AFRICA'S DEVELOPMENT DYNAMICS

REGIONAL VALUE CHAINS FOR A SUSTAINABLE RECOVERY



African Union

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Africa's Development Dynamics 2022

REGIONAL VALUE CHAINS FOR A SUSTAINABLE RECOVERY

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Foreword

The annual flagship report *Africa's Development Dynamics* provides the latest information on economic policies on the African continent and its five regions. It proposes a new narrative assessing Africa's economic, social and institutional performance in light of the targets set by the African Union's Agenda 2063. This 2022 edition explores how operationalising the African Continental Free Trade Area (AfCFTA) can deepen regional value chains, and help African countries accelerate productive transformation and recover sustainably from the COVID-19 pandemic.

Africa's Development Dynamics is the product of a collaborative approach, hinging around a strong partnership between the African Union's Commission for Economic Affairs and the OECD Development Centre, bringing together a team of academic researchers, economists, statisticians, and experts from Africa and other regions.

The first two chapters explore the development of regional value chains in Africa and recommend priority actions, offering lessons from across the continent and beyond. The next five chapters focus respectively on the five regions as defined by the Abuja Treaty: Southern, Central, East, North and West Africa. These chapters tailor policy recommendations to one specific value chain in each region.

The cut-off date for information used in the projections is 5 February 2022, date of the 35th African Union Summit.

A statistical annex is available on line, which allows for updates throughout the year. It contains the latest economic, social and institutional indicators across African countries for which data are comparable. The list of summary tables appears in the last pages of the report. The data are presented by country, region, Regional Economic Communities and other relevant groups of African countries. They compare Africa with other world regions and country groups. This database aims to inform decision makers, advisors, business analysts, private investors, journalists, non-governmental organisations and engaged citizens around the globe who are interested in monitoring African countries' development trajectories.

The full report is published in English, French and Portuguese. An electronic version is also available on line, together with accompanying figures and tables. These, along with the statistical annex, appear on the websites of both the African Union Commission (www.au.int/en/afdd2022) and the OECD Development Centre (https://oe.cd/AFDD-2022).

Acknowledgements

The flagship economic report *Africa's Development Dynamics 2022: Regional value chains for a sustainable recovery* was jointly prepared by the African Union Commission (AUC) and the OECD Development Centre. It is published under the aegis of H.E. Moussa Faki Mahamat, President of the AUC, and H.E. Mathias Cormann, Secretary-General of the OECD. It was guided by H.E. Albert M. Muchanga, Commissioner for Economic Development, Trade, Industry and Mining of the African Union, and by Ragnheiður Elín Árnadóttir, Director of the OECD Development Centre. Special thanks to H.E. Victor Harison, former Commissioner for Economic Affairs of the African Union, and Mario Pezzini, former Director of the OECD Development Centre, for kickstarting this edition. It was supervised by Dossina Yeo, Acting Director of Economic Development, Integration and Trade Directorate, Department of Economic Development, Trade, Industry and Mining, and by Patrick Ndzana Olomo, Economist, Department of Economic Development, Trade, Industry and Mining, along with Federico Bonaglia, Deputy Director of the OECD Development Centre, and Arthur Minsat, Head of the OECD Development Centre's Africa Unit and Senior Economist.

The **drafting team** of the AUC was led by Dossina Yeo, Acting Director of Economic Development, Integration and Trade Directorate (Department of Economic Development, Trade, Industry and Mining) with Patrick Ndzana Olomo, Economist, and Ndinaye Sekwi Charumbira, Policy Officer. The members of the team included Désiré Avom (University of Yaoundé II-Soa), Chrysost Bangaké (Université d'Artois), Aram Belhadj (University of Carthage), Anthony Black (University of Cape Town), Arnold Blondel Njike (Université Paris-Dauphine), Jude Eggoh (University of Abomey-Calavi), Kouadio Clément Kouakou (Université Félix Houphouët-Boigny), Vincent Leyaro (University of Dar es Salaam), Yselle F. Malah Kuete (University of Yaounde II), Eyerusalem Siba (International Consultant) and John Stuart (Trade Law Center). The team at the OECD Development Centre, led by Arthur Minsat, Head of Africa Unit, with Thắng Nguyễn-Quốc and Bakary Traoré, Economists, included Keiko Alvarez, Diana Ayoub, Adrien Corneille, Katharina Gugerell, Samantha Kunz, Mariana Lopes, Sébastien Markley, Francesco Napolitano, Clémence Pougue Biyong, Pierre-Léo Rouat, Elisa Saint-Martin and Samory-Robby Touré. Chapters 1 and 2 benefited from contributions from Ji-Yeun Rim (OECD Development Centre), Joseph Stead (OECD Centre for Tax Policy and Administration), Rafal Méndez (Consultant), Rana Roy (Consultant) and José Pineda Salazar (University of British Columbia).

The report drew from the following **AUC-OECD Development Centre meetings** held on line throughout 2021: the kick-off meeting (March), two peer review meetings on the initial draft chapters (May and June) and the AUC-OECD Development Centre Scientific Committee meeting (June). The report benefited from consultations during the AU Specialized Technical Committee on Finance, Monetary Affairs, Economic Planning and Integration on the theme, "Developing Integrated and Complementary Value Chains for Sustainable Recovery and Reinforcing Operationalization of the AfCFTA" (May), and from consultations during the AU Specialized Technical Committee on Trade, Industry and Minerals on the theme "Industrializing Africa through sustainable Regional Value Chains development under the AfCFTA" (September). The report's preliminary findings were also discussed within the OECD and with Kako Nubupko, Commissioner for Agriculture, Environment and Water Resources of the West African Economic and Monetray Union (September).

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Editorial

Incorporating the idea of "*Regional value chains for a sustainable recovery*" into Africa's economies means developing production linkages across countries and regions to unleash stronger, more inclusive and sustainable green growth. Integrating value chains will accelerate productive transformation and create more quality jobs. An African value chains approach for productive transformation enables firms to grow through regional production networks.

The African continent needs more and better growth to ensure sustainable recovery. African economic growth is projected to reach up to 3.9% in 2022. This rate, higher than that of Latin America and the Caribbean, signals a continued rebound in African economies from the global low of 2020.

African Union policy makers have more ambition. Under Agenda 2063, African governments tasked themselves with achieving at least 7% growth per year to catch up with the rest of the world, create jobs and reduce inequalities. The *Africa's Development Dynamics* series underscores the importance of productive transformation to achieve the visions and aspirations of an integrated, peaceful and prosperous continent, which plays a major role in the global arena. The African Union's flagship initiatives represent strategic solutions to support Africa's sustainable recovery.

African governments created an unprecedented opportunity for developing regional value chains with the start of trading under the African Continental Free Trade Area (AfCFTA) in 2021. This continental free trade area, potentially the world's largest, will establish common positions on multiple aspects of regional integration such as trade, investment or public procurement regulations in order to stimulate regional production. Trade in processed goods make up 79% of intra-African exports. Producing more goods regionally will make African economies more resilient.

For the first time, this fourth edition of *Africa's Development Dynamics* analyses case studies with dedicated policies for each region on the continent. The report lays a roadmap that includes the private sector, the role of domestic resources, and that of strengthening economic linkages. African countries must expand their domestic resources to invest strategically.

To implement this roadmap, the report identifies two priority areas for action:

1. Supporting the digitalisation of intra-African production and trade;
2. Adapting national industrialisation strategies to the new framework established by the AfCFTA.

The international community's support of the continent's regional value chains should be part of global efforts to achieving a sustainable global recovery and shared growth. Working together means recommitting to concrete actions to deliver on the development promises made to Africa.

The international community can, and must, do better to supplement African efforts to exit the pandemic. Despite African Union member states' efforts and international support, only 14% of Africa's population was fully vaccinated in February 2022. Unequal access to vaccines reveals deeply rooted economic inequalities. Today, one in six people in the world is African. However, African people own less than one-twentieth of the world's wealth. The COVID-19 crisis magnifies these inequalities.

The research conducted for *Africa's Development Dynamics 2022* informs the African Union's Specialised Technical Committee on Finance, Monetary Affairs, Economic Planning

and Integration; policy planners of the AU member states; as well as the private sector and development partners, through membership of the OECD Development Centre. It highlights strategic actions to unleash Africa's development through investments in regional production networks as a source of growth, economic diversification, value addition and quality jobs for an equitable and sustainable recovery.



Moussa Faki Mahamat

Chairperson
African Union Commission



Mathias Cormann

Secretary-General
Organisation for Economic Co-operation and Development

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Abbreviations and acronyms

ACBF	African Capacity Building Foundation
AfCFTA	African Continental Free Trade Area
AfDB	African Development Bank
AMU	Arab Maghreb Union
APMP	Ambient Particulate Matter Pollution
ASEAN	Association of Southeast Asian Nations
AU	African Union
AUC	African Union Commission
AUDA-NEPAD	African Union Development Agency-New Economic Partnership for Africa's Development
AVC	Agri-food value chain
BMZ	Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung (Federal Ministry for Economic Cooperation and Development)
B2C	Business to consumer
CEMAC	Economic and Monetary Community of Central Africa
CEN-SAD	Community of Sahel-Saharan States
CET	Common External Tariff
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
ESG	Environmental, Social and corporate Governance
EU	European Union
EVC	Energy value chain
FDI	Foreign direct investment
FVC	Forest value chain
GDP	Gross domestic product
GIZ	Gesellschaft für Internationale Zusammenarbeit (German Corporation for International Cooperation)
GVC	Global value chain
ICT	Information and communications technology
IEA	International Energy Agency
IFC	International Finance Corporation
ILO	International Labour Organization
IMF	International Monetary Fund
ISO	International Organization for Standardization
ITC	International Trade Center
LAC	Latin America and the Caribbean
MNE	Multinational enterprise
OECD	Organisation for Economic Co-operation and Development
PAIC	Pan-African Investment Code
PALOP	Países Africanos de Língua Oficial Portuguesa (Portuguese-speaking African countries)
PIDA	Programme for Infrastructure Development in Africa
PPP	Public-private partnership
R&D	Research and development

RCA	Revealed comparative advantage
REC	Regional Economic Community
REVC	Renewable energy value chain
RVC	Regional value chain
SACU	Southern Africa Custom Union
SADC	Southern African Development Community
SDG	Sustainable Development Goals
SEZ	Special economic zone
SME	Small and medium-sized enterprise
STEM	Science, technology, engineering and mathematics
SWAC	Sahel and West Africa Club
TVET	Technical and vocational education and training
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNECA	United Nations Economic Commission for Africa
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNIDO	United Nations Industrial Development Organization
WAEMU	West African Economic and Monetary Union
WEF	World Economic Forum
WTO	World Trade Organization

Executive summary

The COVID-19 pandemic is delaying African economies' convergence with the rest of the world. In 2022, African economic growth is projected to be a full percentage point below the global rate of 4.9%. Under current projections, it will take African countries more than five years to regain their pre-COVID share (about 5%) of the world's gross domestic product (GDP). Weaker global demand for commodities, supply chain disruptions and necessary sanitary measures have constrained Africa's production capacity. Our analysis of 127 African industrial clusters, based on night light intensity, suggests that their activities decreased by up to 7.2% between March and August 2020. The slow pace of COVID-19 vaccinations holds back recovery. In December 2021, only 7.7% of Africa's population had received a vaccination, compared to 69.5% in high-income countries.

Accelerating Africa's productive transformation is a policy priority for economic recovery. The economic crisis is hindering the continent's development, pushing more than 29 million people into extreme poverty. Creating productive employment can help decrease poverty levels, as limited fiscal space and the prevalent informal economy lessen the scope and efficiency of social protection systems. Our forecast for ten African countries with high-frequency data indicates that a strong global rebound could boost their GDP growth by almost four percentage points higher than in the second quarter of 2020. However, this forecast depends on local capacity to resume production. Bilateral monthly trade data suggest that African exports lag behind other world regions. The continent's share in total imports by the European Union and United States decreased from 2.4% in 2019 to 2.0% in 2020, whereas the share of Latin America and the Caribbean (LAC) slightly increased.

The entry into force of the African Continental Free Trade Area (AfCFTA) in January 2021 creates new opportunities to accelerate productive transformation by developing regional production networks. Regional production of processed and semi-processed goods has much room to grow, currently at a mere 2.7% of Africa's participation in global value chains. Fostering regional production can enhance diversification and upgrading. In 2019, processed and semi-processed goods accounted for 79% of intra-African exports, compared to 41% of Africa's exports to other destinations. Increasing regional production can also create more productive jobs. Jobs in agri-food downstream segments such as processing, marketing, transport and retail generate up to eight times more output per worker than jobs in farming. For scale-intensive industries such as automotive, the AfCFTA can facilitate a hub-and-spoke network of multiple regional assembly centres and suppliers.

Regional co-operation is critical to overcoming the challenges and risks in building regional production networks in the AfCFTA. Since 2012, intra-African trade costs have increased back to the levels of 2007, mainly due to non-tariff barriers, insufficient transport infrastructure and weak trade-related services. Attracting lead firms and helping them to operate across borders requires strengthening both formal and informal institutions. Many African firms struggle to internationalise and link up with lead firms. Regional co-operation can help tackle multiple constraints simultaneously through cross-border production. Increasing environmental risks also need addressing: this report shows that, despite limited industrial development, the death toll from outdoor air pollution in Africa outpaced that of the world by 30% and that of China by 50% over the 2010-19 period. Adopting the development model "industrialise first and clean up later" of other world regions will have unprecedented economic costs for Africa.

New policies to support regional production networks can benefit from many lessons drawn from past policies and newly emerging trends. The COVID-19 shocks have had significant consequences on international production and trade. For example, greenfield foreign direct investment to Africa decreased in 2020-21 for all sectors, except for the information and communications technology and Internet industries, where it more than doubled between 2015 and 2021. With hindsight, important policy implementation gaps and insufficient resource mobilisation hindered past policies. In that context, two policy priorities emerge:

- **The digitalisation of intra-African trade and production requires closer collaboration between public and private sectors.** A number of digital innovations are improving the efficiency of logistics, customs and finance, offering new opportunities for smaller and informal producers. Policy makers can help scale up solutions found in the private sector. They may facilitate co-ordination, harmonise regulations and standards across industries and countries, and modernise customs administrations. Public-private alliances are essential to developing regional Internet infrastructure and providing accommodative regulations for cross-border data flows. In 2020, intra-regional Internet bandwidth as a share of total bandwidth reached 16% in Africa, compared to 20% in LAC, 56% in Asia and 75% in Europe. More investment is necessary to catch up with high-income countries.
- **African governments should adapt their national industrialisation strategies to the new environment created by the AfCFTA.** First, supporting intra-regional skills mobility and developing regional training centres can alleviate skill shortages. Second, governments can combine efforts to improve infrastructure and promote investment along development corridors, notably by deploying multi-modal infrastructure projects as part of the Programme for Infrastructure Development in Africa's Priority Action Plan 2 (PIDA PAP 2). Third, implementing the Pan-Africa Investment Framework in member countries requires a strong monitoring structure. Fourth, public procurement can expand eligibility criteria for preferential treatment to producers in the AfCFTA. This approach can create demand for regional production of goods and improve procurement quality, which stands internationally high at 8.7% of GDP in Africa compared to 8% in developing Asia and 6% in LAC.

Policy recommendations to develop selected value chains in African regions

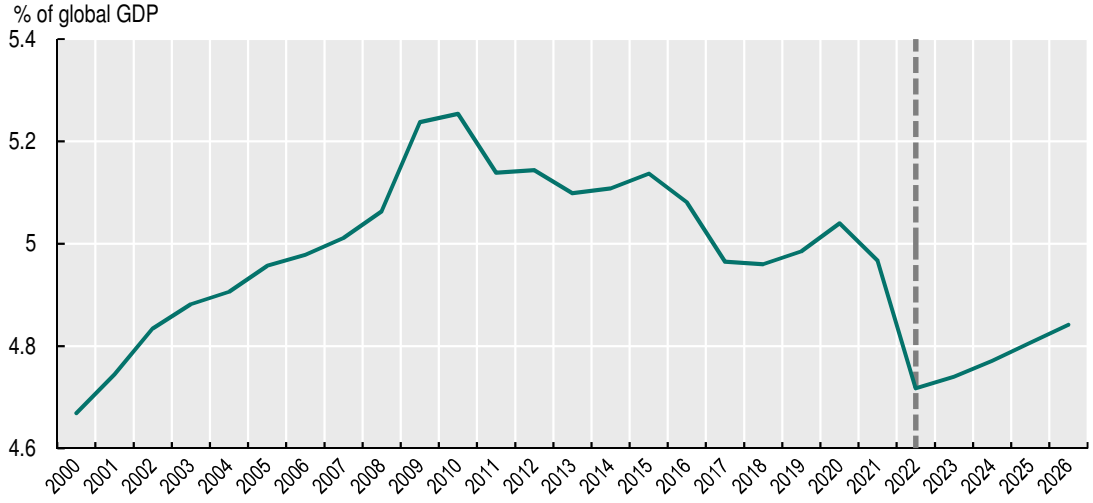
Region	Value chain	Policy recommendations
Southern Africa	Automotive	• Improve the business environment and encourage investment from global lead firms • Actively support firms to maintain production and financial liquidity during the pandemic • Adopt accommodative trade policies by removing tariffs and other trade barriers
Central Africa	Wood	• Improve the business environment through stable macroeconomics, harmonising business laws and liberalising import markets • Invest in transport and logistical infrastructure • Work with local communities and the private sector to develop processing capacity
East Africa	Agri-food	• Review the East African Community's Common External Tariff and reduce non-tariff barriers • Co-ordinate national industrial strategies and promote interactions between industrial clusters across countries in the region • Expand the One Network Area roaming initiative to other countries beyond the East African Economic Community (EAC)
North Africa	Energy	• Improve the business environment and target industrial clusters to attract global lead firms • Establish training and research centres to build the relevant skills in the workforce • Facilitate intra-regional trade in raw materials and intermediate goods for the sector • Invest in transport links, and develop plans for intra-regional energy interconnection
West Africa	Agri-food	• Improve access to finance, and provide technical and financial assistance to co-operatives • Facilitate digitalisation and climate-smart practices by smallholders and informal producers • Enhance implementation of Economic Community of West African States (ECOWAS) agreements on trade facilitation and quality standards • Target cross-border special economic zones to attract investment and increase competitiveness

Developing regional value chains will support a sustainable recovery from COVID-19

Strengthening African countries' productive systems is vital to their economic recovery

The COVID-19 pandemic is setting back Africa's economic convergence with the world economy. African economic growth will reach 3.9% in 2022, one percentage point lower than the growth rate for the rest of the world, which stands at 4.9%. In 2022, Africa's gross domestic product (GDP) as a share of the world GDP is expected to fall to 4.7%, the lowest level since 2002. This reverses the catching-up process that had been underway: between 2000 and 2010, Africa's global economic weight steadily increased from 4.7% to 5.3% of the world's output (Figure 1). Africa will not regain its pre-COVID share of the world GDP in a foreseeable future. COVID-19 has also reversed progress in reducing poverty in Africa, pushing at least an additional 29 million people into extreme poverty (Mahler et al., 2021).

Figure 1. **Africa's output as a share of world gross domestic product (in purchasing power parity), 2000-26**



Source: Authors' calculations based on data from IMF (2021a), *World Economic Outlook Database*, October 2021 projections, https://www.imf.org/en/Publications/WEO/weo-database/2021/October.

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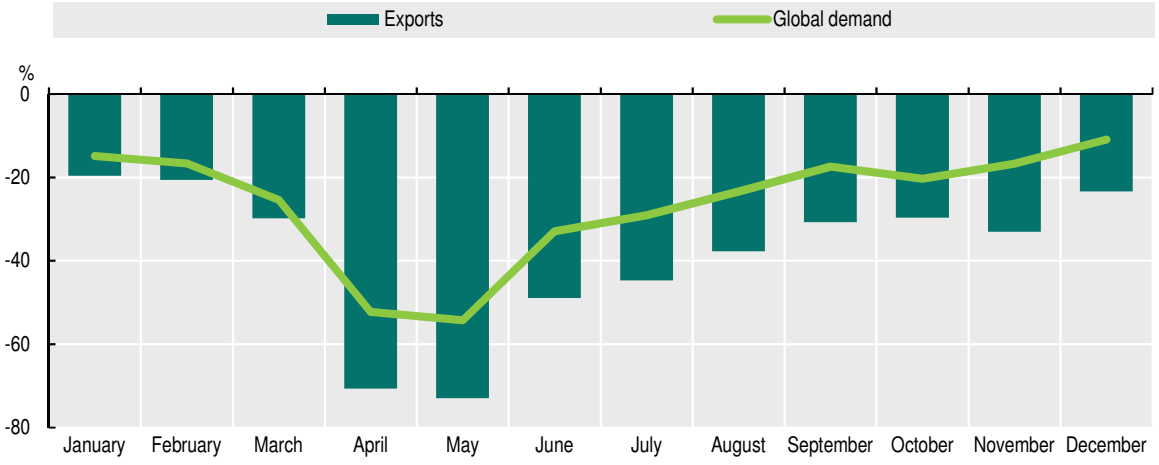
The health and economic crises mutually reinforce each other. Vaccination programmes must accelerate: on 11 January 2022, only 9.5% of Africa's population had been fully vaccinated, compared to 70.7% in high-income countries. The World Health Organization forecasts that the continent may not reach 70% vaccine coverage until August 2024 (WHO, 2021). In addition, weaker global demand, supply disruptions and necessary sanitary measures constrained economic activities. Our analysis of 127 African industrial clusters suggests that night light intensity within these clusters, a proxy for economic activities, decreased by up to 7.2% between March and August 2020.

The limited fiscal space available to African governments hinders the scope for fiscal stimulus. Our calculations suggest that total government expenditure in Africa reached 25.2% of GDP in 2020-21. For comparison, public expenditure reached 26.9% of GDP in 2009-10, when many African governments invested heavily in public infrastructure

to combat the global financial crisis. The lower level of spending reflects the limited resources available to African governments during the pandemic. The latest data show that the average tax-to-GDP ratio in Africa increased 1.8 percentage points between 2010 and 2019. However, the rising costs of servicing debts offset two-thirds of this increase in revenues (OECD/AUC/ATAF, 2021).

Production constraints limit African producers' ability to benefit from the rebound in global demand. Strong global growth in 2022 will likely boost GDP by an additional 3.9 percentage points on average in ten African countries according to available data, compared to the trough in the second quarter of 2020.[1] However, this is conditional on African producers' ability to resume production and restore their competitiveness. Monthly bilateral trade data show that exports of African products lagged behind the recovery in global imports for those products between 2019 and 2020, suggesting important supply-side constraints (Figure 2). The continent's share of imports to the European Union and United States markets decreased from 2.4% in 2019 to 2.0% in 2020, whereas Latin America and the Caribbean's share slightly increased.

Figure 2. **Africa's export growth versus global demand growth, 2019-20**



Note: Data on Africa's exports include all goods exported by African countries to Europe and the United States, where reliable monthly data are available. Global demand for African products is proxied by total imports by Europe and the United States for goods that they also import from Africa. The figure shows a comparison of each month's exports in 2020 with the same month's exports in 2019.

Source: Authors' calculations based on monthly trade data from UN (2021), *UN COMTRADE* (database), https://comtrade.un.org/.

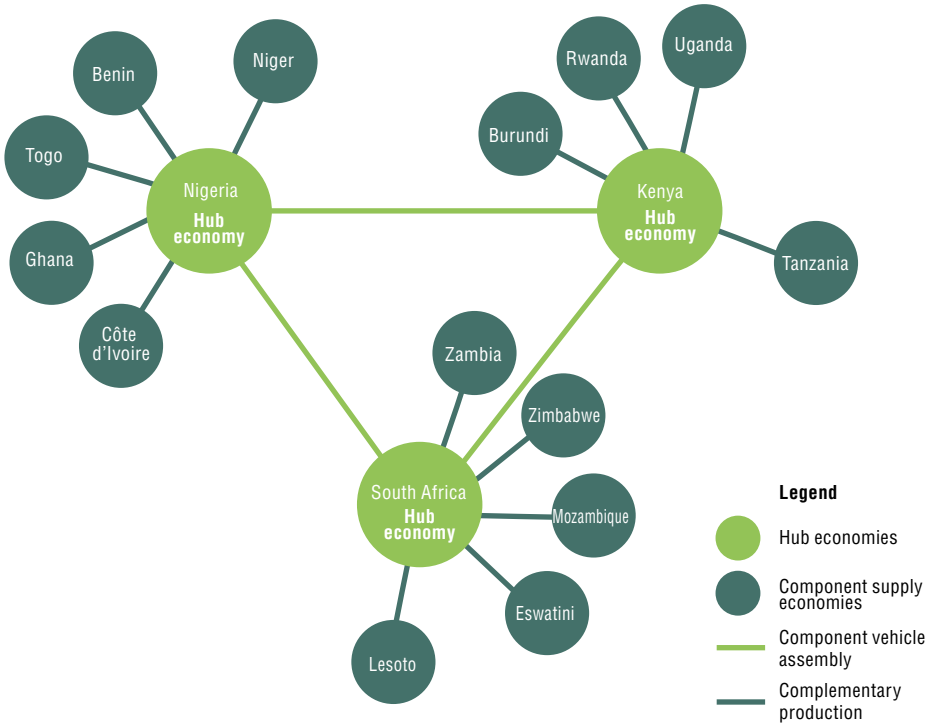
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Accelerating productive transformation is critical for creating quality jobs that reduce poverty and for strengthening Africa's economic resilience (AUC/OECD, 2019). First, creating productive employment can help decrease poverty levels, as the limited fiscal space and the prevalent informal economy lessen the scope and efficiency of social protection systems. Second, building the capacity to manufacture pharmaceutical products and produce food locally can help African countries lower their vulnerability to future crises. African countries import 90% of their pharmaceutical products, which makes them vulnerable to disruptions in international supply chains. In 2020, nearly two-thirds of African countries were net importers of basic food whereas the number of hungry people has risen to 250.3 million, roughly one-fifth of the population in Africa (FAO/ECA/AUC, 2021).

Rolling out the African Continental Free Trade Area can develop regional value chains and accelerate productive transformation

The African Continental Free Trade Area (AfCFTA) provides new opportunities for regional value chain integration. The AfCFTA is the most comprehensive continental agreement in Africa to date. It addresses important issues such as sanitary and phytosanitary standards, technical barriers to trade, intellectual property rights, and investment (World Bank, 2020a). It aims to increase intra-African trade by better connecting the continent's 1.2 billion people and economies with a combined GDP of over USD 3 trillion. Rising domestic markets, fuelled by demographic growth, urbanisation and a new class of workers and consumers, offer new opportunities in many sectors, including the food, pharmaceutical and digital economy sectors. For scale-intensive industries such as the automotive industry, the continental market can facilitate a hub-and-spoke model of multiple vehicle assembly centres and component supplier economies (Figure 3).

Figure 3. **Hub-and-spoke model for developing an automotive pact in sub-Saharan Africa**

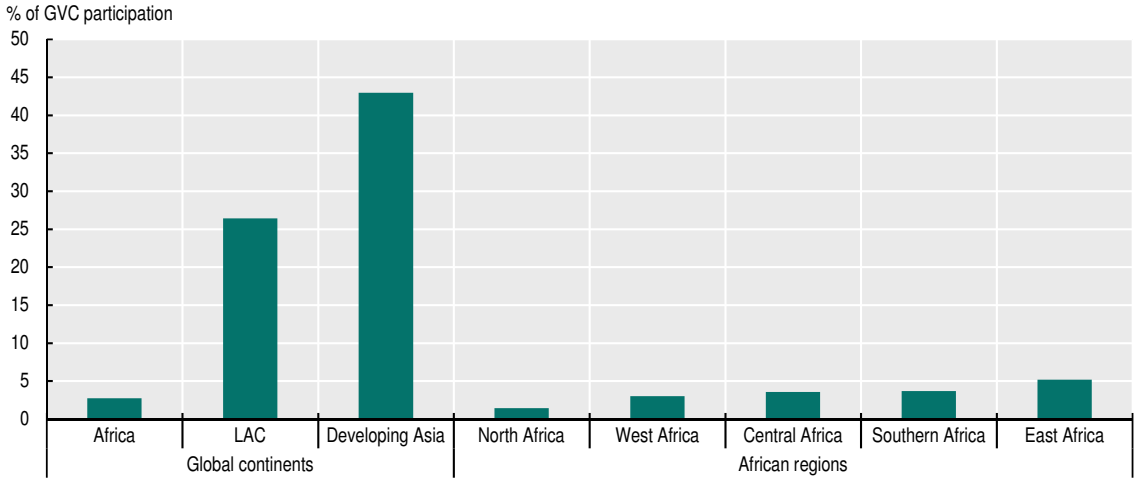


Source: Barnes, Erwin and Ismail (2019), "Realising the potential of the sub-Saharan African automotive market: The importance of establishing a sub-continental automotive pact".

