms of expected effects on wage growth, motor vehicles (3410) and the aforementioned non-ferrous metals sector (2720) are expected to bring the most notable positive impact to the ECCAS region. Among the sectors with potentially high future RVC potential, particularly the paper and paperboard (2109) sector is expected to produce a substantial socio-economic dividend, while increases in the export engagement in the footwear (1920) sector is more likely to have substantial effects on value-added growth; see Table 56 for more information. The sectors with the lowest socio-economic impact that are situated most notably below the orange line are vegetable and animal oils and fats (1514), sugar (1542), refined petroleum products (2320) and soap and detergents (2424).

Figure 86: Sector Priorisation ECCAS

Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

ECOWAS. As illustrated in Figure 87, the projected effect of an increase in intra-regional trade activities within the ECOWAS regions is expected to have more notable socio-economic impacts on the region. As can be seen in Table 57, existing RVCs with the highest elasticities for employment and wages are fabricated metal goods (2899), plastic products (2520) and basic iron and steel (2710). Furthermore, the "incumbent sector", i.e. manufacturing industries with RVC-type trade that make up for a small size in overall trade but have grown notably over the past years, processing and preserving of fish (1512) is characterised by positive and notable socio-economic effects (on value-added, employment and wages). On the other hand, while the footwear sector (1920) shares all the characteristics of a potential future RVC sector, its effects on employment and wages are expected to remain behind the expectations of the other sectors; see Table 57. The sectors with the lowest socio-economic impact that are situated most notably below the orange line are vegetable and animal oils and fats (1514), refined petroleum products (2320) and soap and detergents (2424).

Figure 87: Sector Priorisation ECOWAS

Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

IGAD. As Figure 88, the IGAD region's key RVCs are mainly characterised by a higher socio-economic impact on wages (the vast majority of key RVCs are located above the orange line for wages), while the socio-economic effects on employment are more particular. There, mainly high-tech sectors are found to have a higher socio-economic impact. In contrast, the agro- and tobacco sector is characterised by lower employment returns. As see Table 58, the sectors with the highest expected effects on the socio-economic performance of the regions are well-established key RVCs with an aggregate share of roughly 7 per cent in REC-exports. These include motor vehicles (3410), plastic products (2520) and basic iron and steel (2710). Despite these very favourable characteristics, it also has to be noted that the most dominant RVC sector in the region, vegetable and animal oils and fats, does not deliver the same socio-economic dividend as the sectors mentioned above. Among dynamic sectors that might inhibit growth into more prominent RVCs in the foreseeable future, the more considerable socio-economic effect in terms of value-added, employment and wage growth is expected from the malt liquors and malt sector (1553) as opposed to the cement, lime and plaster (2694) sector which shows lower elasticity figures across all socio-economic indicators; see Table 58 for more information. The sectors with the lowest socio-economic impact that are situated most notably below the orange line are vegetable and animal oils and fats (1514), tobacco (1600), refined petroleum products (2320) and soap and detergents (2424).

Figure 88: Sector Priorisation IGAD

Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

SADC. The projected global elasticities for the key RVCs in the SADC region are characterised by having moderate socio-economic impacts on wages (the majority of RVCs are closely aligned with the orange regression line in Figure 85). Among the most prominent RVCs in the region, particularly basic precious and non-ferrous metals (2720), motor vehicles (3410), machinery for mining (2924) and basic chemicals (2411) are found to have the most potent and most positive responses in wage increases in response to more extensive trade. The development potential for upcoming RVCs is comparatively limited in the case of the SADC region, with a majority of potential RVC sectors showing early stages of maturation (see Table 59). Among the potentially relevant future RVCs in the region, the highest socio-economic dividend in terms of value-added, employment and wage growth can be expected from the fertiliser and nitrogen compound industry (2412). The sector with the lowest socio-economic impact that are situated most notably below the orange line is refined petroleum products (2320).

Figure 89: Sector Priorisation SADC

Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.
Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

UMA. Figure 90 reveals a strong duality between the two key RVCs in the UMA region. While both sectors (refined petroleum, 2320, and basic iron and steel, 2710) are high contributors to domestic value-added growth, the positive socio-economic impact on employment and wages of the basic iron and steel sector trumps that of the refined petroleum products industry. In fact the employment effect of the latter sector is among the lowest of all sectors globally. These results can also be confirmed when looking at the elasticities in Table 60 where the basic iron and steel sector is identified to bring about a higher socio-economic dividend in response to an increase in export activities compared to the refined petroleum sector. For future potential RVCs (characterised by industries that exhibit RVC-type trade and dynamic export growth but have not yet grown to a considerable size in the economy), the sugar sector (1542) is expected to have a more pronounced knock-on effect on employment and wage growth. In contrast, the television and radio transmitter sector (3220) is more likely to boost value-added in response to an increase in export activities; see Table 60 for more information. The sector with the lowest socio-economic impact that are situated most notably below the orange line is refined petroleum products (2320)

Figure 90: Sector Priorisation UMA

Note: Traded US$ in by ISIC Rev. 3 IV-digit industry.

Data source: United Nations UN Comtrade (2020) database; see appendix A.2 for more information on the BEC5 (UNSD, 2018) re-classification, appendix A.3 for the concordance between BEC5 and ISIC and appendix A.4 for a more extensive discussion on the the manufacturing industry classification according to ISIC Rev. 3.1, respectively.

5 The current policy context for Regional Value Chains in Africa

This section discusses the current policy context for regional value chains in the African regions. It first reviews the existing policies and priorities established by the RECs that aim directly at developing regional value chains. On this basis, it it goes on to identify the missing pieces in the policy agenda for RVCs.[27]

5.1 Existing regional policies and priorities

Traditionally, regional integration within RECs has emphasized market integration through trade liberalisation and facilitation, especially by removing tariff and non-tariff barriers to trade and investment. However, increasing attention is being placed on productive integration by focusing on supply-side constraints and policy-making capacity building to develop regional value chains deliberately. Nevertheless, such policies and priorities occupy a much smaller space on the regional integration agendas. Moreover, the policy scope for RVC differs significantly across the RECs. The existing policies and priorities expressly designed to promote regional productive integration are summarised below.

SADC SADC is the REC with the widest scope of deliberate policies to promote regional value chains. Although SADC Vision 2050 (SADC Secretariat, 2020b), published in 2020, does not mention RVCs development among its long-term objectives, the Revised Regional Indicative Strategic Development Plan (RISDP) 2015-2020 placed it as the main tenet of its regional integration agenda, focusing in selected priority sectors (SADC Secretariat, 2015b). The current RISDP 2020–2030 builds on previous lessons and achievements and reinforces the goal of achieving better integrated RVCs (SADC Secretariat, 2020a). It also establishes key RVCs interventions such as: building SME industrial capacities, developing and implementing RVCs strategies and programmes for the priority value chain clusters.

SADC Industrialisation Strategy and Roadmap (2015–2063) bolster the policy scope for RVC by aiming at developing viable regional value chains capable of interacting with global value chains as a key driver of SADC's industrialisation path (SADC Secretariat, 2015a). The following guidelines underpin the policy-making process regarding cross-board value chain development:

- Policy should be value chain specific and the policy process participatory.

[27] This section exclusively builds on publicly available secondary sources. The study team attempted to complement these secondary sources with primary research on the status of RVC promotion across all RECs. However, while an online survey questionnaire was developed both in English and French, stakeholders' very limited response rate prevented the integration of this information into the study. The results of the survey may be analysed or integrated into this study at a later point. Hence, the findings of chapter 5 might not always reflect the most up-to-date and accurate portrait of the state of RVC-related industrial policies within the RECs.

- Policymakers need to ensure that a specific value chain policy does not create losers in other industries or sectors of the economy. The policy should maximise national gains.
- Member States should substantially develop their capacities for upgrading and diversifying value chains with the close involvement of firms and enterprises.
- The value chain framework should help realise regional sectoral strategies for capital equipment development, intermediate input flows and addressing regional commons such as environment and health issues. In particular, special attention should be paid to the development of pharmaceutical products.
- Policy should be sequenced to ensure that there is an "exit strategy" from low-road to high-technology activities.
- SADC Member States need to redouble their efforts to tackle "behind the border" obstacles to intra-regional trade and regional value chain development.
- SADC should develop model legislation and regulation for intra-SADC processing and value addition along with a protocol to ensure certainty, predictability, transparency and investor protection.
- Member States should establish appropriate mechanisms for consultations on the operationalisation of regional value chains
- The development of regional value chains (RVCs) and industrial clusters are a joint responsibility of governments and the private sector, supported by national and regional banks

Moreover, the Roadmap highlights the importance of establishing cross-border clusters and specialised production and export zones, including industrial parks, to promote competitiveness and develop regional value chains (SADC Secretariat, 2015a). It also states infrastructure challenges should be addressed to foster RVCs. Therefore, the region's infrastructure plan needs to be developed in a complementary way to the RVC promoting ones[28]. The increase in the participation of SME in regional value chains is also underscored by the document, as well as conducing initiatives for that, such as developing worker's skills, enhancing quality standards, removing business constraints, offering special incentives for service input costs, and promoting industry-academia interaction. All of them are tailored specifically to foster selected RVCs (including mineral beneficiation, agro-processing, pharmaceuticals, and electronics manufacturing). As a final intervention expressly targeting the development of RVCs, the roadmap indicates the development of a Common SADC Position on raw material initiatives to reduce the excessive reliance on the exportation of raw materials that are subject to price volatility and increase the availability and use of raw materials for beneficiation and value addition in the region.

[28] However, the current Regional Infrastructure Development Master Plan does not set any policy intervention specifically for RVCs promotion.(SADC Secretariat, 2012)

SADC also has an Action Plan for the Industrialisation Strategy and Roadmap, where a logical framework allocates activities for each intervention, also disclosing their implementation indicative costs and the respective responsibility of each policy stakeholder (SADC Secretariat, Member States, and private sector) (SADC Secretariat, 2017). Among the activities, the following are directly targeted to the development of RVCs:

- Design Regional Investment Policy Framework to meet the policy needs of priority sectors/-value chains.
- Ensure that Investment Promotion Agencies support industrialisation efforts, especially in priority sectors/value chains.
- Undertake 6 profiling assessments to identify potential priority value chains in the industrial areas indicated by the industrialisation Strategy.
- Conduct a detailed value chain mapping and build the needed implementation alliance for specific products/services in the priority areas and develop a strategy with relevant implementing stakeholders for at least four regional value chains in each of the 6 priority areas for a specific product/service, staggered over years 2018-2020.
- Implement at least 30 regional value chain strategies in the priority areas for specific products/services.
- Design and implement the Regional SME Development Program, which seeks the capabilities of SME to participate in c and value chains.
- Develop a framework for encouraging and supporting industrial clusters to facilitate SME development.
- Establish a Regional Working Group on developing regional clusters and interface with regional and global value chains.
- Non-Tariff Barriers (NTB) mechanism and corresponding national structures are further strengthened under RISDP and Member States to use them to address new NTB complaints expeditiously.
- Map NTBs affecting priority value chains based on value chain studies, as well as along priority corridors, and remove those identified as main obstacles.
- Engage in a comprehensive review of SADC Rules of Origin foreseen by RISDP by focusing on products in priority industries/along priority value chains that have been identified as being negatively affected by existing rules.

The SADC Regional Mining Vision (RMV) that was approved in 2019 also envision to assist in the area of regional value chains, as its aim is to ensure the increased production and use of SADC raw materials as feedstock for downstream processing in the region.

EAC The region is one of the few RECs that directly targets and tailors policy measures specifically for the development of RVCs. EAC Vision 2050 lists a set of activities with the goals of promoting RVCs (EAC, 2015). Again, there is the perception that trade facilitation plays a crucial role in doing so. Yet, the document also raises other types of activities such as undertaking regional value chain studies to enable fast-tracking of the development of six priority sectors that were selected also based on their potential volume of backward and forward linkages. The priority sectors are iron ore and other mineral processing; fertilisers and agro-chemicals; pharmaceuticals; petrochemicals and gas processing; agro-processing; and energy and bio-fuels); advancing central railway corridors to foster the iron and steel value chains.

The concern with RVCs development is also stated in the very foundations of the EAC Industrialisation Policy 2012-2032 (EAC, 2012). Among its ten industrial policy principles, two are directly linked to RVCs development: promoting targeted industry value chains and strengthening regional industrial linkages between SMEs and large enterprises to link up value chains. Moreover, EAC aims to promote the development of strategic regional industries to foster and unlock the region's potential in value addition and to encourage and promote cross-border industrial linkages and synergies within the value chains. To that end, the following specific measures are listed:

- Carry out value chain studies and formulate action plans for developing the six strategic regional industries defined in Vision 2050.
- Institute a framework for public-private sector partnership for developing strategic regional industries.
- Formulate a regional incentive scheme to stimulate investment in the strategic regional industries.
- Enhance the capacity of national and regional institutions/organizations to initiate programmes for high-value processing activities in the identified strategic regional industries.
- Facilitate the development and dissemination of market intelligence and trade and investment information on the opportunities available within each strategic regional industry.
- Set up a mechanism to enhance the capacity of national and regional institutions/organizations to conduct feasibility studies and other promotional programmes for the identified strategic regional industries.
- Set up a financial vehicle/mechanism to support the development of projects and programmes under strategic regional industry initiatives.
- Facilitate the development of regional brands and packaging programmes for the manufacturers of identified strategic regional industries.

The Industrialisation Policy also calls for the provision of a framework to support the growth and development of Micro-, Small and Medium-sized Enterprises (MSMEs) to facilitate their in-

tegration into the regional (and global) value chains. To achieve this goal, the policy measures below are defined:

- Facilitate the development of programmes to upgrade MSMEs' activities through capacity building and adopting new technologies and innovations.
- Facilitate the establishment of a regional information portal on MSMEs to provide regular information on business potential, market opportunities and access to finance.
- Establish a regional charter for MSME development through harmonisation of MSME's policies in the Partner States and minimising the regulatory burden.
- Promote MSMEs' upgrading and graduation into large-scale production through access to regional markets and the prudent application of government procurement systems.
- Facilitate the development of MSME clusters to enhance rural industrialisation and address development disparities at national and regional levels.
- Strengthen MSME associations, both at national and regional levels.
- Facilitate the harmonisation of Partner States policies and legislations on MSMEs to ensure a sound framework for the growth and development of MSMEs in the regions.

The Industrialisation Strategy 2012-2032 also aims at enhancing export capacities, import substitution and linkages across the priority value chains. To foster RVCs, the following particular interventions are sought: the implementation of Regional Value Chain Round Tables meetings with the private sector around three priority sectors (extractive and mineral processing industries, agro-industry and pharmaceutical), and the development of a regional program for the upgrading of SME to enable them to take advantage of common market opportunities and integrate into regional and global value chains. The Strategy also recognises the necessity of boosting sector clustering and Research and Development efforts to develop RVCs, especially in the pharmaceutical industry.

Currently, the region is developing an Action Plan to implement the EAC Industrialisation Policy and Strategy (2021-2026). Nevertheless, EAC also has in place the Sixth EAC Development Strategy 2021/22 – 2025/26, which reinforces the goals specified in the industrialisation Strategy. The Development Strategy Comprehensive Planning And Implementation Matrix foresees the conduction of at least fourteen studies to guide interventions aimed at strengthening the RVCs of selected sectors, the creation of Regional Value Chains dialogue platforms to improve public-private dialogue and promoting sector-specific incentives for at least 6 established regional value chains.

COMESA The community also has a long history of regional integration efforts through implementing various trade facilitation and investment promotion programs over the years. Currently, COMESA has several policy documents setting priorities, guidelines and actions to integrate the

community further and develop its industrial structure. COMESAS's 2021-2025 Medium Term Strategic Plan, Industrialisation Strategy 2017-2026, Action Plan for the Industrialisation Plan 2019-2026, and Regional Strategy for Development of Statistics 2021-2025 outline a large and ambitious set of policies and intentions. However, the scope of specific policies for value chain development is limited.

The Medium Term Strategic Plan recognises that strengthening industrial value chains at national and regional levels and is a way of economic transformation and employment creation. However, few strategies and initiatives are designed to address this target specifically. They are: i) developing RVCs by continuous improvement of rules of origin that support the utilization of raw materials and inputs from within the region, ii) promoting sustainable agro-processing of strategic regional agricultural value chains (crops, livestock and forestry), and iii) developing agro-industry and value chain that is inclusive of women and youth.

COMESA Industrial Strategy 2017-2026 reinforces the policy direction of promoting sustainable regional value chains and value addition of existing ones (cotton-to-clothing, pharmaceutical, leather and agro-processing). The following strategic actions are outlined for this end:

- Identifying and targeting products/sectors for value addition at the national and regional level and the related backward and forward linkages.
- Employing a diverse set of instruments to encourage value addition and value chain development in the identified sectors (i.e. fiscal, tax concessions, access to finance, and diaspora resources, among others).
- Supporting industries to meet national, regional and international standards and technical requirements to improve competitiveness.
- Supporting the development of relevant infrastructure development.
- Investing in industrial hubs, zones and parks to facilitate clustering and linking various actors, including SME in value chains.

The COMESA Action Plan for the industrialisation Plan 2019-2026 provides objectively verifiable indicators related to the objective and strategic actions outlined above. They are: 10 Projects for value addition and value chains based on comparative advantages identified and promoted at national and regional levels; 50 Products for value addition identified at the national and regional level; National fiscal incentives and tax concessions framework for harnessing diaspora resources put in place by 2026; Regional framework for enhancing competitiveness put in place by 2026; and 5 Regional infrastructure projects to support value chains identified and promoted by 2026; Policies and legislation for industrial parks developed at the national level and 5 industrial parks developed in each of COMESA Member State. Nevertheless, little concrete information on the actual implementation is disclosed.

In 2021, COMESA announced the completion of the new Regional Strategy for Development of Statistics 2021 – 2025, whose main focus is to strengthen the collection and dissemination of

statistical information in the region with the overall objective of supporting regional integration. Nevertheless, the document seems not to be public yet. Therefore, it is impossible to assess if it covers statistics that allow monitoring and evaluating RVCs policies.

ECOWAS RVCs policy scope in ECOWAS is a bit more limited than in the previous RECs. The current ECOWAS Vision 2020[29] does not mention it on its top priorities and concentrates its regional integration in the realms of trade and investment liberalisation. The "West African Common Industrial Policy" (WACIP) states it is the region's objective to strengthen regional integration and create competitive value chains at the national and regional levels to foster industrialisation. Nevertheless, the specific measures to do so are limited, and some have unclear means of action. They are:

- Harmonising the implementation of the ECOWAS Trade Protocol with regional industrial development strategies and programmes.
- Developing regional industrial integration in the areas of intra-regional and global trade.
- Organising periodic meetings of the regional industrial partnership network.
- Promoting endogenous processing and the creation of value added in the sectors and subsectors where the region enjoys high comparative advantage (mining and agricultural products processing industries) while strengthening regional cooperation and specialisation.
- Promoting the competitiveness of the industries and the national and regional industrial sectors by upgrading them and building technical capacities in enterprise financing, technological transfer, and innovation upgrade technical support. structures.

The ECOWAS Strategic Framework for Private Sector and Enterprise Promotion 2015-2020 states that "deepening regional economic integration and promoting sustainable development in the region requires a strengthened regional market, strong investment in the regional value chains and spatial development". The document advocates for stronger participation of commercial banks with regional operations and regional development banks in financing the development of RVCs and for larger availability of private sector development programs that are specially tailored for priority sectors and value chains.

Following the guidelines of the private sector framework, The West Africa Competitiveness Programme (WACOMP), funded by the European Union, was created. It aims to support several selected value chains at the national and regional level to promote structural transformation and better access to regional and international markets while taking into account social and environmental concerns[30]. The primary objectives of the programme are to strengthen the competitiveness of West African countries and also enhance their integration into the regional and international trading system by working to improve performance, growth and contribution to the

[29]The region is currently working on its Vision 2050. However, it is yet to be announced
[30]See: `https://wacomp.projects.ecowas.int`

industry, regional trade and exports of selected value chains, and the business climate at national and regional levels. However, among the seven priority value chains addressed by the program, only one belongs to the industrial sector (Textile and garment) and one to an industry-related service sector, that is, ICT.

Lastly, ECOWAS Investment Policy states that one of the reasons it seeks the reduction of entry barriers to foreign direct investments and adapts to International Standards and Best Practices is to foster regional value chains.

IGAD Showing relatively less progress on the market, monetary and productive integration than the previous RECs, IGAD 's priorities had been on the realm of agriculture, social development, peace and security. Following the pillars of the IGAD Vision 2050, IGAD Regional Strategy 2021-2025 and the Regional Strategy Implementation Matrix 2021-2025 reinforce those areas as policy priorities. The Regional Strategy also positions regional economic cooperation and integration as a strategic pillar and highlights the intention to foster industrialisation. Nevertheless, developing industrial RVCs is not a priority in any policy document. Hence there is no specific strategy outlined for it. The same is observed regarding the Regional Strategy for the Development of Statistics 2021-2025.

ECCAS The focus of ECCAS' policies has been primarily on trade liberalisation and facilitation and monetary integration over the years, promoting a customs union with free trade between members and a common external tariff for imports from other countries, and a monetary union (between 6 member States and The Economic and Monetary Community of Central Africa). No current public policy documents that could provide indications of the region's present priorities and policies regarding RVCs development were found in our research. However, according to the Pan-African Chamber of Commerce and Industry[31], the region's current priorities does not include the development of RVCs, nor are they mentioned on ECCAS' official website[32].

UMA Despite a long history of regional agreements, integration among the UMA countries is rather low (Bouet et al., 2020). The cornerstones of UMA 's regional strategies are the establishment of a free trade area with zero tariff and non-tariff barriers to trade between member countries, a customs union area with the adoption of a common external tariff, and a Common Market with a circulation of factors of production across the national borders of the member countries.[33] Productive integration via RVCs development is not mentioned as a priority on UMA official website. There is no policy document disclosed on the portal. However, the region briefly states its main goals and priorities, among which it is noticeable the absence of productive integration via RVCs development. The lack of regional strategic plans reveals many difficulties for the region to advance a productive integration agenda.

[31] See `https://www.pacci.org/economic-community-of-central-african-states-eccas`.
[32] See ECCAS' official website: `https://ceeac-eccas.org/en`
[33] See UMA official website: `http://maghrebarabe.org/fr/objectifs-et-taches/`

CEN-SAD Mirroring the pattern seen in UMA, CEN-SAD also presents an extremely limited policy scope for regional integration, especially via RVCs promotion. No policy documents could be found in our research, and the RECs official website is not active. According to the African Union's official website, developing a regional value chain is not among its main objectives and includes free trade of goods and services and the free movement of persons and capital.[34] Africa Regional Integration Index reveals the region records a low level of integration, especially regarding productive integration.[35] The absence of regional policy strategies suggests that insufficient efforts have been made to change this scenario.

5.2 Some missing pieces in the policy agenda for RVC development

As seen above, the policy scope for developing RVCs is quite different across regions. While SADC places productive integration on its top priorities and regional integration strategies and already has some interventions elaborated for that, UMA and CEN-SAD present difficulties in the very initial stages of cooperation between their respective member countries to define regional policy priorities and develop strategies jointly. However, similar patterns and missing pieces can be seen in the regional policy agenda for RVCs.

First, the primary mode of the RECs' regional integration has been a market-led approach, with a stronger focus on reducing or eliminating tariffs and other border measures that inhibit cross-border trade and investment. The regions have been following a rather linear path of market integration, which is supposed to lead to industrialisation and economic development. It starts by establishing free trade areas, then moves to a customs union, a common market, an economic union and eventually a political union (UNCTAD, 2013a). The path of reducing trade costs, according to the liberal economic approach, would boost competitiveness and stimulate industrialisation. However, although cutting down tariffs and other border measures can facilitate intra-regional trade, history shows that supply-side measures play a much more significant role, especially regarding the trade of industrial goods. After all, countries that do not possess the required productive capacities to manufacture industrial goods will not be able to produce and trade them regionally even if the costs for doing so have been reduced.

Furthermore, the export structure of most African countries is heavily concentrated on primary commodities and semi-processed goods. Reducing marketing costs between countries that share the same export basket will not increase intra-regional trade if neither of them can process the product that the other sells. In addition, countries do not have a reason to buy what they already produce from regional partners.

Therefore, the RVCs policy agenda must go beyond the market-led measures traditionally advocated by the Africa integration model. It needs to implement a comprehensive strategy based

[34] See: `https://au.int/en/recs/censad`
[35] See `https://www.integrate-africa.org/rankings/regional-economic-communities/cen-sad/`

on developmental regionalism[36], that aims explicitly to upgrade productive capacity towards selected RVCs bypassing the supply-side constraints to industrial development in those specific value chains.