Regional value chains can complement Africa's integration into global value chains and facilitate productive transformation. African producers remain largely marginal actors in international production, accounting for 1.7% of participation in global value chains in 2019 compared to 1.5% in 2000. Our calculations suggest that regional value chains account for only 2.7% of Africa's global value chain participation, compared to 26.4% in Latin America and the Caribbean and 42.9% in developing Asia (Figure 4). Strengthening regional production networks can help African countries diversify their economic base and build their productive capacities. Processed and semi-processed goods accounted for 79% of intra-African exports in 2019, compared to 41% of Africa's exports to other destinations. Furthermore, greater physical, social, cultural and institutional proximity can help African firms diversify and develop their productive capabilities when tapping

the regional and continental markets. These new capabilities and inputs would enable firms to enter and thrive in more demanding markets.

Figure 4. **The share of participation in regional value chains as a percentage of participation in global value chains, by world and African regions, 2019**



Source: Authors' calculations based on data from Casella et al. (2019), *UNCTAD-Eora Global Value Chain Database*, https://worldmrio.com/unctadgvc/.

StatLink https://doi.org/10.1787/888934297693

Currently, African countries largely participate in global value chains by exporting raw natural resources and agricultural commodities for further processing and production by other countries. Such forward participation in value chains makes up 5.9% of Africa's GDP, a level similar to other developing regions. In contrast, backward participation – the use of foreign input for domestic processing – represents only 2.1% of Africa's GDP, lower than in Latin America and the Caribbean (4.5%) and developing Asia (3.3%)

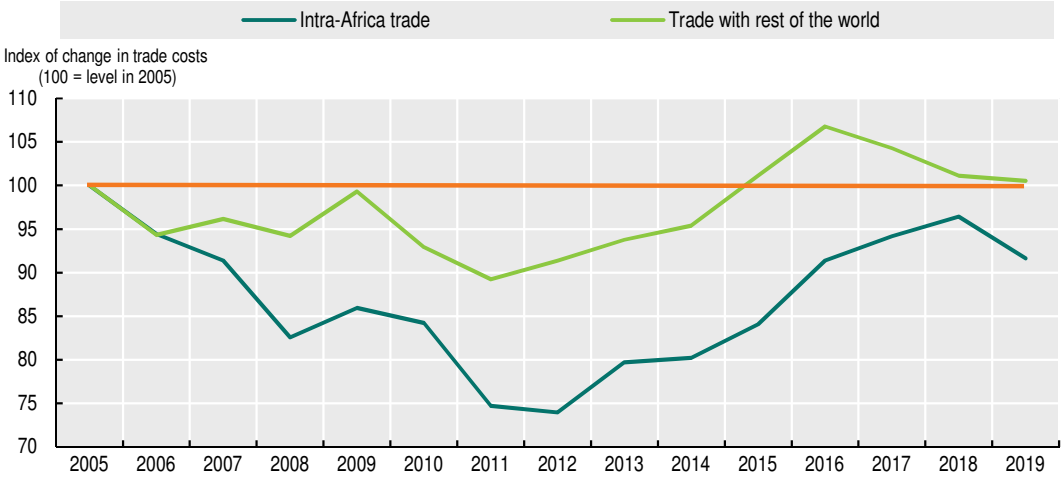
Strengthening regional production for local markets can improve backward participation in value chains and create productive jobs. Domestic processing at regional level to serve local demand can help producers specialise in downstream segments, such as food processing, marketing, transport and retail, by exploiting their proximity to final consumers. For example, in the agri-food value chains, downstream segments help create non-farm jobs in both rural and urban areas. These jobs can generate up to eight times more output per worker than farming (Tschirley et al., 2015).

Regional policies are essential for expanding regional production networks

Surpassing structural constraints and risks in regional production requires supportive regional policies

Rising intra-African trade costs impede regional production networks. As shown in Figure 5, the costs of trade within Africa have increased to 2007 levels, despite a considerable decline in intra-African tariffs. High trade costs are detrimental to production networks because they compound each time products cross international borders. High costs are due to poor transport infrastructure, non-tariff barriers and weak trade-related services such as logistics, trade finance and payments. By some estimates, logistics costs in Africa are up to four times higher than the world average (Plane, 2021). The COVID-19 crisis further increased trade costs due to disruptions to transport, restrictive trade policies and global economic uncertainty.

Figure 5. **Evolution of Africa's trade costs within Africa and with the rest of the world, 2005-19**



Source: Authors' calculations based on UN ESCAP/World Bank (2021), *ESCAP-World Bank Trade Cost Database*, www.unescap.org/resources/escap-world-bank-trade-cost-database.
StatLink https://doi.org/10.1787/888934297902

Policy support is necessary for African firms to increase their competitiveness, create links with local economies and overcome barriers to investment. Most African firms lack the productivity, skills and organisational capabilities required for competitive exports. The few firms actively engaged in global value chains are often older and larger establishments, with little connection to the local economy. In addition, attracting investments in strategic value chains and retaining them requires strong formal institutions (e.g. political stability, macroeconomic stability, property rights and intellectual property rights) and accommodative informal institutions (e.g. business networks, partnerships and trusts).

International production networks also entail risks that require careful policy attention. Local workers and firms, especially vulnerable groups such as women and informal workers, risk being excluded from participating in international production and sharing the gains. Other concerns include precarious and dangerous employment conditions and child and forced labour (ILO/OECD/IOM/UNICEF, 2019).

African countries need to address environmental challenges alongside their development. This contrasts with developed world regions that were able to respond to environmental and developmental pressures sequentially. Despite limited industrial development, the death toll from outdoor air pollution in Africa outpaced that of the world by 30% and that of China by 50% over the 2010-19 period, according to a background paper drafted for this report (Roy, forthcoming).

Policy responses must be adapted to different value chains and local contexts. The governance structure of a value chain and the distribution of power between lead firms and local suppliers depend on the ability of actors to codify and share information, and on lead firms' openness to linkages. African regions and countries differ significantly in terms of resource endowment, human capital, and the availability and competence of local suppliers. Policies must take into account these idiosyncratic factors that shape how firms develop, participate and upgrade in international production systems. The regional chapters of this report highlight the related opportunities and challenges, as well as the policies needed to develop five selected regional value chains (see Table 1 and Chapters 3-7).

Table 1. **Policy recommendations to develop selected value chains in African regions**

Region	Value chain	Policy recommendations
Southern Africa	Automotive	• Improve the business environment and encourage investment from global lead firms • Actively support firms to maintain production and financial liquidity during the pandemic • Adopt accommodative trade policies by removing tariffs and other trade barriers
Central Africa	Wood	• Improve the business environment through stable macroeconomics, harmonise business laws and liberalise import markets • Invest in transport and logistical infrastructure • Work with local communities and the private sector to develop processing capacity
East Africa	Agri-food	• Review the Common External Tariff of the East African Community (EAC) and remove non-tariff barriers • Co-ordinate national industrial strategies and promote interactions between industrial clusters across countries in the region • Expand the One Network Area roaming initiative to other countries beyond the East African Economic Community (EAC)
North Africa	Energy	• Improve the business environment and target industrial clusters to attract global lead firms • Establish training and research centres to build the relevant skills in the workforce • Facilitate intra-regional trade in raw materials and intermediate goods for the sector • Invest in transport links, and develop plans for intra-regional energy connections
West Africa	Agri-food	• Improve access to finance, and provide technical and financial assistance to co-operatives • Facilitate digitalisation and climate-smart practices by smallholders and informal producers • Enhance implementation of Economic Community of West African States (ECOWAS) agreements on trade facilitation and quality standards • Target cross-border special economic zones to attract investment and increase competitiveness

Previous efforts to integrate into value chains provide valuable lessons for policy making

Since the 1980s, African institutions have deployed multiple initiatives to foster regional and global value chains. Various continental strategies have sought to develop regional value chains as part of the broader strategy for industrialisation and structural transformation. Regional Economic Communities such as the Southern African Development Community (SADC), ECOWAS and EAC have adopted regional strategies for key value chains. However, most initiatives have fallen short of expected results so far, leading to concerns over a "crisis of implementation" (AU, 2017).

Past experiences highlight the importance of private-sector participation in developing regional value chains. Adopting a bottom-up process driven by the private sector helps sustain political momentum. It enables governments to identify policy priorities such as removing non-tariff barriers, providing infrastructure, developing skills and enhancing access to finance. Regional Economic Communities will continue to play an important role in this engagement. To ensure inclusiveness, governments need to help improve the institutional representation of small and medium-sized enterprises in trade associations, alongside large domestic firms, state-owned enterprises, or multinationals.

Better mobilising domestic resources is important to ensure policy implementation. A number of previous initiatives have lacked adequate resources. For instance, many countries have not respected their commitment to the Maputo Declaration that calls for reserving at least 10% of national budgets for agricultural development (AU, 2016). They often relied on external assistance, which hindered co-ordination and predictability. At the national level, tax administration reforms are necessary to mobilise domestic resources and combat illicit financial flows. Innovative financial instruments – including blended finance, public-private partnerships and climate bonds – can tap the global interests in sustainability-driven finance and unlock private-sector investment. Furthermore, the methodology for assessing regional infrastructure projects needs to account for their

supranational benefits and use appropriate discount rates in calculating the projects' present value (see Chapter 2).

Looking forward, policies need to address the regional, global and sectoral shifts in the investment landscape. The AfCFTA could increase the continent's attractiveness for investors and generate new opportunities for intra-African investments. In parallel, Africa's attractiveness to global investors may change with the introduction of a global minimum corporate tax, agreed in July 2021 and expected to take effect in 2023. Across many sectors, the COVID-19 shocks have had strong and heterogeneous ramifications. For example, annual greenfield foreign direct investment to Africa decreased from USD 78.4 billion in 2015-19 to USD 32.3 billion in 2020-21. All sectors attracted less investment with the exception of the information and communications technology and Internet industries, where greenfield foreign direct investment increased from USD 2.6 billion annually in 2015-19 to USD 6.2 billion in 2020-21.

COVID-19 has also accelerated digitalisation and increased the focus of firms and governments on sustainability. Across 13 African countries, more than 1 in 5 firms started using or expanded their use of digital technology in response to the COVID-19 shock (Davies et al., 2021). Similarly, since the onset of the pandemic, 48% of surveyed multinational enterprises operating in developing countries have increased their focus on the sustainability and decarbonisation of supply chains. Several African governments are setting up funds in their COVID-19 recovery plans for investment in the ICT sector, renewable energy and green value chains. These trends create new opportunities and challenges for policy makers in developing regional value chains (Table 2).

Table 2. **Global trends: Opportunities and challenges for regional value chains**

Trends	Opportunities	Challenges
Changing investment landscape	• Attract investment to tap local markets (e.g. agri-food processing and pharmaceutical) • Attract investment from near-shoring (especially in North Africa) • Encourage intra-African investment	• Slower financial flows to emerging markets due to uncertain economic outlooks and higher interest rates in high-income economies • Higher risks of automation and reshoring
Digital transformation	• Adapt digital innovations to reduce the costs of international production and trade • Increase production efficiencies through digital adoption • Tap new niches in service segments • Integrate informal actors into value chains	• Risk of exclusion among workers and producers due to barriers to digital adoption • Stronger demand for accommodative hard and soft digital infrastructure • Uneven competition on winner-take-all digital platforms • Risk of low-quality gig employment
Global drive towards sustainability	• Increase demand for high value-added activities • Increase pressure on multinational enterprises to meet environmental, social and governance (ESG) standards • Attract ESG finance • Invest in climate adaptation and the green sector as part of COVID-19 fiscal stimulus packages	• Pressure for local producers to meet higher standards, especially among smallholders and informal actors • Higher testing and certification requirements

Policy makers must work with the private sector to develop regional production networks

Public-private alliances in the digital economy can help reduce the costs of regional production and trade

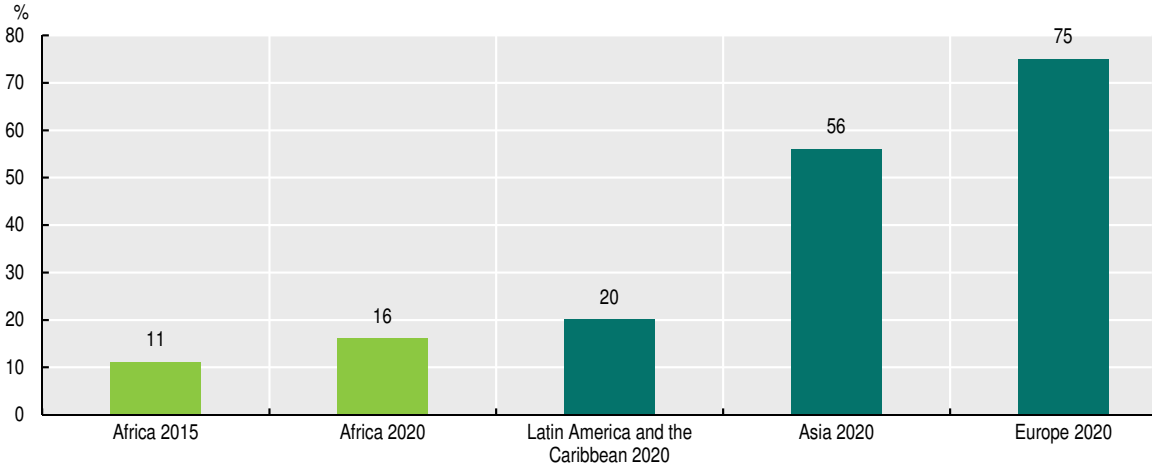
Digital innovations, accelerated by the COVID-19 crisis, can increase the efficiency of trade-related logistics, customs and finance. For example, distributed ledger technology (blockchains) can make cross-border payments and trade finance more efficient by creating smart contracts. Other innovations can make it easier to implement rules of

origin by generating, storing and sharing information. Digital innovations can allow for real-time and low-cost verification of a product's provenance. Paperless processes and smart clearance technology can streamline customs procedures.

Innovative solutions can boost participation and upgrading in international production networks, especially by small and informal actors. They can allow large firms such as multinational enterprises and their smaller suppliers to build trust, communicate, co-ordinate and monitor across all stages of value chains. Smart contracts and reputation systems in digital platforms are new ways to integrate informal firms into the supply chains.

Public-private alliances are also key to developing regional Internet infrastructure and providing accommodative regulations for cross-border data flows. The flow of information between buyers and sellers underpins all decision making, production processes and value-addition in the context of Industry 4.0. Building the infrastructure to connect national digital markets can facilitate economies of scale, attract investment and increase competitiveness. For hard infrastructure, policy makers need to continue attracting private investment in intra-Africa Internet bandwidth. In 2020, only 16% of total bandwidth in Africa was intra-regional, compared to 20% in Latin America and the Caribbean, 56% in Asia and 75% in Europe (Figure 6). For soft infrastructure, countries can strengthen regulatory co-operation through the AfCFTA Protocol on E-commerce and other plurilateral agreements. Governments should also consider establishing data protection authorities and sharing best practices among them to better enforce data protection laws in conjunction with the private sector.

Figure 6. **Intra-regional Internet bandwidth, by continent**



Note: Data reflect traffic and bandwidth utilisation over Internet bandwidth connected across international borders. Data as of mid-year.

Source: Authors' elaboration based on data from Telegeography (2021), *Telegeography Database*, www2.telegeography.com/telegeography-report-and-database.

StatLink https://doi.org/10.1787/888934297978

National industrial policies need to adapt to the new environment provided by the AfCFTA

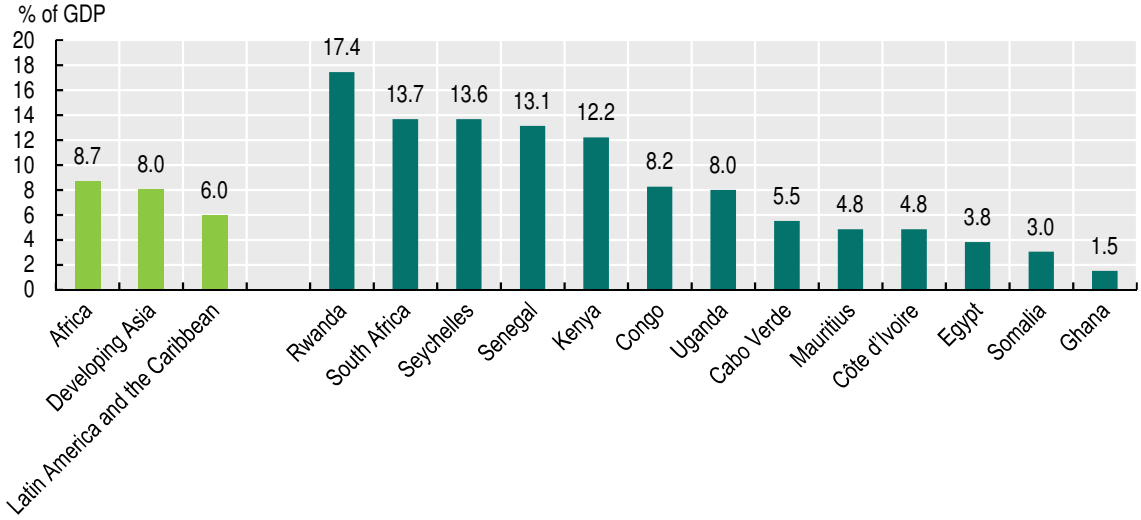
Tailoring skills policies to technical needs and emerging trends is crucial for attracting investment and increasing linkages with lead firms. Talent and skills rank among the top four determinants driving foreign direct investment to developing economies (World Bank, 2020b). Upskilling and re-skilling will be crucial to meet sector-specific needs and

new requirements for Africa's digital and green transformation. Policy makers in the AfCFTA may consider the following courses of action:

- First, enhancing policy dialogue between policy makers, the private sector and training institutions will help to identify skills needs and design appropriate training programmes at the sectoral level. National governments and the private sector can also pool resources into regional centres of excellence, such as the African Masters in Machine Intelligence, to train African researchers and engineers.
- Second, supporting intra-regional skills mobility can help alleviate skill shortages in some sectors. Regional initiatives from the EAC or SADC, for example, provide lessons for removing restrictions on intra-Africa mobility of skilled labour.

Modernising and broadening the eligibility criteria of public procurement programmes can create demand for linkages among producers in the AfCFTA. African governments can use their relatively sizable public procurement efforts – purchasing goods and services – to attract local producers to strategic value chains. Public procurement accounted on average for 8.7% of GDP in Africa compared to 8% in developing Asia and 6% in Latin America and the Caribbean over the 2015-19 period (Figure 7). By investing in e-procurement systems, governments can improve bidding transparency and ensure timely payments. They can also expand eligibility criteria for preferential treatment beyond narrowly defined domestic producers to cover regional actors in the AfCFTA. Harmonising product standards and mutual recognition agreements can reduce the costs for African suppliers to participate in regional markets.

Figure 7. **Government procurement spending as a percentage of gross domestic product, 2015-19 average**



Note: This figure draws on the OECD methodology to derive general government procurement spending. Africa, developing Asia and Latin America and the Caribbean (LAC) averages are weighted. Asia includes 11 countries: Afghanistan, Indonesia, Jordan, Kyrgyzstan, Mongolia, Myanmar, Nepal, Philippines, Thailand, Timor-Leste and Uzbekistan. LAC includes 9 countries: Brazil, Chile, Colombia, Costa Rica, El Salvador, Honduras, Mexico, Paraguay and Peru.

Source: Authors' calculations based on the OECD methodology and data from IMF (2021b), *Government Finance Statistics* (database), https://data.imf.org/?sk=a0867067-d23c-4ebc-ad23-d3b015045405.

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Harmonising domestic environments through the Pan-Africa Investment Framework requires a strong monitoring structure. So far, African governments have agreed to 854 bilateral investment treaties (512 are in force) of which 169 are intra-African (44 in force). Harmonising domestic investment legislation could help reconcile the continent's

fragmented investment environment and boost intra-African investments by 14% compared to the 2018 level. Accelerating the national adoption of regionally agreed protocol such as the Pan-African Investment Code should be a priority. Experiences in Africa, such as the SADC Investment Policy Framework, suggest that strong monitoring and evaluation structures, based on a commonly agreed set of indicators, help effective implementation.

Africa's existing networks of industrial clusters provide a critical entry point for developing infrastructure and promoting investment. Investment in connective infrastructure may target regional corridors that connect clusters across countries, such as the LAPSSET Corridor (Kenya-Ethiopia), the Central Corridor (Dar es Salaam-DR Congo), the Maputo Development Corridor (Mozambique-South Africa) and the Walvis Bay Corridor (five SADC countries). In addition, investment promotion agencies (IPAs) can help facilitate investment from lead firms into key segments of a value chain. Important considerations for establishing IPAs include: (i) ensure high-level government support; (ii) establish clear targets for investment promotion; (iii) consult local public and private stakeholders to ensure strategic alignment; (iv) facilitate collaboration with other investment institutions and funds; and (v) provide sufficient and sustained financial resources (OECD, 2021).

Note

1. We conducted a global vector autoregressive modelling exercise using data from 10 Africa countries where quarterly data are available for at least 20 years: Botswana, Cameroon, Egypt, Ghana, Kenya, Mauritius, Morocco, Namibia, South Africa and Tunisia. See Chapter 1 and Annex 1.A1 for more information.

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Chapter 1

Why regional value chains matter for Africa's recovery

This chapter makes the case for policy makers in Africa to develop regional value chains in order to accelerate the continent's productive transformation and create quality jobs. First, it explains the need to reshape Africa's participation in global value chains as a way to increase local production and catch up with the global economic recovery from the COVID-19 pandemic. Second, it documents the potential of the African Continental Free Trade Area to strengthen regional value chains. The analysis highlights the key challenges in developing regional value chains and their risks for sustainable development. Finally, the chapter identifies three trends accelerated by the COVID-19 crisis that affect public policies for regional value chains: the changing investment landscape, Africa's digital transformation and the global drive for sustainability.

IN BRIEF

Strengthening local production through regional value chains is critical for Africa to rebound from the economic shocks of the COVID-19 pandemic. The African Continental Free Trade Area can develop regional value chains by tackling intra-African trade costs, barriers to investment and lack of competitiveness. The level of manufacturing intensity embedded in intra-African exports is twice that of the continent's exports to the rest of the world. However, intra-African exports account for only 15% of Africa's total exports and must be developed further.

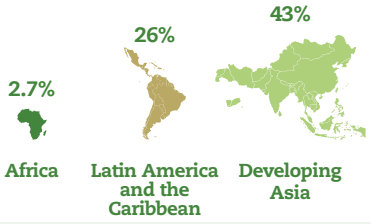
Developing regional value chains requires navigating risks and adapting to new trends. In strengthening production, African countries face risks related to economic resilience and to social and environmental sustainability. Policy makers must take these into account along with three trends which the COVID-19 crisis has accelerated:

- The changing global investment landscape calls for continental co-ordination to increase Africa's attractiveness to investors, especially intra-regional ones.
- The digital transformation can facilitate regional value chains but heightens the chances of exclusion and inequality.
- The global drive towards sustainability offers new market and financing opportunities for more inclusive and environmentally friendlier value chains.

Why regional value chains matter for Africa's recovery

The AfCFTA offers opportunities to accelerate Africa's productive transformation and sustainable recovery from COVID-19

Regional value chains as % of global value chain participation



In 2019, processed and semi-processed goods accounted for

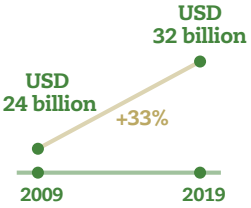
79% of intra-African exports



and **41%** of exports to other destinations



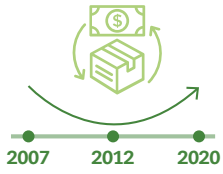
African households' food imports



Intra-African trade costs, limited competitiveness and barriers to investment limit the development of regional value chains

High trade costs

Intra-African trade costs returned to levels comparable to 2007



Limited competitiveness

Intra-regional sourcing of food grew in the last decade...





... but 40% of food imports originated in Asia in 2019

Fragmented investment landscape

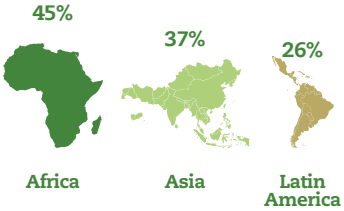


African governments have **854** bilateral investment treaties, of which **169** are intra-African

Policy makers must harness emerging global trends

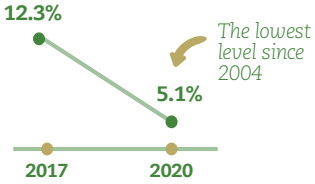
Digital transformation

Compound annual rate of cross-border internet traffic, 2017 - 21



Changing investment landscape

Greenfield investment inflows targeting Africa as % of the global market share



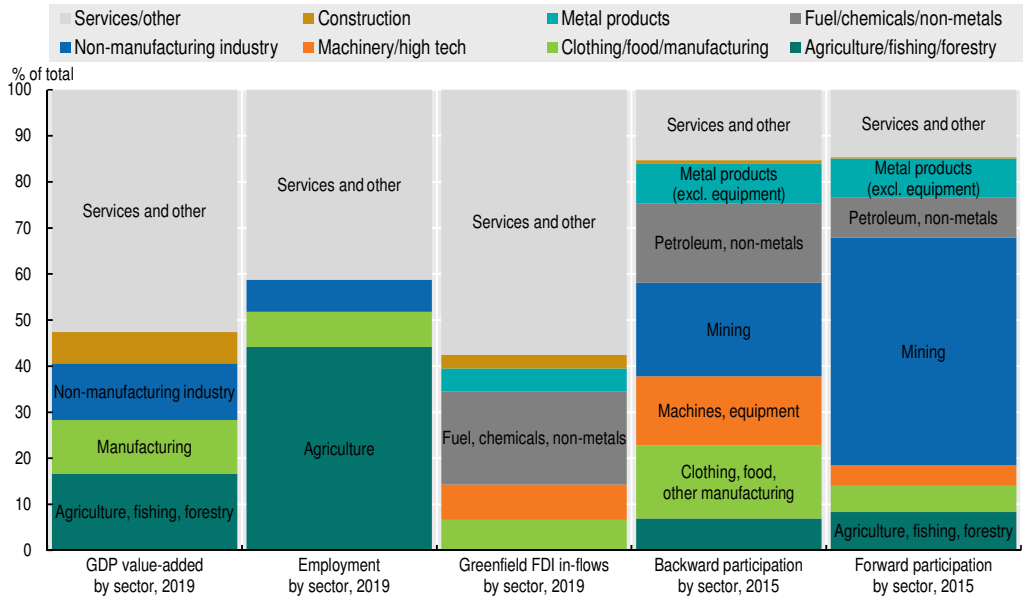
Sustainability drive

Death toll from air pollution in Africa outpaced that of the **world by 30%** and that of **China by 50%** over the 2010-19 period



Africa continental profile

Figure 1.1. **Economic and trade profiles of Africa, expressed as % of total**

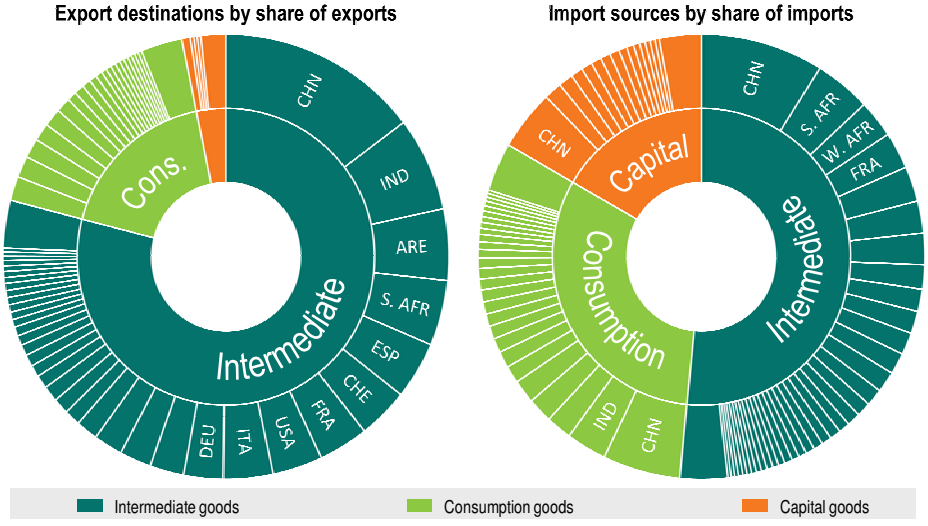


Notes: GDP = gross domestic product; FDI = foreign direct investment. The different sources for the data do not share common definitions of economic sectors, commodities or activities. However, colouring is used in this figure in order to indicate shared themes across datasets.

Source: Authors' calculations based on World Bank (2020a), *World Development Report 2020, GVC Database*, www.worldbank.org/en/publication/wdr2020/brief/world-development-report-2020-data; fDi Markets (2021), *fDi Markets* (database), www.fdiintelligence.com/fdi-markets; and World Bank (2021a), *World Development Indicators* (database), https://databank.worldbank.org/source/world-development-indicators.

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Figure 1.2. **Africa's most important trade partners broken down by volume of trade in intermediate, consumption and capital goods**



Notes: Countries are presented using their three-letter ISO codes. The African countries are aggregated into the five sub-regions defined by the African Union as follows: C. AFR = Central Africa, E. AFR = East Africa, N. AFR = North Africa, S. AFR = Southern Africa, W. AFR = West Africa. Interior trade within the Southern Africa Customs Union is excluded.

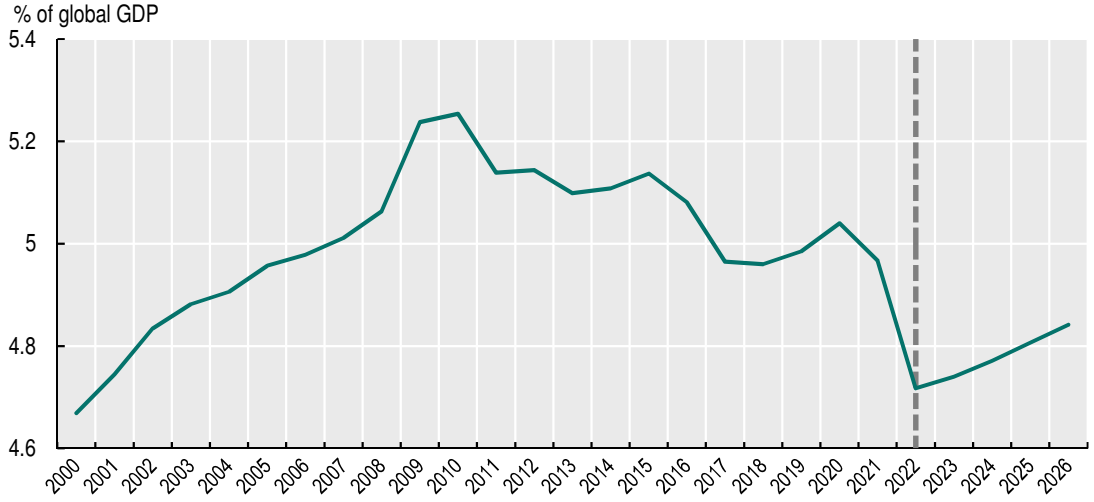
Source: Authors' calculations based on data from CEPII (2021), *BACI* (database), www.cepii.fr/cepii/en/bdd_modele/presentation.asp?id=37.

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Africa risks falling behind the global economy

The COVID-19 pandemic is setting back Africa's economic convergence with the world economy. African economic growth will reach 3.9% in 2022, one percentage point lower than the growth rate for the rest of the world, which stands at 4.9%. In 2022, Africa's gross domestic product (GDP) as a share of the world GDP is expected to fall to 4.7%, the lowest level since 2002. This reverses the catching-up process that had been underway: between 2000 and 2010, Africa's global economic weight steadily increased from 4.7% to 5.3% of the world's output (Figure 1.3).

Figure 1.3. **Africa's output as a share of global gross domestic product, 2000-26**



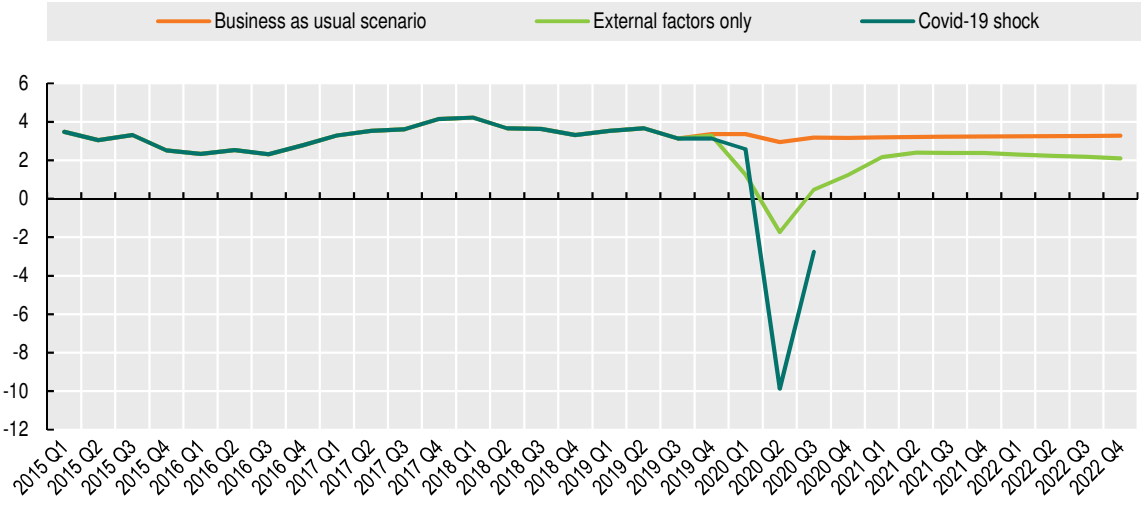
Source: Authors' calculations based on data from IMF (2021a), *World Economic Outlook Database*, October 2021 projections, https://www.imf.org/en/Publications/WEO/weo-database/2021/October.

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Addressing constraints on domestic production is more urgent than ever

Efforts to overcome the health pandemic, accelerate vaccinations and lift barriers to African production will be critical to ensure near-term recovery. Domestic factors – including the necessary social distancing and unavoidable disruptions to local production – accounted for two-thirds (64%) of the growth shortfall in a sample of ten African countries (Figure 1.4). This finding underlines that domestic demand and local production are strategic for Africa's growth, as seen in the first edition of this report (AUC/OECD, 2018). Resuming economic convergence will require tackling the pandemic and speeding up vaccine roll-out on the continent (other world economies were able to resume economic activity through massive vaccination campaigns). As of 19 October 2021, only 5% of Africa's population were fully vaccinated despite representing about 18% of the world's population (Mathieu et al., 2021).

Figure 1.4. **Real gross domestic product growth in ten African countries, 2015-22**



Notes: The ten countries for which quarterly data were available for the construction of this figure are Botswana, Cameroon, Egypt, Ghana, Kenya, Mauritius, Morocco, Namibia, South Africa and Tunisia; the data were adjusted according to the countries' respective sizes in the continent's GDP. The figure compares three quarterly growth scenarios for these countries: i) gross domestic product (GDP) growth originally projected without the effects of the COVID-19 economic shock ("business as usual" scenario) until 2022 Q4; ii) GDP growth depending only on projected global growth ("external factors' contributions" scenario) until 2022 Q4, using OECD projections for China, the European Union and the United States; and iii) actual GDP growth until the latest data were released in 2020 Q3 ("COVID-19 shock" scenario).

Source: Authors' calculations based on this report's African global vector autoregressive model (see Annex 1.A1 for additional details).

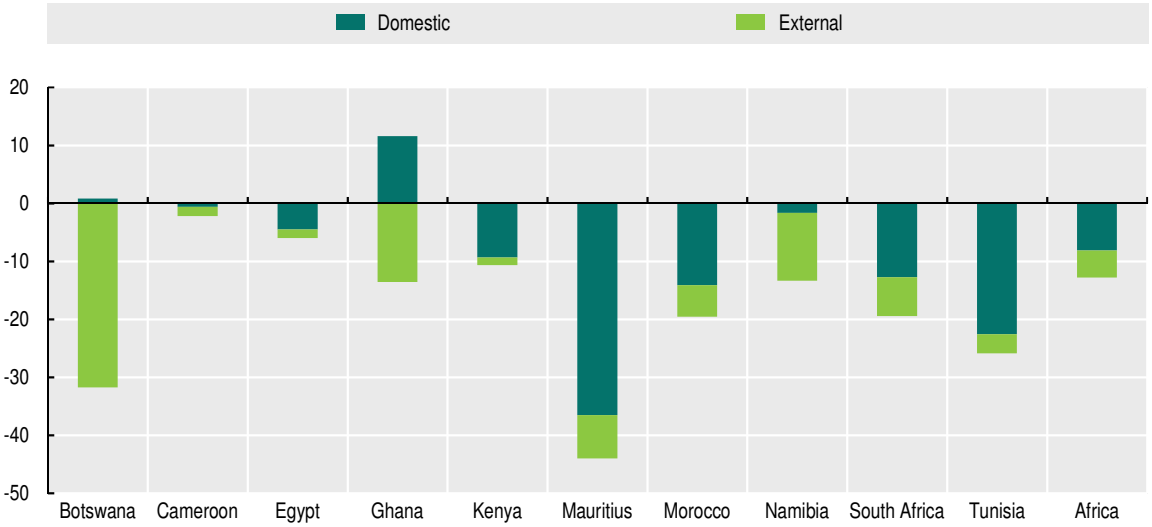
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A global recovery will boost Africa's growth if domestic policies remove constraints on local production. The recovery in China, Europe and the United States (US) can help Africa's growth reach 2.25% by 2022, according to our forecast for ten African countries. Nonetheless, this forecast remains 1 percentage point below the pre-pandemic forecast of 3.25% (Figure 1.4). Additional domestic policies, including ways to increase domestic production and restore export competitiveness both regionally and globally, are strategic to return to an expected growth of 3.55% by 2022.

The relative importance of domestic and external factors on growth shortfall varies across countries. In Cameroon, Egypt, Kenya, Mauritius, Morocco, Namibia, South Africa and Tunisia, domestic factors accounted for 66% of the growth shortfall on average during the second quarter 2020. In contrast, in Botswana and Ghana, domestic factors were a source of real GDP growth, while external factors induced a decline in economic activity (Figure 1.5). The latter might experience a faster recovery as external factors return to pre-pandemic levels if they manage to maintain an enabling domestic environment.

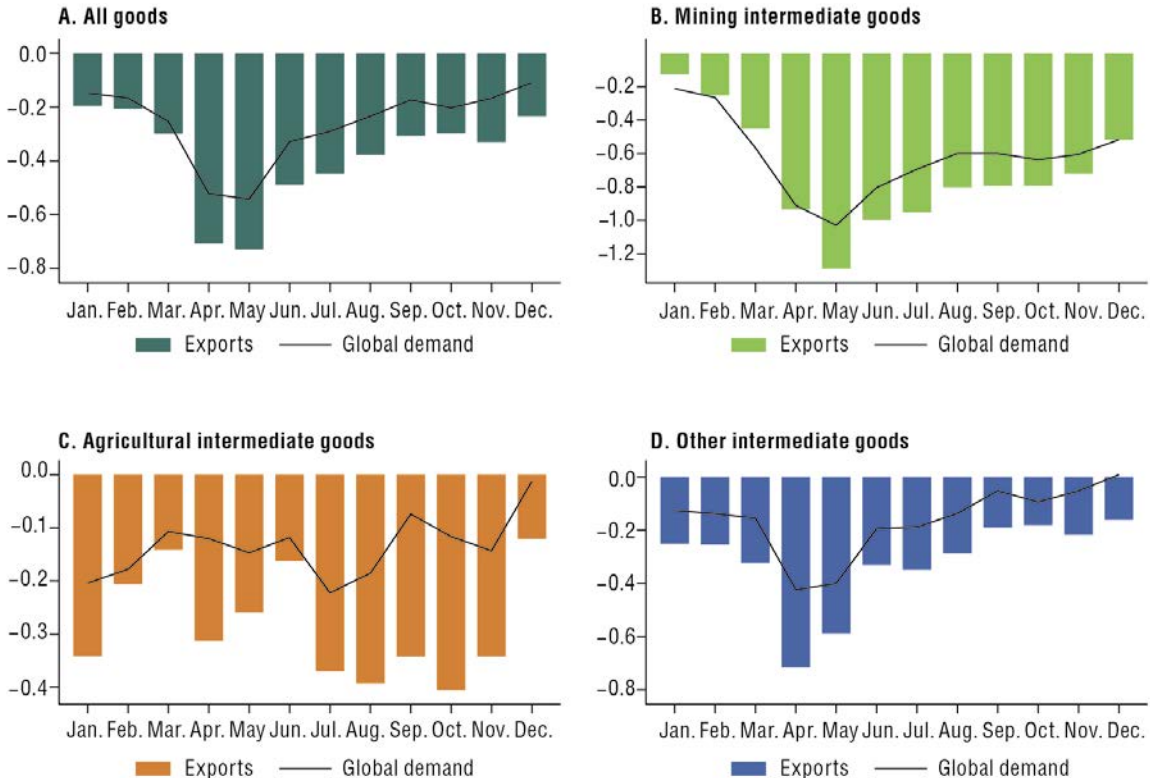
African exports have been lagging behind the recovery in global demand. Bilateral trade data on 49 African countries suggest that global demand for their products suffered a large decline in the second quarter of 2020 (Figure 1.6, Panel A). While global demand rebounded in the latter half of 2020, Africa's exports lagged behind this recovery. Mining intermediate goods, which accounted for 33.9% of Africa's global exports in 2019, exemplified this pattern (Figure 1.6, Panel B). Mining intermediate goods faced the largest decline among all goods categories until May 2020. They then rebounded with the rise in global prices for mining commodities and raw materials, albeit at a slower pace. This trend during the global shock in 2020 highlights the vulnerability of the African mining sector to exogenous shocks. Other types of intermediate goods have faced even more difficulties in keeping up with the global demand (Figure 1.6, Panel D), particularly agricultural intermediate goods (Figure 1.6, Panel C).

Figure 1.5. **Impact of COVID-19 pandemic on growth shortfall in ten African countries, by domestic and external factors, second quarter (Q2) 2020**



Source: Authors' calculations based on this report's African global vector autoregressive model (see Annex 1.A1).
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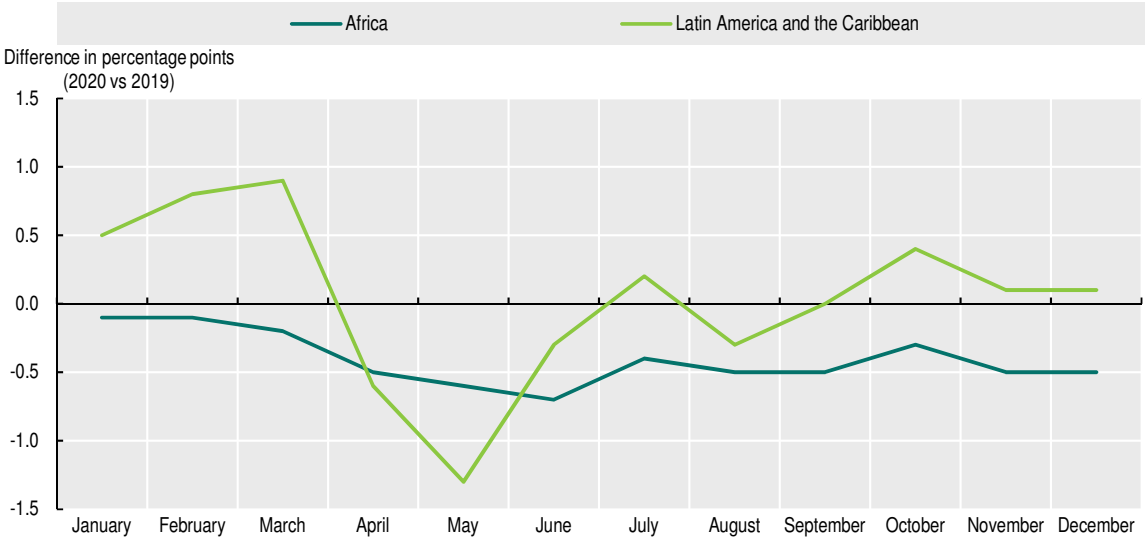
Figure 1.6. **Export growth versus global demand growth for Africa, 2019-20**



Note: The figure shows a comparison of each month's exports in 2020 with the same month's exports in 2019.
Source: Authors' calculations based on monthly trade data from UN (2021), *UN COMTRADE* (database), https://comtrade.un.org/.
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African countries risk losing market shares to other regions such as Latin America and the Caribbean, in the global production networks. Africa and Latin America and the Caribbean (LAC) each account for about 2% of European and US imports. However, Africa's exports to the European Union and the United States slowed down in 2020 without a sign of recovery, compared to LAC. LAC's exports to the European Union and the United States experienced a V-shape recovery, dropping by 1.3 percentage points in May 2020 compared to May 2019 but recovering to levels similar to the previous year by September. In contrast, while Africa's exports to the European Union and the United States were already lower in the first quarter of 2020 compared to the previous year, the pandemic accentuated this decreasing trend, stagnating at around -0.5 percentage points until the end of 2020 without a sign of recovery (Figure 1.7).

Figure 1.7. **Evolution of the share of European Union and United States imports from Africa and LAC, 2020 vs 2019**



Note: The figure compares the share of monthly EU and US imports from Africa (respectively LAC) in 2020 with the share of 2019 imports in the same months.

Source: Authors' calculations based on monthly trade data from UN (2021), *UN COMTRADE* (database), https://comtrade.un.org/.

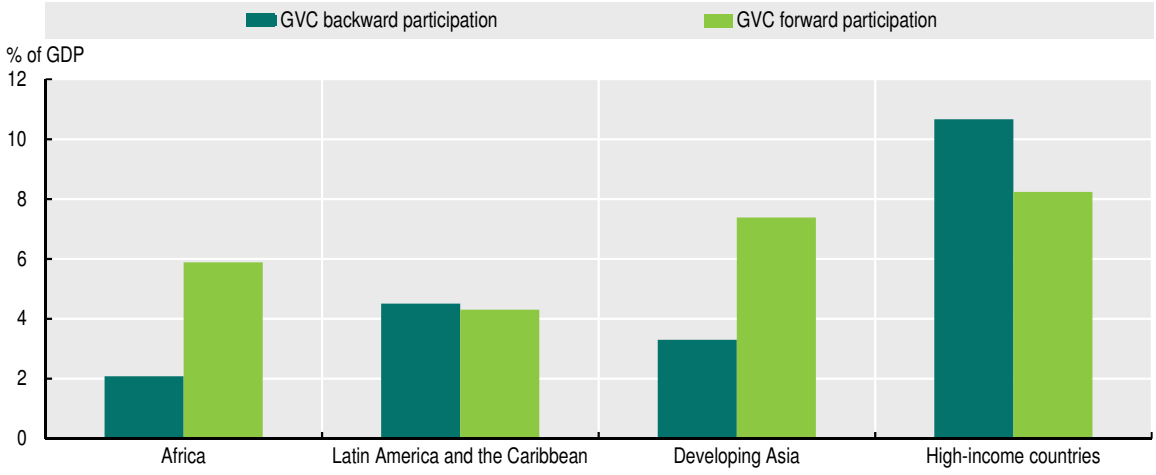
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Lifting local production constraints will be critical to accelerate Africa's economic recovery, reduce poverty and create jobs. Analysis for this report, based on World Bank's *Enterprise Surveys* collected during the first month of the COVID-19 outbreak, suggests that African exporters were more likely to close their businesses temporarily and to experience decreases in input supply and demand for their goods and services (World Bank, 2021b). In addition, limited production technologies prevent African exports of agricultural and other intermediate goods from keeping up with the recovery in global demand (Figure 1.6, Panels C and D). For example, many African exporters of agricultural goods did not possess the production and supply chain capacity to deal with trade disruptions and meet the higher sanitary and phytosanitary demands from importers during the crisis. Finally, the number of extremely poor people likely increased by at least 34 million in 2020 alone (Lakner et al., 2021). To create quality jobs and reduce poverty, productive transformation in Africa is ever more important, particularly as funding for social spending is shrinking (AUC/OECD, 2019).

Africa's participation in global value chains has not generated productive transformation that creates jobs

Africa's existing patterns of participation in global value chains (GVCs) have not been conducive to productive transformation that would speed up economic recovery and create jobs. Forward participation – the use of exported inputs in production by other countries – accounts for almost 6% of Africa's GDP, mostly as exports of raw natural resources and agricultural commodities such as unprocessed cocoa for further processing in partner countries (Figure 1.8). In contrast, backward participation – the use of foreign inputs for domestic processing (e.g. the apparel sector in Mauritius sourcing fabric in Asia) – represents only 2% of Africa's GDP. As a result, forward participation is three times more important than backward participation, a considerably higher ratio than elsewhere.

Figure 1.8. **Africa's backward and forward participation in global value chains, 2019**



Notes: Forward GVC participation here refers to total value of national exports embedded in foreign exports. Backward GVC participation here refers to total foreign added value embedded in national exports.

Source: Authors' calculations based on data from Casella et al. (2019), *UNCTAD-Eora Global Value Chain Database*, https://worldmrio.com/unctadgvc/.

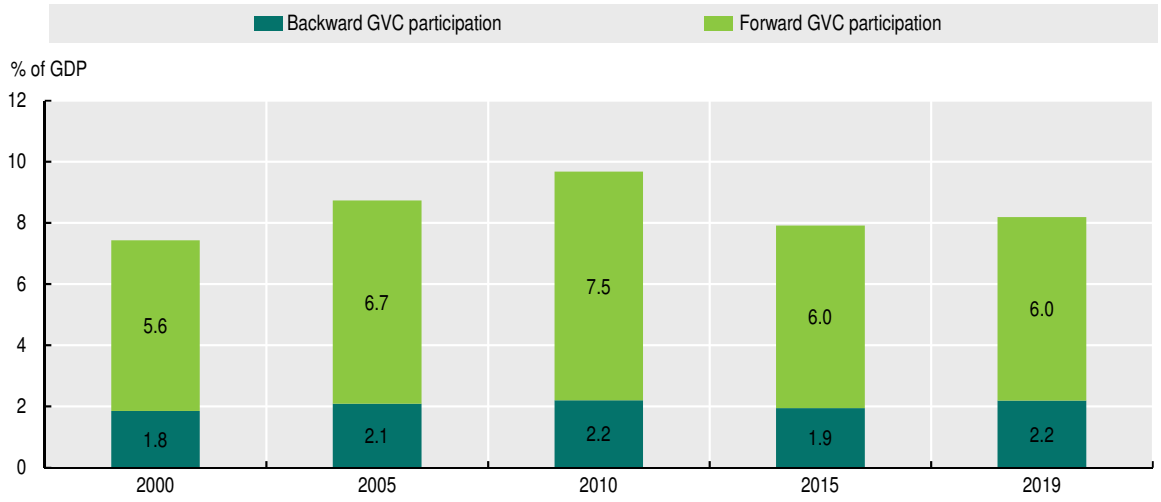
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Africa's GVC participation patterns have remained unchanged over the last two decades. Africa's limited backward linkages have remained at 2% on average since the early 2000s, while forward linkages have stayed around 6.3% (Figure 1.9). This stagnation showcases the need to rethink integration strategies to better benefit from GVC participation and accelerate productive transformation. Compared to forward participation, backward participation is more conducive for domestic firms to develop essential production capabilities and acquire knowledge about foreign markets, which will enable them to increase their competitiveness and upgrade in the value chains.

Africa's integration into global value chains struggled to create quality employment and social upgrading. Globally, a 1% increase in GVC participation is estimated to boost per capita income by more than 1%, with a higher increase in backward participation than forward participation (World Bank, 2020a). However, employment in global manufacturing value chains in African countries lags behind the global comparators largely due to their low competitiveness (Pahl et al., 2019). Among the four African countries in review – Ethiopia, Kenya, Senegal and South Africa[1] – only Ethiopia recorded employment growth thanks to higher global demand for textile final goods. Nonetheless, the more labour-intensive buyer-driven value chains such as apparel and garments create

limited scope for upgrading and long-term development along the chains thus leading to concerns over job quality and footloose investment (Gereffi and Luo, 2014). For instance, Lesotho's integration into the global apparel sector in the late 1990s generated over 50 000 manufacturing jobs – employing up to 10% of the country's workforce. Yet the removal of Lesotho's trade preferences to the US market has led to a "boom and bust" pattern for the sector (Fernandes et al., 2019).

Figure 1.9. **Africa's forward and backward participation in global value chains, 2000-19**



Notes: Forward GVC participation here refers to total value of national exports embedded in foreign exports. Backward GVC participation here refers to total foreign added value embedded in national exports.

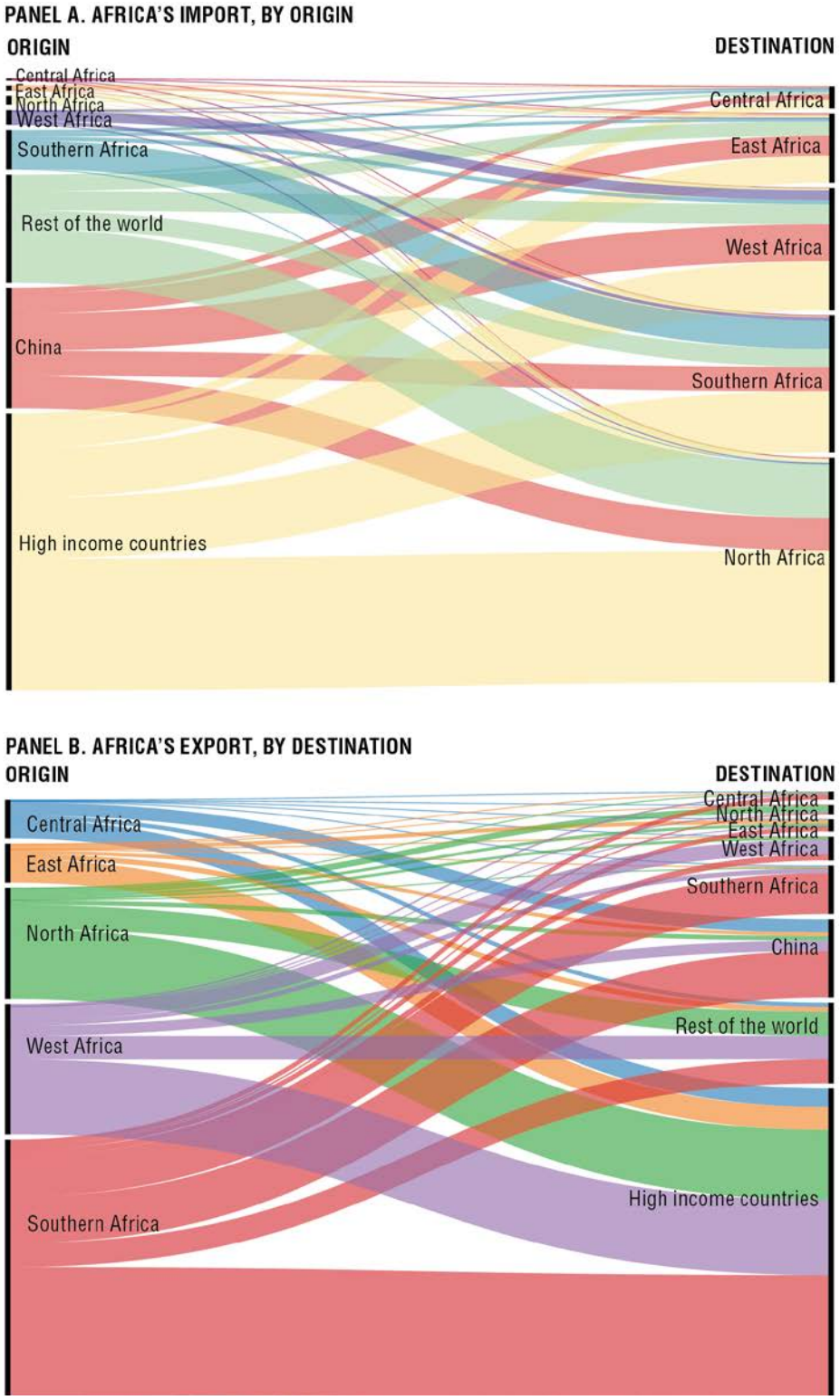
Source: Authors' calculations based on data from Casella et al. (2019), *UNCTAD-Eora Global Value Chain Database*, https://worldmrio.com/unctadgvc/.