The RVCs policy efforts in African regions must aim at building the necessary productive capacities in its Member States to enable domestic businesses to operate in a regionally coordinated manner in certain value chains' industrial links, boosting intra-regional industrial trade and thus, developing the respective RVCs. The development of productive capacities means improving the quality of the workforce through formal education and training, and the access to sources of finance by the private sector to leverage investments in capital goods and technology, increased public investment in research, development and innovation, and enhancing private and public firms' entrepreneurial (e.g., skills and information to operate established facilities, such as managerial and organisational) and technological capabilities (innovation, technology transfer, and market building). For that, the following cross-cutting constraints also need to be integrated into the policy agenda: physical infrastructure (transport, telecommunications and energy), and institutions (public and private sectors) (UNCTAD, 2013b).

RECs fail to adequately incorporate the above-mentioned issues into their regional integration vision for the development of RVCs. The same is observed from the continental perspective. The African Continental Free Trade Area (AfCFTA) - Africa's major integration initiative - has the potential to progressively solve some regional integration challenges that arise from the multiple and overlapping REC memberships. Moreover, it explicitly aims to promote industrial development through diversification and regional value chain development. However, it is predominantly focused on trade-related measures such as removing tariff and non-tariff barriers to trade, and it does not have provisions to act on the fundamental drivers of the development of regional value chains, that is, fostering industrial productive capacities targeted to selected RVCs.

For industrial policies to effectively strengthen existing RVCs and create new ones, they need to be designed specifically. It must plan coordinated regional industrialisation from the perspective of building regional value chains. It must identify priority sectors and segments whose chains will be encouraged to pursue ambitious but realistic goals, considering each country's specificities, national regional strategies, and the time frame. The RVC industrial policy must outline clear and precise strategies and interventions, accompanied by concrete and realistic action plans. In general, most RECs do not have a clear Industrial Policy to support RVCs. Although some regions have a defined set of industrial strategies that may positively affect RVCs, this effect will likely not be strong enough to develop them properly.

On top of presenting their intentions, industrial policy action plans must define precisely their goals, timeline, action steps, instruments to be employed, institutions involved and their respective roles, resources needed, including allocation of ensured budgets, and specific expected results. The action plan also needs to define measurable indicators that reflect the outcome of the

[36]UNCTAD (2013b) conceptualise "developmental regionalism" as a development-based integration agenda that, besides market-led measures, also adopts "planned policy actions aimed at building the productive capacities of member countries and promoting industrial restructuring"

policy. Such indicators must be constantly monitored and, at appropriate times, evaluated so that the policy can be adjusted promptly and produce more effective results. Finally, the interventions must be efficiently implemented.

Cross-cutting policies such as investment and financing, adequate services, regional infrastructure, enterprise and private sector development, workforce development, institutional capacity and technology and innovation must be planned in a comprehensive and intertwined manner, having as a guideline the RVCs goals (that is, which chains should be developed, in which chain links the REC will participate, what will be the division of labour across them in these chains, etc.).

6 Conclusions, Policy Implications and the Way Forward

6.1 Main conclusions and their policy implications

The main conclusion of this study is that Regional Value Chain development is very relevant, even though it is still at an incipient stage across Africa. On the one hand, RVC trade does play a significant role in the intra-regional trade among most RECs, as it accounts for 30-65% of total intra-REC trade. On the other hand, all RECs are highly concentrated on a small number of RVCs. UMA shows the strongest concentration on only two RVCs, with the largest one alone accounting for 42% of intra-regional trade. Overall, only roughly 20 value chains exhibit an intra-regional production pattern of relevance, with the most prominent chains across regions all being resource-based activities such as vegetable & animal oils and fats, refined petroleum products, soap/detergents & cleaning/polishing preparations, plastic products and basic iron and steel. This points to the high potential impact that RVC development could play on the future intra-regional trade integration of RECs. In particular, diversification into a more significant number of value chains can act as an engine of future regional integration across the continent. This illustrates that the challenge for African RECs to diversify their industrial structures, discussed in chapter three of this report, is very closely linked with the challenge to grow strong RVCs addressed in chapter four. This finding is further substantiated by the fact that the RVCs which can be identified are very similar across RECs, which points to the low degree of complementarity in the continent. Hence, value chain diversification is also critical to reducing the potential challenges that could emerge if all African RECs continue to rely on the same narrow set of value chains.

The second main conclusion is that RVC structures still exhibit much less advanced patterns in African RECs than in other regions. Lower degrees of processing (in particular primary and generic intermediate products) are dominant. In contrast, advanced value chain stages (precisely specific intermediates) play only a minor role in intra-REC trade. The high concentration on few value chains and the reliance on resource-based activities is much more prominent in African regions than in the rest of the world. This points to the fact that the benefits commonly associated with getting involved in modern industrial activities of higher technological sophistication, do not yet unfold significantly within African RVCs. Hence, future RVC development initiatives should pay particular attention to economic and social upgrading strategies that can reduce the heavy reliance on low technology & resource-based value chains.

The third main conclusion relates to a highly unbalanced division of labour between countries within Regional Value Chains. Depending on the type of goods and degree of complexity, different countries serve as dominant trading hubs within an RVC and region. In particular, trade patterns are typically very one-directional (from one country to another) and exhibit weaker intra-regional networks for unprocessed material or final consumption goods. Notable differences in

accumulation can be observed across regions. Certain economies dominate trade and serve as either an attractor of commodities (e.g. South Africa in SADC) or an export hub (e.g. Kenya in EAC or COMESA). Furthermore, most trading networks are typically characterised by either a high degree of duality (two separate and not interconnected groups of countries trading different types of commodities within the same RVC) or concentration (one particular country serving as the primary exporter/importer of goods). Well-connected and reciprocal relationships between multiple countries trading similar products within the same sector and REC are rarely observed. This points to the challenge that RVC development will not necessarily unfold inclusively automatically. Instead, it is highly likely that through an overall strengthening of RVC development, a small number of countries will be able to continue dominating the industrial activities within the RECs, as illustrated in chapter three. This implies a highly complex trade-off for future RVC development within the African RECs: On the one hand, a market-based approach that focuses on strengthening currently competitive value chain structures will likely lead to a very uneven distribution of the benefits of RVC development across countries within the same REC. On the other hand, developing RVCs in a more strategic, regionally balanced way could provide opportunities to all or most REC member states. Still, it would most likely need to defy current competitive advantages and market forces.

The fourth main conclusion is that exploiting the immense unused potential for RVC development in the future is likely to be a highly complex and challenging undertaking. As of today, for most RVCs, international trade by and large dwarfs intra-regional trade. In addition, African countries' intra-regional and global trading ties are very different: Within a REC, different economies are more present in intra-regional vs international trade. Overall, internationally present African economies typically form hubs and entertain stronger export relations with multiple global economies. This is generally true for more advanced African economies, where the formation of "global trade tandems" is commonly observed. In this case, one African economy exports to one isolated outside economy. REC-to-global network ties (where multiple REC members export to the same global economies) are rarely observed. This conclusion points to the trade-off between further strengthening the existing African GVC ties and developing new RVCs in the RECs by regionalising existing GVC ties. Hence, it is of utmost importance that RVC development strategies of African RECs consider this inherent trade-off. Overall, it would be misleading to believe that more GVC integration will go hand-in-hand with more RVC development. Instead, nurturing new RVCs may require re-orienting well-established global trade relationships (e.g. the Nigerian exports of primary vegetable and animal oils to Bangladesh) towards increased regional integration. It will likely be particularly challenging to convince the regional industrial powerhouses with strong existing GVC integration of this transformative approach. Nevertheless, some promising activities that could potentially be developed into Regional Value Chains in the future are identified in section 4.4 for each REC and include mainly the textile, wearing apparel and leather industries as well as agro-industries and extractive sectors and, to some extent, the chemical industry. In particular, the replacement of the significant African exports of primary mining commodities to global markets in favour of developing intra-regional processing hubs that add value to the raw mate-

rials within the respective RECs is a very prominent case. Given the massive scale and unused value-added potential, one may conclude that this strategy holds the largest future potential for developing large-scale RVCs with significant socio-economic benefits for the African continent.

6.2 The way forward for RVC development in Africa

The analytical results of this report can serve as a solid foundation for identifying the concrete potentials for RVC development in each of the eight Regional Economic Communities. Towards this aim, it would be desirable to engage in a collaborative process with each region's public and private sector representatives to critically reflect on the implications of the identified value chains and their production and trade configurations. This process could culminate in developing concrete RVC diversification and upgrading strategies for each REC (as suggested in the main conclusions one and two above).

These strategies will need to be developed in a highly participatory process to ensure that all member states are directly involved in prioritising the most suitable RVCs for regional policy support. From an analytical perspective, this RVC prioritisation process should not only be based on trade considerations (e.g. export potentials) but also include a comparative assessment of the potential contributions of RVCs to achieving key regional industrial policy objectives (e.g. by considering the value added, employment and wage potentials that various value chains may entail for African RECs). Section 4.5 of this report provides a novel multi-dimensional framework for the strategic prioritisation of RVCs according to these considerations. The policy process within each REC can include tailoring this framework to the specific realities of each REC, e.g. by considering a variety of regional policy objectives and stakeholder visions.

Within this process, the analytical inputs of this study would need to be complemented by additional quantitative and qualitative research on specific RECs. In particular, it would be relevant to consider also the relative inclusiveness impact of each RVC. Some key RVCs are mainly dominated by one country within the RECs, making that country most likely the primary beneficiary of the strengthening of the RVC. These intra-regional challenges are also elaborated in the main conclusions three and four above. They would need to be discussed in a highly transparent and constructive manner to avoid conflicts during the RVC strategy implementation stage.

In addition, other industrial policy objectives (beyond export growth, value-added, employment and wages) could be considered, e.g. to understand the relative environmental impact or the economic resilience contributions of specific RVCs. Overall, this decision-making process will require additional data sources that are not readily available from international databases and would hence need to be identified and/or developed in close collaboration with the RECs and member states.

Most importantly, the prioritisation process within each REC will need to be highly participatory to allow for inputs from all key public and private sector stakeholders. We are, however, confident that the results of this study will be of immense value to ensure that these processes will be conducted in an evidence-based manner.

Lastly, exploring the opportunities for creating "Regional Value Chain Observatories" within the African RECs would be of great value. These systems could continuously ensure timely access to relevant value chain performance trends. Towards this aim, the analytical methods applied in this study could be automated within a digital solution that allows policymakers and analysts in each region to flexibly access all the relevant information available for their country/region or a specific value chain whenever needed. This system can also be the foundation for a regular RVC monitoring activity on the continental (AUC) and regional (REC) levels. As required, the system could be updated on an annual or quarterly/monthly basis to systematically track the progress of RVC development.

To effectively pursue these next steps towards RVC development, there is a need to strengthen the technical capacities required in this process, as discussed in the following sub-section.

6.3 The need to strengthen capacities for RVC-based industrial policy-making

Effective industrial policy-making requires significant policy-making capacities. To properly conduct industrial value chain diagnostic analyses, select the most relevant value chains, design suitable RVC-based industrial policies, effectively implement policy interventions, and monitor & evaluate the policy results, a broad set of capacities are required. Hence, to turn the ambitious agenda for developing RVCs in Africa into a reality, in particular, the technical staff in the relevant public and private institutions in each REC should be supported by the international development community to strengthen a range of key policy-making capacities:

- Access to robust statistics is the basis for evidence-based decision-making and feeds strategic industrial policies. It is crucial to develop the capacities of collecting, processing, and disseminating statistical data regarding relevant variables for the RVCs analysis, particularly on value-added, employment, wages, and the environmental performance of industrial subsectors, and trade in value-added.

- To extract relevant information from quantitative and qualitative data and translate it into effective policies, policymakers must possess strong analytical skills, encompassing research, quantitative and qualitative data analysis, and critical thinking capacities.

- Policymakers must be able to prioritise goals and strategies and identify suitable policy instruments in an evidence-based and holistic manner to select the most effective instruments to achieve the intended objectives and avoid those that produce non-desired externalities.

- The public sector does not have all the information necessary for the policy design process. The constant and close participation of the private sector is essential to inform the public sector of the obstacles industrial producers face throughout the production cycle. Thus,

participatory strategic decision-making skills are needed in the RECs to identify RVCs that provide opportunities for all member states.

- Industrial policies for RVCs require a strong coordination capacity given the large number of countries, agencies, interest groups and segments involved. Technical coordination must guide and manage multiple processes and people, as well as political coordination to reconcile national agendas that are often divergent. In a complementary way, conflict resolution capacity is also essential in this context, especially in tense situations where Member States benefit less than others from RECs.
- Financial analysis and budget planning capacities are necessary to ensure sufficient regional budgets for RVC development initiatives.
- An effective industrial policy must be subject to adjustments as objectives are not achieved or its underlying framework changes. To this end, it is vital to have a RVC industrial policy Monitoring and Evaluation System, in which key performance indicators related to the objectives, areas of intervention, and policy instruments are defined, monitored, and assessed over time. To do so, it is crucial to develop among national public sectors' and regional institutions' staff the capacity to create and use the monitoring system, applying different evaluation methods to assess the impact of policy interventions rigorously and drawing implications for policy changes.

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Appendices

A Appendix to Section 2

A.1 African economies and associated RECs

Table 15: List of analysed African economies and associated RECs

		World Bank	
Country name	Trade Block	Income group	Region
Algeria	UMA	Lower middle income	Middle East & North Africa
Angola	ECCAS, SADC	Lower middle income	Sub-Saharan Africa
Benin	CEN-SAD, ECOWAS	Lower middle income	Sub-Saharan Africa
Botswana	SADC	Upper middle income	Sub-Saharan Africa
Burkina Faso	CEN-SAD, ECOWAS	Low income	Sub-Saharan Africa
Burundi	COMESA, EAC, ECCAS	Low income	Sub-Saharan Africa
Cameroon	ECCAS	Lower middle income	Sub-Saharan Africa
Cape Verde	ECOWAS	Lower middle income	Sub-Saharan Africa
Central African Republic	CEN-SAD, ECCAS	Low income	Sub-Saharan Africa
Chad	CEN-SAD, ECCAS	Low income	Sub-Saharan Africa
Comoros	CEN-SAD, COMESA, SADC	Lower middle income	Sub-Saharan Africa
Democratic Republic of the Congo	COMESA, ECCAS, SADC	Low income	Sub-Saharan Africa
Djibouti	CEN-SAD, COMESA, IGAD	Lower middle income	Middle East & North Africa
Egypt	CEN-SAD, COMESA	Lower middle income	Middle East & North Africa
Equatorial Guinea	ECCAS	Upper middle income	Sub-Saharan Africa
Eritrea	CEN-SAD, COMESA, IGAD	Low income	Sub-Saharan Africa
Eswatini	SADC	Lower middle income	Sub-Saharan Africa
Ethiopia	COMESA, IGAD	Low income	Sub-Saharan Africa
Gabon	ECCAS	Upper middle income	Sub-Saharan Africa
Ghana	CEN-SAD, ECOWAS	Lower middle income	Sub-Saharan Africa
Guinea	ECOWAS	Low income	Sub-Saharan Africa
Guinea-Bissau	CEN-SAD, ECOWAS	Low income	Sub-Saharan Africa
Ivory Coast	CEN-SAD, ECOWAS	Lower middle income	Sub-Saharan Africa
Kenya	COMESA, EAC, IGAD	Lower middle income	Sub-Saharan Africa
Lesotho	SADC	Lower middle income	Sub-Saharan Africa
Liberia	ECOWAS	Low income	Sub-Saharan Africa
Libya	CEN-SAD, COMESA, UMA	Upper middle income	Middle East & North Africa
Madagascar	COMESA, SADC	Low income	Sub-Saharan Africa
Malawi	COMESA, SADC	Low income	Sub-Saharan Africa
Mali	CEN-SAD, ECOWAS	Low income	Sub-Saharan Africa
Mauritania	CEN-SAD, UMA	Lower middle income	Sub-Saharan Africa
Mauritius	COMESA, SADC	Upper middle income	Sub-Saharan Africa
Mayotte			
Morocco	CEN-SAD, UMA	Lower middle income	Middle East & North Africa
Mozambique	SADC	Low income	Sub-Saharan Africa
Namibia	SADC	Upper middle income	Sub-Saharan Africa
Niger	CEN-SAD, ECOWAS	Low income	Sub-Saharan Africa
Nigeria	CEN-SAD, ECOWAS	Lower middle income	Sub-Saharan Africa
Republic of the Congo	ECCAS	Lower middle income	Sub-Saharan Africa
Réunion			

Table 15: List of analysed African economies and associated RECs *(continued)*

Country name	Trade Block	Income group	Region
Rwanda	COMESA, EAC, ECCAS	Low income	Sub-Saharan Africa
São Tomé		Lower middle income	Sub-Saharan Africa
Senegal	CEN-SAD, ECOWAS	Lower middle income	Sub-Saharan Africa
Seychelles	COMESA, SADC	High income	Sub-Saharan Africa
Sierra Leone	CEN-SAD, ECOWAS	Low income	Sub-Saharan Africa
Somalia	CEN-SAD, IGAD	Low income	Sub-Saharan Africa
Somaliland			
Somaliland			
South Africa	SADC	Upper middle income	Sub-Saharan Africa
South Sudan	EAC, IGAD	Low income	Sub-Saharan Africa
Sudan	CEN-SAD, COMESA, IGAD	Low income	Sub-Saharan Africa
Tanzania	EAC, SADC	Lower middle income	Sub-Saharan Africa
The Gambia	CEN-SAD, ECOWAS	Low income	Sub-Saharan Africa
Togo	CEN-SAD, ECOWAS	Low income	Sub-Saharan Africa
Tunisia	CEN-SAD, UMA	Lower middle income	Middle East & North Africa
Uganda	COMESA, EAC, IGAD	Low income	Sub-Saharan Africa
Western Sahara			
Zambia	COMESA, SADC	Lower middle income	Sub-Saharan Africa
Zimbabwe	COMESA, SADC	Lower middle income	Sub-Saharan Africa

Note:

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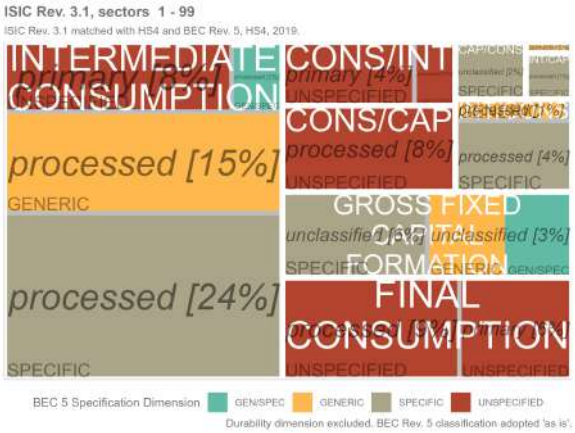
A.2 Composition of raw BEC Rev. 5

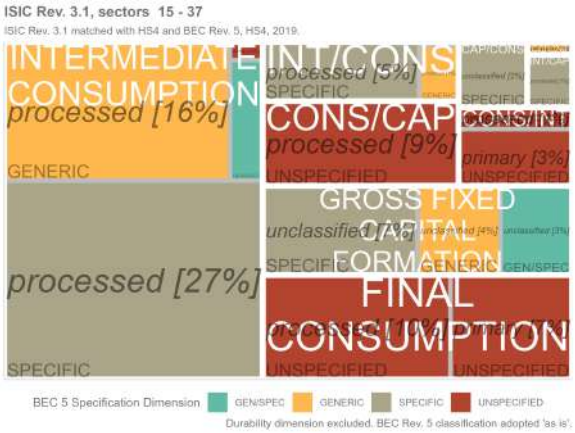
Figure 91 summarises global Comtrade trade data following the HS 2012 trade date classification for 2019, where the size of the respective blocks corresponds to the relative trade volume (in USD), respectively. The fragmentation of this trade classification is visible in Figure 91 serves as the motivation for further simplification. For the purpose of this report, the following reclassification is used:

- `INT/CONS` - to "intermediate consumption".
- `INT/CAP` - to "intermediate consumption".
- `CAP/CONS` - to "capital goods" (capital formation).
- `CAP/INT` - to "capital goods" (capital formation).
- `CONS/CAP` - to "final consumption".
- `CONS/INT` - to "final consumption".
- The hybrid specification `GEN/SPEC` is further re-classified as generic for the sake of simplicity.
- `GROSS FIXED CAPITAL FORMATION` - nested under "intermediate consumption" and called "capital goods" throughout the report.

Figure 91: Composition of trade, raw BEC Rev. 5 for 2019 based on HS 2012



(a) Global Trade



(b) Manufacturing Trade

A.3 Matching trade data to manufacturing sectors

The trade flows used in this analysis were obtained from UN Comtrade (2020) and follow the Harmonised System (HS) 2012 nomenclature at AG6 level, respectively. Correspondence between both the HS 2012 commodity classifications and the manufacturing sector classification following ISIC Revision 3.1 is established via the Broad Economic Activity Revision 5 (BEC5) concordance table by UNSD (2018). Data extraction and mapping is done using the R package *comtradeRggregator* (Amann, 2022).

Aggregating sector information from the IV-digit to the II-digit level can then be performed by simply summing up all IV-digit industries that belong to a particular II-sector industry or, alternatively, any alternative ISIC sector combination. Throughout the report, only trade in commodities is considered. Note that only trade that can be mapped 4-digit level is used to analyse this report. Consequently, when talking about trade import/exports related to manufacturing industries, we refer to *traded commodities attributed to a certain manufacturing sector*.

A.4 Manufacturing industry classification

The industry sector level classification used in this section follows the *International Standard Industrial Classification* (ISIC), Revision 3 database by the United Nations Statistics Division (INDSTAT, 2020). The ISIC combinations chosen for this report are presented in Table 16 and were defined to have a straight-forward correspondence between different data sources and classification standards to guarantee a consistent definition of manufacturing sectors throughout this report can also be applied easily to different classification formats. The names describing the respective ISIC Rev. 3 IV-digit sectors is taken from the United Nations Statistics Division website.[37]

Regarding the technology classification of the industries, all manufacturing industries are further classified by their technology intensity following the technology classification of the *Organisation for Economic Co-operation and Development* (OECD) which is based on research and development (R&D) intensity relative to value-added and gross production statistics (OECD, 2011). The OECD classifies manufacturing industries into four categories of high technology, medium high technology, medium-low technology and low technology industries.

Table 16: Manufacturing industry classification

		ISIC Industry Combination		
Abbreviation	ISIC Rev.3.1 Industry Description	Revision 3	Revision 4	Technology Group
Food, beverages and tobacco	Manufacture of food products and beverages	15 + 16	10 + 11 + 12	Low
Food, beverages and tobacco	Manufacture of tobacco products	15 + 16	10 + 11 + 12	Low
Textiles	Manufacture of textiles	17	13	Low
Wearing apparel	Manufacture of wearing apparel; dressing and dyeing of fur + Tanning and dressing of leather; manufacture of luggage, handbags, saddlery, harness and footwear	18 + 19	14 + 15	Low
Wood products	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	20	16	Low
Paper and paper products	Manufacture of paper and paper products	21	17	Low
Printing and publishing	Publishing, printing and reproduction of recorded media	22	18	Low
Coke, petroleum and nuclear	Manufacture of coke, refined petroleum products and nuclear fuel	23	19	Medium-low
Chemicals	Manufacture of chemicals and chemical products	24	20 + 21	Medium-high
Rubber and plastic	Manufacture of rubber and plastics products	25	22	Medium-low
Non-metallic minerals	Manufacture of other non-metallic mineral products	26	23	Medium-low
Basic metals	Manufacture of basic metals	27	24	Medium-low
Fabricated metals	Manufacture of fabricated metal products, except machinery and equipment	28	25	Medium-low

[37] See `https://unstats.un.org/unsd/classifications/Econ/Download/In%20Text/ISIC_Rev_3_english_structure.txt` for further reference.

Table 16: Manufacturing industry classification *(continued)*

Abbreviation	ISIC Rev.3 Industry Description	Revision 3	Revision 4	Technology Group
Machinery	Manufacture of machinery and equipment n.e.c.	29	28 + 33	Medium-high
Computer and electronics	Manufacture of office, accounting and computing machinery + Manufacture of radio, television and communication equipment and apparatus + Manufacture of medical, precision and optical instruments, watches and clocks	30 + 32 + 33	26	High
Electrical machinery	Manufacture of electrical machinery and apparatus n.e.c.	31	27	Medium-high
Motor vehicles	Manufacture of motor vehicles, trailers and semi-trailers	34	29	Medium-high
Transport equipment	Manufacture of other transport equipment	35	30	Medium-high
Furniture and n.e.c.	Manufacture of furniture; manufacturing n.e.c.	36	31 + 32	Low

Note: Abbreviations chosen by authors for the purpose of this analysis. Data taken from INDSTAT (2020). Technology classification based on OECD (2011). The ISIC combination presented in this table was defined to have a straightforward correspondence between different data sources and to guarantee a consistent definition of manufacturing sectors throughout this report.