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African economies mostly integrate into international production networks outside the continent, where upgrading in global value chains is difficult. African regions are sourcing a large share of their inputs as well as exporting their intermediate inputs to traditional trade partners such as OECD members including European countries and the United States (Figure 1.10). Overall, large gaps in productivity between African firms, higher import standards on product and process quality, and high trade costs have limited Africa's ability to upgrade its participation in global value chains. The ability to upgrade depends on various factors specific to each value chain, such as its governance structures and its embeddedness in the local economy.

Recent integration into East Asia's production networks has not helped Africa to diversify or upgrade its production capability. As the centre of global production shifts toward East Asia, China and India have become Africa's two largest trade partners, accounting for respectively 15% and 6% of Africa's total exports in 2020 (AUC, 2020). Despite increased GVC trade flows, African producers mainly supply raw materials and low value-added products with limited skill content to Asian global value chains (Tang et al., 2021). Unprocessed resources and agricultural commodities account for 84% of Africa's exports to China and 72% of Africa's exports to India.

Figure 1.10. **Africa's trade of intermediate inputs, by partner, 2019 (USD billion)**



Note: The numbers do not include trade of hydrocarbons [Chapter 27 of Harmonised System (HS)].
Source: Authors' calculations based on UN (2021), *UN COMTRADE* (database), https://comtrade.un.org/.
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Developing regional value chains will accelerate Africa's productive transformation

Creating new regional value chains can support Africa's existing participation in global value chains. Global markets will remain essential for the continent's productive transformation, providing access to higher-quality inputs and opportunities for upgrading. Morocco or South Africa have successfully upgraded their automotive production to supply European and other highly competitive markets. Nevertheless, developing regional value chains can be a valuable strategy for progressively entering highly competitive global value chains. Currently, African countries import only 15% of their intermediate goods from within the continent, compared to Southeast Asia's 22% (AUC/OECD, 2019). Among all African regions, only Southern Africa has a sizeable flow of import and export of intermediate goods with other countries in the region.

Regional processing offers opportunities for adding value to Africa's agricultural and raw materials and for increasing backward participation in global value chains. Processed and semi-processed goods accounted for 79% of intra-African exports in 2019, compared to 41% of Africa's exports to other destinations. When meeting local demand, producers can exploit their proximity to final consumers to specialise in the downstream segments of sequential value chains (Antràs and de Gortari, 2020). Regional processing to serve global markets may also benefit from the recent "GVCs for LDCs" proposal, which allows least developed countries' value-added embedded in exports by middle-income African countries to qualify for preferential schemes such as EU's "Everything but Arms" (Antimiani and Cernat, 2021).

Exploiting regional complementarities creates new competitive advantages for African countries. The integration of markets provides the critical mass of consumers, skills, suppliers and other resources needed to develop and scale up knowledge-intensive sectors such as automotive and pharmaceutical value chains. Combining key natural resources available across African countries can create unique competitive advantages in high value-added activities such as battery production (see Chapter 3 on Southern Africa). Smaller economies could benefit from access to larger markets, enhancing local productive capacities by attracting new intra-African investments and gaining in efficiency from specialisation. In the digital sector, for example, start-ups in smaller African economies can take advantage of having access to high-performance data centres, which are largely concentrated in Egypt, Nigeria, Kenya and South Africa.

Regional markets are more conducive to the development and discovery of new productive capabilities. The physical, cultural and institutional proximity and access to existing networks of contact reduce the costs for African firms to experiment in regional and continental markets. Intra-regional exports by African firms are 4.5 times more diverse than their exports outside of Africa (AUC/OECD, 2019). The new capabilities that firms acquire from serving regional markets help firms to grow and better survive when they expand to more demanding markets such as those in high-income countries (Carrère and Strauss-Kahn, 2017).

Policy makers can take advantage of the African Continental Free Trade Area to develop and benefit from regional value chains

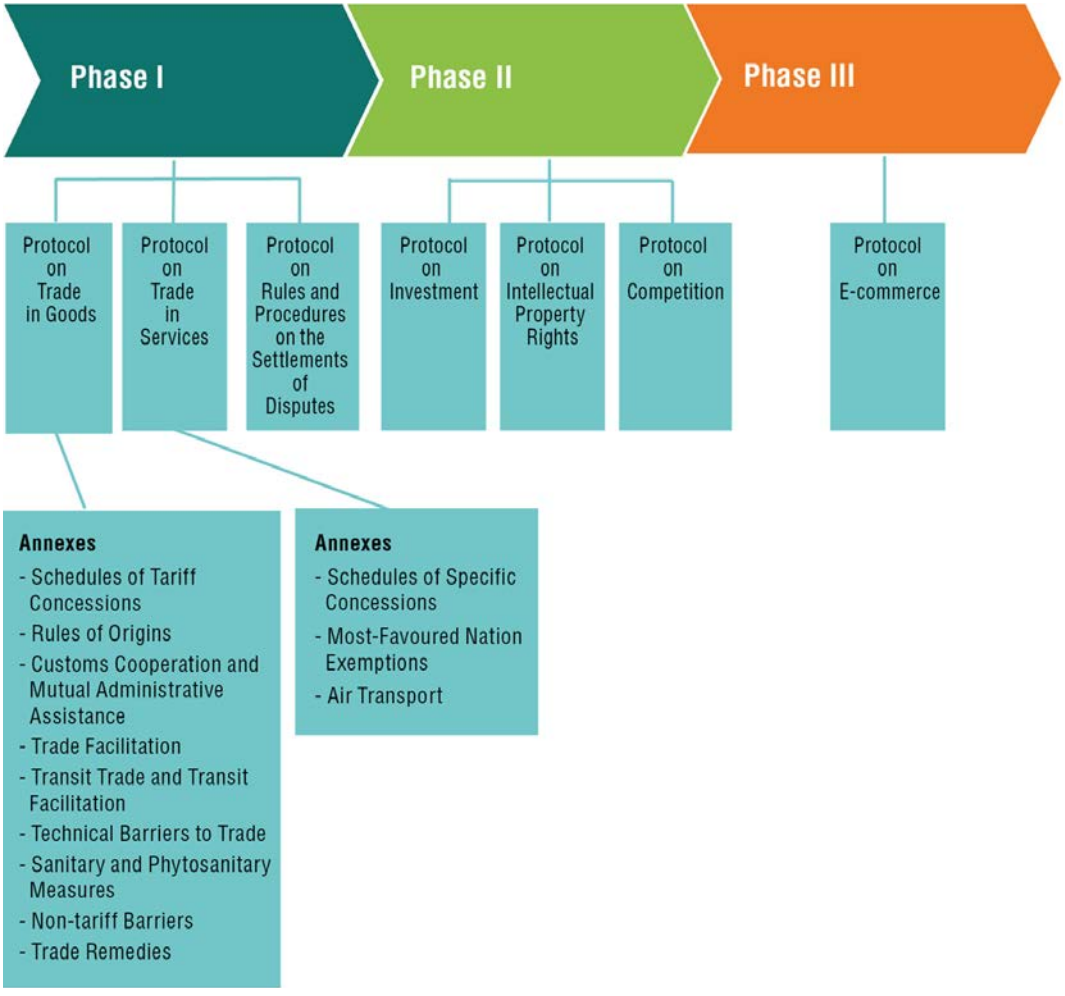
The AfCFTA is triggering a new momentum to develop regional value chains

The entry into force of the African Continental Free Trade Area (AfCFTA) in January 2021 opens up new opportunities for integrating into regional value chains by expanding access to markets, inputs, technology and investment. The AfCFTA aims to boost intra-African trade by connecting 1.2 billion people and a combined GDP of over USD 3 trillion. It is the deepest regional trade agreement in Africa to date, as it includes

important commitments in areas such as sanitary and phytosanitary standards, technical barriers to trade, intellectual property rights, and investment (World Bank, 2020b).

Negotiations around the AfCFTA's implementation are scheduled in phases, with the overarching goal to establish common positions on multiple aspects of regional integration. Phase I covers trade in goods and services, Phase II intellectual property rights, investment and competition policies and Phase III e-commerce (Figure 1.11). In December 2020, the African Union Assembly of the Heads of State and Government decided to fast-track negotiations on digital trade by merging Phases II and III in response to the COVID-19 pandemic (AU, 2020).

Figure 1.11. **Key negotiation phases to implement the African Continental Free Trade Area**



Source: Authors' adaptation based on Signé and van der Ven (2019), *Keys to Success for the AfCFTA Negotiations* and Chidede (2021), *AfCFTA Phase II and III Negotiations – Update*.

Other continental initiatives are also aiming to transform African economies through industrialisation and regional value chains. For example, the third Specialised Technical Committee of the Ministers of Trade, Industry and Minerals gathered policy makers in September 2021 to build quality infrastructure for the continent, add value to Africa's mineral and energy resources, map regional value chains in Africa and prepare a

continental automotive strategy. More recently, the Summit on Africa's Industrialisation and Economic Diversification, taking place in Niamey, Niger, from 20 to 24 November 2021, further cemented such commitments. Other initiatives such as the joint Programme for Infrastructure Development in Africa (PIDA) support the development of strategic regional corridors. Led by the African Union Commission, the African Development Bank and the African Union Development Agency-New Partnership for Africa's Development (AUDA-NEPAD), PIDA prioritises 69 cross-border infrastructure projects in the sectors of energy, transport, transboundary water, and information and communications technology (ICT) that will deepen continental integration (AU/AUDA-NEPAD/AfDB, 2021).

COVID-19 shock is pushing African entrepreneurs to adapt, generating new opportunities to engage in higher value-added activities and create jobs. Africa's entrepreneurial base has actively sought out new opportunities in response to the COVID-19 crisis: 53% of African exporters surveyed by the World Bank adjusted or converted their production or services, compared to 39% of exporters in other developing countries (World Bank, 2021b). Some activities even grew during the pandemic and contributed to inclusive job creation. For example, South Africa's business process offshoring sector created 17 354 new jobs in 2020, primarily in frontline voice-based services for the retail (28%), utilities and energy (23%) and telecoms (19%) industries. Youth workers aged 18 to 35 account for 87% of these new jobs, and female workers 65% (BPESA, 2021).

The global context of rising regionalism increases the need to strengthen intra-African integration. International trade and production networks between neighbouring countries have become more common as they realign in a gravity theory of international trade (see Box 1.1). This trend reflects the shift from multilateral integration through the General Agreement on Tariffs and Trade or the World Trade Organization towards a Balkanisation of trade agreements among smaller blocs of geographic regions. In this context, continental co-ordination among African countries is thus important not only to ensure access to inputs and markets for African producers but also to increase the collective negotiation power of African countries in the global economy.

In Africa, the growing importance of domestic markets increases the gravitational pull for intra-continental trade. The dynamics of Africa's demography and urbanisation open opportunities to meet regional demands for essential goods and services, specifically agro-food processing, construction materials, garments and pharmaceutical products. For instance, in the last decade, Africa's import of food for household consumption increased from USD 24 billion in 2009 to USD 32 billion in 2019. While intra-regional sourcing grew from 12% to 16% over the same period, in 2019 about 40% of food imports originated from Asia. Upgrading food value chains will be crucial to tap increasing regional demand and offer additional opportunities for producers. Chapters 5 and 7 further explore the potential and related policies to develop agro-processing value chains in East and West Africa.

Value chain development also features prominently in national development plans. A review of existing industrial strategies in African countries and regional economic communities reveals considerable overlap in priority sectors (AUC/OECD, 2019). Realigning national interests to develop regional value chains could help pool resources and deliver better development results than competing for investment and technology transfer. Chapter 2 draws lessons from these policy experiences in Africa.

Box 1.1. The global realignment of international trade to gravity

The gravity theory of trade suggests that the network of international trade is governed by balancing the gravitational pull of each country (their relative economic "masses") with the cost of trading between each country pair (their "distances"). For the greater part

Box 1.1. **The global realignment of international trade to gravity *(continued)***

of history, countries have conducted some trade with distant countries but prioritised trade with their neighbours. Other things being equal, prioritising trade with neighbours is likely to prove more beneficial by virtue of i) lower transport costs; ii) greater capacity to ensure against risks; iii) greater potential trade volumes; iv) spill-over effects; and v) the resilience of trading relationships when supported by a shared "political will".

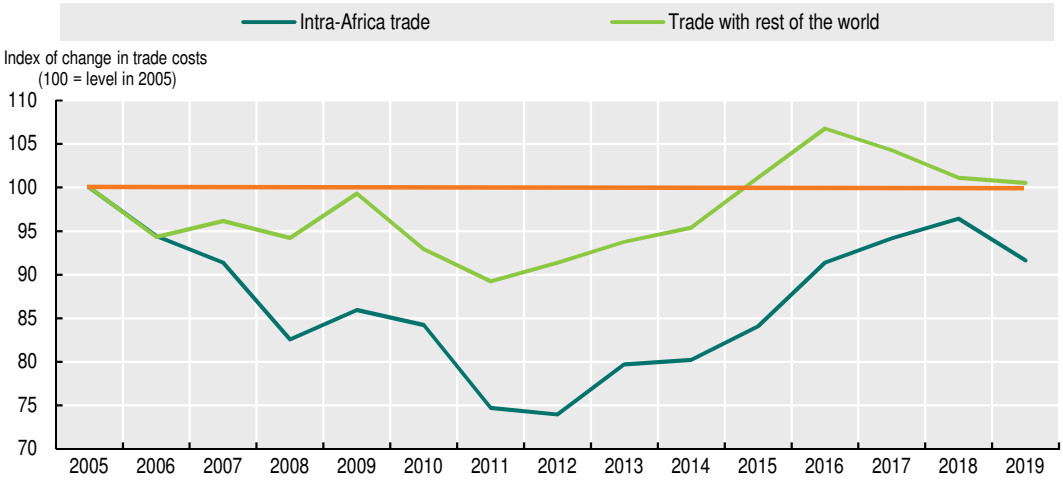
Much of the global South outside Africa has now made good progress in re-prioritising trade with their neighbours, raising the intra-continental share of trade to 50% or more. For example, as a share of its total merchandise exports, India's exports to Asia climbed from just above 20% in 1949 to 45% in 2019. The process of rebuilding intra-continental trade links by means of new infrastructure takes time, as does restoring the relative weight of their economies and thereby their attraction as export markets for each other.

Source: Roy (forthcoming), "The case for intra-continental trade: The re-orientation of Africa's trade and the twin challenges of development and environment", background paper for *Africa's Development Dynamics 2022*.

Intra-African trade costs, weak competitiveness and barriers to investments restrain the development of regional value chains

High trade costs continue to hold back regional value chain development. High trade costs restrict production networks because the costs compound each time products cross-international borders. High trade costs are also more detrimental for backward participation than for forward participation (Antràs and de Gortari, 2020). While intra-African trade costs decreased until 2012, today they returned to levels nearly equivalent to 2005 (Figure 1.12). Due to the COVID-19 crisis, disruptions to transport and travel, restrictive trade policy and heightened uncertainty are all expected to further increase global trade costs (WTO, 2020).

Figure 1.12. **Evolution of Africa's trade costs within Africa and with the rest of the world, 2005-19**



Source: Authors' calculations based on UN ESCAP/World Bank (2021), *ESCAP-World Bank Trade Cost Database*, www.unescap.org/resources/escap-world-bank-trade-cost-database.

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Most African firms lack the minimum productivity levels, skills and organisational capability required to export directly or form strategic relationships with multinational enterprises. The relatively high fixed costs of exporting and importing activities imply a minimum efficient scale to amortise the investments needed for internationalisation. The few firms actively engaged in global value chains are often older (at least five years old), larger establishments with over 100 employees and local affiliates of multinational enterprises (Abreha et al., 2020). Few are deeply embedded in the local economy, thus limiting the potential for indirect participation in global value chains of tier 2 and tier 3 suppliers. For example, 66% of intermediate goods and services for foreign direct investment (FDI) firms in Kenya are imported, compared to 25% in Viet Nam (Newman et al., 2019).

Strengthening economic governance is key to attracting lead firms to international production networks. Strong economic governance reduces the risks and uncertainty for multinational enterprises operating abroad, which account for roughly one-third of global output and two-thirds of global exports (Cadestin et al., 2021). Recent surveys suggest that multinational enterprises focus mostly on aspects of economic governance such as political stability and macroeconomic stability when choosing their locations (World Bank, 2020a and OECD, 2021a). Furthermore, when delegating segments of their production to another entity, multinational enterprises value the enforceability of contracts and other legal instruments through formal institutions. These include intellectual property rights and rule of law because international production involves not only the flow of tangible goods but also intangibles such as intellectual property, technology and credit.

While legal instruments offer essential guarantees for multinational enterprises, cultivating informal ties, partnerships and trust is equally important for the smooth operation of international production networks. The demand for such relations is particularly high in knowledge-intensive value chains due to concerns over technological leakage and to the difficulties in codifying contract specifications and in anticipating contingencies.

Continental co-ordination is crucial to meet these interlocked challenges. The scale of the challenges and the social benefits derived from developing regional value chains (such as job creation and industrialisation) call for public interventions, but national governments cannot provide all the solutions on their own. The lack of competitive domestic producers in certain strategic sectors such as pharmaceuticals require co-ordinated policy action, in order to attract investment and target capacity building (Box 1.2). Finally, new modes of production necessitate enhanced co-operation: the smooth flow of goods, services, data and finance across borders depends on international co-operation to overcome bottlenecks across the whole supply chain (see AUC/OECD, 2021 on e-commerce).

Box 1.2. Implementing continental and regional strategies to develop Africa's pharmaceutical and medical value chains

The dependency on imports of medical products has undermined African countries' capacity to face the global pandemic. At least 70-90% of pharmaceutical products locally consumed in Africa are imported. In 2020, the main exporters of pharmaceutical and medical devices to Africa (the European Union, India, Switzerland, China and the United States, in that order) implemented bans on exports and/or shutdown manufactures, thus increasing their prices, while the reduced air traffic increased transport costs.

Africa's pharmaceutical sector faces three main challenges: i) weak productivity; ii) limited access by citizens due to problems of availability, affordability and transport;

Box 1.2. **Implementing continental and regional strategies to develop Africa's pharmaceutical and medical value chains *(continued)***

and iii) a product portfolio that lacks quality and diversification (UNIDO, 2019). While India and China count 5 000 and 10 500 drug manufacturers respectively, African countries share only 375 drug makers for 1.3 billion people. Even when drugs are available, their prices are not competitive due to high production costs. Moreover, African patients must pay high out-of-pocket expenses, on average at 36%, due to limited health insurance systems. This limits the return on investment for pharmaceutical companies (UNECA, 2019).

African governments responded to the COVID-19 disruption of value chains by repurposing manufacturing capabilities and facilitating access to medical supplies. African apparel companies, like Hela in Kenya, were mobilised to produce personal protective equipment with government support, and some even considered switching over permanently (Maylie, 2020). At the continental level, the African Medical Supplies Platform pooled procurement of medical equipment through a digital purchasing system, irrespective of African countries' market sizes (Nkengasong, 2021). Such digital solutions can streamline the supply chain for medical supplies and help realise economies of scale (Conway et al., 2019).

The AfCFTA could facilitate the implementation of continental strategies to establish a pharmaceutical industry. First, waiving intellectual property rules could drive technology transfers and enable the local production of generic drugs and COVID-19 vaccines. Second, accelerating regional initiatives could strengthen capabilities to set up regional production facilities. In 2007 the African Union established the Pharmaceutical Manufacturing Plan for Africa (PMPA) in co-operation with public and private African health institutions and regional economic communities such as the Economic Community of West African States and the Southern African Development Community (SADC). The PMPA aims to improve local production capacities through training, investments, research and development, and harmonised regulatory frameworks in line with the World Health Organization's standards for good manufacturing practices. The AfCFTA-anchored pharmaceutical production initiative, currently piloted in ten countries, offers an opportunity to develop pooled procurement systems in order to fill the investment gaps for local manufacturing at scale.

Source: Authors' compilation.

Policy makers need to navigate the risks associated with regional value chains development

The link between regional value chains development and macroeconomic resilience is complex. First, regional value chains can diversify the sources of demand and supply for African producers and reduce their exposure to country-specific shocks (Caselli, Fracasso and Traverso, 2019; WTO, 2020). In Kenya, for example, producers serving multiple export destinations in the tea and horticulture market enhanced their product sophistication by 40% after the 2008-09 global financial crisis and the 2011 drought. In contrast, single-destination firms experienced a decrease of around 30% in product sophistication (Krishnan and Pasquali, 2020).

Policy makers need to be aware of the contagious risks transmitted through international production networks. Regionalisation may reduce the physical length of supply chains but not their fragmentation, since products may cross borders at every step in the transformation process. The inter-dependence of firms and countries within an

international production network synchronises their economic activities, making them more vulnerable to shocks in the countries where parts of the production chain are located. To the extent that African economies, especially resource-rich countries, have more volatile GDP growth than those in other regions (AUC/OECD, 2018), regional value chains can expose their economies to contagious risks from regional macroeconomic shocks.

The governance structure of regional value chains can help firms withstand shocks. A 2020 study of the apparel regional value chain in Southern Africa suggests that South African retailers honour their contractual agreements and provide support to their larger, direct suppliers, partly to preserve long-term relationships. In contrast, smaller producers that sell their products to retailers via intermediates face severe price cuts and no support from downstream partners (Pasquali and Godfrey, 2021). Reviewing the existing literature, Bacchetta et al. (2021) conclude that the propagation of shocks through supply chains depends on the complementarity of production sequences, the concentration of suppliers or customers in each segment, and the type of shocks (location-specific versus globally synchronised). Macroeconomic surveillance should carefully monitor supply chains characterised by low diversity of suppliers or buyers and the systemic implications of a network's central hubs. Governments can actively work with firms to improve risk preparedness and provide temporary support during emergency situations (OECD, 2021b).

While the AfCFTA has the potential to create jobs in Africa by liberalising trade, the quality of such jobs remains a concern. Recent modelling by Bengoa et al. (2021) shows that full implementation of the AfCFTA could boost employment by 2.1% compared to the benchmark year of 2014. Smaller economies, such as Benin and Togo, are expected to capture the largest gains from trade liberalisation. Projections from the World Bank (2020b) also suggest there will be a large job reallocation across sectors, with a net increase in the volume of workers in energy-intensive manufacturing (such as steel and aluminium), public services, trade, and recreational and other services. Institutions to safeguard labour regulations will be increasingly necessary to ensure quality job creations in regional value chains. Surveys of 31 apparel firms in Eswatini and Lesotho serving both global and regional markets indicate no substantial differences in labour conditions between regional and global value chains (Pasquali, 2021).

Proactive efforts to improve social upgrading in regional value chains are critical to ensure an inclusive transformation. Economic upgrading from higher value chain integration does not guarantee improved working conditions and incomes for informal firms and workers. A study of Moroccan garment factories shows that global fast-fashion buyers offer stable contracts and better social protection for their high-skilled workers but simultaneously employ casual contractors (especially in packaging and loading segments) with poor working and contractual conditions (Barrientos, Gereffi and Rossi, 2011). Policy makers need to address challenges ranging from property rights to labour protection to ensure a fair distribution of benefits to producers at the bottom of the value chains (Meagher, 2019). Better consideration of informal cross-border traders, which are often not captured by official statistics (see Box 1.3), could help improve inclusiveness and resilience to shocks. Anecdotal evidence from East Africa suggests that informal cross-border traders nearly collapsed in the early stages of the COVID-19 pandemic (Box 1.3).

Box 1.3. The AfCFTA and informal trade

COVID-19 exposed the vulnerability of African informal traders to shocks. Currently, informal cross-border trade continues to be the main source of income for about 43% of African households (Afrika and Ajumbo, 2012). Curfews and cross-border delays

Box 1.3. **The AfCFTA and informal trade *(continued)***

caused significant waste of perishable foods and agricultural commodities for formal and informal African trade. In Uganda, informal cross-border trade declined from an estimated USD 44 million in the first quarter of 2020 to just USD 1 million by April 2020 and struggled to recover after the reopening of borders (UNECA, 2021). Additionally, incidents of bribery and illicit fines by customs officers and border police increased by almost 50% in April 2020, compared with the same period the year before (Bouët, Cissé and Traoré, 2020).

Building the knowledge and information base on informal cross-border trade is essential for policy makers. Existing estimates of informal cross-border trade suggest that this flow can account for 11% to 40% of total intra-African exports (Mold and Chowdhury, 2021). The Eurostat Pan-African Statistics Programme is collecting further estimates on informal cross-border trade based on the African Union's methodology, to be released in 2022. Such data can help policy makers to formulate, implement and monitor policies.

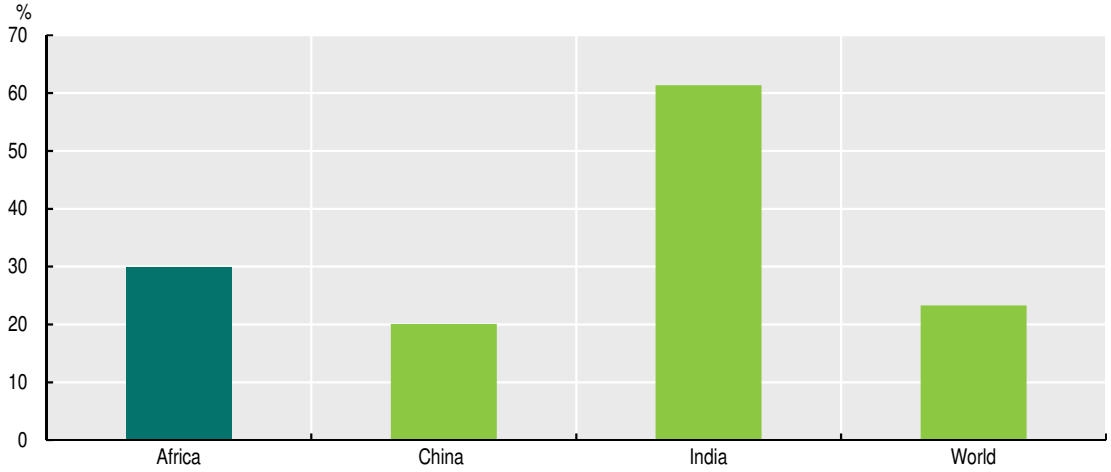
The AfCFTA allows an opportunity for governments to pursue progressive upgrading of cross-border trade. First, governments can reduce the costs of formalising cross-border trade by providing guidance on trade procedures, establishing one-stop shops to reduce the administrative workload, facilitating cross-border mobile payments, and adapting the requirements for documentation and formalities to small-scale traders (especially those with low levels of literacy). Policy makers may also consider establishing dedicated marketplaces for duty-free cross-border trade, similar to the *haats* programme along the Bangladesh–Indian border (Kathuria, 2018). With about 635 border cities in Africa located less than 40 kilometres from another, such trading spaces could quickly boost the efficiency of informal cross-border trade (OECD/SWAC, 2020). In addition, reducing trade barriers (especially in the areas of food safety and standards) and expediting customs procedures can further upgrade informal trade (Bensassi, Jarreau and Mitaritonna, 2019).

Source: Authors' compilation.

The development of regional production networks entails further risks for environmental sustainability. Numerous environmental problems can emerge from participation in global value chains, ranging from more frequent and longer droughts, to soil toxicity caused by metals, dyes and bleaching agents used in the textiles industry to coastal habitat degradation from intensified aquaculture. A recent modelling exercise suggests that while trade liberalisation and changes in the productive structures induced by the AfCFTA can lead to a 21.5% decline in air pollutants, it should increase CO_2 emission by 0.3% and non-CO_2 greenhouse gas emissions by 19.6% (Bengoa et al., 2021).