A.5 Analysis raw trade data

Assume we don't have direct trade data and therefore resort to mirrored data instead.

For this we compare countries which report trade data directly with their mirrored counterfactuals. We report a measure for `bias` defined as

$$bias_{i,J,t} = \sum_{j \in J} x_{ijt} / \tilde{x}_{ijt}$$

where $x = \{export,\ import\}$, i.e. the directly reported trade flows by country i in period j, and $\tilde{x}$ are the corresponding mirrored aggregates.

In Table 17 we compute the bias measure for all countries contained in this study for which we have direct trade data. A bias close to 1 means there is little difference between the direct and mirrored data. By and large, we seem to be doing "well enough" if we are using mirror data to capture actual trade flows. The difference between actual and mirrored exports (imports) is around 10 to 15 percent for 2018 and 2019, respectively. Some of the differences between direct and mirrored data are the following[38]:

- Comtrade, imports are recorded cif (cost insurance and freight) while exports are fob (free on board). This may represent a 10% to 20% difference.
- Despite all efforts made by national and international agencies, data quality may vary among countries.
- For a given country, imports are usually recorded more accurately than exports because imports generally generate tariff revenues while exports do not.
- At a detailed level, the same good may be recorded in different categories by the exporter and the importer. This includes, but is not limited to, different reported quantity measures.

Because of this, a deviation of 10% to 20% should be considered to be acceptable.

Table 17: Aggregated mirror data bias

	Bias					
	2018		2019		2020	
Country Name	Exports	Imports	Exports	Imports	Exports	Imports
Afghanistan	0.71	0.66	0.71	0.67	0.71	0.66
Albania	1.02	1.07	1.03	1.07	1.02	1.07
Andorra	1.18	1.02	1.21	1.03	1.18	1.02
Angola	0.94	1.58	0.96	1.59	0.94	1.58
Argentina	0.99	1.09	1.03	1.13	0.99	1.09
Armenia	1.08	1.29	1.08	1.30	1.08	1.29
Aruba	0.13	0.78	0.27	1.01	0.13	0.78
Australia	0.88	1.08	0.90	1.16	0.88	1.08
Austria	1.01	1.02	1.02	1.05	1.01	1.02

[38] See also: `http://wits.worldbank.org/data/public/WITS_User_Manual.pdf`

Table 17: Aggregated mirror data bias *(continued)*

Country Name	Exports	Imports	Exports	Imports	Exports	Imports
Azerbaijan	0.90	1.10	0.94	1.11	0.90	1.10
Bahamas	0.30	0.33	0.30	0.35	0.30	0.33
Bahrain	0.53	1.22	1.02	1.22	0.53	1.22
Belarus	1.19	1.09	1.24	1.11	1.19	1.09
Belgium	0.89	0.86	0.90	0.86	0.89	0.86
Belize	0.48	0.98	0.48	0.98	0.48	0.98
Benin	0.82	0.57	0.82	0.57	0.82	0.57
Bermuda	0.07	0.66	0.09	0.66	0.07	0.66
Bolivia	1.06	1.38	1.06	1.39	1.06	1.38
Bosnia & Herzegovina	0.99	1.23	1.00	1.24	0.99	1.23
Botswana	1.02	0.92	1.02	0.92	1.02	0.92
Brazil	0.90	1.07	0.91	1.08	0.90	1.07
Brunei	0.93	0.91	0.99	0.91	0.93	0.91
Bulgaria	1.01	1.00	1.13	1.03	1.01	1.00
Burkina Faso	1.18	1.39	1.18	1.39	1.18	1.39
Burundi	0.73	1.84	0.73	1.84	0.73	1.84
Cambodia	0.62	0.60	0.62	0.62	0.62	0.60
Cameroon	0.80	1.02	0.80	1.02	0.80	1.02
Canada	0.98	1.00	0.98	1.01	0.98	1.00
Cape Verde	0.60	1.00	0.61	1.02	0.60	1.00
Central African Republic	0.47	1.03	0.47	1.04	0.47	1.03
Chile	0.91	1.04	0.93	1.06	0.91	1.04
China	0.86	1.12	0.84	1.10	0.86	1.12
Colombia	0.91	1.02	0.92	1.05	0.91	1.02
Comoros	0.45	0.59	0.45	0.59	0.45	0.59
Congo - Brazzaville	0.96	1.20	0.97	1.23	0.96	1.20
Congo - Kinshasa	1.79	1.06	1.79	1.06	1.79	1.06
Costa Rica	0.78	1.11	0.78	1.14	0.78	1.11
Côte d'Ivoire	0.95	1.04	0.97	1.05	0.95	1.04
Croatia	1.16	1.00	1.16	1.00	1.16	1.00
Curaçao			0.00	0.00		
Cyprus	1.30	0.73	1.66	0.78	1.30	0.73
Czechia	1.13	1.09	1.12	1.10	1.13	1.09
Denmark	0.90	0.97	1.53	1.04	0.90	0.97
Dominican Republic	0.97	1.20	0.97	1.21	0.97	1.20
Ecuador	0.95	1.07	0.95	1.08	0.95	1.07
Egypt	0.92	1.10	0.93	1.10	0.92	1.10
El Salvador	1.01	1.18	1.02	1.20	1.01	1.18
Estonia	1.16	0.90	1.18	0.96	1.16	0.90
Eswatini	0.92	1.06	0.92	1.07	0.92	1.06
Ethiopia	0.60	1.53	0.60	1.54	0.60	1.53
Fiji	1.33	1.08	1.56	1.10	1.33	1.08
Finland	0.90	1.00	0.99	1.12	0.90	1.00
France	0.95	1.01	0.96	1.04	0.95	1.01
French Polynesia	0.80	1.38	0.80	1.39	0.80	1.38
Gambia	0.10	0.36	0.10	0.36	0.10	0.36
Georgia	1.32	1.01	1.32	1.01	1.32	1.01
Germany	1.07	1.05	1.08	1.10	1.07	1.05
Ghana	1.09	0.82	1.09	0.82	1.09	0.82
Greece	1.18	1.14	1.18	1.17	1.18	1.14
Greenland	0.52	1.03	0.57	1.03	0.52	1.03
Grenada	0.58	2.14	1.04	2.14	0.58	2.14
Guatemala	0.98	1.17	0.99	1.18	0.98	1.17
Honduras	0.43	0.80	0.47	0.81	0.43	0.80
Hong Kong SAR China	6.36	0.87	6.04	0.91	6.36	0.87
Hungary	1.04	1.03	1.04	1.03	1.04	1.03

Table 17: Aggregated mirror data bias *(continued)*

Country Name	Exports	Imports	Exports	Imports	Exports	Imports
Iceland	0.95	1.12	0.95	1.13	0.95	1.12
India	1.05	1.28	1.06	1.29	1.05	1.28
Indonesia	0.84	1.05	0.87	1.07	0.84	1.05
Iran	0.58	0.78	1.26	0.78	0.58	0.78
Ireland	0.83	1.15	0.87	1.26	0.83	1.15
Israel	0.92	0.99	1.00	1.03	0.92	0.99
Italy	1.00	1.05	1.02	1.06	1.00	1.05
Jamaica	1.37	1.20	1.37	1.20	1.37	1.20
Japan	0.84	1.18	0.89	1.23	0.84	1.18
Jordan	0.99	1.03	1.15	1.05	0.99	1.03
Kazakhstan	1.19	0.87	1.19	0.87	1.19	0.87
Kenya	0.98	0.95	0.99	0.95	0.98	0.95
Kiribati	0.05	0.97	0.07	1.01	0.05	0.97
Kuwait	0.09	1.03	0.98	1.04	0.09	1.03
Kyrgyzstan	1.11	0.52	1.11	0.52	1.11	0.52
Laos	0.97	0.79	0.97	0.84	0.97	0.79
Latvia	0.99	0.78	1.00	0.78	0.99	0.78
Lebanon	0.89	1.00	0.90	1.01	0.89	1.00
Lesotho	0.51	0.68	0.55	0.73	0.51	0.68
Lithuania	1.25	1.11	1.26	1.11	1.25	1.11
Luxembourg	0.85	0.82	0.89	0.91	0.85	0.82
Macao SAR China	0.80	0.95	0.80	0.97	0.80	0.95
Madagascar	0.78	1.22	0.83	1.26	0.78	1.22
Malawi	1.03	1.74	1.03	1.75	1.03	1.74
Malaysia	0.72	0.93	0.74	0.98	0.72	0.93
Maldives	0.61	1.48	0.61	1.48	0.61	1.48
Mali	1.25	1.19	1.25	1.19	1.25	1.19
Malta	0.69	0.38	0.82	0.38	0.69	0.38
Mauritania	0.70	1.03	0.70	1.03	0.70	1.03
Mauritius	0.71	1.13	0.72	1.14	0.71	1.13
Mexico	0.93	1.08	0.95	1.10	0.93	1.08
Moldova	0.78	0.95	0.79	0.96	0.78	0.95
Mongolia	0.94	1.12	0.95	1.12	0.94	1.12
Montenegro	0.93	0.95	1.02	0.95	0.93	0.95
Morocco	0.90	1.18	0.93	1.19	0.90	1.18
Mozambique	0.78	0.68	0.78	0.68	0.78	0.68
Myanmar (Burma)	1.05	0.75	1.05	0.76	1.05	0.75
Namibia	1.26	1.40	1.36	1.42	1.26	1.40
Nepal	1.01	1.24	1.01	1.26	1.01	1.24
Netherlands	1.13	0.83	1.19	0.84	1.13	0.83
New Zealand	0.92	1.14	0.95	1.16	0.92	1.14
Nicaragua	0.86	1.32	0.88	1.33	0.86	1.32
Niger	2.35	2.01	2.35	2.02	2.35	2.01
Nigeria	0.99	1.04	1.00	1.04	0.99	1.04
North Macedonia	0.89	1.11	0.89	1.11	0.89	1.11
Norway	1.03	1.05	1.03	1.06	1.03	1.05
Oman	0.33	0.73	1.02	0.74	0.33	0.73
Pakistan	0.92	1.09	0.92	1.11	0.92	1.09
Palau	0.25	1.32	0.28	1.24	0.25	1.32
Palestinian Territories	9.13	6.61	9.13	6.62	9.13	6.61
Paraguay	1.00	1.22	1.01	1.23	1.00	1.22
Peru	0.94	1.11	0.95	1.12	0.94	1.11
Philippines	0.67	0.85	0.70	0.90	0.67	0.85
Poland	1.10	0.98	1.10	0.98	1.10	0.98
Portugal	1.08	1.14	1.11	1.15	1.08	1.14
Qatar	0.97	0.97	1.02	1.03	0.97	0.97

Table 17: Aggregated mirror data bias *(continued)*

Country Name	Exports	Imports	Exports	Imports	Exports	Imports
Romania	0.98	1.05	0.99	1.05	0.98	1.05
Russia	1.01	1.05	1.02	1.07	1.01	1.05
Rwanda	0.98	1.38	0.98	1.39	0.98	1.38
Samoa	1.24	0.92	1.34	0.92	1.24	0.92
Saudi Arabia	0.22	1.04	1.83	1.05	0.22	1.04
Senegal	0.88	0.74	0.93	0.74	0.88	0.74
Serbia	0.98	1.05	0.98	1.06	0.98	1.05
Seychelles	1.25	1.07	1.25	1.07	1.25	1.07
Sierra Leone	0.29	0.92	0.29	0.92	0.29	0.92
Singapore	1.46	1.09	1.49	1.15	1.46	1.09
Slovakia	1.08	1.05	1.08	1.16	1.08	1.05
Slovenia	1.02	0.85	1.02	0.87	1.02	0.85
Solomon Islands	0.60	1.15	0.62	1.24	0.60	1.15
South Africa	0.69	0.91	0.76	0.91	0.69	0.91
South Korea	0.90	1.13	0.93	1.13	0.90	1.13
Spain	1.04	1.06	1.25	1.22	1.04	1.06
St. Barthélemy			0.00	0.00		
St. Lucia	1.41	0.33	1.42	0.33	1.41	0.33
Sudan	0.86	1.36	0.86	1.36	0.86	1.36
Sweden	1.00	1.10	1.06	1.11	1.00	1.10
Switzerland	0.97	1.02	0.98	1.02	0.97	1.02
Tajikistan	0.80	0.84	0.82	0.84	0.80	0.84
Tanzania	0.77	0.67	0.77	0.67	0.77	0.67
Thailand	0.89	1.13	0.91	1.17	0.89	1.13
Togo	0.31	0.16	0.31	0.16	0.31	0.16
Tunisia	0.89	1.04	0.96	1.08	0.89	1.04
Turkey	1.03	1.09	1.03	1.21	1.03	1.09
Uganda	0.99	1.73	0.99	1.74	0.99	1.73
Ukraine	0.89	1.01	0.89	1.02	0.89	1.01
United Arab Emirates	0.81	1.14	2.24	1.15	0.81	1.14
United Kingdom	1.08	1.02	1.14	1.07	1.08	1.02
United States	1.02	1.07	1.04	1.09	1.02	1.07
Uruguay	0.66	0.74	0.75	0.74	0.66	0.74
Uzbekistan	0.80	1.00	1.14	1.00	0.80	1.00
Vietnam	0.80	0.85	0.84	0.92	0.80	0.85
Yemen	0.01	0.33	0.01	0.38	0.01	0.33
Zambia	0.97	1.39	1.00	1.39	0.97	1.39
Zimbabwe	1.02	1.64	1.20	1.64	1.02	1.64

Note:
Add definition of bias and means of aggregation.

However, Table 17 also shows cases where differences are as big as 90% (Gambia, 2018). The reason for this is that these countries only report partial trade data. This has two implications:

- Given the fact that missing trade data is a present challenge for an analysis of African trade data, this implies that *only parts* of overall trade flows are observed and can be analysed. In other words, we can only evaluate trade data that are recorded, but it cannot be ruled out that trade takes place that is reported by neither country.
- For countries with particularly low coverage, such as Gambia or Sierra Leone for example, it may make sense to use mirrored trade data instead of directly reported data.
- We report this in Table 18 for Gambia with has rather poor coverage in 2019.

- Comparing the biases across nomenclatures, we observe **bigger gaps in more recent data for older revisions** for the country sample analysed here. This seems to make sense: More recent trade data will have be converted to earlier revisions which requires both time and resources.
- The reported biases in Table 17 for HS4 and HS3 (see separate document) are identical for 2018 but become more frequent for more recent years.

Table 18: Trade partner selection, examples for Sierra Leone and The Gambia, 2018

	Year 2019			
	Export patners		Import partners	
Country Name	reported	mirrored	reported	mirrored
GMB	ARE, BEL, BOL, CAN, CPV, CUB, DEU, ESP, FIN, FRA, GBR, GHA, GIN, GNB, HRV, IND, ISR, ITA, JPN, KOR, LBN, LBR, LVA, MLI, NGA, NLD, NOR, PAN, SEN, SLE, SYC, TGO, TUN, USA, VEN, VNM, ZAF	, AGO, ALB, ARE, ARG, AUS, AUT, BEL, BEN, BFA, BGR, BHR, BIH, BLR, BOL, BRA, BRN, CAF, CAN, CHE, CHL, CHN, CMR, COL, CRI, CZE, DEU, DNK, DOM, ECU, EGY, ESP, EST, ETH, FIN, FRA, GBR, GEO, GHA, GRC, GRL, HKG, HND, IDN, IND, IRL, ISL, ISR, ITA, JPN, KHM, KOR, KWT, LBN, LCA, LTU, LUX, MAR, MDA, MDG, MEX, MLI, MLT, MMR, MNE, MOZ, MRT, MUS, MWI, NAM, NGA, NIC, NLD, NOR, NZL, OMN, PAK, PER, PHL, PLW, POL, PRT, PYF, RUS, RWA, SAU, SDN, SEN, SGP, SLE, SLV, SRB, SVK, SVN, SWE, SWZ, SYC, TGO, THA, TUN, TUR, TZA, UGA, UKR, URY, USA, ZAF, ZMB	, AGO, AND, ARE, ARG, AUS, AUT, BEL, BEN, BFA, BGD, BGR, BHR, BIH, BLZ, BRA, BRN, BWA, CAN, CHE, CHN, CIV, CMR, COG, COL, CPV, CUW, CYP, CZE, DEU, DJI, DNK, DZA, EGY, ESP, EST, ETH, FIN, FRA, GAB, GBR, GEO, GHA, GIB, GIN, GNB, GRC, GRD, HKG, HRV, HUN, IDN, IND, IRL, IRN, ISL, ISR, ITA, JOR, JPN, KEN, KOR, KWT, LBN, LBR, LKA, LTU, LUX, LVA, MAR, MDG, MEX, MLI, MLT, MUS, MYS, NAM, NCL, NER, NGA, NIC, NLD, NOR, NPL, NZL, OMN, PAK, PER, POL, PRK, PRT, PRY, QAT, ROU, RUS, SAU, SDN, SEN, SGP, SLE, SVK, SVN, SWE, SWZ, SYR, TGO, THA, TKL, TUN, TUR, TZA, UGA, UKR, UMI, USA, VAT, VNM, YEM, ZAF, ZMB, ZWE	, AGO, ARE, ARG, AUS, AUT, BEL, BFA, BGR, BHR, BLR, BLZ, BRA, CAN, CHE, CHN, CIV, CMR, COG, COM, CRI, CYP, CZE, DEU, DNK, EGY, ESP, EST, ETH, FIN, FRA, GBR, GEO, GHA, GRC, HKG, HRV, HUN, IDN, IND, IRL, IRN, ISL, ITA, JOR, JPN, KAZ, KEN, KOR, KWT, LBN, LSO, LTU, LUX, LVA, MAR, MDA, MDG, MLI, MLT, MMR, MYS, NGA, NIC, NLD, NOR, NZL, OMN, PAK, PER, PHL, POL, PRT, PRY, QAT, ROU, RUS, SAU, SDN, SEN, SGP, SLE, SLV, SRB, SVK, SVN, SWE, TGO, THA, TUN, TUR, TZA, UGA, UKR, USA, ZAF, ZMB

Note:

....

- The recommendation is therefore twofold:
  - Use HS4 data for 2019 as the baseline for any further comparison.
  - Use mirrored data if:
    - no direct trade data is available;
    - Bias < 80 percent (i.e., mirrored data reports trade volumes that are at least 20 percent bigger than direct trade data).

On the basis of this selection rule, we impose the data structure summarised in Table 19. Please note that while we do focus on African economies, we retain the bias selection for all global economies to minimise potential bias that could otherwise arise.

Table 19: Trade data sampling for report, African economies only

Country Name	Exports	Imports
Algeria	mirrored	mirrored
Angola	direct	direct
Benin	direct	mirrored
Botswana	direct	direct
Burkina Faso	direct	direct
Burundi	mirrored	direct
Cameroon	direct	direct
Cape Verde	mirrored	direct
Central African Republic	mirrored	direct
Chad	mirrored	mirrored
Comoros	mirrored	mirrored
Congo - Brazzaville	direct	direct
Congo - Kinshasa	mirrored	mirrored
Côte d'Ivoire	direct	direct
Djibouti	mirrored	mirrored
Egypt	direct	direct
Equatorial Guinea	mirrored	mirrored
Eritrea	mirrored	mirrored
Eswatini	direct	direct
Ethiopia	mirrored	direct
Gabon	mirrored	mirrored
Gambia	mirrored	mirrored
Ghana	direct	direct
Guinea	mirrored	mirrored
Guinea-Bissau	mirrored	mirrored
Kenya	direct	direct
Lesotho	mirrored	mirrored
Liberia	mirrored	mirrored
Libya	mirrored	mirrored
Madagascar	direct	direct
Malawi	direct	direct
Mali	direct	direct
Mauritania	mirrored	direct
Mauritius	mirrored	direct
Morocco	direct	direct
Mozambique	mirrored	mirrored
Namibia	direct	direct
Niger	direct	direct
Nigeria	direct	direct

Table 19: Trade data sampling for report, African economies only *(continued)*

Country Name	Exports	Imports
Rwanda	direct	direct
São Tomé & Príncipe	mirrored	mirrored
Senegal	direct	mirrored
Seychelles	direct	direct
Sierra Leone	mirrored	direct
Somalia	mirrored	mirrored
South Africa	mirrored	direct
South Sudan	mirrored	mirrored
Sudan	direct	direct
Tanzania	mirrored	mirrored
Togo	mirrored	mirrored
Tunisia	direct	direct
Uganda	direct	direct
Western Sahara	mirrored	mirrored
Zambia	direct	direct
Zimbabwe	direct	direct

Note:
Final data sample based on selection rule described in ...
Baseline data is HS4 for 2019.

A.6 Responses Expert Interviews

Table 20: Summary of responses by question

	English		French	
Question	Answered	Skipped	Answered	Skipped
Q1 - Are you a representative/employee from a Regional Economic Community or a national government?	6	0	7	0
~~If Q1 answered with 'REC': Q2 - Which REC are you from?	3	3	3	4
~~If Q1 answered with 'national government': Q3 - Which country are you from?	1	5	0	7
Q4 - Do you work directly with Industrial Policy?	6	0	5	2
Q5 - Do you work directly with Regional Value Chain development?	6	0	5	2
Q6 - Do regional value chains currently exist within your region?	6	0	5	2
~~If Q6 answered with 'yes': Q7 - What would you say are the top 5 most significant Regional Value Chains in your region as of today?	6	0	4	3
Q8 - Compared to global trade, is intra-regional trade currently more or less important for your region?	6	0	4	3
Q9 - What do you believe are the main benefits of Regional Value Chain integration for your region or country?	6	0	4	3
Q10 - What are the main challenges that prevent existing RVCs to grow?	5	1	4	3
Q11 - How would you evaluate the potential of Regional Value Chain development for your region/country over the next 5 years?	4	2	4	3
Q12 - What would you say are the top 5 potential Regional Value Chains that could be developed in your region/country in the near future?	4	2	4	3
Q13 - What are the main challenges that prevent additional RVCs to emerge in your region?	4	2	4	3
Q14 - Does your regional/national industrial policy explicitly include an intervention for the support of Regional Value Chains?	4	2	4	3
Q15 - Which Regional Value Chains have been prioritized in your regional/national industrial policy?	4	2	4	3
Q16 - What would you say are the most important criteria for prioritizing Regional Value Chains for future support from your perspective?	4	2	4	3
Q17 - How successful has the support of Regional Value Chains been in your region/country until today?	4	2	4	3
Q18 - What are the main reasons for the limited success of RVC development?	4	2	4	3
~~If Q17 answered with 'succesful': Q19 - What were the key success factors for RVC development?	0	6	0	7
Q20 - Considering the existing comparative advantages in your region and which Regional Value Chains offer the largest potential for development under the context of AfCFTA?	4	2	4	3
Q21 - Which new policy interventions would be needed in your region/ country to support Regional Value Chain development more effectively in the future?	4	2	4	3
Q22 - How would you assess the current level of technical capacities of policymakers and technocrats within the public sector for effectively supporting Regional Value Chains in your region/ country?	4	2	4	3
Q23 - Is your REC / government currently involved or was recently involved in a program for strengthening the capacities for RVC development in the public sector?	4	2	4	3
Q24 - Who is organizing the program and what is the name?	2	4	4	3
Q25 - Which capacities for supporting Regional Value Chain development would need to be strengthened most within the public sector?	4	2	4	3

Note:

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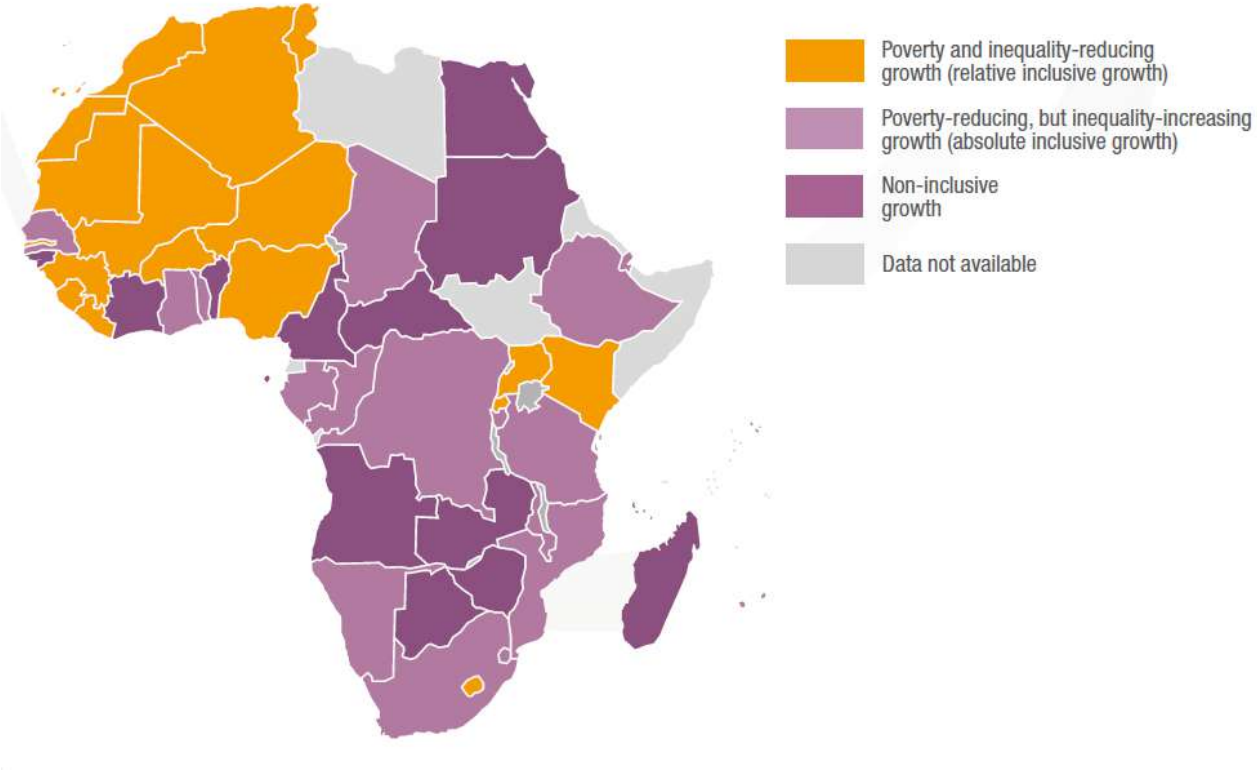
B Appendix to Section 3

B.1 Country-level inclusive growth in Africa

Figure 92 is presented by UNCTAD (2021) with the findings regarding the inclusive economic growth pathways African countries exhibited between 2000 and 2020.

Figure 92: Growth Pathways of the African Countries, 2000-2020



Data source: UNCTAD (2021), p.18

C Appendix to Section 4

C.1 Supplemental material intra-regional trade dynamics in Africa Section 4.1.2

Table 21: Regional Value Chain differential: CEN-SAD vs other RECs

		Percentage point differences minus RECs				
	Flow	I/C - primary	I/C - generic	I/C - specific	F/C - primary	F/C - processed
COMESA						
	EXPORT	5	-3	-1	0	1
	IMPORT	0	-3	-1	0	0
EAC						
	EXPORT	13	-2	2	1	2
	IMPORT	2	-10	-1	-3	-1
ECCAS						
	EXPORT	-29	-4	0	2	4
	IMPORT	1	4	7	7	5
ECOWAS						
	EXPORT	-7	-3	3	0	3
	IMPORT	1	3	4	0	1
IGAD						
	EXPORT	12	3	3	2	2
	IMPORT	2	-9	-2	-4	-5
SADC						
	EXPORT	2	-15	-1	1	0
	IMPORT	-2	2	5	5	3
UMA						
	EXPORT	-2	4	-2	-6	-1
	IMPORT	1	0	0	3	1

Note: Percentage point differences in traded aggregates between RECs and global markets. Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share traded commodity within sector: Share of type of traded commodity by degree of processing within sector and region (global or CEN-SAD). Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (CEN-SAD) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

Table 22: Regional Value Chain differential: COMESA vs other RECs

		Percentage point differences minus RECs				
	Flow	I/C - primary	I/C - generic	I/C - specific	F/C - primary	F/C - processed
CENSAD						
	EXPORT	-5	3	1	0	-1
	IMPORT	0	3	1	0	0
EAC						
	EXPORT	8	1	3	1	1
	IMPORT	2	-7	0	-3	-1
ECCAS						
	EXPORT	-34	-1	1	2	3
	IMPORT	1	7	8	7	5
ECOWAS						
	EXPORT	-12	0	4	0	2
	IMPORT	1	6	5	0	1
IGAD						
	EXPORT	7	6	4	2	1
	IMPORT	2	-6	-1	-4	-5
SADC						
	EXPORT	-3	-12	0	1	-1
	IMPORT	-2	5	6	5	3
UMA						
	EXPORT	-7	7	-1	-6	-2
	IMPORT	1	3	1	3	1

Note: Percentage point differences in traded aggregates between RECs and global markets. Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share traded commodity within sector: Share of type of traded commodity by degree of processing within sector and region (global or COMESA). Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (COMESA) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

Table 23: Regional Value Chain differential: EAC vs other RECs

		Percentage point differences minus RECs				
	Flow	I/C - primary	I/C - generic	I/C - specific	F/C - primary	F/C - processed
CENSAD						
	EXPORT	-13	2	-2	-1	-2
	IMPORT	-2	10	1	3	1
COMESA						
	EXPORT	-8	-1	-3	-1	-1
	IMPORT	-2	7	0	3	1
ECCAS						
	EXPORT	-42	-2	-2	1	2
	IMPORT	-1	14	8	10	6
ECOWAS						
	EXPORT	-20	-1	1	-1	1
	IMPORT	-1	13	5	3	2
IGAD						
	EXPORT	-1	5	1	1	0
	IMPORT	0	1	-1	-1	-4
SADC						
	EXPORT	-11	-13	-3	0	-2
	IMPORT	-4	12	6	8	4
UMA						
	EXPORT	-15	6	-4	-7	-3
	IMPORT	-1	10	1	6	2

Note: Percentage point differences in traded aggregates between RECs and global markets. Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share traded commodity within sector: Share of type of traded commodity by degree of processing within sector and region (global or EAC). Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (EAC) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

Table 24: Regional Value Chain differential: ECCAS vs other RECs

		Percentage point differences minus RECs				
	Flow	I/C - primary	I/C - generic	I/C - specific	F/C - primary	F/C - processed
CENSAD						
	EXPORT	29	4	0	-2	-4
	IMPORT	-1	-4	-7	-7	-5
COMESA						
	EXPORT	34	1	-1	-2	-3
	IMPORT	-1	-7	-8	-7	-5
EAC						
	EXPORT	42	2	2	-1	-2
	IMPORT	1	-14	-8	-10	-6
ECOWAS						
	EXPORT	22	1	3	-2	-1
	IMPORT	0	-1	-3	-7	-4
IGAD						
	EXPORT	41	7	3	0	-2
	IMPORT	1	-13	-9	-11	-10
SADC						
	EXPORT	31	-11	-1	-1	-4
	IMPORT	-3	-2	-2	-2	-2
UMA						
	EXPORT	27	8	-2	-8	-5
	IMPORT	0	-4	-7	-4	-4

Note: Percentage point differences in traded aggregates between RECs and global markets. Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share traded commodity within sector: Share of type of traded commodity by degree of processing within sector and region (global or ECCAS). Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (ECCAS) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

Table 25: Regional Value Chain differential: ECOWAS vs other RECs

		Percentage point differences minus RECs				
	Flow	I/C - primary	I/C - generic	I/C - specific	F/C - primary	F/C - processed
CENSAD						
	EXPORT	7	3	-3	0	-3
	IMPORT	-1	-3	-4	0	-1
COMESA						
	EXPORT	12	0	-4	0	-2
	IMPORT	-1	-6	-5	0	-1
EAC						
	EXPORT	20	1	-1	1	-1
	IMPORT	1	-13	-5	-3	-2
ECCAS						
	EXPORT	-22	-1	-3	2	1
	IMPORT	0	1	3	7	4
IGAD						
	EXPORT	19	6	0	2	-1
	IMPORT	1	-12	-6	-4	-6
SADC						
	EXPORT	9	-12	-4	1	-3
	IMPORT	-3	-1	1	5	2
UMA						
	EXPORT	5	7	-5	-6	-4
	IMPORT	0	-3	-4	3	0

Note: Percentage point differences in traded aggregates between RECs and global markets. Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share traded commodity within sector: Share of type of traded commodity by degree of processing within sector and region (global or ECOWAS). Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (ECOWAS) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

Table 26: Regional Value Chain differential: IGAD vs other RECs

		Percentage point differences minus RECs				
	Flow	I/C - primary	I/C - generic	I/C - specific	F/C - primary	F/C - processed
CENSAD						
	EXPORT	-12	-3	-3	-2	-2
	IMPORT	-2	9	2	4	5
COMESA						
	EXPORT	-7	-6	-4	-2	-1
	IMPORT	-2	6	1	4	5
EAC						
	EXPORT	1	-5	-1	-1	0
	IMPORT	0	-1	1	1	4
ECCAS						
	EXPORT	-41	-7	-3	0	2
	IMPORT	-1	13	9	11	10
ECOWAS						
	EXPORT	-19	-6	0	-2	1
	IMPORT	-1	12	6	4	6
SADC						
	EXPORT	-10	-18	-4	-1	-2
	IMPORT	-4	11	7	9	8
UMA						
	EXPORT	-14	1	-5	-8	-3
	IMPORT	-1	9	2	7	6

Note: Percentage point differences in traded aggregates between RECs and global markets. Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share traded commodity within sector: Share of type of traded commodity by degree of processing within sector and region (global or IGAD). Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (IGAD) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

Table 27: Regional Value Chain differential: SADC vs other RECs

		Percentage point differences minus RECs				
	Flow	I/C - primary	I/C - generic	I/C - specific	F/C - primary	F/C - processed
CENSAD						
	EXPORT	-2	15	1	-1	0
	IMPORT	2	-2	-5	-5	-3
COMESA						
	EXPORT	3	12	0	-1	1
	IMPORT	2	-5	-6	-5	-3
EAC						
	EXPORT	11	13	3	0	2
	IMPORT	4	-12	-6	-8	-4
ECCAS						
	EXPORT	-31	11	1	1	4
	IMPORT	3	2	2	2	2
ECOWAS						
	EXPORT	-9	12	4	-1	3
	IMPORT	3	1	-1	-5	-2
IGAD						
	EXPORT	10	18	4	1	2
	IMPORT	4	-11	-7	-9	-8
UMA						
	EXPORT	-4	19	-1	-7	-1
	IMPORT	3	-2	-5	-2	-2

Note: Percentage point differences in traded aggregates between RECs and global markets. Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share traded commodity within sector: Share of type of traded commodity by degree of processing within sector and region (global or SADC). Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (SADC) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

Table 28: Regional Value Chain differential: UMA vs other RECs

		Percentage point differences minus RECs				
	Flow	I/C - primary	I/C - generic	I/C - specific	F/C - primary	F/C - processed
CENSAD						
	EXPORT	2	-4	2	6	1
	IMPORT	-1	0	0	-3	-1
COMESA						
	EXPORT	7	-7	1	6	2
	IMPORT	-1	-3	-1	-3	-1
EAC						
	EXPORT	15	-6	4	7	3
	IMPORT	1	-10	-1	-6	-2
ECCAS						
	EXPORT	-27	-8	2	8	5
	IMPORT	0	4	7	4	4
ECOWAS						
	EXPORT	-5	-7	5	6	4
	IMPORT	0	3	4	-3	0
IGAD						
	EXPORT	14	-1	5	8	3
	IMPORT	1	-9	-2	-7	-6
SADC						
	EXPORT	4	-19	1	7	1
	IMPORT	-3	2	5	2	2

Note: Percentage point differences in traded aggregates between RECs and global markets. Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share traded commodity within sector: Share of type of traded commodity by degree of processing within sector and region (global or UMA). Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (UMA) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

C.2 Supplemental material RVC identification Section 4.2

Table 29: Regional Key Value Chain by composition: Global and Intra-CEN-SAD

	Percentage share in traded commodites				Percentage point differences	
	Within sector		Trade volume			
Type	Intra-CEN-SAD	Global	Intra-CEN-SAD	Global	Within sector	Trade volume
2320 - refined petroleum products - trade volume in mil.USD: 3170.						
I/C - primary	0.1	0.0	0.0	0.0	0.1	0.0
I/C - specific	1.9	3.0	0.4	0.1	-1.1	0.3
F/C - primary	98.0	96.9	19.1	4.7	1.1	14.4
2899 - other fabricated metal products n.e.c. - trade volume in mil.USD: 2222.						
I/C - generic	95.4	28.0	13.0	0.4	67.4	12.6
I/C - specific	1.9	55.6	0.3	0.8	-53.7	-0.5
I/C - capital	2.0	6.2	0.3	0.1	-4.2	0.2
F/C - processed	0.8	10.2	0.1	0.1	-9.4	0.0
2710 - basic iron and steel - trade volume in mil.USD: 1368.						
I/C - generic	22.0	75.7	1.9	2.1	-53.7	-0.2
I/C - specific	2.3	23.5	0.2	0.7	-21.2	-0.5
I/C - capital	75.7	0.6	6.4	0.0	75.1	6.4
1512 - Processing and preserving of fish and fish products - trade volume in mil.USD: 790.						
I/C - generic	1.1	3.6	0.1	0.0	-2.5	0.1
F/C - processed	21.1	23.2	1.0	0.2	-2.1	0.8
F/C - primary	77.8	72.7	3.8	0.6	5.1	3.2
2412 - fertilizers and nitrogen compounds - trade volume in mil.USD: 663.						
I/C - generic	99.9	90.7	4.1	0.4	9.2	3.7
I/C - specific	0.1	9.3	0.0	0.0	-9.2	0.0
2520 - plastics products - trade volume in mil.USD: 576.						
I/C - generic	30.0	30.2	1.1	0.6	-0.2	0.5
I/C - specific	56.7	59.6	2.0	1.3	-2.9	0.7
F/C - processed	13.2	10.2	0.5	0.2	3.0	0.3
2694 - cement, lime and plaster - trade volume in mil.USD: 508.						
I/C - primary	0.0	1.6	0.0	0.0	-1.6	0.0
I/C - generic	100.0	98.4	3.1	0.1	1.6	3.0
2424 - soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations - trade volume in mil.USD: 501.						
I/C - generic	0.0	0.3	0.0	0.0	-0.3	0.0
I/C - specific	6.0	10.9	0.2	0.1	-4.9	0.1
F/C - primary	94.0	88.8	2.9	1.0	5.2	1.9
1514 - vegetable and animal oils and fats - trade volume in mil.USD: 491.						
I/C - primary	0.0	0.0	0.0	0.0	0.0	0.0
I/C - generic	86.0	81.6	2.6	0.6	4.4	2.0
F/C - processed	4.5	1.5	0.1	0.0	3.0	0.1
F/C - primary	9.4	16.9	0.3	0.1	-7.5	0.2

Note: Selection criteria: (i) ISIC Rev. 3.1 IV-digit sectors selected for Intra-CEN-SAD if all selection criteria in box 3 are met for at least one processing type. (ii) Based on initial selection, top sectors (above 1 per cen in Intra-CEN-SAD trade) ISIC Rev. 3.1 IV-digit sectors are identified (note, that fewer than 15 sectors may be identified if fewer than 15 sectors meet the referenced criteria). (iii) For identified top-15 sectors, all processing types are displayed. Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share traded commodity within sector: Share of type of traded commodity by degree of processing within sector and region (global or Intra-CEN-SAD). Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (Intra-CEN-SAD) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

Table 30: Regional Key Value Chain by composition: Global and Intra-COMESA

		Percentage share in traded commodites					
		Within sector		Trade volume		Percentage point differences	
	Type	Intra-COMESA	Global	Intra-COMESA	Global	Within sector	Trade volume
2320 - refined petroleum products - trade volume in mil.USD: 454.							
	I/C - primary	0.1	0.0	0.0	0.0	0.1	0.0
	I/C - specific	1.3	3.0	0.1	0.1	-1.7	0.0
	F/C - primary	98.6	96.9	6.4	4.7	1.7	1.7
2720 - basic precious and non-ferrous metals - trade volume in mil.USD: 357.							
	I/C - primary	0.7	0.6	0.0	0.0	0.1	0.0
	I/C - generic	99.3	96.3	5.1	4.7	3.0	0.4
	I/C - specific	0.0	3.0	0.0	0.1	-3.0	-0.1
1542 - sugar - trade volume in mil.USD: 341.							
	I/C - generic	60.9	54.0	3.0	0.1	6.9	2.9
	F/C - processed	39.1	46.0	1.9	0.1	-6.9	1.8
1514 - vegetable and animal oils and fats - trade volume in mil.USD: 337.							
	I/C - primary	0.0	0.0	0.0	0.0	0.0	0.0
	I/C - generic	78.5	81.6	3.8	0.6	-3.1	3.2
2710 - basic iron and steel - trade volume in mil.USD: 337.							
	I/C - primary	0.0	0.2	0.0	0.0	-0.2	0.0
	I/C - generic	88.2	75.7	4.3	2.1	12.5	2.2
	I/C - specific	11.8	23.5	0.6	0.7	-11.7	-0.1
1514 - vegetable and animal oils and fats - trade volume in mil.USD: 337.							
	F/C - processed	7.3	1.5	0.4	0.0	5.8	0.4
	F/C - primary	14.1	16.9	0.7	0.1	-2.8	0.6
2411 - basic chemicals, except fertilizers and nitrogen compounds - trade volume in mil.USD: 329.							
	I/C - primary	0.0	0.0	0.0	0.0	0.0	0.0
	I/C - generic	6.0	9.5	0.3	0.3	-3.5	0.0
	I/C - specific	94.0	90.5	4.4	2.7	3.5	1.7
2694 - cement, lime and plaster - trade volume in mil.USD: 327.							
	I/C - primary	0.0	1.6	0.0	0.0	-1.6	0.0
	I/C - generic	100.0	98.4	4.7	0.1	1.6	4.6
2429 - other chemical products n.e.c. - trade volume in mil.USD: 288.							
	I/C - generic	16.8	27.7	0.7	0.5	-10.9	0.2
	I/C - specific	82.7	69.0	3.4	1.1	13.7	2.3
	F/C - processed	0.1	2.2	0.0	0.0	-2.1	0.0
	F/C - primary	0.5	1.1	0.0	0.0	-0.6	0.0
2520 - plastics products - trade volume in mil.USD: 255.							
	I/C - generic	18.2	30.2	0.7	0.6	-12.0	0.1
	I/C - specific	74.5	59.6	2.7	1.3	14.9	1.4
	F/C - processed	7.3	10.2	0.3	0.2	-2.9	0.1
2412 - fertilizers and nitrogen compounds - trade volume in mil.USD: 252.							
	I/C - generic	99.5	90.7	3.6	0.4	8.8	3.2
	I/C - specific	0.5	9.3	0.0	0.0	-8.8	0.0
2424 - soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations - trade volume in mil.USD: 242.							
	I/C - generic	0.1	0.3	0.0	0.0	-0.2	0.0
	I/C - specific	10.0	10.9	0.3	0.1	-0.9	0.2
	F/C - primary	89.9	88.8	3.1	1.0	1.1	2.1
1531 - grain mill products - trade volume in mil.USD: 240.							
	I/C - primary	0.0	3.7	0.0	0.0	-3.7	0.0
	I/C - generic	67.5	20.9	2.3	0.1	46.6	2.2

Table 30: Regional Key Value Chain by composition: Global and Intra-COMESA *(continued)*

		Percentage share in traded commodites					
		Within sector		Trade volume		Percentage point differences	
ISIC Rev. 3.1 4-digit sector	Type	Intra-COMESA	Global	Intra-COMESA	Global	Within sector	Trade volume
	F/C - processed	7.4	23.6	0.3	0.1	-16.2	0.2
	F/C - primary	25.0	51.7	0.9	0.1	-26.7	0.8

Note: Selection criteria: (i) ISIC Rev. 3.1 IV-digit sectors selected for Intra-COMESA if all selection criteria in box 3 are met for at least one processing type. (ii) Based on initial selection, top sectors (above 1 per cen in Intra-COMESA trade) ISIC Rev. 3.1 IV-digit sectors are identified (note, that fewer than 15 sectors may be identified if fewer than 15 sectors meet the referenced criteria). (iii) For identified top-15 sectors, all processing types are displayed. Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share traded commodity within sector: Share of type of traded commodity by degree of processing within sector and region (global or Intra-COMESA). Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (Intra-COMESA) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

Table 31: Regional Key Value Chain by composition: Global and Intra-EAC

	Percentage share in traded commodites					
	Within sector		Trade volume		Percentage point differences	
Type	Intra-EAC	Global	Intra-EAC	Global	Within sector	Trade volume
2710 - basic iron and steel - trade volume in mil.USD: 245.						
I/C - primary	0.0	0.2	0.0	0.0	-0.2	0.0
I/C - generic	85.0	75.7	8.2	2.1	9.3	6.1
I/C - specific	15.0	23.5	1.4	0.7	-8.5	0.7
1531 - grain mill products - trade volume in mil.USD: 175.						
I/C - primary	0.1	3.7	0.0	0.0	-3.6	0.0
I/C - generic	66.0	20.9	4.5	0.1	45.1	4.4
F/C - processed	1.5	23.6	0.1	0.1	-22.1	0.0
F/C - primary	32.3	51.7	2.2	0.1	-19.4	2.1
1514 - vegetable and animal oils and fats - trade volume in mil.USD: 163.						
I/C - generic	83.1	81.6	5.3	0.6	1.5	4.7
F/C - processed	0.7	1.5	0.0	0.0	-0.8	0.0
F/C - primary	16.3	16.9	1.0	0.1	-0.6	0.9
2320 - refined petroleum products - trade volume in mil.USD: 153.						
I/C - primary	0.1	0.0	0.0	0.0	0.1	0.0
I/C - specific	5.5	3.0	0.3	0.1	2.5	0.2
F/C - primary	94.4	96.9	5.7	4.7	-2.5	1.0
2424 - soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations - trade volume in mil.USD: 140.						
I/C - generic	0.0	0.3	0.0	0.0	-0.3	0.0
I/C - specific	7.8	10.9	0.4	0.1	-3.1	0.3
F/C - primary	92.2	88.8	5.1	1.0	3.4	4.1
1549 - other food products n.e.c. - trade volume in mil.USD: 120.						
I/C - primary	0.1	4.0	0.0	0.0	-3.9	0.0
I/C - generic	37.5	12.5	1.8	0.1	25.0	1.7
F/C - processed	1.6	10.2	0.1	0.1	-8.6	0.0
F/C - primary	60.8	73.3	2.9	0.6	-12.5	2.3
3410 - motor vehicles - trade volume in mil.USD: 93.						
I/C - specific	0.1	7.3	0.0	0.5	-7.2	-0.5
I/C - capital	66.0	19.0	2.4	1.3	47.0	1.1
F/C - processed	33.9	73.6	1.2	4.9	-39.7	-3.7
2520 - plastics products - trade volume in mil.USD: 83.						
I/C - generic	13.5	30.2	0.4	0.6	-16.7	-0.2
I/C - specific	72.7	59.6	2.4	1.3	13.1	1.1
F/C - processed	13.8	10.2	0.5	0.2	3.6	0.3
2423 - pharmaceuticals, medicinal chemicals and botanical products - trade volume in mil.USD: 80.						
I/C - generic	0.3	1.0	0.0	0.0	-0.7	0.0
I/C - specific	99.7	99.0	3.1	4.3	0.7	-1.2
2694 - cement, lime and plaster - trade volume in mil.USD: 68.						
I/C - primary	0.0	1.6	0.0	0.0	-1.6	0.0
I/C - generic	100.0	98.4	2.7	0.1	1.6	2.6
2412 - fertilizers and nitrogen compounds - trade volume in mil.USD: 66.						
I/C - generic	99.1	90.7	2.6	0.4	8.4	2.2

I/C - specific	0.9	9.3	0.0	0.0	-8.4	0.0

Note: Selection criteria: (i) ISIC Rev. 3.1 IV-digit sectors selected for Intra-EAC if all selection criteria in box 3 are met for at least one processing type. (ii) Based on initial selection, top sectors (above 1 per cen in Intra-EAC trade) ISIC Rev. 3.1 IV-digit sectors are identified (note, that fewer than 15 sectors may be identified if fewer than 15 sectors meet the referenced criteria). (iii) For identified top-15 sectors, all processing types are displayed. Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share traded commodity within sector: Share of type of traded commodity by degree of processing within sector and region (global or Intra-EAC). Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (Intra-EAC) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