Unlike developed world regions that were able to respond to environmental and developmental pressures sequentially, Africa needs to address environmental challenges alongside its development. For instance, while Africa contributes to only 3% of global CO_2 emissions, new evidence for this report shows that the air pollution burden has been growing worryingly in the last decade. By 2019, ambient particulate matter pollution (APMP) – partly due to expanded economic activity and transport[2] caused at least 383 000 premature deaths in Africa, representing about 7.4% of the total premature deaths due to APMP in the world, up from 3.6% in 1990. This trend is happening at a faster pace, albeit from a lower base, than in other world regions: over the 2010-19 period, the growth in the death toll from APMP in Africa outpaced that of the world by 30% and that of China by 50% (Figure 1.13).

Figure 1.13. **Change in the percentage of premature deaths from ambient particulate matter pollution in Africa, China, India and the world, 2010-19**



Source: Roy R. (forthcoming), "The case for intra-continental trade: The re-orientation of Africa's trade and the twin challenges of development and environment", background paper for *Africa's Development Dynamics 2022*, based on data from IHME (2019), *The Global Burden of Diseases 2019 (database)*, www.healthdata.org/gbd/2019.

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Policies for regional value chains can harness trends hastened by COVID-19

The changing investment landscape calls for more intra-African investment and continental co-ordination

The scale of the challenges that African governments face and the limited funds available call for better mobilising domestic resources and integrating the private sector into financing the development of regional value chains. For instance, closing Africa's infrastructure gap, crucial to the development of value chains, would require USD 130-170 billion annually. Due to the COVID-19 crisis, public revenues contracted by 13% and could take until 2024 to return to pre-pandemic levels. At the same time, total external debt service by African countries increased from 3.1% of GDP in 2019 to 4.0% of GDP in 2020, the highest level since 2000. Strategic partnerships with private sector will be key to unlocking new sources of financing for regional value chains, especially given that private funds account for only 7-8% of infrastructure investments in Africa (Ndzana Olomo, 2021).

COVID-19 significantly disrupted external financing flows to Africa; these also require attention from policy makers. Total FDI flows to Africa, including both investment into new facilities as well as mergers and acquisitions of existing facilities, dropped by 18% as a result of the initial COVID-19 shock. This sharp fall, from USD 46 billion in 2019 to USD 38 billion in 2020, followed the global downturn in FDI at the start of the COVID-19 pandemic (UNCTAD, 2021). In addition, both remittances and portfolio flows to Africa decreased in 2020. While the global outlook for investment has stabilised compared to the early periods of the pandemic, African governments need to update their investment strategies to benefit from the reorganisation of global supply chains and the global minimum corporate tax.

Unlocking intra-African investment requires countries to harmonise their investment frameworks and create linkages

The AfCFTA could increase Africa's attractiveness for investors and generate new opportunities for intra-African investments. The integration of African markets could attract additional productive investments in existing regional production networks (e.g. agro-food processing) and emerging regional value chains (e.g. pharmaceutical). Currently, intra-African greenfield FDI accounts for only 6.8% of the total in 2018, compared to 50% in Asia (AUC/OECD, 2019). However, estimates based on the gravity theory (Box 1.1) suggest that by liberalising trade in goods and services and implementing its protocols on investment and intellectual property rights, the AfCFTA could increase intra-African greenfield FDI by 14% compared to the 2018 level (Shingal and Mendez-Parra, 2020).

Establishing a common investment framework can help reconcile the fragmented investment environment in Africa. African governments have agreed to 854 bilateral investment treaties (512 in force) of which 169 are intra-African (44 in force). Harmonising domestic investment legislation according to the AfCFTA Protocol on Investment could boost intra-African investments as it protects foreign investors and reduces risk and uncertainty for all investors (see Box 1.4).

Box 1.4. Implementing the AfCFTA Investment Protocol

The AfCFTA Investment Protocol provides a common framework to member countries to facilitate co-operation. It builds on the Pan-African Investment Code (PAIC), adopted by the African Union (AU) Specialised Technical Committee on Finance, Monetary Affairs, Economic Planning and Integration in October 2017. It covers a broad array of issues, including intellectual property rights, investor obligations, competition, transfer of technology and taxation (AUC, 2017).

To realise the benefits of the Investment Protocol, AU members should harmonise domestic investment legislation including common regulations on the protection of the rights of investors and domestic compliance. AU countries retain autonomy over the promotion, facilitation, and regulation of investments and investors. A number of African countries have developed national strategies for implementing the AfCFTA in partnership with the African Union Commission and regional and international organisations, including investment objectives in strategic sectors. Kenya's Vision 2030, for instance, sets out six priority sectors to attract investors and move the economy up the value chain. To co-ordinate the work of relevant ministries and stakeholders domestically, Ghana has established National AfCFTA Coordinating Offices, and Nigeria has set up Action Committees.

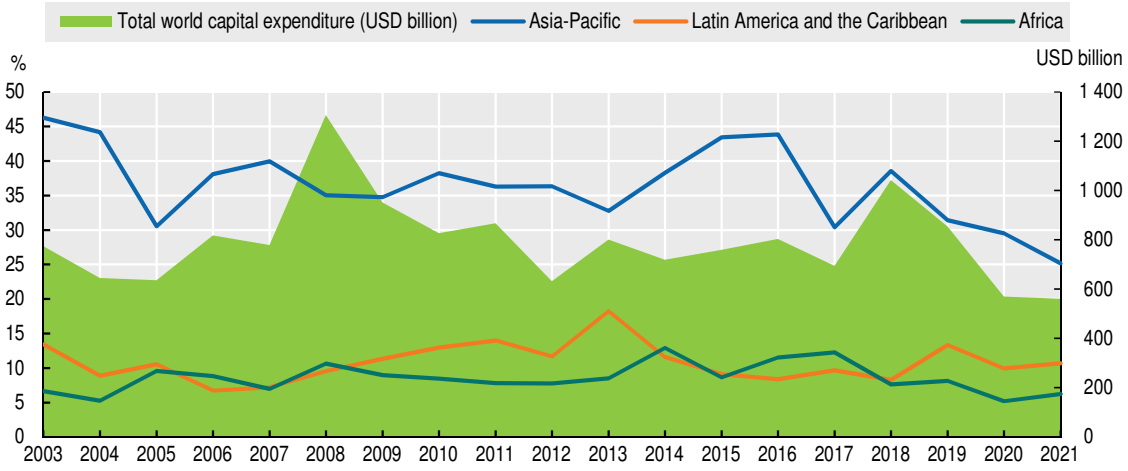
Source: Authors' compilation.

Experience suggests the need to strengthen linkages between African lead firms and local suppliers. Where lead firms and fast-growing start-ups in Africa expand their presence to other African destinations, their backward linkages with local suppliers can remain limited. An example is the expansion of South African supermarket chains to SADC countries, led by big market players like Shoprite. Local content requirements and import duties have limited supply opportunities, while insufficient financing, training and networking opportunities have prevented domestic suppliers from competing and meeting standards (UNCTAD, 2021; Nickanor et al., 2020).

Potential restructuring of global production networks and the growing digital sectors in Africa can create new investment opportunities

Greenfield FDI to Africa - reflecting future investment trends - have followed a downward trend since 2017. Figure 1.14 presents the slowdown in greenfield FDI that began in Africa and Asia-Pacific before the COVID-19 pandemic. The inflows targeting Africa dropped from 12.3% of the global market share in 2017 to 5.1% in 2020, the lowest level since 2004. The fall in average returns on FDI – principally in the extractive and mining sectors, currently at less than 2% – might explain the downward trend affecting greenfield FDI to developing countries, especially commodity-dependent African economies (Evenett and Fritz, 2021). Relatively higher returns on investment in the manufacturing sector, at 7%, could potentially strengthen the shift observed in Africa from extractive activities towards manufacturing and services (AUC/OECD, 2021).

Figure 1.14. **Greenfield foreign direct investments to Africa, Asia-Pacific, and Latin America and the Caribbean as a percentage of world capital expenditure, 2003-21**

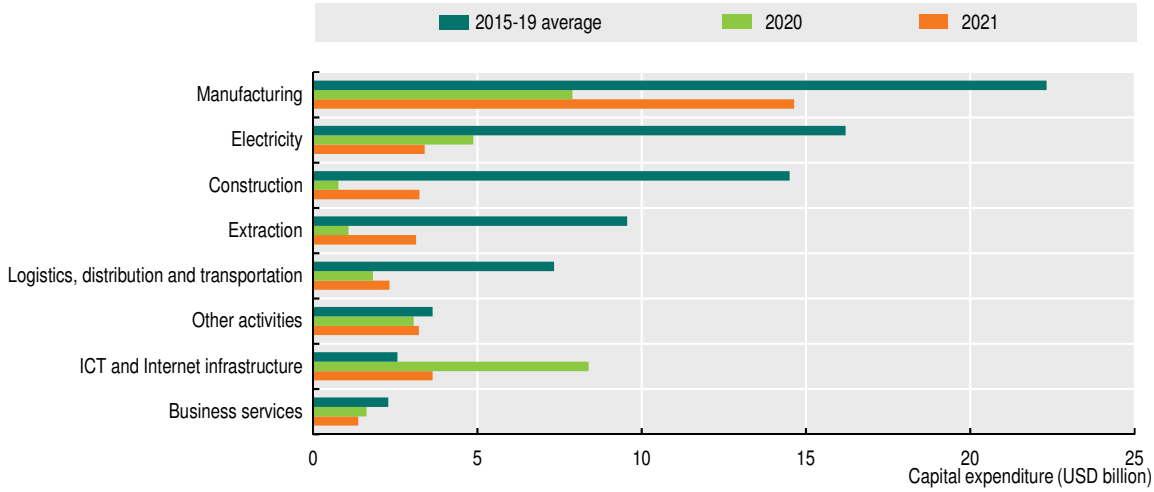


Source: Authors' calculations based on FDI Markets (2021), *FDI Markets* (database), www.fdimarkets.com.
StatLink https://doi.org/10.1787/888934297940

Potential adjustments from multinational enterprises to raise the resilience of cross-border supply chains to shocks could attract new investments in Africa. For example, increasing the investment in African countries by European multinationals could reduce the distance between suppliers and clients (near-shoring) without moving all operations back to the home countries (re-shoring) (EU, 2021). In North Africa, Morocco's Tangier Automotive City continued to attract over 50 companies during the 2020 shock triggered by the COVID-19 pandemic, due to the country's proximity and well-established logistics connection to Europe, competitive labour costs, and political stability. However, cross-border supply chains remain complex and are not easy to reconfigure in the short term.

ICT and Internet infrastructure remains attractive to foreign investors. Despite the general downward trend observed in greenfield FDI to Africa, investments to the continent's ICT industries increased in 2020, which could accelerate Africa's digital transformation (Figure 1.15). In addition, African start-ups securing funding increased by 44% in 2020, riding five-year growth at a rate six times larger than the global rate (Maher et al., 2021). According to projections, Africa's Internet economy could reach 5.2% of continental GDP by 2025 and increase to 8.5% by 2050, up from 4.5% in 2020 (Google/IFC, 2020).

Figure 1.15. **Greenfield foreign direct investment projects to Africa by business activity, 2015-21**



Source: Authors' calculations based on FDI Markets (2021), *FDI Markets* (database), www.fdimarkets.com.
StatLink https://doi.org/10.1787/888934297959

The global minimum corporate tax shows international co-ordination can reduce the scope for harmful competition for investment

The introduction of a global minimum corporate tax, agreed in July 2021 and expected to take effect in 2023, will reshape Africa's attractiveness to multinational enterprises. The international co-ordination to apply a global minimum corporate income tax will help limit harmful tax competition and increase tax revenues for African governments (see Box 1.5). Other factors such as the quality of public economic institutions, domestic markets sizes, and access to inputs and skilled labour will become even more important for African economies to attract multinational enterprises.

However, the risk exists that other harmful practices for attracting FDI may continue, for example by lowering labour and environmental standards to attract FDI. Investment co-operation thus needs to include social and environmental safeguards to avoid a race to the bottom in these areas. For instance, incorporating labour standards into AfCFTA investment policies, as was done in other trade preference agreements with the European Union (Everything but Arms) and the United States (African Growth and Opportunity Act) will help reduce potential social pressures arising from the need for FDI.

Box 1.5. **Implications of the global minimum corporate tax on public revenues**

The twin processes of globalisation and digitalisation have created significant challenges for corporate taxation. Globalisation engenders value chains that cover many countries, and it can be difficult to attribute taxing rights to them. Thus many multinational enterprises end up with low effective tax rates. Digitalisation further accentuates these challenges by enabling foreign companies to become significant actors in a local market, without the physical in-country presence that traditionally triggers taxing rights. These issues are especially important for Africa governments, which are, on average, more than twice as reliant on corporate tax revenues as OECD countries. Corporate income tax provided 18.8% of tax revenues in Africa in 2019, compared to 10% in the OECD (AUC/ATAF/OECD, 2021).

Box 1.5. **Implications of the global minimum corporate tax on public revenues *(continued)***

To respond to these growing challenges, the 141 members of the Inclusive Framework on Base Erosion and Profit Shifting have been working to update the international tax standards. Most recently, a two-pillar solution to the tax problems related to the digitalisation of the economy was agreed by 137 members in October 2021. African members of the Inclusive Framework, together with the African Tax Administration Forum played a key role in these negotiations, ensuring that key design features were adapted to African needs. Pillar One addresses the challenge of market presence without physical presence, by establishing the right for countries where the biggest and most profitable multinational enterprises have their markets to tax a share of their profits. Pillar Two concerns the challenge of low effective tax rates available in some jurisdictions; it introduces a global minimum tax of at least 15%.

These reforms have the potential to help African governments considerably increase corporate tax revenues in the coming years. Globally, Pillar One is expected to reallocate USD 100 billion to market jurisdictions, while Pillar Two will generate an additional USD 150 billion of tax revenues per year. The global minimum tax will help stop harmful competition in corporate income taxes that has seen the widespread use of generous, often inefficient tax incentives in Africa (for example, more than 80% of sub-Saharan countries have recently offered tax holidays).[3] Reforming tax incentives will be a key priority for many governments in the years ahead. Such reforms, together with implementation of the investment standards (social or environmental) will create new demands on African governments, which will require strong support from development partners.

Source: Author's compilation.

The digital transformation can facilitate regional value chains but heightens the risk of exclusion and inequality

COVID-19 is accelerating Africa's digital transformation as explained in AUC/OECD (2021). At the firm level, more than one in five firms in Africa started or expanded their use of digital technology in response to the COVID-19 shock, according to the World Bank *Enterprise Surveys* (World Bank, 2021b). The use of digital financial services also surged. The value of mobile money transactions across Africa increased by 28% from 2019 and reached a total of USD 45.4 billion in December 2020. In addition, several African governments are emphasising the digital transformation as a critical component of their COVID-19 recovery plans (Table 1.1). The AU Digital Transformation Strategy for Africa 2020-2030 is also essential to give African countries a stronger advantage in shaping global data governance. Chapter 1 of *Africa's Development Dynamics 2021* proposes several policy areas to boost the regional digital economy and bridge the digital divide.

Table 1.1. **Digital initiatives in response to COVID-19 in selected African countries**

	Digital recovery initiatives
Continental	• African Union's member states agreed, in December 2020, to fast-track negotiations of the AFCFTA Protocol on E-commerce to establish common positions on e-commerce, harmonise digital economy regulations and create an African Digital Single Market (AU, 2020).
Cameroon	• Through its National Development Strategy 2020-2030, Cameroon plans to invest CFA 250 billion CFA francs (USD 440 million) to expand the optical fibre-optic network, build two data centres and implement an e-governance system.
Egypt	• Egypt plans to invest over USD 360 million to connect 1 million households with fibre-optic cables to support the recovery and development of the digital economy.
Ghana	• Ghana launched policy initiatives in May 2020 to deepen financial inclusion and build an inclusive digital payments ecosystem including adequate regulation, consumer protection and oversight.
Kenya	• Kenya's 8-Point Economic Stimulus Programme allocated USD 59 million to support digital education by hiring 10 000 teachers and 1 000 ICT interns (Kenya Ministry of Health, 2020).
South Africa	• South Africa's post-pandemic stimulus investment plan involves seven digital infrastructure projects totalling approximately USD 7.3 billion and has the potential to support 707 000 jobs (Habiyaremye et al., 2021).

Source: Authors' compilation.

The digital transformation can help overcome the constraints to regional value chain development

The digital transformation can strengthen the competitiveness of Africa's producers. In the agriculture sector, for example, digital solutions can help improve agricultural productivity, market linkages and financial inclusion (AUC/OECD, 2021). Traditional manufacturing also increasingly depends on digital-deliverable services such as ICT, marketing and distribution services. Digital delivery accounted for 57% of Africa's exports in ICT and business services such as insurance, pensions and finance in 2017.

Digital technologies can reduce costs of cross-border trade by increasing the efficiency of support services such as logistics, trade finance and payments. Technologies such as distributed ledger technology (blockchains) permit smart contracts that make cross-border payments faster, cheaper and more efficient. In March 2021, OCP executed the first blockchain-based intra-African commercial transaction from Morocco to Ethiopia with a value of USD 400 million (OCP, 2021). In logistics, digital services contributed to maintaining essential economic activities during lockdowns. For instance, TradeDepot, an e-logistics platform for micro retail distribution in Nigeria, partnered with the Lagos State Government as part of the latter's emergency food response strategy.

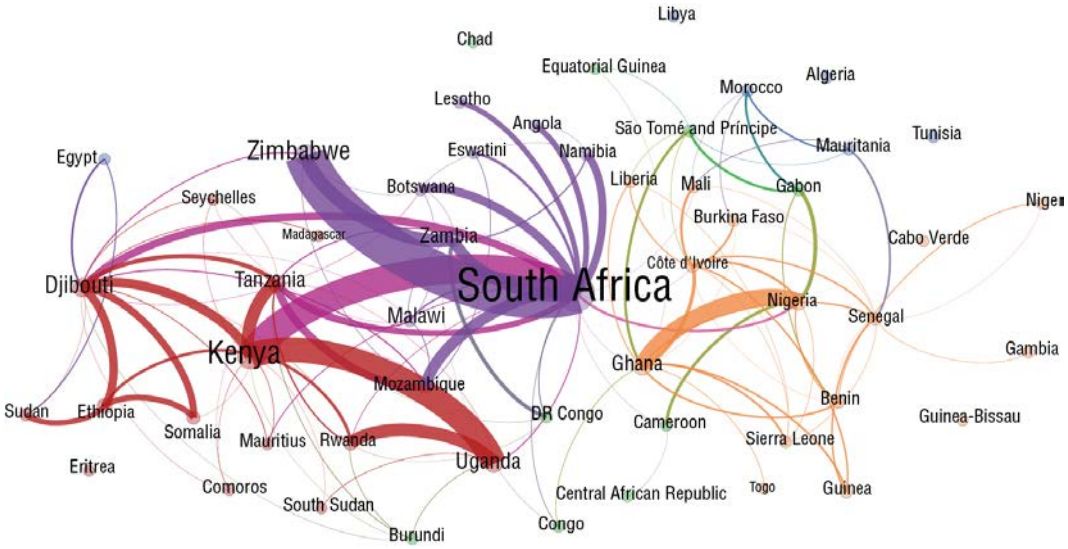
Adoption of new technologies can make trade-related institutions more efficient and facilitate the implementation of the AfCFTA. Blockchain-enabled solutions can serve in applying rules of origin by generating, storing and sharing information, which allows for real-time and low-cost verification of a product's provenance. Adopting paperless processes and smart clearance technology can also streamline and accelerate customs procedures. For example, the automated customs system in Morocco allows businesses to finish export procedures in 15-20 minutes instead of the 2-3 days previously needed to collect paper documents (INSME, 2019).

New digitally enabled business models allow firms to work around constraints in formal contract enforcement and to integrate informal actors. Such models facilitate co-ordination, communication and monitoring among different actors (such as multinational enterprises and their suppliers) and stages in value chains. At the same time, smart contracts and reputation systems in digital platforms and marketplaces provide alternative mechanisms for identifying reliable partners and ensuring accountability without resorting to judicial processes. This is especially important for integrating informal African producers into regional value chains. For example, more than 13 000 farmers and 6 000 suppliers in Kenya now use the mobile-based platform Twiga Foods to sell their products directly to 2 000 sales outlets each day.

Realising productivity gains, streamlining cross-border trade and engaging in digitally enabled activities requires expanding the digital economy across borders. Research on African marketplaces shows that 91% of transactional marketplaces on the continent are solely national in scope (ITC, 2020); this highlights the difficulties for digital solutions to scale beyond their home market. Policy makers can help develop the digital economy across their borders by providing accommodative regulation (especially in the area of digital taxation), facilitating standards setting for interoperability and encouraging innovative start-ups to enter decisive services such as finance and logistics (AUC/OECD, 2021).

Ensuring the safe and seamless flow of data across borders is key for competitive regional value chains. The flow of information between buyers and sellers underpins all decision-making, production processes and value-addition in the context of Industry 4.0. In 2020, the demand for international Internet bandwidth (proxied by peak traffic) increased by 50% or more in 42 of the top 100 international Internet routes in Africa. Connecting Africa's national digital economies to regional ones should boost their competitiveness. New hub and spoke patterns are emerging, with large countries such as South Africa and Kenya having dense connections to other African economies (Figure 1.16). Beyond hard infrastructure for data flow, a robust continental governance framework that balances the economic, privacy and data sovereignty concerns is also crucial.

Figure 1.16. **Network analysis of intra-African Internet bandwidth, 2017-20**



Source: Authors' calculations based on Telegeography (2021), *Telegeography Database*, www2.telegeography.com/telegeography-report-and-database.

The digital transformation raises the risks of exclusion and inequality

The digital transformation risks preventing the vast majority of African firms and workers from participating in international production networks. Adopting digital technologies requires fixed investments and skills beyond the capacity of most African actors, further limiting their opportunities to integrate into international value chains. For example, only 31% of firms in Africa currently have their own website, compared to 39% in developing Asia and 48% in Latin America and the Caribbean. Excessive concentration in digital e-commerce platforms can also lead to dependency of smaller suppliers and can reduce their ability to upgrade. Globally, technical change in global value chains is

increasingly biased against the use of low-educated workers in favour of high-educated workers, thus limiting the potential of global value chains to create jobs for low-skilled workers in Africa (Reijnders, Timmer and Ye, 2021).

Finally, digitally enabled automation can affect Africa's attractiveness to global investments and increase inequalities in the labour market. Recent research suggests that large-scale automation, while technologically feasible, may require 10-15 years before becoming economically viable in Africa's labour-intensive value chains such as textile (ODI, 2018). Automation typically replaces unskilled labour with skilled labour, thereby increasing wage inequality between skilled and unskilled workers.

Box 1.6. **Agricultural value chains in Portuguese-speaking Africa and their digitalisation**

The six African countries whose official language is Portuguese form an important part of the continent's population and economy. In 2019, Angola, Cabo Verde, Guinea-Bissau, Equatorial Guinea, Mozambique, and São Tomé and Príncipe together had a population of 66 million, a GDP of USD 120 billion and real GDP growth of 0.5%.

These countries face diverse challenges in integrating into value chains and diversifying the export base. In 2018, crude oil made up 83.5% of Angola's exports and 63.3% of Equatorial Guinea's exports. In Cabo Verde, prepared and preserved fish represented the largest share of the country's total exports, making up 42.8%. In Mozambique, coal and coal-based fuels formed the most exported product, making up 22.1% of total exports. In São Tomé and Príncipe, cocoa beans were the most exported product, accounting for 50.9% of the total. In 2015, their combined participation in global agricultural value chains was USD 76 million, equaling 0.05% of their combined GDP, according to data from Casella et al. (2019). In comparison, across all of Africa, participation in global agricultural value chains was USD 8 541 million.

Digitalisation in agricultural value chains can better connect farmers from these countries to new markets. An example is Vodafone's initiative *Connected Farmer Alliance* (CFA) in Mozambique. This platform for agricultural value chains enables tracking production cycles and facilitates mobile payments. CFA links agribusinesses and smallholder suppliers, resulting in larger access to new markets and increased productivity for farmers (Moceviciute and Babcock, 2016). Another example is Mozambique's e-commerce provider Izyshop. It sells fruit and vegetable boxes sourced directly from farmers, who in turn earn more than USD 100 per month. This contrasts with the typical average monthly earnings of USD 18-20 (GSMA, 2019).

Deepening international co-operation and public-private partnerships is paramount to improving technical knowledge and local market development. For example, the Program to Support Production, Export Diversification and Import Substitution (PRODESI) by the Angolan government aims at diversifying the economy to reduce dependency on oil exports. PRODESI does so by strengthening local capacities through initiatives such as developing a digital platform. With support from the European Union, the programme delivers information on local and international markets and product traceability systems (EU, 2020). Since 2019, PRODESI has helped provide more than 60 000 jobs through 807 projects supporting agricultural value chains (ANGOP, 2021). Another example is the Guinea-Bissau-European Union partnership project ACTIVA-PAIDR. This project seeks to develop sustainable local markets by improving technical knowledge and agricultural mechanisation. It has helped increase cereal production by about 85% (Camões Instituto, 2021).

Source: Authors' compilation.

Strengthening the capacity of African producers and public institutions is critical to benefit from the global drive towards sustainability

Global focus on sustainability offers new prospects for inclusive and environmentally friendly value chains

Increased global demand for socially and environmentally conscious production and consumption creates new chances for African producers to exploit higher value-added activities. The emerging opportunities include developing environmental products, local production modes (e.g. recycling) and renewable energy, as well as adopting eco-labelling, certification in manufacturing and new financing sources. The five regional chapters of this report offer fresh insights into the roles that regional integration can play in taking advantage of these new sources of demand and pursuing higher value-added activities. Chapter 3, for example, highlights the potential of the Pan-African Automotive Pact to respond to the growing demand for electric vehicles, and Chapter 5 explains the potential of renewable energies for North African economies.

This global shift raises pressure on producers, particularly multinational enterprises, to meet environmental, social and corporate governance (ESG) standards. Since the onset of the pandemic, 48% of surveyed multinational enterprises operating in developing countries have increased their focus on the sustainability and decarbonisation of supply chains (Saurav et al, 2021). Some governments are setting legally-binding instruments to ensure human rights and environmental due diligence in corporate supply chains, such as the EU's proposed mandatory Human Rights and Environmental Due Diligence framework. Implementing norms of corporate social responsibility and ESG standards can help improve labour conditions for workers, generate more value for suppliers and avoid environmental degradation in international production networks. For instance, extraction of raw materials for export often involves the highest share of child labour (ILO/OECD/IOM/UNICEF, 2019). Currently, between 28% and 43% of child labour indirectly contributes to exports at an early stage of supply chain production (such as extraction of raw materials or agriculture). These structural characteristics have challenged the upgrading of value chains for several African countries that depend on the exports of raw products.

New sources of finance are available for green, social and sustainable investments. Impact investing offers new sources of finance for firms that place green, social and sustainability goals at the core of their business models. Fifty-two percent of global impact investors plan to expand their allocations to sub-Saharan Africa by 2025 (Hand et al., 2020). At the country level, green bonds for public investment, especially into infrastructure, are increasingly attractive for institutional investors such as pension funds and insurance companies. Since 2020, France's Sovereign Green Bond programme has expanded the list of eligible projects – financed by issuing bonds to international investors – to the environmental component of official development assistance. This is an important step forward that could herald a substantial increase in green finance funds for Africa if other institutions replicate this model. Despite the potential gains, between 2012 and 2020 only seven African countries issued green bonds, for a total of less than USD 4 billion (Amundi/IFC, 2021).

The fiscal stimulus component of COVID-19 recovery plans can incentivise the development of regional value chains in this sector. African governments at both the national and continental levels are providing fiscal support to invest in green infrastructure and energy in response to the COVID-19 crisis (see Table 1.2). Appropriate public procurement regimes can utilise such funds and political momentum to create a demand pull for developing regional productive capacity in this domain.