Table 32: Regional Key Value Chain by composition: Global and Intra-ECCAS

		Percentage share in traded commodites					
		Within sector		Trade volume		Percentage point differences	
	Type	Intra-ECCAS	Global	Intra-ECCAS	Global	Within sector	Trade volume
2320 - refined petroleum products - trade volume in mil.USD: 261.							
	I/C - primary	0.0	0.0	0.0	0.0	0.0	0.0
	I/C - specific	0.0	3.0	0.0	0.1	-3.0	-0.1
	F/C - primary	100.0	96.9	28.7	4.7	3.1	24.0
2720 - basic precious and non-ferrous metals - trade volume in mil.USD: 96.							
	I/C - generic	100.0	96.3	10.6	4.7	3.7	5.9
	I/C - specific	0.0	3.0	0.0	0.1	-3.0	-0.1
1531 - grain mill products - trade volume in mil.USD: 93.							
	I/C - primary	0.8	3.7	0.1	0.0	-2.9	0.1
	I/C - generic	62.8	20.9	6.4	0.1	41.9	6.3
	F/C - processed	0.2	23.6	0.0	0.1	-23.4	-0.1
	F/C - primary	36.1	51.7	3.7	0.1	-15.6	3.6
1514 - vegetable and animal oils and fats - trade volume in mil.USD: 40.							
	I/C - generic	91.4	81.6	4.0	0.6	9.8	3.4
	F/C - processed	1.2	1.5	0.1	0.0	-0.3	0.1
	F/C - primary	7.4	16.9	0.3	0.1	-9.5	0.2
1542 - sugar - trade volume in mil.USD: 30.							
	I/C - generic	7.8	54.0	0.3	0.1	-46.2	0.2
	F/C - processed	92.2	46.0	3.1	0.1	46.2	3.0
2424 - soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations - trade volume in mil.USD: 26.							
	I/C - specific	4.6	10.9	0.1	0.1	-6.3	0.0
	F/C - primary	95.4	88.8	2.7	1.0	6.6	1.7
2710 - basic iron and steel - trade volume in mil.USD: 24.							
	I/C - generic	78.1	75.7	2.1	2.1	2.4	0.0
	I/C - specific	21.9	23.5	0.6	0.7	-1.6	-0.1
3720 - Recycling of non-metal waste and scrap - trade volume in mil.USD: 19.							
	I/C - generic	0.4	15.6	0.0	0.0	-15.2	0.0
	I/C - specific	99.6	84.4	2.1	0.0	15.2	2.1

Note: Selection criteria: (i) ISIC Rev. 3.1 IV-digit sectors selected for Intra-ECCAS if all selection criteria in box 3 are met for at least one processing type. (ii) Based on initial selection, top sectors (above 1 per cen in Intra-ECCAS trade) ISIC Rev. 3.1 IV-digit sectors are identified (note, that fewer than 15 sectors may be identified if fewer than 15 sectors meet the referenced criteria). (iii) For identified top-15 sectors, all processing types are displayed. Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share traded commodity within sector: Share of type of traded commodity by degree of processing within sector and region (global or Intra-ECCAS). Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (Intra-ECCAS) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

Table 33: Regional Key Value Chain by composition: Global and Intra-ECOWAS

	Percentage share in traded commodites					
	Within sector		Trade volume		Percentage point differences	
Type	Intra-ECOWAS	Global	Intra-ECOWAS	Global	Within sector	Trade volume
2899 - other fabricated metal products n.e.c. - trade volume in mil.USD: 2126.						
I/C - generic	98.9	28.0	21.1	0.4	70.9	20.7
I/C - specific	0.5	55.6	0.1	0.8	-55.1	-0.7
I/C - capital	0.3	6.2	0.1	0.1	-5.9	0.0
F/C - processed	0.3	10.2	0.1	0.1	-9.9	0.0
2320 - refined petroleum products - trade volume in mil.USD: 2112.						
I/C - primary	0.2	0.0	0.0	0.0	0.2	0.0
I/C - specific	2.3	3.0	0.5	0.1	-0.7	0.4
F/C - primary	97.5	96.9	20.7	4.7	0.6	16.0
2710 - basic iron and steel - trade volume in mil.USD: 1244.						
I/C - primary	0.0	0.2	0.0	0.0	-0.2	0.0
I/C - generic	14.7	75.7	1.8	2.1	-61.0	-0.3
I/C - specific	2.1	23.5	0.3	0.7	-21.4	-0.4
I/C - capital	83.2	0.6	10.4	0.0	82.6	10.4
1514 - vegetable and animal oils and fats - trade volume in mil.USD: 392.						
I/C - primary	0.0	0.0	0.0	0.0	0.0	0.0
I/C - generic	96.7	81.6	3.8	0.6	15.1	3.2
F/C - processed	0.0	1.5	0.0	0.0	-1.5	0.0
F/C - primary	3.3	16.9	0.1	0.1	-13.6	0.0
2424 - soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations - trade volume in mil.USD: 369.						
I/C - generic	0.0	0.3	0.0	0.0	-0.3	0.0
I/C - specific	1.1	10.9	0.0	0.1	-9.8	-0.1
F/C - primary	98.9	88.8	3.7	1.0	10.1	2.7
1549 - other food products n.e.c. - trade volume in mil.USD: 306.						
I/C - primary	0.0	4.0	0.0	0.0	-4.0	0.0
I/C - generic	10.8	12.5	0.3	0.1	-1.7	0.2
F/C - processed	3.6	10.2	0.1	0.1	-6.6	0.0
F/C - primary	85.6	73.3	2.6	0.6	12.3	2.0
1512 - Processing and preserving of fish and fish products - trade volume in mil.USD: 216.						
I/C - generic	0.3	3.6	0.0	0.0	-3.3	0.0

Note: Selection criteria: (i) ISIC Rev. 3.1 IV-digit sectors selected for Intra-ECOWAS if all selection criteria in box 3 are met for at least one processing type. (ii) Based on initial selection, top sectors (above 1 per cen in Intra-ECOWAS trade) ISIC Rev. 3.1 IV-digit sectors are identified (note, that fewer than 15 sectors may be identified if fewer than 15 sectors meet the referenced criteria). (iii) For identified top-15 sectors, all processing types are displayed. Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share traded commodity within sector: Share of type of traded commodity by degree of processing within sector and region (global or Intra-ECOWAS). Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (Intra-ECOWAS) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

Table 34: Regional Key Value Chain by composition: Global and Intra-IGAD

		Percentage share in traded commodites					
		Within sector		Trade volume		Percentage point differences	
	Type	Intra-IGAD	Global	Intra-IGAD	Global	Within sector	Trade volume
1514 - vegetable and animal oils and fats - trade volume in mil.USD: 140.							
	I/C - generic	88.4	81.6	8.5	0.6	6.8	7.9
	F/C - processed	0.0	1.5	0.0	0.0	-1.5	0.0
	F/C - primary	11.6	16.9	1.1	0.1	-5.3	1.0
2710 - basic iron and steel - trade volume in mil.USD: 108.							
	I/C - primary	0.0	0.2	0.0	0.0	-0.2	0.0
	I/C - generic	85.8	75.7	6.4	2.1	10.1	4.3
	I/C - specific	14.1	23.5	1.0	0.7	-9.4	0.3
1531 - grain mill products - trade volume in mil.USD: 94.							
	I/C - primary	0.1	3.7	0.0	0.0	-3.6	0.0
	I/C - generic	83.3	20.9	5.4	0.1	62.4	5.3
	F/C - processed	1.8	23.6	0.1	0.1	-21.8	0.0
	F/C - primary	14.8	51.7	1.0	0.1	-36.9	0.9
2320 - refined petroleum products - trade volume in mil.USD: 87.							
	I/C - primary	0.1	0.0	0.0	0.0	0.1	0.0
	I/C - specific	1.0	3.0	0.1	0.1	-2.0	0.0
	F/C - primary	98.9	96.9	5.9	4.7	2.0	1.2
1549 - other food products n.e.c. - trade volume in mil.USD: 81.							
	I/C - primary	0.0	4.0	0.0	0.0	-4.0	0.0
	I/C - generic	16.8	12.5	0.9	0.1	4.3	0.8
	F/C - processed	0.8	10.2	0.0	0.1	-9.4	-0.1
	F/C - primary	82.3	73.3	4.6	0.6	9.0	4.0
1600 - tobacco products - trade volume in mil.USD: 74.							
	I/C - primary	0.5	0.6	0.0	0.0	-0.1	0.0
	F/C - primary	99.5	99.4	5.0	0.2	0.1	4.8
2520 - plastics products - trade volume in mil.USD: 53.							
	I/C - generic	10.9	30.2	0.4	0.6	-19.3	-0.2
	I/C - specific	78.5	59.6	2.8	1.3	18.9	1.5
	F/C - processed	10.6	10.2	0.4	0.2	0.4	0.2
3410 - motor vehicles - trade volume in mil.USD: 53.							
	I/C - specific	0.0	7.3	0.0	0.5	-7.3	-0.5
	I/C - capital	65.7	19.0	2.4	1.3	46.7	1.1
	F/C - processed	34.2	73.6	1.2	4.9	-39.4	-3.7
2423 - pharmaceuticals, medicinal chemicals and botanical products - trade volume in mil.USD: 52.							
	I/C - generic	0.2	1.0	0.0	0.0	-0.8	0.0
	I/C - specific	99.8	99.0	3.6	4.3	0.8	-0.7
2424 - soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations - trade volume in mil.USD: 51.							
	I/C - generic	0.0	0.3	0.0	0.0	-0.3	0.0
	I/C - specific	10.9	10.9	0.4	0.1	0.0	0.3
	F/C - primary	89.1	88.8	3.1	1.0	0.3	2.1
1542 - sugar - trade volume in mil.USD: 46.							
	I/C - generic	12.7	54.0	0.4	0.1	-41.3	0.3
	F/C - processed	87.3	46.0	2.7	0.1	41.3	2.6
2694 - cement, lime and plaster - trade volume in mil.USD: 36.							
	I/C - primary	0.1	1.6	0.0	0.0	-1.5	0.0
	I/C - generic	99.9	98.4	2.4	0.1	1.5	2.3

Table 34: Regional Key Value Chain by composition: Global and Intra-IGAD *(continued)*

		Percentage share in traded commodites					
		Within sector		Trade volume		Percentage point differences	
ISIC Rev. 3.1 4-digit sector	Type	Intra-IGAD	Global	Intra-IGAD	Global	Within sector	Trade volume

Note: Selection criteria: (i) ISIC Rev. 3.1 IV-digit sectors selected for Intra-IGAD if all selection criteria in box 3 are met for at least one processing type. (ii) Based on initial selection, top sectors (above 1 per cen in Intra-IGAD trade) ISIC Rev. 3.1 IV-digit sectors are identified (note, that fewer than 15 sectors may be identified if fewer than 15 sectors meet the referenced criteria). (iii) For identified top-15 sectors, all processing types are displayed. Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share traded commodity within sector: Share of type of traded commodity by degree of processing within sector and region (global or Intra-IGAD). Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (Intra-IGAD) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

Table 35: Regional Key Value Chain by composition: Global and Intra-SADC

		Percentage share in traded commodites					
		Within sector		Trade volume		Percentage point differences	
	Type	Intra-SADC	Global	Intra-SADC	Global	Within sector	Trade volume
2720 - basic precious and non-ferrous metals - trade volume in mil.USD: 5953.							
	I/C - primary	0.1	0.6	0.0	0.0	-0.5	0.0
	I/C - generic	99.5	96.3	18.2	4.7	3.2	13.5
	I/C - specific	0.4	3.0	0.1	0.1	-2.6	0.0
	I/C - capital	0.0	0.1	0.0	0.0	-0.1	0.0
2411 - basic chemicals, except fertilizers and nitrogen compounds - trade volume in mil.USD: 2996.							
	I/C - primary	0.2	0.0	0.0	0.0	0.2	0.0
	I/C - generic	1.4	9.5	0.1	0.3	-8.1	-0.2
	I/C - specific	98.4	90.5	9.0	2.7	7.9	6.3
2320 - refined petroleum products - trade volume in mil.USD: 2127.							
	I/C - primary	0.3	0.0	0.0	0.0	0.3	0.0
	I/C - specific	3.1	3.0	0.2	0.1	0.1	0.1
	F/C - primary	96.6	96.9	6.3	4.7	-0.3	1.6
3410 - motor vehicles - trade volume in mil.USD: 1393.							
	I/C - specific	1.2	7.3	0.0	0.5	-6.1	-0.5
	I/C - capital	68.5	19.0	2.9	1.3	49.5	1.6
	F/C - processed	30.4	73.6	1.3	4.9	-43.2	-3.6
2710 - basic iron and steel - trade volume in mil.USD: 1229.							
	I/C - primary	0.0	0.2	0.0	0.0	-0.2	0.0
	I/C - generic	83.2	75.7	3.1	2.1	7.5	1.0
	I/C - specific	15.3	23.5	0.6	0.7	-8.2	-0.1
	I/C - capital	1.5	0.6	0.1	0.0	0.9	0.1
2429 - other chemical products n.e.c. - trade volume in mil.USD: 1141.							
	I/C - generic	14.9	27.7	0.5	0.5	-12.8	0.0
	I/C - specific	84.4	69.0	3.0	1.1	15.4	1.9
	F/C - processed	0.3	2.2	0.0	0.0	-1.9	0.0
	F/C - primary	0.4	1.1	0.0	0.0	-0.7	0.0
1810 - wearing apparel, except fur apparel - trade volume in mil.USD: 871.							
	I/C - specific	0.1	0.1	0.0	0.0	0.0	0.0
	F/C - processed	99.9	99.9	2.7	2.7	0.0	0.0

Note: Selection criteria: (i) ISIC Rev. 3.1 IV-digit sectors selected for Intra-SADC if all selection criteria in box 3 are met for at least one processing type. (ii) Based on initial selection, top sectors (above 1 per cen in Intra-SADC trade) ISIC Rev. 3.1 IV-digit sectors are identified (note, that fewer than 15 sectors may be identified if fewer than 15 sectors meet the referenced criteria). (iii) For identified top-15 sectors, all processing types are displayed. Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share traded commodity within sector: Share of type of traded commodity by degree of processing within sector and region (global or Intra-SADC). Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (Intra-SADC) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

Table 36: Regional Key Value Chain by composition: Global and Intra-UMA

		Percentage share in traded commodites					
		Within sector		Trade volume		Percentage point differences	
	Type	Intra-UMA	Global	Intra-UMA	Global	Within sector	Trade volume
2320 - refined petroleum products - trade volume in mil.USD: 1606.							
	I/C - primary	0.0	0.0	0.0	0.0	0.0	0.0
	I/C - specific	0.1	3.0	0.0	0.1	-2.9	-0.1
	F/C - primary	99.9	96.9	48.3	4.7	3.0	43.6
2710 - basic iron and steel - trade volume in mil.USD: 91.							
	I/C - generic	86.1	75.7	2.4	2.1	10.4	0.3
	I/C - specific	13.9	23.5	0.4	0.7	-9.6	-0.3

Note: Selection criteria: (i) ISIC Rev. 3.1 IV-digit sectors selected for Intra-UMA if all selection criteria in box 3 are met for at least one processing type. (ii) Based on initial selection, top sectors (above 1 per cen in Intra-UMA trade) ISIC Rev. 3.1 IV-digit sectors are identified (note, that fewer than 15 sectors may be identified if fewer than 15 sectors meet the referenced criteria). (iii) For identified top-15 sectors, all processing types are displayed. Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share traded commodity within sector: Share of type of traded commodity by degree of processing within sector and region (global or Intra-UMA). Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (Intra-UMA) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

C.3 Supplemental material RVC operation Section 4.3

C.3.1 Identification of regional processing options

Table 37: Key Regional Value Chain networks: CEN-SAD

			Share in traded commodity by degree of processing				
	Reporter	Partner	I/C - primary	I/C - generic	I/C - specific	F/C - primary	F/C - processed
2320 - refined petroleum products - trade volume in mil.USD: 3170.							
	Benin	Nigeria				12	
	Côte d'Ivoire	Burkina Faso				6	
		Ghana			18		
		Mali				8	
		Nigeria			36		
		Togo				5	
	Egypt	Nigeria			7		
		Tunisia				19	
	Ghana	Togo	98				
	Senegal	Mali				17	
2899 - other fabricated metal products n.e.c. - trade volume in mil.USD: 2222.							
	Egypt	Libya			12		13
		Morocco					7
		Sudan			7		26
	Ghana	Benin					19
		Burkina Faso			8		
		Togo					12
	Morocco	Côte d'Ivoire			6		
	Nigeria	Ghana		99			
	Tunisia	Libya			7		
		Morocco			5		
2710 - basic iron and steel - trade volume in mil.USD: 1368.							
	Benin	Niger			5		
	Côte d'Ivoire	Mali			8		
	Egypt	Sudan		17			
	Ghana	Burkina Faso		6	16		
		Togo		6			
	Libya	Egypt		7	5		
	Senegal	Mali		15	8		
	Tunisia	Libya			5		
		Morocco		5			
1512 - Processing and preserving of fish and fish products - trade volume in mil.USD: 790.							
	Gambia	Tunisia		17			
	Mauritania	Benin				10	
		Côte d'Ivoire				24	
		Egypt		19			
		Ghana				14	
		Nigeria		7		9	
		Tunisia		6			
	Morocco	Côte d'Ivoire					7

Table 37: Key Regional Value Chain networks: CEN-SAD *(continued)*

Description	Reporter	Partner	Share in traded commodity by degree of processing				
			I/C - primary	I/C - generic	I/C - specific	F/C - primary	F/C - processed
		Egypt		19			5
		Ghana					15
		Mauritania					7
		Nigeria		16			22
		Sierra Leone					5
		Togo					5
		Tunisia		6			
	Senegal	Côte d'Ivoire				19	
	Tunisia	Libya					7
2412 - fertilizers and nitrogen compounds - trade volume in mil.USD: 663.							
	Egypt	Libya			27		
		Sudan		6	5		
	Ghana	Burkina Faso			24		
	Morocco	Benin		10			
		Côte d'Ivoire		7			
		Djibouti		34			
		Mauritania			11		
		Senegal		6			
	Nigeria	Ghana			22		
	Senegal	Mali		7			

Note: Sector selection: Top-5 ISIC Rev. 3.1 4-digits with the highest absolute trade volume selected, and only country-level trade bigger or equal than 4 percent of sector-level trade highlighted. Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (CEN-SAD) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

Table 38: Key Regional Value Chain networks: COMESA

		Share in traded commodity by degree of processing				
Reporter	Partner	I/C - primary	I/C - generic	I/C - specific	F/C - primary	F/C - processed
2320 - refined petroleum products - trade volume in mil.USD: 454.						
Congo - Kinshasa	Uganda	7				
Egypt	Ethiopia			26		
	Kenya			22		
	Uganda			6		
Kenya	Congo - Kinshasa	49				
	Rwanda			13		
	Uganda	13			8	
	Zambia			13		
Libya	Egypt				8	
Mauritius	Zambia				24	
Rwanda	Congo - Kinshasa	7			25	
Sudan	Ethiopia				7	
Uganda	Kenya			6		
Zambia	Congo - Kinshasa	7				
	Malawi	12				
2720 - basic precious and non-ferrous metals - trade volume in mil.USD: 357.						
Congo - Kinshasa	Zambia		87			
Kenya	Rwanda	66				
Rwanda	Congo - Kinshasa			98		
Uganda	Kenya	20				
	Rwanda	11				
1542 - sugar - trade volume in mil.USD: 341.						
Egypt	Kenya					9
	Libya					5
	Uganda					6
Eswatini	Kenya		12			
Malawi	Kenya		16			
Mauritius	Kenya					29
Rwanda	Burundi					6
	Congo - Kinshasa					8
Uganda	Congo - Kinshasa					9
Zambia	Congo - Kinshasa		19			11
	Kenya		14			
	Rwanda		5			
Zimbabwe	Kenya		17			
1514 - vegetable and animal oils and fats - trade volume in mil.USD: 337.						
Djibouti	Ethiopia		8			
Egypt	Eritrea					35
	Ethiopia				6	
	Kenya					5
	Libya				6	
	Mauritius					48
Kenya	Malawi				10	
	Rwanda		5		5	
	Uganda		24		27	

Table 38: Key Regional Value Chain networks: COMESA *(continued)*

Description	Reporter	Partner	Share in traded commodity by degree of processing				
			I/C - primary	I/C - generic	I/C - specific	F/C - primary	F/C - processed
		Zambia				10	
	Rwanda	Congo - Kinshasa		13		6	
	Uganda	Congo - Kinshasa		9			
	Zambia	Congo - Kinshasa				7	
		Eswatini	100				
		Zimbabwe		7			
2710 - basic iron and steel - trade volume in mil.USD: 337.							
	Egypt	Kenya		8			
		Sudan		17			
	Kenya	Burundi			5		
		Congo - Kinshasa		6			
		Rwanda		6	19		
		Uganda	41	19	11		
	Libya	Egypt		7			
	Uganda	Congo - Kinshasa		6	21		
		Kenya	59				
	Zambia	Congo - Kinshasa		5	14		
		Zimbabwe			7		

Note: Sector selection: Top-5 ISIC Rev. 3.1 4-digits with the highest absolute trade volume selected, and only country-level trade bigger or equal than 4 percent of sector-level trade highlighted. Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (COMESA) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

Table 39: Key Regional Value Chain networkss: EAC

		Share in traded commodity by degree of processing				
Reporter	Partner	I/C - primary	I/C - generic	I/C - specific	F/C - primary	F/C - processed
2710 - basic iron and steel - trade volume in mil.USD: 245.						
Kenya	Burundi			5		
	Rwanda		8	21		
	South Sudan		5			
	Tanzania		13	6		
	Uganda	41	27	11		
South Sudan	Uganda			10		
Tanzania	Kenya		10			
	Rwanda			15		
Uganda	Kenya	59	5			
	South Sudan		7	19		
	Tanzania		8			
1531 - grain mill products - trade volume in mil.USD: 175.						
Kenya	South Sudan	7				
	Tanzania					26
	Uganda					58
Rwanda	South Sudan		12			
	Uganda		10			
Tanzania	Kenya	43				
	Rwanda				18	
	South Sudan	27				
	Uganda				56	6
Uganda	Kenya	22	20		7	
	South Sudan		45		17	
1514 - vegetable and animal oils and fats - trade volume in mil.USD: 163.						
Kenya	Rwanda		9		9	
	Tanzania				31	
	Uganda		47		49	
Tanzania	Kenya		9			
Uganda	Rwanda					25
	South Sudan		21			
	Tanzania					68
2320 - refined petroleum products - trade volume in mil.USD: 153.						
Kenya	Rwanda			9	6	
	Uganda	20			25	
Rwanda	Burundi				13	
South Sudan	Uganda	15				
Tanzania	Burundi	48		25	8	
	Kenya			25	5	
	Rwanda			28	29	
	Uganda	17				
2424 - soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations - trade volume in mil.USD: 140.						
Kenya	Rwanda			32	16	
	Tanzania			27	31	
	Uganda			31	17	
Tanzania	Kenya				6	

Table 39: Key Regional Value Chain networkss: EAC *(continued)*

Description	Reporter	Partner	Share in traded commodity by degree of processing				
			I/C - primary	I/C - generic	I/C - specific	F/C - primary	F/C - processed
	Uganda	Burundi		100			
		South Sudan				9	
		Tanzania				5	

Note: Sector selection: Top-5 ISIC Rev. 3.1 4-digits with the highest absolute trade volume selected, and only country-level trade bigger or equal than 4 percent of sector-level trade highlighted. Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (EAC) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

Table 40: Key Regional Value Chain networkss: ECCAS

			Share in traded commodity by degree of processing				
	Reporter	Partner	I/C - primary	I/C - generic	I/C - specific	F/C - primary	F/C - processed
2320 - refined petroleum products - trade volume in mil.USD: 261.							
	Congo - Kinshasa	Central African Republic				23	
		Congo - Brazzaville				22	
	Rwanda	Burundi				7	
		Congo - Kinshasa	100		98	43	
2720 - basic precious and non-ferrous metals - trade volume in mil.USD: 96.							
	Angola	Congo - Brazzaville			68		
	Cameroon	Rwanda		69			
	Congo - Kinshasa	Angola		27			
	Rwanda	Congo - Kinshasa			32		
1531 - grain mill products - trade volume in mil.USD: 93.							
	Angola	Congo - Kinshasa	98	41			46
	Cameroon	Congo - Brazzaville					6
	Rwanda	Congo - Kinshasa		58		96	47
1514 - vegetable and animal oils and fats - trade volume in mil.USD: 40.							
	Angola	Congo - Kinshasa					98
	Rwanda	Congo - Kinshasa		95		93	
1542 - sugar - trade volume in mil.USD: 30.							
	Angola	Congo - Kinshasa		77			33
	Rwanda	Burundi					30
		Congo - Kinshasa		23			36

Note: Sector selection: Top-5 ISIC Rev. 3.1 4-digits with the highest absolute trade volume selected, and only country-level trade bigger or equal than 4 percent of sector-level trade highlighted. Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (ECCAS) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