Table 1.2. **Green recovery in response to COVID-19 in selected African countries**

	Green recovery initiatives
Continental	• The African Union Commission launched a new five-year continental Green Recovery Action Plan 2021-2027 with five priorities: i) climate finance; ii) renewable energy, energy efficiency and national just transition programmes; iii) nature-based solutions and focus on biodiversity; iv) resilient agriculture; and v) green and resilient cities.
Egypt	• Issued a USD 750-million green bond to finance USD 1.95 billion in green public investment projects.
Ethiopia	• Planned a USD 3.6 million four-year project on nature-based solutions for water resources infrastructure and community resilience (IISD, 2020a).
Mauritius	• The 2021/22 recovery budget allocated USD 124 million over five-years horizon to the National Environment and Climate Change Fund, to rehabilitate the coastlines, strengthen environmental monitoring, and target to produce 60% of the country's energy needs from green sources by 2030 (IMF, 2021b).
Nigeria	• Invested USD 620 million to install solar home systems for 5 million households by 2023 and create 250 000 jobs in the energy sector (ESC, 2020). • Allocated USD 0.37 billion to promote research and development in renewable and alternative energy sources.
Senegal	• Issued an exemption from value-added tax for 22 different renewable energy equipment types to stimulate the consumption of green energy solutions (IISD, 2020b).

Source: Authors' compilation.

Realising such opportunities requires proactive policy support to increase standards adoption and unlock new sources of finance

Public policies play a vital role in facilitating the adoption of standards among African producers. Policy makers can promote upgrading through support in product labelling, international certification, trademarks and branding. The success in applying such standards depends on the specific value chains and on local contexts. For example, local producers often lack awareness and understanding of the processes for adopting these standards and have limited skills and access to finance for investment and implementation (AUC/OECD, 2019). Strengthening the institutional capacity in infrastructure for metrology, standardisation and accreditation is also critical to ensure the competitiveness of local producers, prevent dumping of harmful products (e.g. electronic products) and avoid attracting industrial activities that cause pollution.

Unlocking sustainability-linked financing also requires proactive policy interventions. Co-ordination between African governments, public development banks and donors is necessary to attract further private investment, mitigate risks, address supply constraints and avoid "greenwashing".[4] At the same time, the implementation by multinational enterprises of corporate social norms could benefit from stronger domestic regulatory frameworks and co-ordination with local governments to improve their visibility of the supply chains. Finally, using public procurement to support the development of regional value chains requires strengthening governance to avoid corruption and to expand firms' eligibility beyond national providers (see Chapter 2 on policies).

Annex 1.A1. Technical description of the global vector autoregressive modelling

Since its introduction by Nobel Prize laureate Christopher Sims in 1980, the vector autoregressive (VAR) model is the par excellence of econometric tools for the empirical or data-driven analysis and forecasting of the macroeconomic dynamic of countries (Sims, 1980). A global vector autoregressive (GVAR) model shifts the VAR from its original single-country setting to a multi-country setting (di Mauro and Pesaran, 2013). In technical terms, a GVAR model is a suite of interconnected VARX models – a VAR model that includes a block of exogenous variables – where each VARX corresponds to an individual country. A VARX summarises the historical data available on the interrelationships between the country's domestic macroeconomic variables (such as output and inflation), as well as

the interrelationships between them and the corresponding macroeconomic variables of the rest of the countries in the GVAR.

Our GVAR modelling exercise include ten African countries (Botswana, Cameroon, Egypt, Ghana, Kenya, Mauritius, Morocco, Namibia, South Africa, and Tunisia), China, member countries of the European Union and the United States. The individual VARX for Botswana summarises the interrelationships between the domestic macroeconomic variables with each other and with the weighted averages of the same variables for all the other countries. The weights are derived from the importance of the bilateral trade (imports and exports) between Botswana and each of the other three countries in the total trade of Botswana.

The specific characteristics of our modelling exercise, the OECD-African-GVAR-1.0 model, are as follows:

- estimation sample: quarterly time series for the period 2000 Q1-2019 Q3.
- variables (details by country in Table 1.A1.1): gross domestic product (GDP), consumer price index (CPI), local currency exchange rate against the United States dollar divided by domestic CPI, long-term interest rates.
- variable transformation: the first difference of log GDP, the first difference of log CPI for non-African countries, the second difference of log CPI for African countries and Pesaran's transformation of the interest rate: 0.25 x log(1+r/100) where r is the nominal interest rate in percentage points.
- estimation details: ordinary least squares equation by equation, excluding co-integration terms.

Table 1.A1.1. **Variables (all logged)**

	Endogenous			Exogenous	
	Domestic gross domestic product	Domestic consumer price index	Local currency exchange rate against US dollar (deflated)	Foreign gross domestic product	Foreign currency exchange rate against US dollar (deflated)
Botswana	yes	yes	yes	WA	no
Cameroon	yes	yes	yes	WA	no
Egypt	yes	yes	yes	WA	no
Ghana	yes	no	no	WA	no
Kenya	yes	yes	yes	WA	no
Mauritius	yes	yes	yes	WA	no
Morocco	yes	yes	yes	WA	no
Namibia	yes	yes	yes	WA	no
South Africa	yes	yes	yes	WA	no
Tunisia	yes	yes	yes	WA	no
China	yes	no	yes	WAeA	no
European Union	yes	no	yes	WAeA	no
United States	yes	yes	no	WAeA	-

Notes: WA = weighted average; WAeA = weighted average excluding-Africa. In all VARX models, the consumer price index of the United States was used as an additional exogenous variable.

Notes

1. The comparator countries include Bangladesh, Brazil, China, India, Indonesia, Malaysia and Viet Nam. Both the African and Asian countries were selected based on data availability.
2. According to a modelling exercise (https://agupubs.onlinelibrary.wiley.com/doi/epdf/10.1029/2018JD029336), Africa's main source of air pollution mortality is mineral desert dust (natural), followed by industrial/domestic air pollution – industrial production, energy generation, transportation emissions, household emissions (other than fires) – and finally biomass burning.

In South Africa, air pollution mortality is dominated by the industrial and domestic sectors, leading to 15 000 premature deaths.

3. See www.oecd.org/tax/options-for-low-income-countries-effective-and-efficient-use-of-tax-incentives-for-investment.htm.
4. Greenwashing refers to the practice of providing misleading information regarding the sustainability credentials of their products.

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Chapter 2

Strengthening regional value chains in the African Continental Free Trade Area

This chapter identifies priority policies to facilitate regional value chains in the context of the COVID-19 pandemic and the African Continental Free Trade Area (AfCFTA). First, it reviews past efforts at continental and regional levels to develop regional value chains and highlights key lessons for implementing the AfCFTA. Second, it offers recommendations on how African policy makers can work with the private sector to accelerate digital adoption and reduce the costs of cross-border trading and production. Third, the chapter reviews public policies to create stronger linkages within African industrial networks. It focuses on policies related to skills development, public procurement and investment.

IN BRIEF

African governments have committed to developing regional value chains (RVCs) through a number of programmes and strategies both at regional and continental levels. Many initiatives have suffered from implementation gaps. Bridging these gaps requires bottom-up RVC policies including involving the private sector more closely. Better mobilising domestic resources and new sources of financing is equally important to ensure ownership, implementation and adequate results monitoring.

These lessons and the megatrends highlighted in Chapter 1 bring forward two cross-cutting areas for regional co-operation:

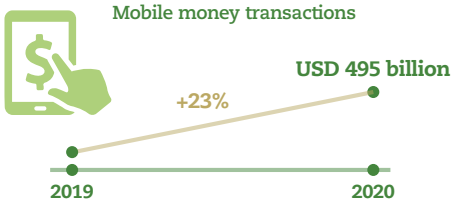
- Policy makers and the private sector can work together to reduce the costs of intra-African production and trade. These costs have increased to the levels of 2007. Scaling up innovative solutions in logistics and finance can help lower them. Developing intra-regional Internet infrastructure and ensuring accommodative regulations for cross-border data flow are other necessities in the digital era. In 2020, intra-regional bandwidth as a share of total Internet bandwidth reached 16% in Africa compared to 20% in Latin America and the Caribbean, 56% in Asia and 75% in Europe.
- Policy makers can actively strengthen linkages between workers, domestic producers and multinational enterprises. Countries can take advantage of the AfCFTA process to develop skills, public procurement and common investment frameworks. Focusing on business clusters can help increase domestic competitiveness and facilitate investments. Between 2012 and early 2019, the night light intensity of cluster areas – a proxy for cluster activity and development – almost doubled.

Strengthening regional value chains in the African Continental Free Trade Area

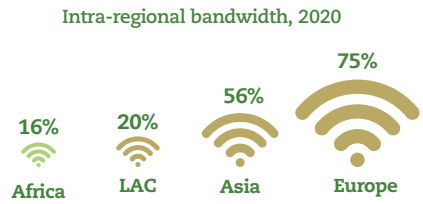
Which policies can strengthen regional value chains?

Accelerate the digital transformation of cross-border production and trade

Public-private alliances can scale up innovations in trade, logistics and finance

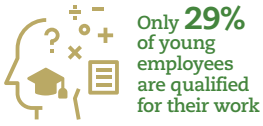


Intra-continental flow of data requires supportive infrastructure and regulation

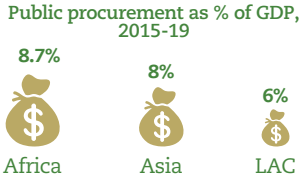


Adapt national industrialisation strategies to the AfCFTA

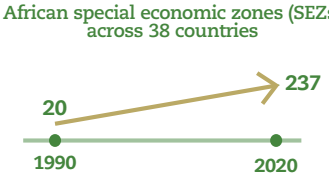
Regional initiatives can develop skills



Public procurement schemes can extend to producers in AfCFTA

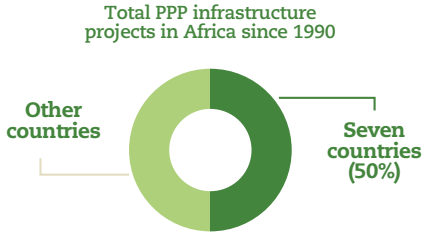


Infrastructure investments can prioritise connecting existing industrial clusters

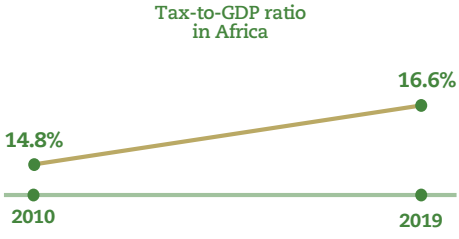


How can African governments implement these priorities?

Integrate the private sector in the design and implementation of RVC policies



Mobilise domestic resources and unlock new sources of finance



Policies to develop regional value chains should focus on the private sector and mobilise domestic resources

Since the 1980s, African institutions have undertaken initiatives to foster regional and global value chains as part of a broader strategy for productive transformation. Table 2.1 presents those initiatives, along with their main objectives and challenges to implementation. In 2003 for example, the African Productive Capacity Initiative set two targets for regional value chains to achieve by 2015: i) to produce "goods that meet the quality requirements of present markets"; and ii) "to upgrade in order to tap future markets". Each region was assigned one or more value chains to develop by 2015 (Marti and Ssenkubuge, 2009).

Table 2.1. **African initiatives to foster global and regional value chains, 1980-present**

Initiative (year)	Stakeholders	Main objective	Major implementation challenges
Industrial Development Decade for Africa (IDDA I) (1980-90)	African Union Commission (AUC), Regional Economic Communities (RECs), member states, United Nations Economic Commission for Africa (UNECA), United Nations Industrial Development Organization (UNIDO) (key stakeholders)	End Africa's dependency on developed countries	Weak industrial base and economic structures Inadequate business and regulatory environment
IDDA II (1991-2002)			No concrete, practical programmes or projects formulated No involvement from the donor community or other United Nations agencies
IDDA III (2016-25)		Firmly anchor Africa on a path towards inclusive and sustainable industrial development	Lack of political will and poor national planning
African Productive Capacity Initiative (2003)		Develop regional value chains through investment in infrastructure and in human and physical capital	Lack of human, institutional and financial capacity
Action Plan for Accelerated Industrial Development of Africa (AIDA) (2007)	Key stakeholders, World Bank	Integrate African companies into global value chains and develop small and medium-sized enterprises and start-ups	
African Mining Vision (2009)	African Union Development Agency-New Partnership for Africa's Development (AUDA-NEPAD), UNECA, African Minerals Development Centre, United Nations Development Programme, African Development Bank (AfDB)	Create vertical and horizontal linkages between the mining sector and skills, research and development (R&D) and infrastructure	Non-binding nature State-centric implementing mechanisms that prevent civil society's influence the process
Agribusiness and Agro-industry Development Initiative (2010)	AUC, AUDA-NEPAD, AfDB, Food and Agriculture Organization, International Fund for Agricultural Development, UNECA, UNIDO	Decrease dependency on imported products and foster value-addition in agricultural products	Poor skills and technologies in post-production segments of the agriculture value chain Lack of complementarities between the African Agribusiness and Agro-industry Development Initiative (3ADI), the Comprehensive Africa Agriculture Development Programme (CAADP) and the Programme for Infrastructure Development in Africa
High-Level Conference on 3ADI, CAADP and the Maputo Declaration (2010)	Key stakeholders	Promote public-private partnerships in the agricultural sector	
Pharmaceutical Manufacturing Plan for Africa (2012)	AUDA-NEPAD, Africa CDC, AUC Health Humanitarian Affairs and Social Development Department	Strengthen production of affordable pharmaceuticals and essential medicines	Complex legal frameworks Guidelines and assessment procedures not in line with World Health Organization standards

Table 2.1. **African initiatives to foster global and regional value chains, 1980-present (*continued*)**

Initiative (year)	Stakeholders	Main objective	Major implementation challenges
Agenda 2063 (2013)	AUC, RECs, member states, AUDA-NEPAD UNECA	"Aspiration 1: Economic transformation through natural resources, manufacturing, industrialisation, and value addition, as well as raising productivity and competitiveness (…) and becoming a net food exporter"	
African Union Commodities Strategy (2017)	Key stakeholders, AUDA-NEPAD		Limited capacities in forging public-private partnerships
Establishment of the AfCFTA (2018)	Key stakeholders	Boost intra-African trade Support Africa's transformation through resource-based industrialisation and value addition	
Africa Industrialization Week (2018)	UNIDO, AUDA-NEPAD, UNECA, member states	Raise awareness for accelerated, sustainable and inclusive industrialisation	

Notes: AUDA-NEPAD: African Union Development Agency; AfDB: African Development Bank; UNECA: United Nations Economic Commission for Africa; RECs: Regional Economic Communities; AUC: African Union Commission; CDC: Centres for Disease Control and Prevention; FAO: Food and Agriculture Organization of the United Nations; UNIDO: United Nations Industrial Development Organization; UNDP: United Nations Development Programme.
Source: Authors' compilation.

Over the past few years, Regional Economic Communities have defined road maps of specific regional value chains. The regional level offers the opportunity to identify value chains based on comparative advantages, such as those mentioned in Annex 2.A1. For instance, the Southern African Development Community (SADC) Regional Industrialisation Roadmap 2015-2063 aims to develop six regional value chains (agro-processing, minerals and mining, pharmaceuticals, other consumer goods, capital goods, and services). Since 2014, the Economic Community of West African States (ECOWAS) and the West African Economic and Monetary Union (WAEMU) have adopted the West Africa Competitiveness Programme, a six-year plan to support eight selected value chains (cassava, textile and garments, mango, information and communications technology, onion, pineapple, hides, and skin and leather) at the national and regional levels. Following the development of the East African Community (EAC) Cotton, Textiles and Apparel Strategy, the industry emerged as priority sector within national development plans of member countries, with the common target to build a globally competitive textiles and apparel industry.

Despite the rising numbers of initiatives, the majority have fallen short of the expected results so far. Most African economies have not been able to expand their participation in regional value chains (see Chapter 1). Intra-regional trade continues to account for only 15% of Africa's total trade. The limited domestic fulfilment of many regional and continental commitments has also led to concerns over a "crisis of implementation" (AU, 2017). However, it is important to highlight that the slow pace of economic integration in Africa is similar to most other regional integration efforts across the world. For example, the European Single Market came into existence only some 35 years after the European Economic Community identified the development of a common market as a core objective. Additional challenges such as slow productive transformation have also limited the progress.

These experiences highlight the importance of avoiding a top-down approach in developing regional value chains. Top-down approaches are likely to overlook specific conditions, needs and opportunities for firms when producing and trading across borders in Africa (Hartzenberg, 2011; Ndzana Olomo, 2021a). Furthermore, failing to take into account domestic interests and incentives often results in an implementation gap. Regional initiatives may falter when facing entrenched political and business interests (Byiers et al., 2021).

Limited domestic resource mobilisation has hindered the implementation of past regional industrialisation programmes. Most initiatives have lacked adequate resources and institutional mechanisms for monitoring and evaluating implementation. For instance, many countries have not respected their commitment to the Maputo Declaration that calls for reserving at least 10% of national budgets for agricultural development (AU, 2016). The Industrial Development Decade for Africa was unable to formulate an operational strategy for allocating financial resources. Similarly, many countries have failed to implement programmes of the New Partnership for Africa's Development (NEPAD), which relied too heavily on unpredictable external financial inflows. Improving domestic resource mobilisation will thus be essential to fund the implementation of regional development strategies. As such, the African Union aims to finance 75-90% of the Agenda 2063 targets through domestic resource mobilisation, with the remainder coming from external financing mechanisms.

Private sector participation is key for developing regional value chains

African institutions can better engage with the private sector in designing and implementing RVC policies. Byiers et al. (2021) propose a six-step adaptive and problem-driven approach for co-operation between public and private sectors. Adopting a bottom-up process driven by the private sector helps sustain political momentum, while better identifying priorities, such as lowering tariffs, providing infrastructure, developing skills and enhancing access to finance (OECD, 2020).

Regional Economic Communities play an important role in facilitating private sector engagement in regional value chains (AfCFTA/UNDP, 2021). In recent years, a number of regional programmes have emerged that provide new platforms for discussion between policy makers, business representatives and relevant stakeholders in strategic value chains. For example, the annual editions of the Banking and SME Fair in WAEMU, begun in 2014, have gathered 525 exhibitors and set up nearly 1 200 business-to-business meetings. Since 2009, the Ghanaian section of the West Africa Competitiveness Programme has facilitated a series of projects to connect the Federation of Ghanaian Exporters, the Ghana Export Promotion Authority and the Enterprise Support Program - Matching Grant Scheme. Such projects can help identify the major constraints and opportunities in production, processing, compliance and access to markets for value chains (WACOMP Ghana, 2020).

Strengthening the institutional representation of small and medium-sized enterprises can ensure the inclusiveness of RVC integration, improve linkages and create more jobs. Better representation of small and medium-sized enterprises in industrial associations can accommodate their interests by increasing their bargaining power and communicating their specific needs in policy discussions. For instance, the Durban Auto Cluster and the South African Automotive Benchmarking Club allow local suppliers in the Durban automotive clusters to interact and collaborate to meet customer demand (UNCTAD, 2010).

Better mobilising domestic resources and unlocking new sources of finance are needed to reduce financing gaps in regional strategies

At the national level, reforms on tax administrations can improve domestic resource mobilisation and strengthen financial resources available to African governments. Some countries have achieved significant progress in expanding their revenues through administrative reforms. In Rwanda, for instance, the digitalisation of tax collection systems has contributed to improve compliance. On average, the tax-to-GDP ratio across 30 African countries increased over the last decade to reach 16.6% in 2019. Nonetheless, this increase remains below the average growth observed in Latin America and the Caribbean and OECD countries during the same period – suggesting room for further improvement

(OECD/AUC/ATAF, 2021a). In addition, tackling illicit financial flows helps fight against financial corruption and preserve resources for Africa's development. In this regard, the African Union, alongside African governments and international partners, is actively working on improving transparency and the cross-border exchange of information in their tax investigations (AU, 2019a; OECD/AUC/ATAF, 2021b).

Diversifying funding sources is crucial in the context of COVID-19 (Ndzana Olomo, 2021b). As the fight against the pandemic has significantly reduced the fiscal space available to African governments, countries need to "crowd in" private investment (see Chapter 1). So far, public-private partnerships remain limited: only seven countries (Egypt, Ghana, Kenya, Nigeria, Tanzania, Uganda and South Africa) accounted for 50.3% of the 759 public private partnerships to develop infrastructure in Africa since 1990. Some recent public-private partnership projects also raise concerns over their fiscal implications for state budgets (IMF, 2019).

Better supranational co-ordination increases the achievement of priorities and broadens the country destinations for public-private partnerships (OECD/ACET, 2020). It also can provide strategic assistance to improve legal, regulatory and institutional frameworks in order to attract new sources of capital to African countries. For instance, the African Development Bank set up the African Financial Alliance for Climate Change, linking stock exchanges, sovereign wealth funds, central banks and other financial institutions. It aims to mobilise capital and shift portfolios towards green investment.

Regional development banks and international partners can play a critical role in this process. Regional development banks and dedicated initiatives such as the Africa50 Infrastructure Fund can facilitate dialogue and matching among potential stakeholders, help develop project pipelines and provide feasibility studies. Addressing uncertainties, such as the public sector's capacity to design and monitor project development processes, could reduce private investors' perception of high risk when investing in Africa.

African governments can develop value chains by attracting more investment in green infrastructure projects. The growing attention from public and private investors to environmental, social and governance standards makes green infrastructure projects increasingly attractive to them, generating new initiatives across the continent to tap these financing sources. At the regional level, African heads of state set up the African Adaptation Initiative to mobilise USD 1 billion by 2025 by issuing a continental climate bond. Creating a visible pipeline of infrastructure investment opportunities aligned with environmental, social and governance standards can help attract investors' attention. For instance, in 2021, the African Development Bank and the European Investment Bank launched a shared pipeline of investment projects aimed at tackling climate change and environmental sustainability. Nonetheless, transparency and impact reporting practices will be crucial to avoid greenwashing (defined as positive communication on projects with poor environmental performance). Most recently, 16 African countries joined the United Nations Sustainable Stock Exchanges initiative to set common standards and co-operation platforms for green bonds issuance.

Beyond resource mobilisation, more effective means of channelling funds and ensuring the bankability of regional projects are needed. Addressing capacity gaps in project cycles can help accelerate quality cross-border infrastructure development. Under the first phase of the Programme for Infrastructure Development in Africa (PIDA, 2012-20), less than half of the projects reached the construction or operational stage. Applying recognised standards of quality, such as the PIDA Quality Label of the African Union Development Agency-New Partnership for Africa's Development (AUDA-NEPAD), can both enhance the quality of project preparation and reassure potential investors as to the feasibility of the projects (OECD/ACET, 2020).

Box 2.1. **Improving the evaluation of cross-border projects in Africa**

To encourage investment in regional infrastructure, African countries and their development partners need to apply accurate discount rates in evaluating the costs and benefits of cross-border projects. Discount rates measure the rates at which a society would be willing to forego present consumption for future consumption. Many government agencies in Africa apply discount rates of 10-12% with short evaluation periods when evaluating projects, following norms set by the World Bank and multilateral development banks (UNDP, 2016). However, such a practice prioritises short-term needs and discourages projects with significant immediate costs and long-term benefits, such as infrastructure (especially rail) and climate resilience projects. For comparison, since 2003, the Government of the United Kingdom has lowered the standard discount rate for evaluating public investment from 10% to 3.5% over a 30-year evaluation period.[1] The existence of various national rates in Africa also suggests a need to adopt a common discount rate for regional institutions and cross-border infrastructure (as done in the European Union) or to harmonise the principles that determine national discount rates.

Planning and evaluation frameworks should factor in the supra-national benefits of cross-border projects. In cross-border projects where each jurisdiction is responsible for the funding of its national section, project evaluation is fragmented into separate national evaluations of the respective sections. As a result, many countries often fail to factor in the benefits to non-residents, undercounting the net benefits of regional investments. Consequently, when starting the Trans-European Networks Programme in 1997, the European Union adopted new calculations that incorporate the "community component of the social return" in order to properly account for such benefits. These calculations boosted by a quarter the social return from the Paris-London-Brussels-Cologne-Amsterdam high-speed rail project, the first project of the network. Adopting comparable calculations for the cross-border projects of PIDA could better determine their net benefits, in absolute terms and relative to domestic projects.

Source: Roy, R. (forthcoming), "The case for intra-continental trade: The re-orientation of Africa's trade and the twin challenges of development and environment", background paper for *Africa's Development Dynamics 2022*.

Policy makers and the private sector should work together to reduce the costs of cross-border production and trade

The COVID-19 pandemic and rising domestic markets are accelerating the digital transformation in Africa. Among others, new digital solutions, especially in logistics and financial services, have the potential to alleviate the high costs of intra-Africa production and trade. This section explores how policy makers can work with the private sector to scale up such solutions by addressing critical issues related to regulation, co-ordination and infrastructure.

Furthermore, the digital transformation of production networks creates new demands for the safe and seamless flow of data across borders. The section explores the various policy options to tackle this challenge at the national, regional and continental levels, especially in the context of the AfCFTA process.

Governments can help scale up innovative solutions in trade logistics and finance

Problems with trade-related services such as logistics, trade finance and payments are major bottlenecks to African exchanges. For example, logistics costs in Africa are three to four times higher than the world average (Plane, 2021). Africa's trade finance

gap, broadly measured by the total value of rejected applications for banks' trade finance, stood at USD 81.8 billion in 2019 – thus reducing the ability of African producers to compete in international markets. Similarly, cross-border payments in Africa are costly and often delayed (see Box 2.2). These bottlenecks affect micro, small and medium-sized enterprises in particular. For example, those enterprises benefited from only 34% of trade finance in 2019, despite representing 80% of Africa's firms (AfDB and Afreximbank, 2020). They also create the majority of jobs.

New start-ups are transforming the quality and costs of support services, reducing constraints to cross-border trade. Start-ups in the logistics sector have introduced innovative platforms to connect markets, lower transport costs, and increase service predictability and transparency. For example, the Lagos-based Kobo360 has developed a digital platform using the Global Positioning System (GPS) to connect freight owners and 10 000 truck owners, drivers and cargo consignees, reducing supply chain costs and ensuring traceability of products. In fintech, start-ups such as Asoko Insight, Matchdeck and Fraym are collecting and enhancing information on African businesses to facilitate credit assessment. They propose time- and cost-saving solutions to connect African companies with future stakeholders and democratise access to investment ecosystems like platforms for remote transactions.

Traditional players, especially in the financial sector, are also innovating to respond to the competitive pressure and the challenges of the COVID-19 pandemic. A recent survey suggests that 80% of African banks enable customers to access banking services through mobile or Internet platforms and over 50% provide mobile money wallets. Following the COVID-19 shock, most banks surveyed plan to spend an average of USD 5 million, or 1.2% of their assets, on digitalising their offers and business models by 2022 (EIB, 2021). Applications of advanced digital technologies such as blockchain are also emerging. For instance, Ecobank uses its Omni Platform, and Standard Bank has a Hyperledger Fabric-hosted blockchain platform for payments in foreign currency.

Applying innovative solutions requires overcoming three major challenges to digital adoption across supply chains (see Chapter 2 of *Africa's Development Dynamics 2021* for a detailed discussion):

- First, regulatory barriers continue to slow down the digital adoption in these sectors. For example, only a few countries in Africa (Cameroon, Egypt, Nigeria and South Africa) currently permit e-signatures and electronic authentication of official documents for financial transactions (COMESA, 2020).
- Second, interoperability is key to avoid lock-in to uncompetitive winner-take-all digital platforms and to facilitate cross-border integration of finance, logistics and trade flows. By 2019, 23 African countries had interoperable mobile money systems, increasing peer-to-peer transfer volumes by 25% and flows to and from bank accounts by 32% (GSMA, 2019).
- Third, investment in physical infrastructure remains critical. Modernising customs administration infrastructure is key for enabling digital applications in logistics (e.g. real-time tracking) and in trade finance and payment (e.g. smart contracts). Similarly, logistics costs will not drop off without significant investment in better storage management to ensure the quality of goods and mitigate the effect of price volatility throughout the supply chain.

African countries need to respect the AfCFTA's protocol on e-commerce to accelerate regulatory harmonisation at the continental level. Enhancing dialogue between regional regulatory authorities, central banks, digital financial intermediaries and the private sector can help harmonise regulations. In some areas, such as trade finance, digital

financial intermediaries can play a strategic role in linking a variety of actors with sufficient capital. For payments, a number of initiatives are building integrated regional and continental systems to reduce the time and costs of cross-border payments (Box 2.2).