Table 41: Regional Value Chain networks: ECOWAS

		Share in traded commodity by degree of processing				
Reporter	Partner	I/C - primary	I/C - generic	I/C - specific	F/C - primary	F/C - processed
2899 - other fabricated metal products n.e.c. - trade volume in mil.USD: 2126.						
Côte d'Ivoire	Ghana			7		
	Nigeria					9
Ghana	Benin					44
	Burkina Faso			32		
	Mali			18		
	Nigeria			7		
	Togo					28
Nigeria	Ghana		100	6		
2320 - refined petroleum products - trade volume in mil.USD: 2112.						
Benin	Mali				5	
	Nigeria				18	
Côte d'Ivoire	Burkina Faso			5	9	
	Ghana			22		
	Mali				12	
	Nigeria			45		
	Togo				8	
Ghana	Togo	98				
Niger	Mali				5	
Senegal	Mali			5	26	
Togo	Benin			5		
2710 - basic iron and steel - trade volume in mil.USD: 1244.						
Benin	Niger			6		
Burkina Faso	Niger		6			
Côte d'Ivoire	Ghana			5		
	Mali			10		
	Niger			5		
Ghana	Burkina Faso		9	19		
	Mali			5		
	Togo		9			
Liberia	Nigeria	100				
Senegal	Guinea		17	22		
	Mali		25	10		
Togo	Niger			5		
1514 - vegetable and animal oils and fats - trade volume in mil.USD: 392.						
Benin	Nigeria	100				
Burkina Faso	Niger					35
Côte d'Ivoire	Burkina Faso		11		14	
	Ghana		8			
	Mali		17		9	
	Niger		5			
	Nigeria		7			
Ghana	Benin		5			
	Burkina Faso				20	
	Côte d'Ivoire				17	
	Senegal		16			

Table 41: Regional Value Chain networks: ECOWAS *(continued)*

Description	Reporter	Partner	Share in traded commodity by degree of processing				
			I/C - primary	I/C - generic	I/C - specific	F/C - primary	F/C - processed
	Senegal	Burkina Faso				5	
		Gambia					7
		Mali				8	
		Sierra Leone					52
	Togo	Benin		8			

Note: Sector selection: Top-5 ISIC Rev. 3.1 4-digits with the highest absolute trade volume selected, and only country-level trade bigger or equal than 4 percent of sector-level trade highlighted. Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (ECOWAS) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

Table 42: Key Regional Value Chain networkss: IGAD

		Share in traded commodity by degree of processing				
Reporter	Partner	I/C - primary	I/C - generic	I/C - specific	F/C - primary	F/C - processed
1514 - vegetable and animal oils and fats - trade volume in mil.USD: 140.						
Djibouti	Ethiopia		18		5	
Kenya	Uganda		52		80	
Uganda	Kenya		5		6	100
	South Sudan		23		5	
2710 - basic iron and steel - trade volume in mil.USD: 108.						
Kenya	South Sudan		11			
	Uganda	41	60	28		
South Sudan	Uganda			24		
Uganda	Kenya	59	11			
	South Sudan		16	46		
1531 - grain mill products - trade volume in mil.USD: 94.						
Kenya	South Sudan	23				5
	Uganda					92
Uganda	Kenya	77	30		28	
	South Sudan		67		69	
2320 - refined petroleum products - trade volume in mil.USD: 87.						
Kenya	Djibouti			22		
	Sudan			9		
	Uganda	55		9	42	
South Sudan	Uganda	40				
Sudan	Ethiopia				37	
Uganda	Ethiopia				15	
	Kenya			42		
	South Sudan			14		
1549 - other food products n.e.c. - trade volume in mil.USD: 81.						
Kenya	Djibouti					77
	Ethiopia	13	5			
	Somalia		18		13	
	South Sudan		20		26	
	Uganda	87	54		20	12
Uganda	Kenya				35	
	South Sudan				5	10

Note: Sector selection: Top-5 ISIC Rev. 3.1 4-digits with the highest absolute trade volume selected, and only country-level trade bigger or equal than 4 percent of sector-level trade highlighted. Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (IGAD) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

Table 43: Key Regional Value Chain networkss: SADC

			Share in traded commodity by degree of processing				
	Reporter	Partner	I/C - primary	I/C - generic	I/C - specific	F/C - primary	F/C - processed
2720 - basic precious and non-ferrous metals - trade volume in mil.USD: 5953.							
	Botswana	South Africa	19		10		
	Congo - Kinshasa	Mozambique		6			
		South Africa		25	9		
		Tanzania		27	45		
		Zambia		5			
	Mozambique	South Africa	8		11		
	Namibia	South Africa	5	6	13		
	South Africa	Angola	11				
		Mozambique	46				
	Tanzania	South Africa		16			
	Zimbabwe	South Africa		9			
2411 - basic chemicals, except fertilizers and nitrogen compounds - trade volume in mil.USD: 2996.							
	Congo - Kinshasa	South Africa			70		
	South Africa	Angola		7			
		Botswana		6			
		Congo - Kinshasa			5		
		Eswatini		6			
		Malawi		9			
		Mozambique	99				
		Namibia		7			
		Zambia		14			
		Zimbabwe		24			
	Zambia	Congo - Kinshasa			6		
2320 - refined petroleum products - trade volume in mil.USD: 2127.							
	Mauritius	Zambia				5	
	Mozambique	South Africa				5	
	Namibia	Zambia			5		
	South Africa	Botswana	8			31	
		Congo - Kinshasa	6				
		Eswatini				5	
		Lesotho				9	
		Malawi			12		
		Mauritius				5	
		Mozambique	5		11	5	
		Namibia	64		9	14	
		Zambia	5		13		
		Zimbabwe	5		15		
	Tanzania	Malawi			5		
		Zambia			6		
3410 - motor vehicles - trade volume in mil.USD: 1393.							
	Namibia	South Africa			24		6
	South Africa	Botswana			7		25
		Eswatini					5
		Malawi					5
		Mozambique			27		7

Table 43: Key Regional Value Chain networkss: SADC *(continued)*

Description	Reporter	Partner	Share in traded commodity by degree of processing				
			I/C - primary	I/C - generic	I/C - specific	F/C - primary	F/C - processed
		Namibia			9		30
		South Africa			8		
		Zimbabwe			11		
2710 - basic iron and steel - trade volume in mil.USD: 1229.							
	Namibia	South Africa			5		
	South Africa	Botswana	8	7	16		
		Congo - Kinshasa			9		
		Eswatini			5		
		Mauritius	23				
		Mozambique		9	7		
		Namibia	7	6	16		
		Tanzania		13			
		Zambia	51	9	10		
		Zimbabwe		9	9		
	Zimbabwe	Mozambique		13			
		South Africa		9			

Note: Sector selection: Top-5 ISIC Rev. 3.1 4-digits with the highest absolute trade volume selected, and only country-level trade bigger or equal than 4 percent of sector-level trade highlighted. Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (SADC) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

Table 44: Key Regional Value Chain networkss: UMA

		Share in traded commodity by degree of processing				
Reporter	Partner	I/C - primary	I/C - generic	I/C - specific	F/C - primary	F/C - processed
2320 - refined petroleum products - trade volume in mil.USD: 1606.						
Algeria	Morocco				13	
	Tunisia				82	
Morocco	Mauritania	100		96		
2710 - basic iron and steel - trade volume in mil.USD: 91.						
Algeria	Mauritania		5	10		
Morocco	Algeria		42			
	Mauritania		7	8		
Tunisia	Algeria		17	55		
	Libya		6	12		
	Morocco		18	8		
1542 - sugar - trade volume in mil.USD: 66.						
Algeria	Mauritania		100			5
	Tunisia					80
Morocco	Libya					12
2411 - basic chemicals, except fertilizers and nitrogen compounds - trade volume in mil.USD: 62.						
Algeria	Tunisia			8		
Morocco	Algeria		21	9		
	Tunisia		7	5		
Tunisia	Algeria		23	56		
	Libya		36	9		
	Mauritania		6			
	Morocco			9		
2520 - plastics products - trade volume in mil.USD: 61.						
Algeria	Tunisia			6		
Morocco	Algeria		5			
	Mauritania		22	20		31
	Tunisia		16	7		
Tunisia	Algeria		26	19		
	Libya		12	14		13
	Morocco		14	29		49

Note: Sector selection: Top-5 ISIC Rev. 3.1 4-digits with the highest absolute trade volume selected, and only country-level trade bigger or equal than 4 percent of sector-level trade highlighted. List extended for UMA economies because of the lack of key RVCs (sectors 2320 and 2710, only). Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (UMA) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

C.4 Supplemental material regional processing options Section 4.4

C.4.1 From global trends to regional potential

Table 45: Key Key Regional Value Chain and degree of global integration: CEN-SAD

			Share in traded commodity by degree of processing				
	Reporter	Partner	I/C - primary	I/C - generic	I/C - specific	F/C - primary	F/C - processed
2320 - refined petroleum products - trade volume in mil.USD: 3170							
	Côte d'Ivoire	Ghana			9		
		Nigeria			17		
	Egypt	Tunisia				6	
		Germany			27		
		Malta				9	
	Ghana	Togo	20				
	Nigeria	India	78				
	Senegal	Mali				6	
	Togo	Angola				5	
2899 - other fabricated metal products n.e.c. - trade volume in mil.USD: 2222							
	Egypt	Libya					6
		Sudan					11
		Kenya					8
		Saudi Arabia					15
	Ghana	Benin					8
		Togo					5
	Morocco	France			18		
	Nigeria	Ghana		94			
	Tunisia	France			18		
		Italy			8		
2710 - basic iron and steel - trade volume in mil.USD: 1368							
	Egypt	Belgium	28				
		Japan	9				
		Netherlands	11				
		Romania	10				
		Saudi Arabia		17			
		South Korea	6				
		Vietnam	6				
	Libya	Turkey			29		
	Togo	India			14		
	Tunisia	France			5		
		Serbia	10		8		
1512 - Processing and preserving of fish and fish products - trade volume in mil.USD: 790							
	Ghana	United Kingdom					5
	Mauritania	China		26			
		Côte d'Ivoire				5	
		Spain				10	
		Turkey		11			
	Morocco	China	19				

Table 45: Key Key Regional Value Chain and degree of global integration: CEN-SAD *(continued)*

Description	Reporter	Partner	Share in traded commodity by degree of processing				
			I/C - primary	I/C - generic	I/C - specific	F/C - primary	F/C - processed
		France	7				8
		Germany		6			
		Italy				7	6
		Netherlands					8
		Portugal	63				
		Spain				19	9
		Turkey	5	27			
		United States					5
	Senegal	United States					6
2412 - fertilizers and nitrogen compounds - trade volume in mil.USD: 663							
	Egypt	China			13		
		India			43		
		Spain			6		
		Turkey			23		
	Morocco	Djibouti		5			
		Brazil		14			
		United States		12			

Note: Sector selection: Top ISIC Rev. 3.1 4-digits with the highest absolute trade volume selected, and only country-level trade bigger or equal than 4 percent of sector-level trade highlighted. Red: For each top-5 ISIC sector all international trading partners. Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (CEN-SAD) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

Table 46: Key Regional Value Chain and degree of global integration: COMESA

			Share in traded commodity by degree of processing				
	Reporter	Partner	I/C - primary	I/C - generic	I/C - specific	F/C - primary	F/C - processed
2320 - refined petroleum products - trade volume in mil.USD: 454							
	Djibouti	India	10				
	Egypt	Brazil			5		
		Germany			48		
		Italy			6	6	
		Malta				13	
		Mexico			5		
		Nigeria			6		
		South Africa			5		
		Spain				6	
		Tunisia				9	
		United Kingdom				5	
		United States				6	
	Kenya	Congo - Kinshasa	16				
	Libya	Italy				5	
		United Arab Emirates	32				
	Mauritius	Singapore	7				
	Zambia	South Africa	5				
2720 - basic precious and non-ferrous metals - trade volume in mil.USD: 357							
	Congo - Kinshasa	China		11			
		South Africa		7			
		Tanzania		7	8		
		United Arab Emirates	31				
	Egypt	Italy			7		
		United Arab Emirates		6			
	Kenya	Rwanda	9				
		Japan			6		
		United Arab Emirates			10		
	Libya	Turkey			42		
	Madagascar	France	30				
	Sudan	South Korea			6		
		United Arab Emirates	5	5			
	Uganda	United Arab Emirates		5			
	Zambia	China		7			
		Switzerland		13			
1542 - sugar - trade volume in mil.USD: 341							
	Egypt	Yemen					6
	Eswatini	South Africa		25			10
	Mauritius	Kenya					11
		Greece					6
		Italy					6
		Spain					6
	Uganda	South Sudan					10
	Zambia	Congo - Kinshasa		5			
1514 - vegetable and animal oils and fats - trade volume in mil.USD: 337							
	Egypt	Eritrea					21

Table 46: Key Regional Value Chain and degree of global integration: COMESA *(continued)*

Description	Reporter	Partner	Share in traded commodity by degree of processing				
			I/C - primary	I/C - generic	I/C - specific	F/C - primary	F/C - processed
		Mauritius					29
		Algeria		6			17
		Iraq				7	
		Jordan					14
	Kenya	Malawi				6	
		Uganda		12		17	
		Zambia				6	
		Tanzania				11	
	Rwanda	Congo - Kinshasa		6			
	Sudan	China		12			
	Uganda	South Sudan		5			
	Zambia	Eswatini	6				
		Singapore	21				
		Switzerland	69				
2710 - basic iron and steel - trade volume in mil.USD: 337							
	Egypt	Belgium	34				
		Japan	10				
		Netherlands	13				
		Romania	12				
		Saudi Arabia		15			
		South Korea	8				
		Vietnam	7				
	Kenya	Rwanda			5		
	Libya	Turkey			48		
	Uganda	Congo - Kinshasa			5		
	Zimbabwe	Mozambique		10			
		South Africa		7			

Note: Sector selection: Top ISIC Rev. 3.1 4-digits with the highest absolute trade volume selected, and only country-level trade bigger or equal than 4 percent of sector-level trade highlighted. Red: For each top ISIC sector all international trading partners. Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (COMESA) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

Table 47: Key Regional Value Chain and degree of global integration: EAC

			Share in traded commodity by degree of processing				
	Reporter	Partner	I/C - primary	I/C - generic	I/C - specific	F/C - primary	F/C - processed
2710 - basic iron and steel - trade volume in mil.USD: 245							
	Kenya	Rwanda		6	15		
		Tanzania		10			
		Uganda	9	21	8		
		Congo - Kinshasa		7			
	South Sudan	Uganda			7		
	Tanzania	Kenya		8			
		Rwanda			11		
		Belgium	67				
		United Arab Emirates	10				
	Uganda	Kenya	13				
		South Sudan		6	14		
		Tanzania		6			
		Congo - Kinshasa		6	16		
1531 - grain mill products - trade volume in mil.USD: 175							
	Kenya	South Sudan	7				
		Tanzania					23
		Uganda					50
	Rwanda	South Sudan		6			
		Uganda		5			
		Congo - Kinshasa		15		30	
	Tanzania	Kenya	43				
		Rwanda				9	
		South Sudan	27				
		Uganda				30	5
		Qatar		5			
		Vietnam		6			
	Uganda	Kenya	22	10			
		South Sudan		23		9	
		Congo - Kinshasa				14	
1514 - vegetable and animal oils and fats - trade volume in mil.USD: 163							
	Kenya	Rwanda		5		6	
		Tanzania				19	
		Uganda		27		31	
		Malawi				11	
		Zambia				11	
	Rwanda	Congo - Kinshasa		14		7	
	Tanzania	Kenya		5			
		China	100				
	Uganda	Rwanda					22
		South Sudan		12			
		Tanzania					61
		Congo - Kinshasa		10			11
2320 - refined petroleum products - trade volume in mil.USD: 153							
	Kenya	Uganda	10			5	
		Congo - Kinshasa	38				

Table 47: Key Regional Value Chain and degree of global integration: EAC *(continued)*

Description	Reporter	Partner	Share in traded commodity by degree of processing				
			I/C - primary	I/C - generic	I/C - specific	F/C - primary	F/C - processed
		Qatar				6	
		United Arab Emirates				24	
	Rwanda	Congo - Kinshasa	6			14	
	South Sudan	Uganda	7				
	Tanzania	Burundi	24		10		
		Kenya			10		
		Rwanda			11	5	
		Uganda	8				
		Congo - Kinshasa			12		
		Malawi			14		
		Mozambique			5		
		Zambia			17		
2424 - soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations - trade volume in mil.USD: 140							
	Kenya	Rwanda			21	10	
		Tanzania			18	20	
		Uganda			21	11	
		Ethiopia			9		
		Zambia		16			
	Rwanda	Congo - Kinshasa			6	5	
	Tanzania	Congo - Kinshasa			9	6	
		Malawi				10	
		Zambia		60			
	Uganda	South Sudan				6	
		Congo - Kinshasa		19			

Note: Sector selection: Top ISIC Rev. 3.1 4-digits with the highest absolute trade volume selected, and only country-level trade bigger or equal than 4 percent of sector-level trade highlighted. Red: For each top ISIC sector all international trading partners. Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (EAC) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

Table 48: Key Regional Value Chain and degree of global integration: ECCAS

			Share in traded commodity by degree of processing				
	Reporter	Partner	I/C - primary	I/C - generic	I/C - specific	F/C - primary	F/C - processed
2320 - refined petroleum products - trade volume in mil.USD: 261							
	Angola	China				6	
		Singapore				5	
	Cameroon	United States				5	
	Congo - Kinshasa	Central African Republic				6	
		Congo - Brazzaville				5	
		Tanzania	23				
		Uganda	30				
	Equatorial Guinea	United States				5	
	Rwanda	Congo - Kinshasa	30		94	11	
		Sudan	13				
2720 - basic precious and non-ferrous metals - trade volume in mil.USD: 96							
	Cameroon	Spain	5				
	Congo - Brazzaville	Germany			9		
		Spain	8				
		United Arab Emirates		13			
	Congo - Kinshasa	China		20			
		India	5		8		
		Singapore		5			
		South Africa		12	10		
		Switzerland	8				
		Tanzania		14	47		
		United Arab Emirates	69				
1531 - grain mill products - trade volume in mil.USD: 93							
	Angola	Cape Verde					5
		Congo - Kinshasa	97	23			26
	Rwanda	Congo - Kinshasa		32		96	27
		Kenya					13
		South Sudan		13			
		Uganda		11			6
		United Arab Emirates					14
1514 - vegetable and animal oils and fats - trade volume in mil.USD: 40							
	Angola	Congo - Kinshasa					93
	Cameroon	Morocco		9			
		Nigeria	100				
	Rwanda	Congo - Kinshasa		76		93	
1542 - sugar - trade volume in mil.USD: 30							
	Angola	Congo - Kinshasa		71			33
	Rwanda	Burundi					30
		Congo - Kinshasa		21			36

Note: Sector selection: Top ISIC Rev. 3.1 4-digits with the highest absolut trade volume selected, and only country-level trade bigger or equal than 4 percent of sector-level trade highlighted. Red: For each top ISIC sector all international trading partners. Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (ECCAS) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

Table 49: Key Regional Value Chain and degree of global integration: ECOWAS

		Share in traded commodity by degree of processing				
Reporter	Partner	I/C - primary	I/C - generic	I/C - specific	F/C - primary	F/C - processed
2899 - other fabricated metal products n.e.c. - trade volume in mil.USD: 2126						
Côte d'Ivoire	Nigeria					8
Ghana	Benin					40
	Burkina Faso			10		
	Mali			5		
	Togo					26
	Germany			13		
	Norway			8		
Nigeria	Ghana		100			
	Vietnam			22		
2320 - refined petroleum products - trade volume in mil.USD: 2112						
Benin	Nigeria				10	
Côte d'Ivoire	Burkina Faso				5	
	Ghana			19		
	Mali				7	
	Nigeria			38		
	Cameroon			7		
Ghana	Togo	20				
Nigeria	India	79				
Senegal	Mali				14	
Togo	Angola				12	
2710 - basic iron and steel - trade volume in mil.USD: 1244						
Benin	India			5		
Burkina Faso	Niger		5			
Côte d'Ivoire	China	70				
Ghana	Burkina Faso		8			
	Togo		8			
Guinea	India			12		
Niger	France	25				
Senegal	Guinea		15	5		
	Mali		22			
Sierra Leone	India			8		
Togo	India			34		
1514 - vegetable and animal oils and fats - trade volume in mil.USD: 392						
Benin	Netherlands	9				
Côte d'Ivoire	Burkina Faso		6		13	
	Mali		9		8	
Ghana	Burkina Faso				19	
	Senegal		9			
	Côte d'Ivoire				16	
Mali	Mauritania					70
Nigeria	Bangladesh	87				
	China					19
Senegal	Burkina Faso				5	
	Mali				7	
	Sierra Leone					5

Table 49: Key Regional Value Chain and degree of global integration: ECOWAS *(continued)*

Description	Reporter	Partner	Share in traded commodity by degree of processing				
			I/C - primary	I/C - generic	I/C - specific	F/C - primary	F/C - processed
		China		5			

Note: Sector selection: Top ISIC Rev. 3.1 4-digits with the highest absolute trade volume selected, and only country-level trade bigger or equal than 4 percent of sector-level trade highlighted. Red: For each top ISIC sector all international trading partners. Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (ECOWAS) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

Table 50: Key Regional Value Chain and degree of global integration: IGAD

		Share in traded commodity by degree of processing				
Reporter	Partner	I/C - primary	I/C - generic	I/C - specific	F/C - primary	F/C - processed
1514 - vegetable and animal oils and fats - trade volume in mil.USD: 140						
Djibouti	Ethiopia		8			
Kenya	Uganda		24		32	
	Malawi				12	
	Rwanda		5		6	
	Tanzania				20	
	Zambia				11	
Sudan	China		23			
	India	100				
Uganda	South Sudan		11			
	Congo - Kinshasa		9			11
	Rwanda					22
	Tanzania					61
2710 - basic iron and steel - trade volume in mil.USD: 108						
Ethiopia	India	45				
Kenya	South Sudan		5			
	Uganda	22	27	10		
	Burundi			5		
	Congo - Kinshasa		9			
	Rwanda		8	19		
	Tanzania		13	5		
South Sudan	Uganda			9		
Uganda	Kenya	32	5			
	South Sudan		7	18		
	Congo - Kinshasa		8	20		
	Tanzania		8			
1531 - grain mill products - trade volume in mil.USD: 94						
Ethiopia	United States					15
Kenya	South Sudan	23				
	Uganda					44
	Oman		6			
	Tanzania					20
Sudan	Saudi Arabia		8			
Uganda	Kenya	76	18		13	
	South Sudan		41		32	
	Congo - Kinshasa		8		50	
2320 - refined petroleum products - trade volume in mil.USD: 87						
Djibouti	India	27				
	Nigeria			41		
	Singapore	6				
Kenya	Uganda	12			6	
	American Samoa				5	
	Congo - Kinshasa	43				
	Netherlands				5	
	Qatar				8	
	Rwanda			14		

Table 50: Key Regional Value Chain and degree of global integration: IGAD *(continued)*

Description	Reporter	Partner	Share in traded commodity by degree of processing				
			I/C - primary	I/C - generic	I/C - specific	F/C - primary	F/C - processed
		United Arab Emirates				31	
		Zambia			15		
	South Sudan	Uganda	8				
	Sudan	Ethiopia				5	
		Australia			6		
	Uganda	Kenya			7		
1549 - other food products n.e.c. - trade volume in mil.USD: 81							
	Ethiopia	Belgium	9				
		Germany	19				
	Kenya	Djibouti					19
		Somalia		11		6	
		South Sudan		12		13	
		Uganda		33		10	
		Burundi		6			66
		China	9				
		Congo - Kinshasa				6	
		Norway	6				
		Rwanda		5			
		United Kingdom				6	
		Zambia		7			
		Zimbabwe		6			
	Uganda	Kenya				17	
		India	31				
		Netherlands					6

Note: Sector selection: Top ISIC Rev. 3.1 4-digits with the highest absolute trade volume selected, and only country-level trade bigger or equal than 4 percent of sector-level trade highlighted. Red: For each top ISIC sector all international trading partners. Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (IGAD) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

Table 51: Key Regional Value Chain and degree of global integration: SADC

			Share in traded commodity by degree of processing				
	Reporter	Partner	I/C - primary	I/C - generic	I/C - specific	F/C - primary	F/C - processed
2720 - basic precious and non-ferrous metals - trade volume in mil.USD: 5953							
	Congo - Kinshasa	Tanzania			7		
	South Africa	China		16	40		
		India			9		
		Japan		6	6		
			6				
		South Korea			13		
		Switzerland		5			
		United Kingdom		12			
		United States	78	5			
	Zambia	Switzerland		5			
2411 - basic chemicals, except fertilizers and nitrogen compounds - trade volume in mil.USD: 2996							
	Congo - Kinshasa	South Africa			31		
		China			9		
		Finland			8		
	South Africa	Mozambique	98				
		China		14			
		Japan		7			
		United States		31	8		
2320 - refined petroleum products - trade volume in mil.USD: 2127							
	South Africa	Botswana	8			22	
		Lesotho				6	
		Mozambique	5				
		Namibia	61			10	
		Zambia	5				
		China			6		
		Congo - Kinshasa	6				
		Ethiopia			6		
		Germany			19		
		Singapore			5		
		United States			12		
3410 - motor vehicles - trade volume in mil.USD: 1393							
	South Africa	France					6
		Germany			7		55
		India			43		
		Japan					6
		Nigeria			10		
		Russia			15		
		Turkey			9		
		United States			6		
2710 - basic iron and steel - trade volume in mil.USD: 1229							
	South Africa	Botswana			6		
		Namibia			6		
		China		25			
		India			26		
		Indonesia		8			

Table 51: Key Regional Value Chain and degree of global integration: SADC *(continued)*

Description	Reporter	Partner	Share in traded commodity by degree of processing				
			I/C - primary	I/C - generic	I/C - specific	F/C - primary	F/C - processed
		Japan		5			
		Kenya		5			
		Pakistan			5		
		South Korea	11				
		United States	75	10	10		

Note: Sector selection: Top ISIC Rev. 3.1 4-digits with the highest absolute trade volume selected, and only country-level trade bigger or equal than 4 percent of sector-level trade highlighted. Red: For each top ISIC sector all international trading partners. Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (SADC) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

Table 52: Key Regional Value Chain and degree of global integration: UMA

			Share in traded commodity by degree of processing				
	Reporter	Partner	I/C - primary	I/C - generic	I/C - specific	F/C - primary	F/C - processed
2320 - refined petroleum products - trade volume in mil.USD: 1606							
	Algeria	Tunisia				11	
		Bahrain			61		
		China				7	
		France	22			6	
		Greece	65				
		Italy				6	
		South Korea				11	
		Spain				5	
		Turkey				5	
		United States				15	
	Libya	United Arab Emirates	6				
	Morocco	Mauritania			32		
2710 - basic iron and steel - trade volume in mil.USD: 91							
	Algeria	Canada		6			
		Italy		10			
		United States		9			
	Libya	Egypt		5			
		Italy		5			
		Turkey		7	46		
	Morocco	Algeria		8			
		France	11				
		Iceland	5				
		Norway	5				
		Spain	19				
	Tunisia	France			8		
		Italy		10			
		Serbia	60		13		
1542 - sugar - trade volume in mil.USD: 66							
	Algeria	Mauritania		14			
		Tunisia					12
		Jordan					8
		Lebanon					7
		United Kingdom		18			
	Morocco	Portugal		10			
		Spain		41			
		Turkey					16
2411 - basic chemicals, except fertilizers and nitrogen compounds - trade volume in mil.USD: 62							
	Algeria	Niger	100				
	Morocco	Algeria		11			
		Belgium			6		
		Chile		7			
		India			31		
		Netherlands		6	5		
		Pakistan			13		
		Turkey			5		

Table 52: Key Regional Value Chain and degree of global integration: UMA *(continued)*

Description	Reporter	Partner	Share in traded commodity by degree of processing				
			I/C - primary	I/C - generic	I/C - specific	F/C - primary	F/C - processed
	Tunisia	Algeria		12			
		Libya		20			
2520 - plastics products - trade volume in mil.USD: 61							
	Morocco	France		5	12		
		Spain		19	19		8
		United Kingdom					7
		United States					7
	Tunisia	China		5			
		Ethiopia			5		
		France		15	23		58
		Italy		16	13		
		Spain		7			

Note: Sector selection: Top ISIC Rev. 3.1 4-digits with the highest absolute trade volume selected, and only country-level trade bigger or equal than 4 percent of sector-level trade highlighted. List extended for UMA because of lack of key RVCs (2320 and 2710, only). Red: For each top ISIC sector all international trading partners. Durability dimension excluded. I/C: Intermediate consumption. F/C: Final consumption. BEC Rev. 5 classification revised by authors; only includes sectors that can be identified on the 4-digit level. Share Trade volume: Share of ISIC Rev. 3 4-digit trade in total global (UMA) trade. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