Box 2.2. **Scaling-up integrated regional payment systems**

Cross-border transactions in Africa often involve multiple intermediaries due to different regulations, currencies and time zones, leading to delays and additional costs. In 2017, about 80% of cross-border payments in Africa required an intermediary settlement currency, most often United States dollars, resulting in high transaction fees ranging from 3% to 10% (Swift, 2018).

Scaling up integrated regional payment systems could streamline cross-border payments between suppliers. Multiple regional payment systems have emerged to reduce the costs and time associated with cross-border payments, decrease liquidity requirements from central banks and strengthen regulators' oversight of cross-border transactions. At the continental level, the Association of African Central Banks, in partnership with the AUC and Afreximbank, set up the African Inter-Regional Payments Integration Task Force to develop an integrated framework to facilitate cross-border payments (AU, 2019b). Existing regional experience offers learning opportunities to support the development of a continental payment settlement system:

- **Expanding regional payment systems to smaller amounts to reach sufficient scale and include more small and medium-sized enterprises.** Smaller countries might benefit from using regional payment systems infrastructure to scale up domestic retail payments. For instance, the Common Market for Eastern and Southern Africa (COMESA) Business Council aims to develop a low-value regional digital payment scheme to reinforce smaller firms' inclusion and harmonise regulations by bringing together regional financial services regulators (COMESA, 2021).
- **Avoiding overlaps and inefficiencies in national and regional mandates.** In the Economic Community of Central African States, for instance, the regional banking sector regulator establishes financial services regulations, while other regulations, such as for data and consumer protection, are set nationally and may overlap or conflict with each other. Capacity building initiatives could also provide guidance on how to set up reliable national banking systems.
- **Providing multicurrency cross-border systems.** In SADC, the transaction values settled through the SADC real-time gross settlement system have grown over time but still represent only about 1% of the total value transferred. This partly reflects the prevalence of the United States dollar for cross-border payments in the SADC region and the relatively high liquidity management costs for participating banks (BIS, 2020).

Governments can facilitate co-ordination among market actors to increase interoperability across different platforms. Since 2014, in Tanzania, national regulators have supported mobile money providers and local banks have partnered to co-ordinate and offer interoperable peer-to-peer payment services; by 2017, these had reached as much as 30% of total transactions. In logistics, the Kenyan government and the East African Grain Council have been working together since 2008 to create a new warehouse receipt system, resulting in 18 private warehouses certified alongside the state-owned and state-operated warehouses. In 2016, the income of the participating warehouses increased by 14-40% (EAGC, 2016).

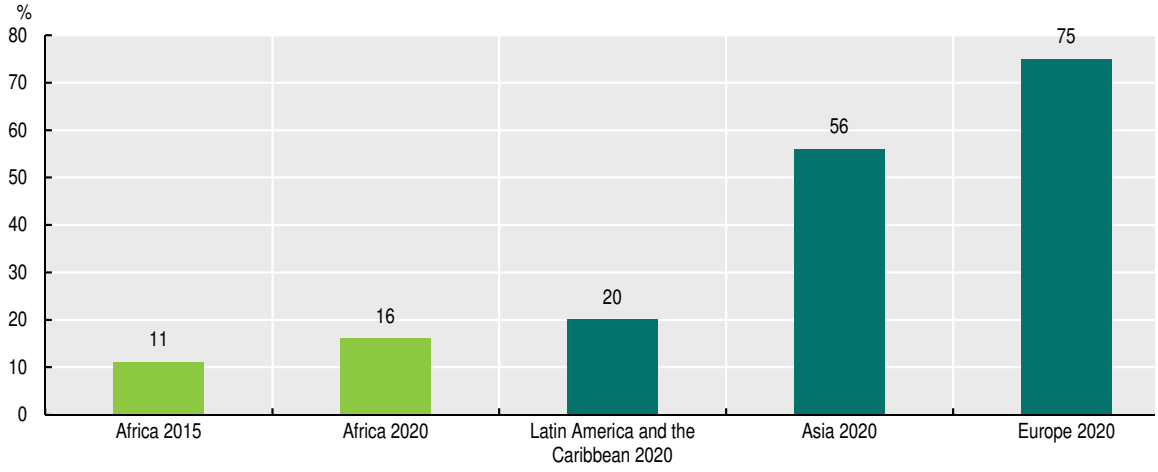
The digitalisation of cross-border customs operations can help governments to reduce costs and increase transparency. The Automated System for Customs Data (ASYCUDA) programme adopted by 27 African countries, has helped increase and secure customs revenue, and reduce clearance times and trade costs (UNCTAD, 2020). For example, the Abidjan-Ouagadougou corridor in West Africa experienced a 111% increase in transit documents processed between 2019 and 2020. Other countries, such as Morocco, have implemented their own automated customs systems. Morocco's system has contributed to a 20% increase in customs duties collected and an acceleration of export procedures from 2-3 days to 15-20 minutes (INSME, 2019).

Co-operation in providing soft and hard infrastructure for data will improve data flow across African countries

Ensuring the safe and seamless flow of data across borders is key to building regional value chains in the context of Industry 4.0. All stages of modern production and supply chain management increasingly depend on generating, sharing and processing digital data (see Chapter 1). Moreover, connecting Africa's national digital economies through a seamless cross-border data flow will generate economy of scale, attract investment in critical areas such as data centres and boost competitiveness.

African economies need to continue to build hard infrastructure for cross-border data flow. New analysis of Africa's international Internet bandwidth performed for this report reveals that Africa's Internet network is increasingly oriented towards other African partners, albeit from a low base. Intra-regional bandwidth has increased in Africa from 11% of total bandwidth in 2015 to 16% in 2020 (Figure 2.1). However, this estimate trails far behind other world regions such as Latin America and the Caribbean (20%), Asia (56%) and Europe (75%). Plugging this gap is particularly important to connect landlocked countries to the undersea cable and to reduce latency for intra-Africa Internet traffic. To do this, the PIDA plays an important facilitator role in attracting new investment to expand the terrestrial fibre-optic network and enhance Internet exchange points among African countries.

Figure 2.1. **Intra-regional Internet bandwidth, by continent**



Note: Data reflect traffic and bandwidth utilisation over Internet bandwidth connections across international borders. Data as of mid-year.

Source: Authors' elaboration based on data from Telegeography (2021), *Global Internet Geography* (database), www2.telegeography.com/telegeography-report-and-database.

StatLink https://doi.org/10.1787/888934297978

Africa's performance in adapting favourable regulations for data flow is limited. A recent assessment of 28 African countries identifies weak regulations on data protection as one of the main restrictions to digital trade on the continent (OECD/ECA, forthcoming). Another exercise suggests that African countries are less likely to have an open model for domestic and cross-border data transfers than other developing countries (Ferracane and van der Marel, 2021). Open data regulation helps facilitate trade in services and increase the productivity of local firms (Ferracane and van der Marel, 2018).

African countries can rely on a variety of mechanisms to enable cross-border data flows (Table 2.2):

- African countries have been active in using **plurilateral arrangements** to harmonise approaches to cross-border data flows. However, results have proven uneven. The ratification in 2014 of the Convention on Cyber Security and Personal Data Protection (the Malabo Convention) has stagnated, and adoption of the 2013 SADC Model Law on data protection is limited. So far, only ECOWAS Personal Data Act is in place. The African Union's Digital Transformation Strategy for Africa (2020-2030), adopted in 2020, is the most recent and ambitious of all pan-African efforts to create a Single Digital Market on the continent.
- The adoption of provisions related to e-commerce and data remains limited among the **trade agreements** in Africa; partners outside of Africa tend to be given priority. Going forward, the sparsity of e-commerce-related provisions in trade agreements can help avoid overlapping rules, which have often limited integration efforts for trading goods in Africa.
- Regarding **unilateral mechanisms**, 32 of the 54 African countries have enacted data privacy laws. About half of these laws are not yet in force, or not fully effective, nor are they harmonised between countries in most cases.
- In terms of **standards and technology-driven initiatives**, Africa has largely adopted global norms in the development of digital technology and infrastructure.

Table 2.2. **Regulatory mechanisms that affect cross-border data flows**

Type of mechanisms	Examples relevant to Africa's context
Plurilateral arrangements	• African Union Digital Transformation Strategy for Africa (2020-2030) • 2018 Policy and Regulation Initiative for Digital Africa • 2014 Malabo Convention (African Union Convention on Cyber Security and Personal Data Protection) • 2010 ECOWAS Data Protection Authority (Supplementary Act A/SA. 1/01/10 on Personal Data Protection) • 2013 SADC Model Law on Electronic Transactions and Electronic Commerce • 1981 Convention 108 (Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data)
Trade agreements and partnerships	• E-commerce chapter in the United States-Morocco (2004) Free Trade Agreement (FTA) • Privacy provision related to e-commerce in European Union-Eastern and Southern Africa States Economic Partnership Agreement (EPA) (Article 15.6) and European Union-Ghana EPA (Article 68) • European Union-Algeria Regional Trade Agreement with a co-operation provision on information services (Article 60) and a domestic framework provision on personal data protection (Article 45) • United States' proposal in United States-Kenya FTA negotiation • World Trade Organization Joint Statement Initiative (six African countries)
Unilateral mechanisms	• Open safeguards including ex-post accountability principles, contracts and private sector-led adequacy decisions • Pre-authorised safeguards including public adequacy decisions and public sector-led ex-ante safeguards
Standards and technology-driven initiatives	• International Organization for Standardization/International Electrotechnical Commission (ISO/IEC) 27701:2019 • Privacy-enhancing technologies (e.g. cryptography, sandboxes)

Source: Authors' elaboration based on a framework proposed by Casalini, López-González and Nemoto (2021), "Mapping commonalities in regulatory approaches to cross-border data transfers", *OECD Trade Policy Papers*.

At the national level, establishing a data protection authority (DPA) enables the enforcement of data protection laws adopted by various regulatory mechanisms. DPAs can facilitate enforcing data protection laws by detecting, investigating and penalising violations. They can also help increase awareness of data protection rights and obligations. To date, 15 African countries have established a national DPA to enforce the law with varying levels of capacity (Greenleaf and Cottier, 2020; Ilori, 2020). To ensure greater data protection, more countries need to establish independent DPAs with robust legislative and enforcement frameworks.

Regional Economic Communities can help shift data protection laws from a national preoccupation to a continental-wide concern. For example, the African DPA Network was created in 2016 to share privacy practices, foster co-operation between African DPAs and support countries that may not have the resources and capacity for effective DPAs. Currently, however, only 11 African countries are part of this network. Regional Economic Communities need to expand the scope of existing plurilateral agreements to the continental level to improve customers' trust and legal certainty for investments. For instance, in Côte d'Ivoire, processing personal data outside of the ECOWAS region requires prior authorisation, as mandated by the ECOWAS DPA. To take advantage of opportunities that arise from continental integration, this approach needs to become an Africa-wide standard.

At the continental level, African governments need to take advantage of the AfCFTA process to adopt a holistic approach to digital transformation. The accelerated negotiation of the protocols on e-commerce allows for discussion of other cross-cutting issues such as service trade, competition and investments. A unified continental approach, combined with the implementation of the African Union's Digital Transformation Strategy for Africa (2020-2030), is also critical to give African countries a stronger advantage in shaping global data governance (AUC/OECD, 2021). African governments can also future-proof the AfCFTA by including explicit commitments to international data agreements and international mobile roaming services. These issues have featured prominently in recent trade agreements, such as the 2021 free trade agreement between Iceland, Liechtenstein, Norway and the United Kingdom.

Proactive policies can strengthen industrial linkages in regional production networks

Strengthening linkages between workers, suppliers and multinational enterprises is vital to developing regional production networks. However, weak productive capacities and barriers to investments continue to limit their development (see Chapter 1).

This section identifies policies to strengthen RVC participation for workers, local producers and lead firms. First, it reviews policy priorities for developing skills, especially in the context of the digital transformation and opportunities in green value chains. Second, it highlights how public procurement can create a demand-pull for industrial upgrading among regional producers. Third, the section explores how harmonising domestic investment frameworks and facilitating investment among existing networks of industrial clusters can help attract lead firms.

Skills policies depend on the specific needs and upgrading goals in each value chain

A skilled workforce is key to attracting investment and increasing linkages with lead firms. Talent and skills rank among the top four determinants driving foreign investment to developing economies, alongside political and macroeconomic stability and sound regulatory frameworks (World Bank, 2020). Many downstream activities such as sewing

(textiles) and assembly (electronics) depend on abundant manual labour as well as supervisors, managers and quality controllers. Participation in higher value-added and knowledge-intensive activities including research and development, industrial design, and aftercare services requires technical and other advanced skills. So far, technical and vocational education and training (TVET) remains limited, and significant mismatches persist between youth education and career aspirations, hindering the potential for upgrading (Box 2.3).

Box 2.3. **Youth aspirations and the reality of jobs in Africa**

The gap between youth job aspirations and the reality of the labour markets in Africa is large (AU, 2018). Accelerating the creation of quality jobs is crucial to absorb into the labour markets the 29 million Africans reaching working age each year from now until 2030 (AUC/OECD, 2019). Currently, the majority of jobs available remain in agriculture. Globally, over one-third of rural youth work in agriculture, while the share can reach very high levels in low-income countries (e.g. 71% in Uganda and 79% in Madagascar) (OECD, 2018). Around 39% of surveyed youth across ten African countries work in agriculture compared to 14% in manufacturing and construction, 26% in trade and transportation, and 21% in all other services. However, most jobs in agriculture, occupied by women at 54% in 2019 (ILO, 2020), are characterised by low pay and poor working conditions, without formal contracts or basic social protection, making them less attractive for young people.

An OECD study on career aspirations shows large gaps between what young Africans want to do and the reality of the labour markets. Evidence from ten countries – Benin, Republic of the Congo, Egypt, Liberia, Madagascar, Malawi, Tanzania, Togo, Uganda and Zambia – shows that over 80% of youth in school wish to work in high-skilled occupations, while in reality only 8% are able to find such jobs. Job security was noted as the most important driver of job satisfaction, even more than earnings. Indeed, 74% of youth want a job in the public sector for the job security, while only 12% of employed youth are found in this sector. Agriculture-related work or medium-skilled jobs in manufacturing are the least attractive for young Africans.

Even if labour market conditions were to improve, the large gap between aspirations and the reality of the labour markets is likely to persist due to the high level of skills mismatch. According to subjective measures, about 55% of young African workers think that their education is relevant to their job, while the others feel either overqualified or underqualified, with underqualification affecting more young people in low-income countries. When using a normative approach – comparing actual qualifications with the qualifications required for a job – only 29% of young workers are actually qualified for the work that they do.

Long-term unmet career satisfaction can lead to social unrest, and policies are urgently needed to address the misalignment between youth employment preferences and employment opportunities. A two-pronged approach is recommended: i) helping young people shape career aspirations that are realistic and that can fit with the world they will be entering; and ii) improving the quality of jobs with due regard to the job conditions that matter for young people, particularly in agriculture. Agriculture is the main provider of jobs for rural youth in Africa and will remain so for some time. Making farming and related medium-skilled occupations in food processing or food services more attractive for young people means ensuring job security, providing training for skills upgrading, improving farmers' income and modernising agricultural practices.

Source: Lorenceau, A., J. Rim and T. Savitki (2021), "Youth aspirations and the reality of jobs in Africa", *OECD Development Policy Papers*.

Skills policies for value chain development need to be tailored to the specific segments of value chains and the upgrading goals. Figure 2.2 summarises different approaches to address the challenges for upgrading skills in regional and global value chains. In the long term, reforms to education systems are necessary, in particular to improve the quality of education and its alignment with labour market needs (AfDB, 2020) and to include disadvantaged populations (e.g. women, rural dwellers). In the short to medium terms, focusing on upskilling and reskilling, according to sector-specific and socio-economic transformation needs, is crucial.

Figure 2.2. **Priorities for skills policies to develop value chains**

	Early reactive interventions	Proactive interventions	Long-term oriented interventions
Targeted workforce	Near-hires and existing workforce	Career changers or secondary students considering tertiary education	Future students
Involved stakeholders	Private sector supported by public sector	Private & public sector, multi-stakeholder council	Public sector & educational institutions
Priorities	Expand exports, productivity, competitiveness, and meet standards requirements	Carry out higher value-added activities in existing or emerging sectors (digital and green economies)	Adapt skills for rapidly changing knowledge and technology environment
Upgrading goals	Value chain entry, product and process upgrading	Functional upgrading	All types of upgrading
Policy interventions	• Evaluate sector-specific skills gaps • Incentivise firms to provide on-the-job training and upskilling opportunities • Prioritise managerial skills development • Implement skills recognition systems at national and regional levels	• Determine potential upgrading trajectories in RVCs and GVCs • Identify emerging jobs and skills requirements • Enhance public-private dialogue with TVET institutions • Prioritise targeted technical training • Incentivise firms to re-skill internal workforce according to evolving needs	• Keep investing in core skills (literacy, numeracy, digital skills) • Emphasise soft skills acquisition • Increase TVET and STEM enrollment and alignment with labour market requirements • Institutionalise multi-stakeholder co-ordination on curricula development • Develop labour market information systems

Notes: RVCs = regional value chains; GVCs = Global value chains; TVET = technical and vocational education and training; STEM= science, technology, engineering and mathematics.

Source: Adapted from Fernandez-Stark, Bamber and Gereffi (2012), "Upgrading in global value chains: Addressing the skills challenge in developing countries", *OECD Background Paper*.

Strengthening the collaboration between the private sector, training institutions and policy makers at the sectoral level can help identify the skills needed in the workforce and design appropriate training programmes. In Rwanda, for instance, the government set up the National Agricultural Export Development Board to facilitate dialogue and provide training to private stakeholders and co-operatives involved in agricultural and livestock production for export (World Bank, 2015). In Guinea, the International Finance Corporation and international mining companies have supported more than 100 local suppliers in the mining sector by providing training, building managerial capacity and facilitating access to finance. Through the programme, these local businesses have gained USD 9.1 million in contracts with the lead firms (World Bank/KEDP, 2015). Governments can also promote on-the-job training to upgrade workers' capabilities. Currently, only 28% of African firms offer formal training to their workers (World Bank, 2020). In South Africa, providing tax incentives has encouraged firms to offer training opportunities to employed and unemployed South Africans aged 16 to 35 (OECD, 2017).

Skills policies need to adapt to new requirements emerging from the digital transformation. Addressing the growing need for digital skills can help workers upgrade their capacities at all levels of a value chain. In the food value chain, for instance, the provision of basic digital skills and foundational skills (literacy, numeracy) could help on-farm workers benefit from new technologies to improve production yields and connect to local markets (AfDB, 2020; Jeehye et al., 2020). In 2021, the African Union, AUDA-NEPAD and UNESCO launched the Pan African Initiative for Digital Transformation of TVET and Skills Development Systems in Africa to reform both formal and informal technical and vocational education and training systems and adapt to the growing transversal and digital skills requirements (UNESCO, 2021).

Policy makers can also design skills policies to tap new opportunities in "green" value chains and to help existing sectors such as agriculture or manufacturing adapt to climate change. Successfully transitioning to environmental sustainability will require reskilling and upskilling the current and future workforce. For instance, Senegal's National Strategy for the Promotion of Green Jobs (2015-2020) provided support to strengthen skills and capabilities in green industries, which resulted in the creation of over 2 000 green jobs mainly for youth and women (UN, 2019). At the regional level, ECOWAS adopted both the Energy Efficiency Policy and the Renewable Energy Policy in 2013, developing a harmonised framework for qualification standards and skills certification in the renewable energies sector.

Intra-regional skills mobility should be encouraged to alleviate skill shortages and foster further integration. Skills mobility largely determines participation in manufacturing global value chains for African countries (Yameogo and Jammeh, 2019). Existing initiatives by Regional Economic Communities have laid the groundwork for removing restrictions on the intra-Africa mobility of skilled labour and reducing labour market mismatches across the continent. For instance, the East African Community (EAC) implemented sector-specific mutual recognition agreements in accounting, architecture, engineering and veterinary practices. Since 2011, nine SADC countries have started to harmonise their national qualification frameworks, with the aim to improve the comparability and recognition of professional skills (Sawere, 2019).

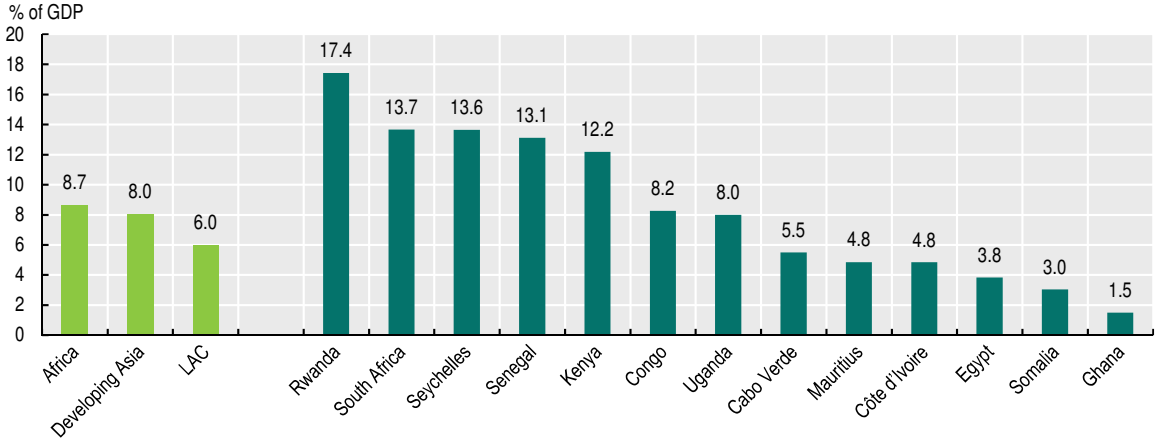
Modernising and broadening public procurement programmes will help regional producers upgrade their industrial capacity

Public procurement can create a strong demand-pull for local producers. Over the 2015-19 period, public procurement – the purchase of goods and services by governments and state-owned enterprises – accounted for a yearly average of 8.7% of gross domestic product in Africa compared to 8% in developing Asia and 6% in Latin America and the Caribbean (Figure 2.3). Through tools such as "buy national" policies, set-asides for targeted groups (such as small and medium-sized enterprises) and technology transfer requirements for foreign bidders, public procurement contracting can create employment, promote firms' upgrading and develop regional supply chains (UNIDO, 2017). Findings from a survey across 19 African countries suggest that a 10-percentage-point increase in the share of total output sold to a government is associated with 4% higher productivity (Hoekman and Sanfilippo, 2020). Given the importance of public procurement for industrial development, the African Union recently called upon member states to allocate at least 30% of public procurement contracts to the African private sector, including small and medium-sized enterprises and women- and youth-owned businesses (AU, 2021).

The current use of public procurement in Africa raises concerns over its efficiency and inclusiveness. Calculations based on the World Bank Enterprise Surveys show that 32% of African firms resort to bribery to secure government contracts. Without a competitive

and transparent bidding process, preferential procurement policies create dependencies and inefficiencies across the supply chain, reduce the availability of competitively priced inputs and skilled workers, and deter foreign investment. Furthermore, many producers, especially small and medium-sized enterprises, cannot engage in public contracts due to the slow payment process, government arrears, and lack of adequate information, knowledge and skills to successfully tender for government contracts. On average, producers in Africa have to wait six months to receive payments from public contracts (World Bank, 2016).

Figure 2.3. **Government procurement spending as a percentage of gross domestic product, 2015-19 average**



Note: This figure draws on the OECD methodology to derive general government procurement spending. Africa, developing Asia, and Latin America and the Caribbean (LAC) averages are weighted. Asia includes 11 countries: Afghanistan, Indonesia, Jordan, Kyrgyzstan, Mongolia, Myanmar, Nepal, Philippines, Thailand, Timor-Leste and Uzbekistan. LAC includes 9 countries: Brazil, Chile, Colombia, Costa Rica, El Salvador, Honduras, Mexico, Paraguay and Peru.

Source: Authors' calculations based on the OECD methodology and data from IMF (2021), *Government Finance Statistics* (database), https://data.imf.org.

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Investment in e-procurement systems can improve timely and transparent payments of suppliers. The use of e-procurement systems stands at less than 25% for most African countries, compared to more than 75% for member states of the European Union and the Association of Southeast Asian Nations (Hoekman et al., 2021). In Cabo Verde, the institutional reform and new e-procurement system encouraged the participation of small and medium-sized enterprises in the bidding processes, from only 15 enterprises in 2012 to 444 in 2015, and stimulated average growth in sales revenue by 43% (World Bank, 2016).

In the context of the AfCFTA, governments could broaden existing public procurement schemes to promote participation from regional firms. Eligibility criteria for preferential treatment can be expanded beyond narrowly defined domestic producers to cover regional actors. Most recently, EAC private sector stakeholders called for a "Buy East Africa, Build East Africa" approach to develop regional supply chains, notably in the pharmaceutical sector (TMEA, 2021). Harmonisation of product standards and mutual recognition agreements will also reduce the costs for African suppliers to participate in regional markets (Box 2.4).

Box 2.4. Harmonising and strengthening quality standards systems in Africa

The harmonisation of quality standards makes it cheaper for small and informal businesses to obtain and maintain them. For example, products in the EAC that are certified based on harmonised standards avoid the cost of re-testing. This reduces the cost of complying with multiple quality standards from an average of USD 205 to almost zero and reduces the clearance time for conformity assessment from 38 days to 0.5 days for certified products with notified quality certification marks (TMEA, 2019).

To exploit the benefits from the AfCFTA, governments can harmonise regional standards and accelerate the implementation of mutual recognition agreements. Out of 1 991 products with comparative advantage on the continent, three-quarters have no quality standards harmonised at the Regional Economic Community level. Because the harmonisation of all quality standards at once is not possible, the quality standards harmonisation process at the continental level should prioritise products that have a comparative advantage in at least two Regional Economic Communities and for which quality standards already exist in at least two such communities (UNECA, 2020).

At the same time, African countries need to strengthen their quality standards infrastructure. Twenty-six African countries do not have sufficient quality standards infrastructure such as accreditation, metrology systems and national standard bodies to meet the demands for conformity assessment and quality control. Throughout the continent, clearly delineating the responsibilities in rule-making and verification functions among governments agencies can reduce conflicts of interests and hurdles for necessary compliance (PAQI, 2020). Cross-border sharing of technical capabilities could help bridge the gaps in implementation capacities across African countries and accelerate the co-ordination efforts. For example, COMESA established regional associations of regulatory authorities to facilitate policy and regulatory harmonisation as well as foster capacity building and information sharing between its members.

Furthermore, harmonisation of public procurement regulations can lower the costs of cross-border participation and reinforce the quality and integrity of procurement awards. For instance, COMESA adopted a common framework on public procurement to reform national procurement systems (AfDB, 2018). Similarly, WAEMU's Regional Public Procurement Enhancing Project aims to harmonise public procurement regulations to alleviate barriers to regional participation. This initiative also led to the establishment of a Regional Observatory of Public Procurement to strengthen oversight mechanisms and transparency across West Africa (Nam, 2019).

Regional efforts in attracting investments from lead firms can benefit from better monitoring and prioritisation

Institutionalising a strong monitoring structure is vital to accelerate the domestic adoption of the Pan-Africa Investment Code

A number of African firms have expanded their geographic footprint beyond their home market, but they remain focused on a few sectors and countries. Table 2.3 provides some examples of such firms in Africa. Many have a strong continental orientation, with African subsidiaries accounting for more than half of their subsidiaries abroad. However, intra-African investments remain concentrated in a few sectors – finance, telecommunication, energy and mining, and retail. South Africa comprises the majority of firms investing in other African countries, reflecting its position as a central node in Southern Africa's regional production networks (Qiang, Liu and Steenbergen, 2021).