C.4.2 Mapping of trade interactions

Figure 93: Trade Interactions CEN-SAD

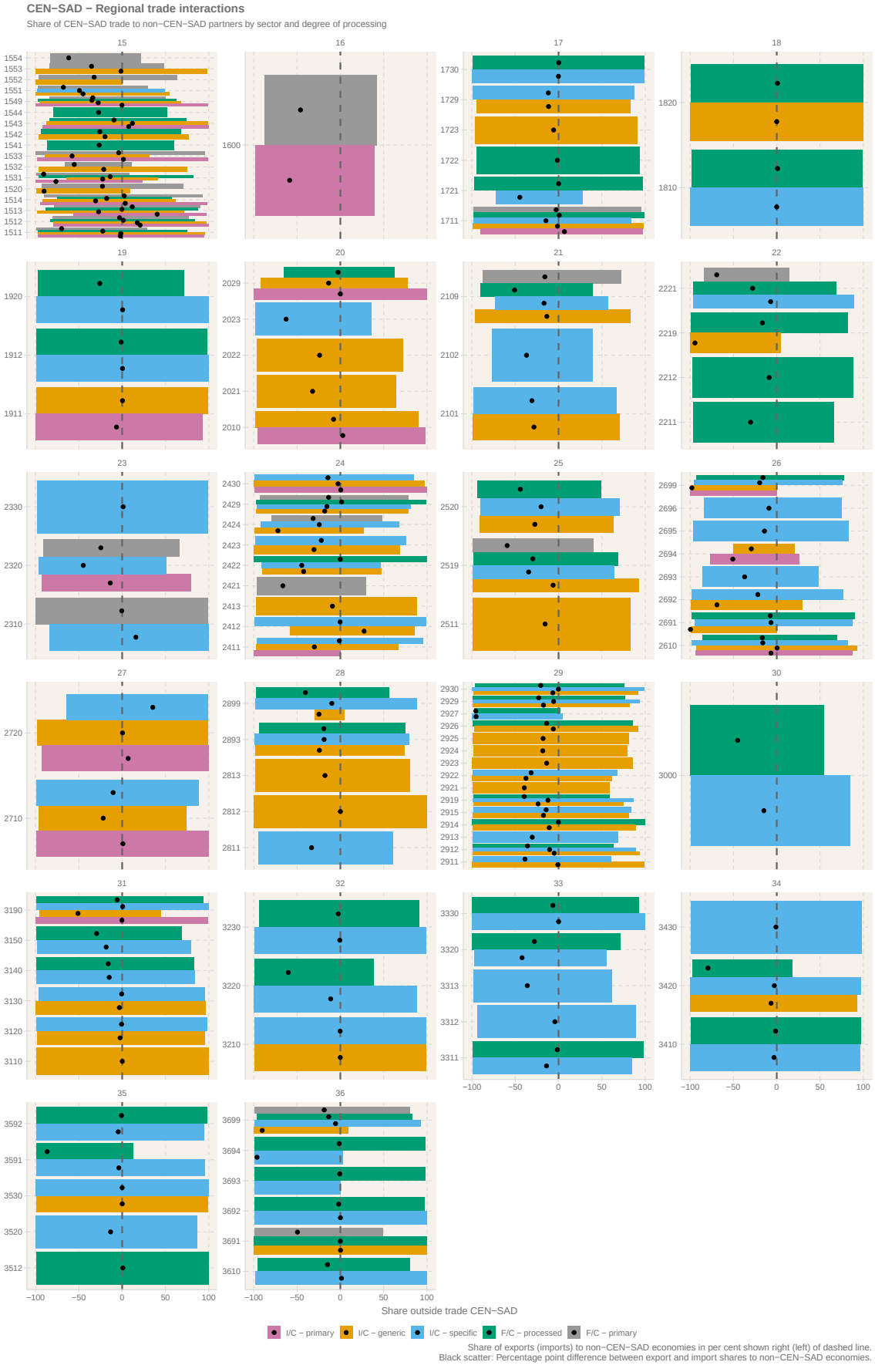


Figure 94: Trade Interactions COMESA

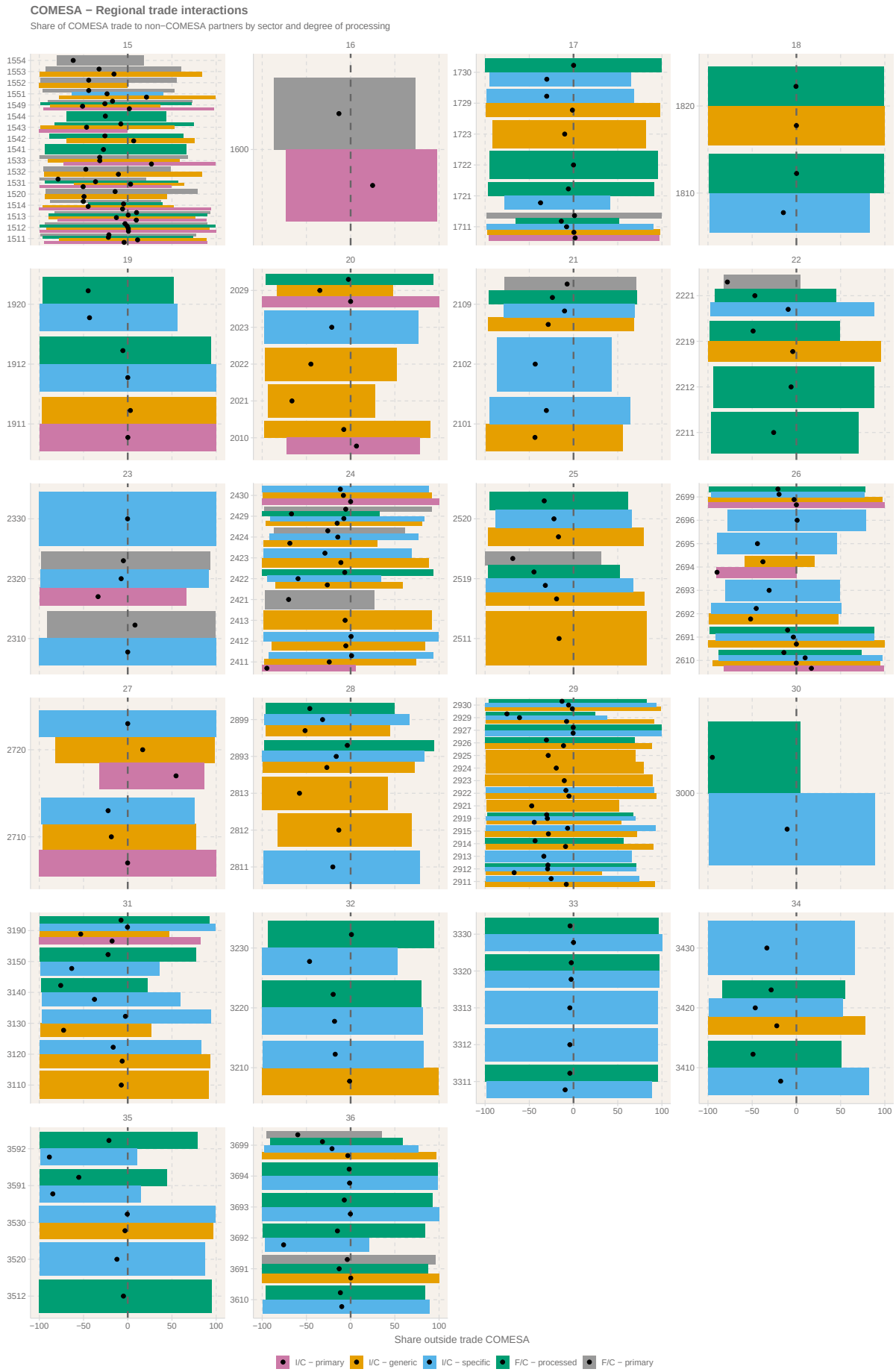


Figure 95: Trade Interactions EAC

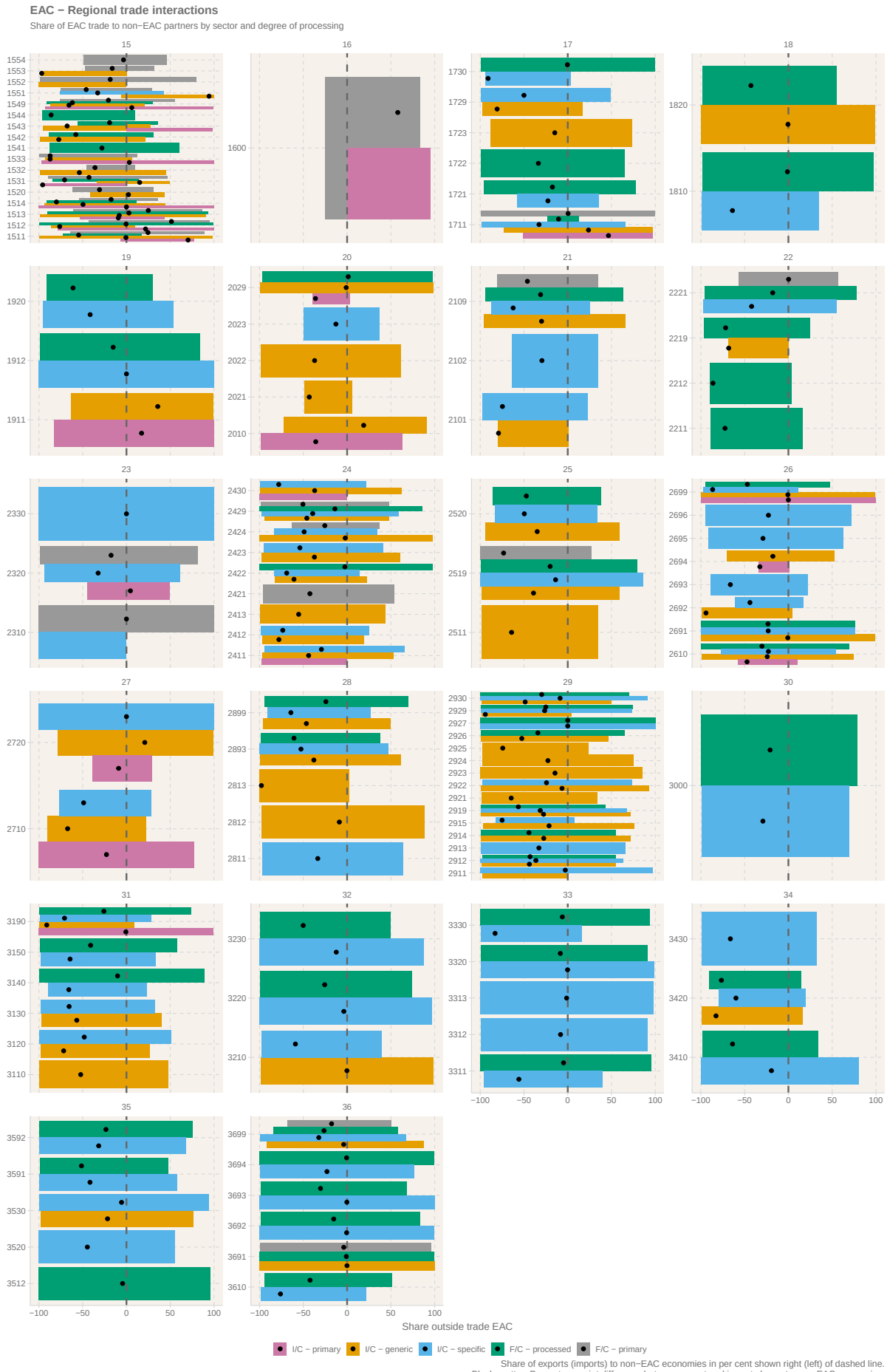


Figure 96: Trade Interactions ECCAS

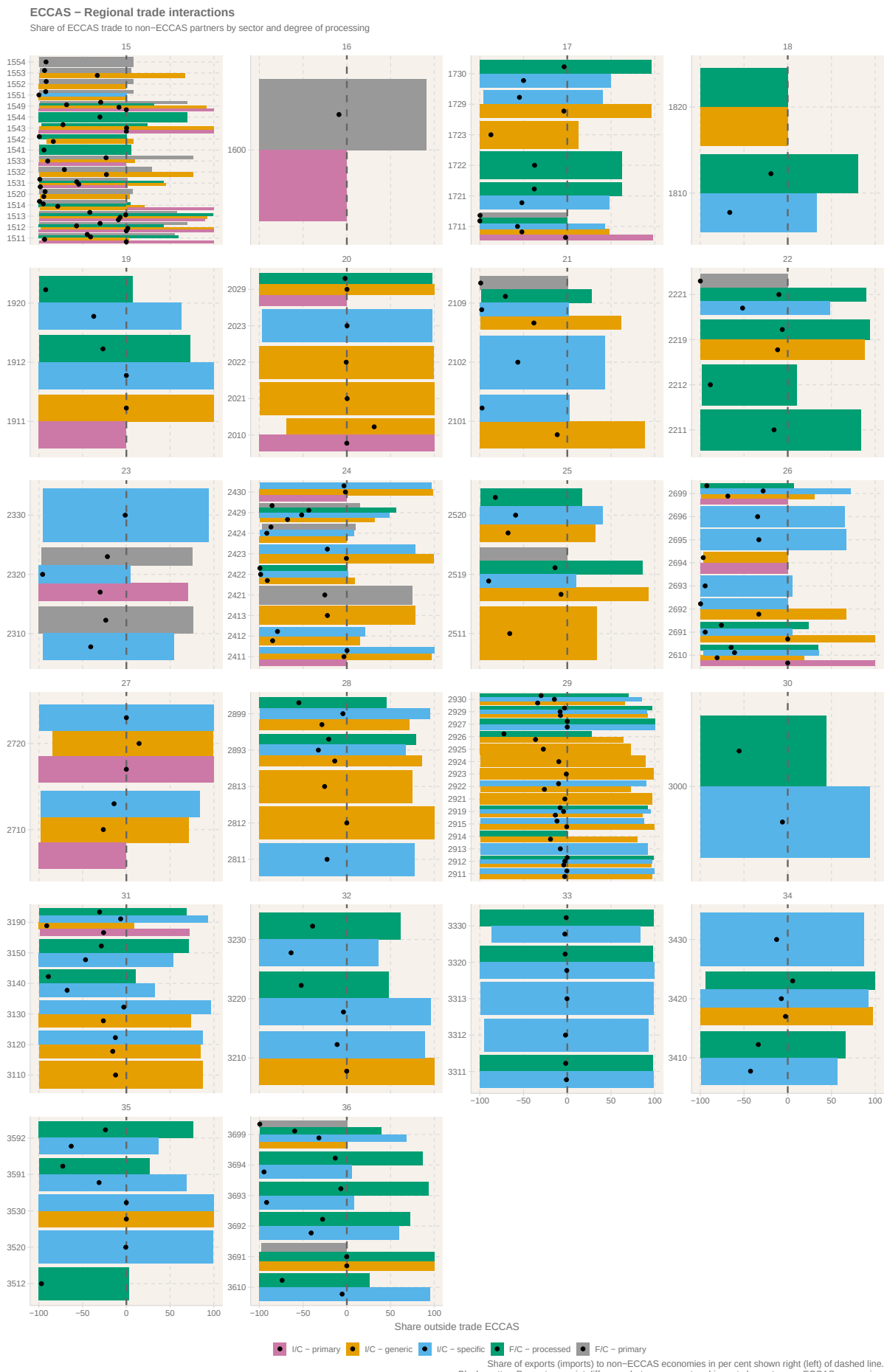


Figure 97: Trade Interactions ECOWAS

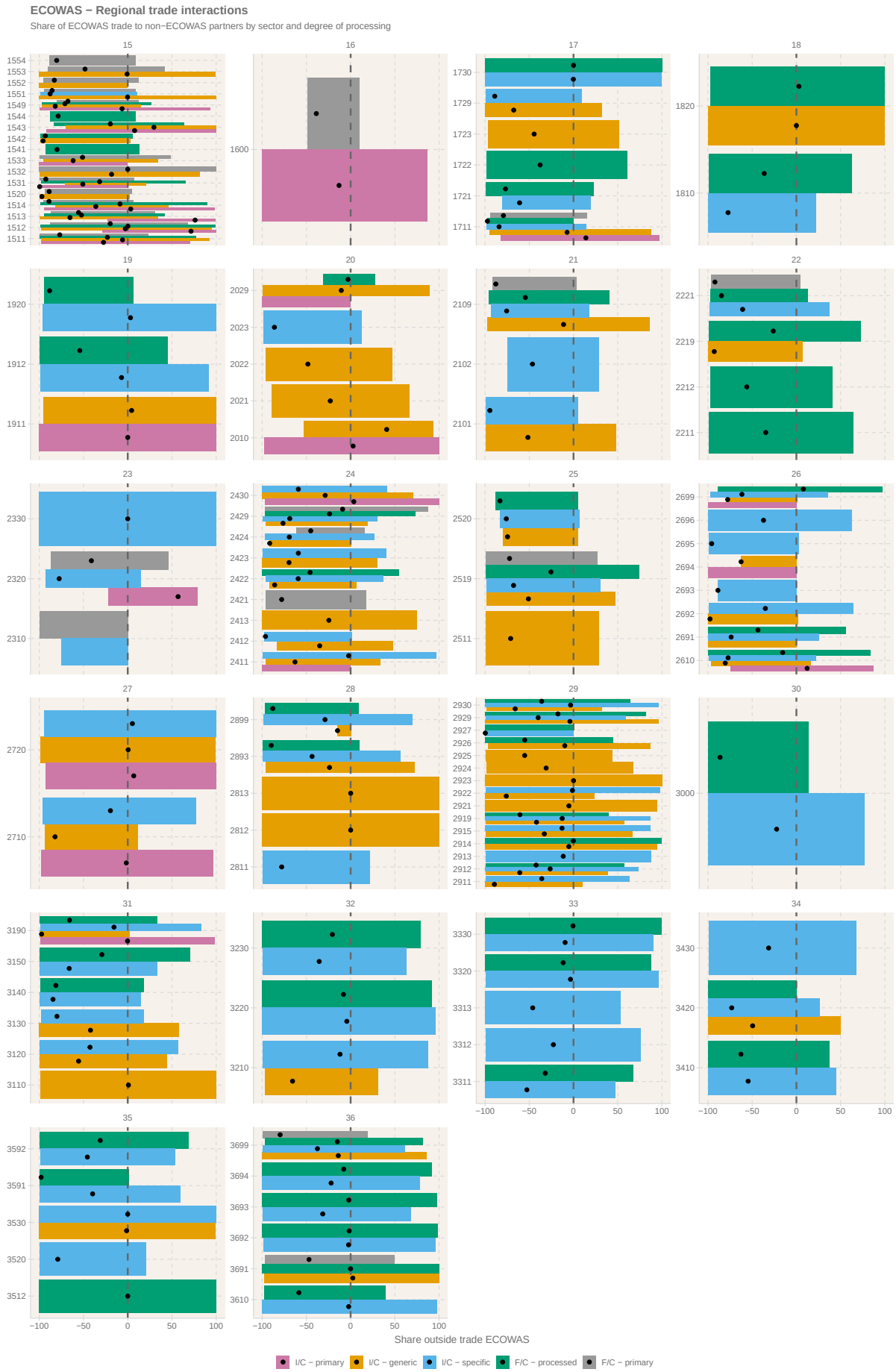


Figure 98: Trade Interactions IGAD

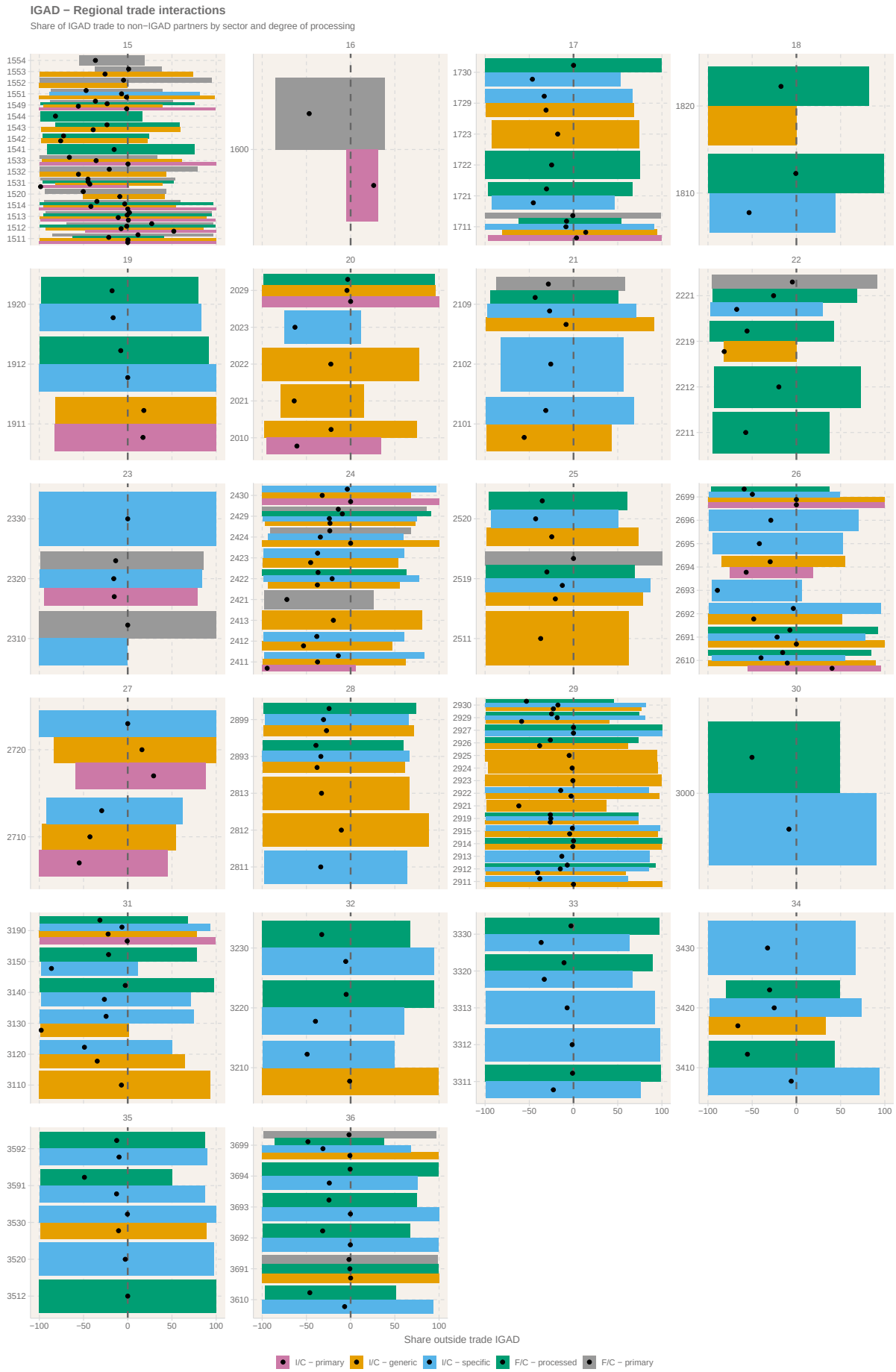
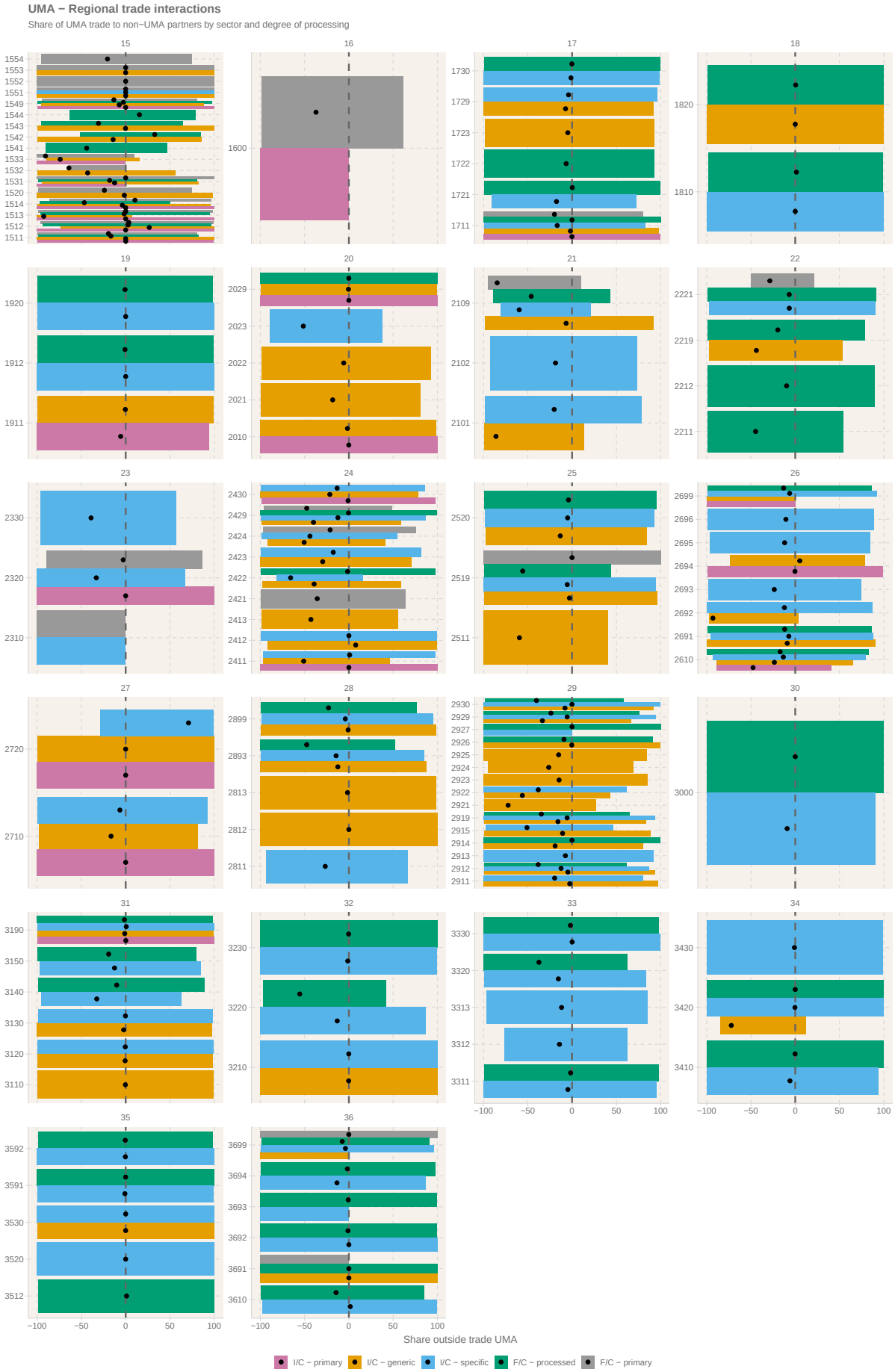


Figure 99: Trade Interactions SADC

Figure 100: Trade Interactions UMA



C.5 Supplemental material RVC prioritisation Section 4.5

C.5.1 Estimation of time trends

Growth rates are calculated as annual averages and represented as percentages using least squares regressions. The least-squares growth rate, r, is estimated by fitting a linear regress of annual values. More specifically, the regression equation takes the form:

$$ln(y_t) = \alpha + \beta t + \epsilon_t \tag{1}$$

This is equivalent to the logarithmic transformation of the compound growth equation:

$$\begin{aligned} CAGR := \frac{y_t}{y_0}^{1/t} - 1 = r \\ y_t = y_0 \times (1+r)^t \\ ln(y_t) = ln(y_0) + t(1+r) \\ ln(y_t) = \alpha + \beta t \end{aligned}$$

where y denotes the respective series of interest, subscript t (subscript 0) corresponds to the subsequent (initial) time period, α is $log(y_0)$ and $\beta = (1+r)$ and ϵ denotes the error term. Consequently, the average annual growth rate r can be obtained as

$$r = exp(\hat{\beta}) - 1$$

where $\hat{\beta}$ corresponds to the least-square regression coefficient in Equation 1 and is expressed as a percentage.

C.5.2 Elasticities

Data. Because of a lack of data, the estimation of the elasticities is carried out using global data for the years 2012 to 2019 using the same HS 2012 classification. The study does not consider data before 2012, as trade data is not available using the HS 2012 classification prior to that date. The study also abstains from reclassifying earlier trade data to the HS 2012 standard to minimise the risk of artificial inconsistencies in the data resulting from this reclassification. Similarly, the study does not consider data after 2019 to avoid the potential effect of COVID-19 on the results.

Model Elastitcities are calcualted using a simple panel model of the form:

$$ln(y_{it}) = \beta ln(exports_{i,t-1}) + \alpha_i + \lambda_t + \epsilon_{ti} \quad (2)$$

where y denotes the respective series of interest (employment, value-added, productivity and wages), subscript t is time, α_i and $lambda_t$ are the country-level and time-fixed effect to account for unobserved and constant characteristics as well comon macroeconomic trends such as stronger trade integration as a consequence of globalisation. Coefficient β is the measure of elasticity, $ln(exports_{i,t-1})$ the natural log of exports and ϵ denotes the error term. Last year's export figures are used to reduce the potential estimation bias that is due to reverse causality.[39]

[39] For example, high productivity may positively affect the predisposition to export in the same period; see relationship depicted in Figure 82 for instance which will bias the estimation of β. Using past export patterns reduces the risk of simultaneity as current productivity levels are less likely to affect past export behaviour.

C.5.3 Supplemental tables Section 4.5

Table 53: RVC prioritisation CEN-SAD

ISIC Rev. 3.1 4-digit sector	REC export share	Elasticities (x100)			RVC classification	Dynamism classification
		Value-added	Employment	Wages		
2320 - refined petroleum products	15.97	5.80	0.93	5.65	Key RVC	Stars
2899 - other fabricated metal products n.e.c.	11.20	1.52	9.73	12.27	Key RVC	Stars
2710 - basic iron and steel	6.89	6.71	2.29	1.92	Key RVC	Stars
1512 - Processing and preserving of fish and fish products	3.98	14.39	7.24	3.06	Key RVC	Stars
2412 - fertilizers and nitrogen compounds	3.34	21.24	7.92	9.83	Key RVC	Stars
2520 - plastics products	2.90	21.16	8.27	7.92	Key RVC	Stars
3511 - Building and repairing of ships	2.73	-2.14	0.61	-0.26	Lack diversification	Stars
2694 - cement, lime and plaster	2.56	2.33	0.23	3.14	Key RVC	Stars
2424 - soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations	2.53	9.68	-4.65	-2.32	Key RVC	Stars
1514 - vegetable and animal oils and fats	2.47	3.94	4.49	3.44	Key RVC	Stars
1549 - other food products n.e.c.	1.86	17.20	5.25	8.59	RVC	Stars
1531 - grain mill products	1.37	-11.56	-1.25	-1.19	RVC	Stars
2720 - basic precious and non-ferrous metals	1.08	16.79	5.88	12.55	RVC	Stars
1600 - tobacco products	1.00	-1.19	0.05	-2.12	RVC	Stars

Note:
Elasticities based on global model estimates. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

Table 54: RVC prioritisation COMESA

ISIC Rev. 3.1 4-digit sector	REC export share	Elasticities (x100)			RVC classification	Dynamism classification
		Value-added	Employment	Wages		
2320 - refined petroleum products	5.01	5.80	0.93	5.65	Key RVC	Stars
2720 - basic precious and non-ferrous metals	3.94	16.79	5.88	12.55	Key RVC	Stars
1542 - sugar	3.76	3.86	1.96	6.59	Key RVC	Stars
1514 - vegetable and animal oils and fats	3.72	3.94	4.49	3.44	Key RVC	Stars
2710 - basic iron and steel	3.71	6.71	2.29	1.92	Key RVC	Stars
2411 - basic chemicals, except fertilizers and nitrogen compounds	3.62	20.41	7.50	11.10	Key RVC	Stars
2694 - cement, lime and plaster	3.61	2.33	0.23	3.14	Key RVC	Stars
2429 - other chemical products n.e.c.	3.17	14.28	5.71	-0.56	Key RVC	Stars
2520 - plastics products	2.81	21.16	8.27	7.92	Key RVC	Stars
2412 - fertilizers and nitrogen compounds	2.78	21.24	7.92	9.83	Key RVC	Stars
2424 - soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations	2.67	9.68	-4.65	-2.32	Key RVC	Stars
1531 - grain mill products	2.65	-11.56	-1.25	-1.19	Key RVC	Stars
1549 - other food products n.e.c.	1.97	17.20	5.25	8.59	Key RVC	Stars
2423 - pharmaceuticals, medicinal chemicals and botanical products	1.55	17.88	11.45	8.90	RVC	Stars
2413 - plastics in primary forms and of synthetic rubber	1.31	31.26	23.38	39.18	Lack diversification	Stars
2899 - other fabricated metal products n.e.c.	1.31	1.52	9.73	12.27	RVC	Stars
1513 - Processing and preserving of fruit and vegetables	1.29	16.31	11.96	9.19	RVC	Stars
2109 - other articles of paper and paperboard	1.17	26.46	10.61	9.69	RVC	Stars
1554 - soft drinks; production of mineral waters	1.07	4.63	0.06	2.32	Lack diversification	Stars
2924 - machinery for mining, quarrying and construction	1.06	13.82	5.03	19.07	RVC	Stars
2693 - structural non-refractory clay and ceramic products	1.03	16.05	1.78	12.45	Lack diversification	Stars
2422 - paints, varnishes and similar coatings, printing ink and mastics	1.02	8.43	3.16	3.79	RVC	Stars
1543 - cocoa, chocolate and sugar confectionery	1.01	-2.03		-8.89	RVC	Stars
3410 - motor vehicles	1.01	15.10	19.30	15.91	RVC	Stars

Note:
Elasticities based on global model estimates. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

Table 55: RVC prioritisation EAC

ISIC Rev. 3.1 4-digit sector	REC export share	Elasticities (x100)			RVC classification	Dynamism classification
		Value-added	Employment	Wages		
2710 - basic iron and steel	7.93	6.71	2.29	1.92	Key RVC	Stars
1531 - grain mill products	5.66	-11.56	-1.25	-1.19	Key RVC	Stars
1514 - vegetable and animal oils and fats	5.28	3.94	4.49	3.44	Key RVC	Stars
2320 - refined petroleum products	4.96	5.80	0.93	5.65	Key RVC	Stars
2424 - soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations	4.53	9.68	-4.65	-2.32	Key RVC	Stars
1549 - other food products n.e.c.	3.89	17.20	5.25	8.59	Key RVC	Stars
3410 - motor vehicles	3.02	15.10	19.30	15.91	Key RVC	Stars
2520 - plastics products	2.68	21.16	8.27	7.92	Key RVC	Stars
2423 - pharmaceuticals, medicinal chemicals and botanical products	2.59	17.88	11.45	8.90	Key RVC	Stars
2694 - cement, lime and plaster	2.21	2.33	0.23	3.14	Key RVC	Matured
2412 - fertilizers and nitrogen compounds	2.13	21.24	7.92	9.83	Key RVC	Stars
2101 - pulp, paper and paperboard	1.78	9.14	-4.43	-8.49	RVC	Stars
1542 - sugar	1.71	3.86	1.96	6.59	RVC	Stars
2924 - machinery for mining, quarrying and construction	1.48	13.82	5.03	19.07	RVC	Stars
2720 - basic precious and non-ferrous metals	1.42	16.79	5.88	12.55	RVC	Stars
2021 - veneer sheets; manufacture of plywood, laminboard, particle board and other panels and boards	1.40	38.68	7.11	19.93	Lack diversification	Stars
2899 - other fabricated metal products n.e.c.	1.37	1.52	9.73	12.27	RVC	Stars
1721 - made-up textile articles, except apparel	1.36	-0.41	4.04	3.54	RVC	Stars
2411 - basic chemicals, except fertilizers and nitrogen compounds	1.34	20.41	7.50	11.10	RVC	Stars
1543 - cocoa, chocolate and sugar confectionery	1.15	-2.03		-8.89	RVC	Stars
1920 - footwear	1.11	47.68	7.41	-0.14	RVC	Stars

Note:
Elasticities based on global model estimates. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

Table 56: RVC prioritisation ECCAS

ISIC Rev. 3.1 4-digit sector	REC export share	Elasticities (x100)			RVC classification	Dynamism classification
		Value-added	Employment	Wages		
2320 - refined petroleum products	27.98	5.80	0.93	5.65	Key RVC	Stars
3511 - Building and repairing of ships	10.59	-2.14	0.61	-0.26	Lack diversification	Stars
2720 - basic precious and non-ferrous metals	10.32	16.79	5.88	12.55	Key RVC	Stars
1531 - grain mill products	9.92	-11.56	-1.25	-1.19	Key RVC	Stars
1514 - vegetable and animal oils and fats	4.27	3.94	4.49	3.44	Key RVC	Stars
1542 - sugar	3.24	3.86	1.96	6.59	Key RVC	Stars
2424 - soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations	2.74	9.68	-4.65	-2.32	Key RVC	Matured
2710 - basic iron and steel	2.59	6.71	2.29	1.92	Key RVC	Stars
3410 - motor vehicles	2.05	15.10	19.30	15.91	Key RVC	Stars
3720 - Recycling of non-metal waste and scrap	2.05				Key RVC	Stars
2694 - cement, lime and plaster	1.81	2.33	0.23	3.14	Lack diversification	Stars
1553 - malt liquors and malt	1.52	16.95	3.59	15.54	RVC	Stars
1549 - other food products n.e.c.	1.23	17.20	5.25	8.59	RVC	Matured
1920 - footwear	1.18	47.68	7.41	-0.14	RVC	Stars
2109 - other articles of paper and paperboard	1.07	26.46	10.61	9.69	RVC	Stars
1554 - soft drinks; production of mineral waters	1.00	4.63	0.06	2.32	Lack diversification	Stars

Note:
Elasticities based on global model estimates. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

Table 57: RVC prioritisation ECOWAS

ISIC Rev. 3.1 4-digit sector	REC export share	Elasticities (x100)			RVC classification	Dynamism classification
		Value-added	Employment	Wages		
2899 - other fabricated metal products n.e.c.	16.60	1.52	9.73	12.27	Key RVC	Stars
2320 - refined petroleum products	16.50	5.80	0.93	5.65	Key RVC	Stars
2710 - basic iron and steel	9.72	6.71	2.29	1.92	Key RVC	Stars
3511 - Building and repairing of ships	4.20	-2.14	0.61	-0.26	Lack diversification	Stars
1514 - vegetable and animal oils and fats	3.06	3.94	4.49	3.44	Key RVC	Stars
2520 - plastics products	2.99	21.16	8.27	7.92	Key RVC	Stars
2424 - soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations	2.88	9.68	-4.65	-2.32	Key RVC	Stars
2694 - cement, lime and plaster	2.50	2.33	0.23	3.14	Key RVC	Stars
1549 - other food products n.e.c.	2.39	17.20	5.25	8.59	Key RVC	Stars
1512 - Processing and preserving of fish and fish products	1.69	14.39	7.24	3.06	RVC	Stars
1600 - tobacco products	1.51	-1.19	0.05	-2.12	RVC	Stars
2720 - basic precious and non-ferrous metals	1.28	16.79	5.88	12.55	RVC	Stars
1920 - footwear	1.22	47.68	7.41	-0.14	RVC	Stars
1531 - grain mill products	1.06	-11.56	-1.25	-1.19	RVC	Stars
2412 - fertilizers and nitrogen compounds	1.03	21.24	7.92	9.83	RVC	Stars

Note:
Elasticities based on global model estimates. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

Table 58: RVC prioritisation IGAD

ISIC Rev. 3.1 4-digit sector	REC export share	Elasticities (x100)			RVC classification	Dynamism classification
		Value-added	Employment	Wages		
1514 - vegetable and animal oils and fats	5.83	3.94	4.49	3.44	Key RVC	Stars
2710 - basic iron and steel	4.51	6.71	2.29	1.92	Key RVC	Stars
1531 - grain mill products	3.91	-11.56	-1.25	-1.19	Key RVC	Stars
2320 - refined petroleum products	3.64	5.80	0.93	5.65	Key RVC	Stars
1549 - other food products n.e.c.	3.36	17.20	5.25	8.59	Key RVC	Stars
1600 - tobacco products	3.08	-1.19	0.05	-2.12	Key RVC	Stars
3410 - motor vehicles	2.22	15.10	19.30	15.91	Key RVC	Stars
2423 - pharmaceuticals, medicinal chemicals and botanical products	2.19	17.88	11.45	8.90	Key RVC	Stars
2520 - plastics products	2.19	21.16	8.27	7.92	Key RVC	Stars
2424 - soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations	2.12	9.68	-4.65	-2.32	Key RVC	Stars
1542 - sugar	1.91	3.86	1.96	6.59	RVC	Matured
2694 - cement, lime and plaster	1.49	2.33	0.23	3.14	RVC	Stars
2021 - veneer sheets; manufacture of plywood, laminboard, particle board and other panels and boards	1.32	38.68	7.11	19.93	Lack diversification	Stars
3699 - Other manufacturing n.e.c.	1.15	-16.55	6.49	14.67	RVC	Stars
1553 - malt liquors and malt	1.08	16.95	3.59	15.54	RVC	Stars
2924 - machinery for mining, quarrying and construction	1.05	13.82	5.03	19.07	RVC	Stars
2411 - basic chemicals, except fertilizers and nitrogen compounds	1.00	20.41	7.50	11.10	RVC	Stars

Note:
Elasticities based on global model estimates. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

Table 59: RVC prioritisation SADC

ISIC Rev. 3.1 4-digit sector	REC export share	Elasticities (x100)			RVC classification	Dynamism classification
		Value-added	Employment	Wages		
2720 - basic precious and non-ferrous metals	15.17	16.79	5.88	12.55	Key RVC	Stars
2411 - basic chemicals, except fertilizers and nitrogen compounds	7.63	20.41	7.50	11.10	Key RVC	Stars
2320 - refined petroleum products	5.42	5.80	0.93	5.65	Key RVC	Matured
3410 - motor vehicles	3.55	15.10	19.30	15.91	Key RVC	Matured
2710 - basic iron and steel	3.13	6.71	2.29	1.92	Key RVC	Stars
2429 - other chemical products n.e.c.	2.91	14.28	5.71	-0.56	Key RVC	Stars
1810 - wearing apparel, except fur apparel	2.22	5.66	5.87	4.32	Key RVC	Stars
2924 - machinery for mining, quarrying and construction	2.07	13.82	5.03	19.07	Key RVC	Matured
2424 - soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations	1.55	9.68	-4.65	-2.32	RVC	Matured
2520 - plastics products	1.49	21.16	8.27	7.92	RVC	Matured
2412 - fertilizers and nitrogen compounds	1.38	21.24	7.92	9.83	RVC	Stars
2899 - other fabricated metal products n.e.c.	1.34	1.52	9.73	12.27	RVC	Matured
1542 - sugar	1.33	3.86	1.96	6.59	RVC	Matured
2912 - pumps, compressors, taps and valves	1.26	12.14	3.98	14.13	RVC	Matured
2413 - plastics in primary forms and of synthetic rubber	1.07	31.26	23.38	39.18	Lack diversification	Stars
1514 - vegetable and animal oils and fats	1.05	3.94	4.49	3.44	RVC	Matured
1512 - Processing and preserving of fish and fish products	1.03	14.39	7.24	3.06	RVC	Matured

Note:
Elasticities based on global model estimates. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

Table 60: RVC prioritisation UMA

ISIC Rev. 3.1 4-digit sector	REC export share	Elasticities (x100)			RVC classification	Dynamism classification
		Value-added	Employment	Wages		
2320 - refined petroleum products	42.26	5.80	0.93	5.65	Key RVC	Matured
2710 - basic iron and steel	2.40	6.71	2.29	1.92	Key RVC	Stars
1542 - sugar	1.73	3.86	1.96	6.59	RVC	Stars
2411 - basic chemicals, except fertilizers and nitrogen compounds	1.63	20.41	7.50	11.10	RVC	Matured
2520 - plastics products	1.61	21.16	8.27	7.92	RVC	Stars
2109 - other articles of paper and paperboard	1.54	26.46	10.61	9.69	RVC	Matured
2811 - structural metal products	1.46	8.52	3.27	7.61	Lack diversification	Matured
2413 - plastics in primary forms and of synthetic rubber	1.36	31.26	23.38	39.18	Lack diversification	Stars
2694 - cement, lime and plaster	1.36	2.33	0.23	3.14	RVC	Matured
3220 - television and radio transmitters and apparatus for line telephony and line telegraphy	1.33	8.60	-10.35	13.89	RVC	Stars
2899 - other fabricated metal products n.e.c.	1.15	1.52	9.73	12.27	RVC	Stars
3130 - insulated wire and cable	1.12	9.34	7.81	16.08	RVC	Stars
2610 - glass and glass products	1.12	13.19	10.89	15.71	RVC	Stars
3312 - instruments and appliances for measuring, checking, testing, navigating and other purposes, except industrial process control equipment	1.11	16.93	2.78	10.84	RVC	Stars
2412 - fertilizers and nitrogen compounds	1.09	21.24	7.92	9.83	RVC	Matured
1512 - Processing and preserving of fish and fish products	1.06	14.39	7.24	3.06	RVC	Stars
1549 - other food products n.e.c.	1.05	17.20	5.25	8.59	RVC	Stars
2423 - pharmaceuticals, medicinal chemicals and botanical products	1.05	17.88	11.45	8.90	RVC	Stars

Note:
Elasticities based on global model estimates. ISIC Rev. 3.1 matched with HS 2012 and BEC Rev. 5, HS 2012, 2019.

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