Table 2.3. **Performance and geographic footprint of selected African multinational enterprises, 2019**

Home country	Name	Sector of activities	African subsidiaries*	Number of African countries	Number of employees	Operating revenue (in USD)
South Africa	Shoprite Holdings	Retail	56%	16	142 602	12 234 902
South Africa	MTN Group	Telecommunications	50%	18	19 295	12 219 844
Egypt	El Sewedy Electric company	Energy	9%	7	14 463	2 993 803
Nigeria	Dangote Cement	Mining, cement, agro-food, packaging, oil and gas	84%	24	15 478	2 726 903
Morocco	Attijariwafa Bank	Finance/banking	69%	15	20 583	2 677 403
Nigeria	Zenith Bank	Finance/banking	50%	3	7 544	2 410 595
Mauritius	IBL	Multiple (e.g. finance, logistics, retail)	11%	8	25 205	1 435 793
Togo	Ecobank	Finance/banking	88%	33	14 023	946 449
Kenya	KCB Group	Finance/banking	30%	5	7 525	907 226
Cameroon	Afriland First Bank	Finance/banking	82%	8	n/a	883 205
Gabon	BGFI Holding Corporation	Finance/banking	50%	8	n/a	140 138

Note: *Share of subsidiaries located in Africa; n/a = not available.
Source: Authors' compilation based on data from Bureau van Dijk (2021), *Orbis | Company Information across the Globe* (database), https://orbis.bvdinfo.com/version-20211118/orbis/1/Companies/Search.

Countries need to take advantage of the Pan-African Investment Code and the AfCFTA to tackle regulatory barriers for investment in Africa (see Chapter 1). Research on foreign direct investment (FDI) location choices of African lead mobile network operators finds that most operators do not expand in geographically close markets; instead, their investments decisions hinge on African countries with better institutional frameworks (Dike and Rose, 2018). While the negotiations on the AfCFTA Investment Protocol were still ongoing at the time of writing (November 2021), early indications suggest that adoption of the protocol and the Pan-African Investment Code (agreed in 2017) will help facilitate investment in Africa. Investment agreements can reduce perceived risks for investors by improving transparency and predictability in policy making and implementation, aligning domestic regulation with international legal frameworks, notably by applying harmonised frameworks throughout the continent, and facilitating access to dispute settlement mechanisms.

Existing regional experience in co-ordinating investment frameworks in Africa offers important lessons to support the implementation of continental initiatives. In 2020, ECOWAS launched the Improved Business and Investment Climate in West Africa initiative to identify barriers to investment and to implement and monitor the results of reforms to the private sector through the ECOWAS Investment Climate Scorecard (ECOWAS, 2020). In 2016, SADC also developed the SADC Regional Action Plan on Investment to facilitate regional co-ordination and exploit economies of scale in improving investment frameworks and policies across its member states.

Establishing monitoring structures can help track progress and ensure domestic adoption of regionally agreed reforms, as SADC has done. The SADC Secretariat, in collaboration with the OECD, developed a set of indicators to benchmark and monitor members states' progress in implementing the SADC Investment Policy Framework (Table 2.4). The SADC Secretariat should assume the central monitoring responsibility, while devolving specific reporting functions to dedicated national contact points in each member state.

International co-operation can also support the implementation of the AfCFTA's Investment Protocol and boost investment in Africa. Currently, numerous international initiatives for promoting investments to Africa exist (see Annex 2.A2). The multiplicity

of platforms also necessitates co-ordination and experience sharing among African countries and their partners. For example, the AUC-OECD Development Centre Platform on Investment and Productive Transformation aims to facilitate this co-ordination and share experiences between African countries and their development partners.

Table 2.4. **Selected indicators to monitor progress of the SADC Investment Policy Framework**

Action areas	Benchmarking and monitoring indicators
1. Setting up a transparent and coherent investment environment	• Transparency of government policy making • Regulatory quality • Quality of government online services • Total number of days required to start a business
2. Ensuring market access and competition	• Openness to foreign investment (de jure and perception-based) • Effectiveness of an anti-monopoly policy • Effect of taxation on incentives to invest
3. Supporting responsible business and inclusive investment for development	• Number of jobs created per unit of capital expenditure invested • Domestic and foreign firms offering formal training programmes • Domestic and foreign firms with permanent full-time female workers in the manufacturing sector • Share of small and medium-sized enterprises that are involved in direct export activities
4. Providing investment security and protecting investors' rights	• Political stability and absence of violence • Quality of the land administration index • Intellectual property protection • Absence of corruption
5. Promoting regional and international co-operation	• Regional and intra-regional direct investment positions • Quality of connectivity infrastructure • Efficiency of customs procedures • ICT Development Index

Source: Authors' elaboration based on Table A.2 in OECD/SADC (2017), *Role of Monitoring for Implementation: Advancing investment Policy Reforms in the Southern African Development Community*.

Policy makers should facilitate investment and develop infrastructure along existing networks of industrial clusters

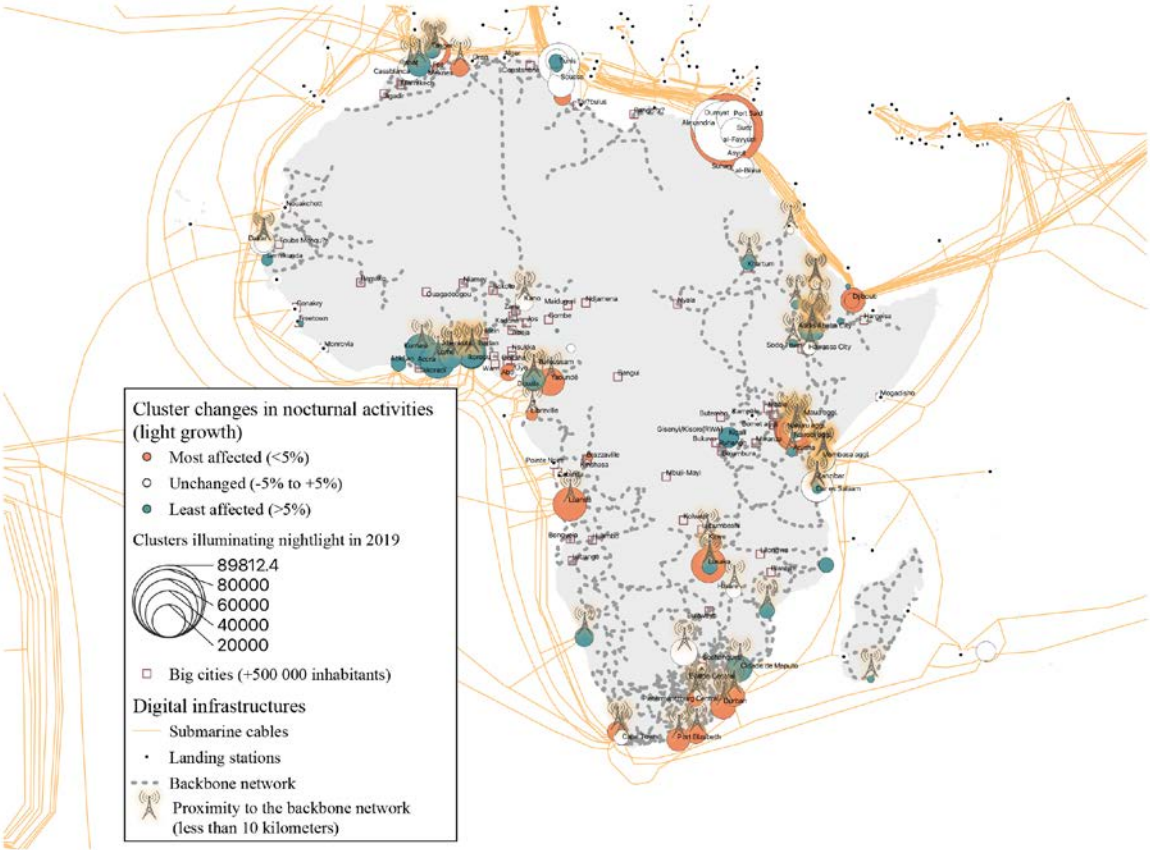
Africa's existing networks of industrial clusters provide a critical entry point for facilitating value chain development. According to estimations by the United Nations Conference on Trade and Development, the number of African special economic zones grew from about 20 in 1990 to 237 in 2020 spanning across 38 countries (UNCTAD, 2021). Cluster policies enable governments to concentrate public investment in one location and tackle critical bottlenecks to local competitiveness. The higher density of firms, of services providers and of research institutions can facilitate technology transfers and innovation.

The development strategies of industrial clusters vary across contexts depending on the availability of production factors, market access, strategic location and the local absorptive capacity. For instance, Ethiopia's clustering strategy relied on low labour costs and tax incentives to attract lead firms like Decathlon, H&M, Primark and Tesco to integrate global textile production networks. In Morocco and South Africa, emerging eco-industrial parks such as Ouarzazate Solar Power Station and Cookhouse Wind Farm help attract green investments, integrate firms into sustainable value chains, and achieve social, environmental and economic targets. In Egypt, the Robbiki Eco-Leather Park aims to develop the local leather industry while lowering local tanneries' environmental impact. For this purpose, the cluster opened a Leather Technology Transfer Centre involving local and foreign firms to promote the adoption and upgrading of green technologies by local factories (UNCTAD, 2021).

The quality of public infrastructure is critical to the success of special economic zones. Our analysis of night light intensity across 127 African industrial clusters – special economic zones, export-processing zones and industrial parks – showcases the growth

in cluster-based economic activities, almost doubling over the 2012-19 period (Box 2.5). While all clusters experienced a drop in night light intensity in 2020, clusters benefiting from better access to communication infrastructure – located less than 10 kilometres from a broadband backbone network – experienced a smaller downturn at the onset of the COVID-19 shock than unconnected clusters (Figure 2.4). This proximity to a broadband network can serve as an indicator of access to other critical infrastructures, such as electricity, that are necessary for industrial development and competitiveness.

Figure 2.4. **Change in night light intensity across selected industrial clusters in Africa, 2019-20**



Note: Night light intensity is used as a proxy for activity and development across 127 industrial clusters operating in 31 African countries.

Source: See Annex 2.A1.

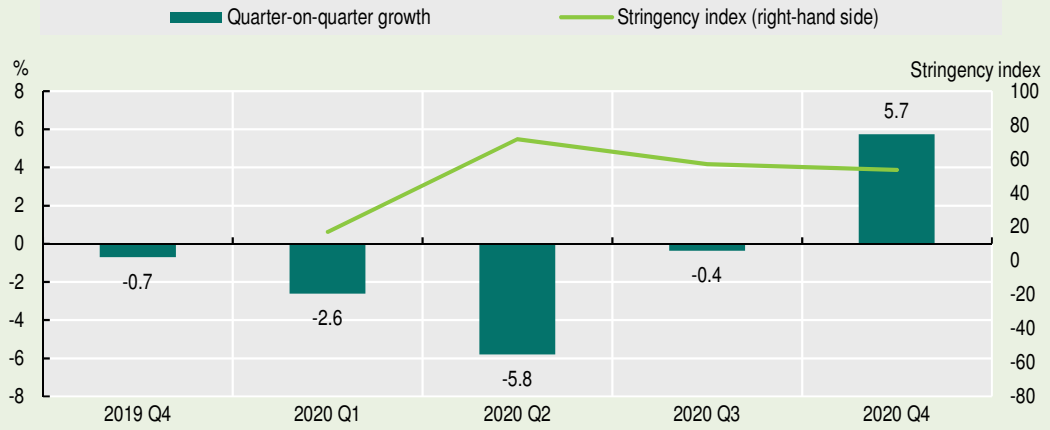
Box 2.5. **Industrial clusters in Africa during COVID-19**

Industrial clusters exhibited high levels of activity prior to the slowdown in foreign direct investments in 2019. Between 2012 and early 2019, night light intensity almost doubled at the continental level. The cluster's dynamic activity and development that this implies were mostly driven by African economies' early industrial development. Egypt, Kenya, Morocco, Nigeria and South Africa hosted more than half (73) of the 127 clusters operating across 31 countries.

Box 2.5. **Industrial clusters in Africa during COVID-19 *(continued)***

The shutdown of the economy caused by COVID-19 halted cluster activity until the end of 2020 (Figure 2.5). Weaker global demand, mobility restrictions and production constraints reduced the level of activity within clusters compared to 2019, resulting in a steady decline in light emissions, with the largest drop (-5.8%) recorded in the second quarter of 2020 compared to 2019, simultaneously with the application of more stringent COVID-19 restrictions (by an average score of 71 on a scale of 100). Clusters' light emissions bounced back by 5.7% in the last quarter of 2020 as restrictions were progressively lifted.

Figure 2.5. **Growth rate of night light emissions and government interventions within clusters, 2019Q4-2020Q4**



Note: Light growth emitted from clusters is calculated monthly by comparing 2019 and 2020 figures. The Stringency Index from 0 to 100 is averaged from day to month and records the strictness of government policies during the COVID-19 outbreak. High index values mean that selected African countries adopted stricter rules.

Source: Authors' calculations based on the night light intensity data from Colorado School of Mines (2021), *VIIRS Nighttime Lights* (database), https://payneinstitute.mines.edu/eog/nighttime-lights/, and CIIP (2018), "Location of clusters", *Competitive Industries and Innovation SEZ Database*, www.theciip.org. The Stringency Index comes from Blavatnik School of Government/University of Oxford (2021), *Oxford COVID-19 Government Response Tracker*, https://www.bsg.ox.ac.uk/research/research-projects/covid-19-government-response-tracker.

StatLink https://doi.org/10.1787/888934298016

Investment in connective infrastructure among these industrial clusters can help facilitate regional production networks. Several regional corridors have emerged in recent years, such as the LAPSSET Corridor (Kenya-Ethiopia), the Central Corridor (Dar es Salaam-DR Congo), the Maputo Development Corridor (Mozambique-South Africa) and the Walvis Bay Corridor (five SADC countries). In North Africa, road infrastructure development facilitated the emergence and attractiveness to foreign lead firms of technology parks such as Smart Villages between Cairo and Alexandria and the El Ghazala high-tech zone between Tunis and Bizerte. Similarly, in West Africa, public investments in road networks to connect Abidjan to the Lagos-Accra corridor in West Africa significantly boosted FDI inflows (UN-Habitat, 2018).

Investment promotion agencies (IPAs) can further facilitate investment from lead firms into key segments of the value chain. IPAs act as interlocutors between governments and foreign businesses, such as in the area of tax compliance (Box 2.6). They can also provide different types of services such as matchmaking, financial assistance (credit, insurance), market intelligence, local business branding and investor aftercare. Past experiences from developing countries show that governments should focus on the following points when

establishing IPAs: i) ensure high-level government support; ii) establish clear targets for investment promotion; iii) consult local public and private stakeholders to ensure strategic alignment; iv) facilitate collaboration with other investment institutions and funds; and v) provide sufficient and sustained financial resources (World Bank, 2020).

Box 2.6. **African tax officials' perception on tax compliance of multinational enterprises**

Taxation has become an increasingly important issue, and recent years have seen various new principles and reporting standards emerge to help demonstrate and track corporate behaviour on tax. A number of these principles relate to how businesses interact with tax authorities, making it difficult to assess compliance with or the impact of such initiatives, as they relate to confidential interactions.

To help address this issue, the OECD recently carried out a perception survey of more than 1 240 government officials (most of them tax auditors) working in tax administrations in 139 countries (OECD, 2021). The survey included 206 responses from 34 African countries. It aimed to capture tax officials' perceptions of the tax behaviour of multinational and other large companies against the voluntary principles developed by Business at the OECD (the business representation at the OECD) (BIAC, 2013). The survey highlights various areas for strengthening tax compliance in Africa, such as responding to information requests and addressing tax disputes. In partnership with the African Tax Administrators Forum, the OECD then organised a virtual roundtable that brought together African tax officials and businesses in April 2021 to discuss these results and potential solutions to the challenges identified.

More broadly, building trust and facilitating communication between tax authorities and businesses lie at the heart of many proposed solutions. Only 37% of tax officials in Africa say that most multinational enterprises (MNEs) are not open and transparent. Similarly, 34% of African tax officials do not trust the information they receive from most MNEs. To improve these relationships, tax administrations can make it easier for businesses to comply with tax laws by improving the clarity and specificity of demands made on businesses, while businesses need to ensure information is made available, including in the local official language. One way to improve relations is the use of guidelines for dealing with MNEs and other large businesses. The survey suggests a positive correlation between respondents identifying the existence of specific procedures and guidelines to deal with MNEs and perceiving higher levels of trust in MNEs.

Source: OECD (2021), *Tax Co-operation for Development: Progress Report in the COVID-19 Era*.

Annex 2.A1. Examples of promising continental and regional value chains in Africa

Table 2.A1.1. **Overview of promising continental and regional value chains in Africa**

Continental value chains				
Value chain	**Strengths**	**Weaknesses (Specific challenges)**	**Opportunities**	**Threats**
Agro-industry	Large workforce Competitive advantage in key cash crops (i.e. cashews, coffee, cocoa) 60% of the world's uncultivated arable land in Africa Increased food demand driven by population growth and urbanisation	Fragmented chain leading to a 20-50% mark-up import price in major agricultural inputs Only 10% of the continent's arable land being registered Agro-processing value-added below 50%	High export potential in processed products (e.g. fruits and nuts) The AfCFTA possibly increasing agricultural intra-African trade by 20-35% Changes in dietary habits Potential for higher productivity and more off-farm jobs in marketing and sales Sustainable farming for profitable agriculture value chains Attracting private sector investment flows	Recurring droughts, climate-induced disasters and faster desertification Falling youth labour participation in agriculture Limited uptake of conservation agriculture Shortage of skills and technologies Lack of financing and risk mitigation mechanisms Unsustainable land and soil management
Pharmaceutical	Strong political momentum (e.g. AUDA's Pharmaceutical Manufacturing Plan for Africa; AUC/UNIDO Business Plan; the African Union's African Medicines Agency) National initiatives to boost manufacturing development (e.g. Ethiopia, Zimbabwe) International co-operation mechanisms (e.g. WHO resolution of 2021 sponsored by all 54 African countries)	95% of medicines imported and 3% of global medicine produced locally An underdeveloped local sector with 375 pharmaceutical companies clustered in 12 countries Lack of education and skills policies that foster R&D in pharmaceuticals	The health and wellness sector in Africa being valued at USD 259 billion by 2030 Over 16 million potential jobs to be created by 2030 AfCFTA-anchored CPPM to encourage global manufacturers to build plants in Africa	Endemic diseases (i.e. Africa is home to 90% of the world's malaria deaths and 70% of the population lives with HIV/AIDS) Africa accounting for 42% of the world's cases of counterfeit drugs
Automotive	Up to seven additional jobs created by every automotive manufacturing job Rising demand (e.g. in 2019, Kenya's vehicle ownership, at 31.5/1 000 persons, outpaced population growth) Existing intermediary production (e.g. wiring harness in Botswana, seat leather in Lesotho)	Africa remaining a retail-automotive market Dominant semi-knockdown model reducing value chain development Limited access to affordable finance hindering car ownership	Aftermarket parts production offering an opportunity for industrialisation Electric two-wheelers leapfrogging to electric vehicle technologies Technological innovation and start-ups (e.g. Moove uses an alternative credit scoring technology offering better terms for borrowers)	Imported used cars with limited assembly potential hindering regional integration Protectionist pressure in favour of small national industries

Regional value chains				
Value chain	**Strengths**	**Weaknesses (Specific challenges)**	**Opportunities**	**Threats**
		Central Africa		
Coltan	Limited possible substitutes Commitment by Central African countries to the Extractive Industries Transparency Initiative	Lack of technical knowledge and innovation Limited public geological information Non-transparent contract bidding process	Small-scale mining services expanding social development Need for traceability, certification and logistical innovations Improved monitoring and harmonised data systems curtailing illicit trade	Political instability and illicit coltan trade Institutions unable to secure compliance with tax regulations Risk of intra-regional tax competition
Wood	Main source of formal jobs (e.g. Gabon) The forest cover of Central Africa representing 7% of the world's forests	Limited trade of processed goods slows down participation in international markets Ineffective forest management in the Congo Basin due to policy incoherence Skills shortage in science, technology, engineering and mathematics	Certification for sustainable and renewable exploitation Increasing demand in the furniture market Moderate costs in establishing processing factories and stable prices of wood products	Recent increase in deforestation rate Widespread illegal logging and corruption
Copper	The Central African copper-cobalt metallogenic belt being the world's largest and highest-grade sedimentary area Rise in consumption of refined copper, driven by China's construction manufacturing and auto industries	Scant profits from semi-processed copper as miners capture most rents High cost of exports Inefficient management of tax collection leading to revenue losses	Boosted demand from electrification, green technologies and smartphones A compound annual growth rate of 4.5% expected by 2024 for Africa's copper production Reduction in local copper price from developing technological capacity	Weak labour regulations Corruption and poor management of resources limiting social upgrading Land, water degradation and air pollution from sulphuric acid affecting residents near mines
		East Africa		
Coffee	Optimal growing conditions for coffee varieties Major export and source of foreign exchange	Market prices and structure skewed by few purchasers Declining coffee quality from disappearing high-quality cultivars High cost of production	Improved global bargaining power and pricing with regional collaboration Expanded domestic demand offsetting volatile export market and asymmetric information Niche markets for origin and geographic coffee appellations (e.g. terroir, single-origin and organic coffee)	Climate change and extreme weather, insects, and diseases Production-related environmental degradation
Tourism	Strong job-creating sector in the region Development driver in remote rural and less-developed areas Enhance regional tourism and integration (e.g. common entry visa, standard criteria for hotels) thanks to EAC measures	Operations below capacity (i.e. East Africa captures less than 0.5% of global tourism revenues) Restrictive regulations on air travel detrimental to competitive fares Regional disparities in the quality of roads and air infrastructure	Remote work (e.g. Mauritius launched a yearly, free digital Nomad visa in 2020) Tourism for large-scale events and exhibitions Firm-level upgrade through certification (e.g. IATA) allowing increased partnerships between and international firms	Vulnerability to external shocks (i.e. pandemics, financial crises) Underdeveloped intermediary segment (i.e. local tour companies) Unequal share of benefits when global tour operators and transport firms capture 40-50% of tourism spending in Kenya
Floriculture	Stable employment due to year-round production, mainly for women (e.g. in 2014, 75% of floriculture workers in Kenya were female) Climate and geographic advantage Low production costs and simple export procedures	High interest rates for farmers' loans Uneven reliability of logistics compromising flower quality Prevalent auction sourcing systems limiting direct relationships between buyers and farmers	Diversification of horticultural products (e.g. prepared bouquets or pyrethrum, natural insecticides) Innovation and long-run competitiveness within cluster farming Alternative sales channels with new supermarkets	Lake Naivasha has seen drastic water level changes Transport pollution with air freight Vulnerability of export-oriented sector to macro shocks

Regional value chains				
Value chain	**Strengths**	**Weaknesses (Specific challenges)**	**Opportunities**	**Threats**
		North Africa		
Date palm	Continuous global increase in trade (i.e. in 2016, the region produced over one-third of the world's dates) Strong inter-regional linkages (e.g. in 2016, Morocco was the largest importer of Egyptian and Tunisian dates) Major source of export earnings and key cash crop for smallholders representing 70% of the total	Lack of R&D efforts on the supply chain and marketing Ill-equipped small-scale producers (e.g. poor machinery, cool storage and packing facilities) Outdated culture-related practices (i.e. hand-pollination, postharvest handling).	Secure source of food and nutrition, e.g. for school lunch programmes Use of pits and dates falling from palms before maturity for animal feed to reduce waste	The spread of pests (red palm weevil) and diseases (bayoudh) Security and political unrest in some countries
Energy production	Richly endowed region with solar and wind energy resources Increase in the region's renewable energy production by 40% over the last decade Successful reforms on feed-in tariffs, power purchasing agreements and auctioning, boosting private financing	Renewables' small role at 4.6% of the overall generation mix vs. a global average of 25% By 2025, USD 13 billion needed yearly to support infrastructure overhaul Penetration of renewable energy mostly focused on heat and transport	Major supplier to the rest of the continent (e.g. the share of gas in the energy mix is 5% in sub-Saharan Africa) Growing urbanisation and vehicle ownership making transport the fastest-growing energy industry Possible de-risk of investment and favourable timely deployment due to effective auction	Vulnerability of oil-dependent countries to cyclical shocks Continuous dependence on subsidies putting pressure on fiscal budgets Countries in water stress facing challenges in their energy transition because of thermal and hydroelectric power and high water dependency
Phosphate	Important holder of the world's phosphate reserves (Morocco alone has 74%) Leading source of foreign exchange earnings	Water-hungry processing activities Waste management and pollution affecting coastal dwellers Steady supply not guaranteed due to geopolitical turmoil	Beneficiation activities help sophisticate value chain integration Spurring adoption of customs and border procedures to drive regional trade World's phosphate growth projected at 7.2% annually between 2020 and 2027	Sociopolitical demands to shut down mining operations Climate impact from processing projected to double by 2050 Reduction in microbial functions that are key to crop health due to excessive phosphate use
		West Africa		
Construction	Rising local content (i.e. domestic companies acting as contractors or subcontractors for multinational corporations) Strong potential for productivity growth and multiplier effect Political will to reduce housing deficit	Corruption and inflated contract prices Rising project costs caused by hikes in steel and land prices Limited supply of capital and a weakening local currency	Expected growth of the global green cement market (i.e. USD 38.1 billion by 2024, from USD 14.8 billion in 2015) High reliance on backup generators, indicating growth opportunity in renewable energy ventures Alternative building technologies (i.e. expanded polystyrene panels, cement reinforced mud blocks) speeding up construction, reducing costs and mobilise more workers	Rising costs of building materials and labour Narrow fiscal space and post-COVID-19 debt burden limiting public infrastructure plans Competition from imported inputs
Poultry	Diverse labour streams from skilled veterinarians to unskilled farmers Regional demand for poultry being twice the supply capacity of 2017 Recent post-avian flu crisis public investments to revive the sector	Import restrictions over avian influenza concerns Limited access to credit facilities and insurance systems to support farmers Limited and inhospitable transport routes leading to product spoilage	Low investment costs facilitating vulnerable groups' integration (women) Research and development for more efficient feed and livestock care Municipal investments to enhance sanitation practices	Animal contamination and illness Competition from big producers Rising imports of frozen poultry and other close substitute meats

Regional value chains				
Value chain	**Strengths**	**Weaknesses (Specific challenges)**	**Opportunities**	**Threats**
Cashew nuts	Increasing demand for cashew kernels Strong political support to develop this value chain (e.g. Côte d'Ivoire targets a processing rate at 50% in 2030) Cross-regional measures promoting local processing (e.g. exemptions on import duties for machinery and direct subsidies and pre-finance support for raw cashew nut purchase)	High business and investment costs and infrastructure deficits Difficulty in ensuring raw cashew nut quality during the harvest season's four-month delay A lagging domestic processing market	Further processing (e.g. less than 15% of the nuts grown in East and West Africa are deshelled on the continent) Engagement for higher standards (traceability, transparency and sustainability of food chains) Further product upgrading as main export markets (i.e. European Union and United States) demand high-grade whole cashew kernels consumed mainly as snacks	Raw cashew nut export restrictions that promote processing having incentivised smuggling Export bans across land borders limiting access to raw materials by processors
Southern Africa				
Textile	Increasing global demand for African textiles Reinforced regional integration of textile and apparel value chains Close proximity to Asian markets	Competitiveness is weakened by high duties (e.g. a 22% levy on fabrics) Limited skills at technical and middle-management levels Marginal capital investments, efficiency-enhancing processes and skill-training from textile-related foreign direct investment (FDI)	Rapid increase of Chinese wages making the region more competitive Design, branding and marketing to move up in the chain Sourcing fabric within the region possibly reducing transportation costs	Toxic metals, dyes and bleaching agents making soil and sediment toxic Low entry barriers not incentivising worker upskilling and social upgrading Competition from second-hand clothing imports
Edible salt	Richly endowed region (i.e. salt reserves and dry climate for production) Salt mining inflicting minimal environmental damage Governments allocating permits to support small-scale mining	Lack of financing inhibiting construction and expansion of salt processing plants Energy-intensive and costly transportation Antiquated salt production and iodisation techniques	Growing chemical industry requiring high-quality imported salt Countries encouraged to join the Southern African Customs Union to minimise trade costs with major salt exporters (Botswana and Namibia) Mining and processing enable future manufacturing activities in minerals	Emerging oligopoly Trade barriers inhibiting necessary potassium iodate supply and disrupting iodisation processes
Aquaculture	Increase in aquaculture production in the Southern African Development Community (SADC) (i.e. 100 950 tonnes in 2020, from 92 773 tonnes in 2019) Roughly 145 000 direct jobs and 1 million benefiting indirectly Broad political will (i.e. implementation of national aquaculture programmes in 12 SADC states and its regional strategy)	Sub-optimal environmental conditions (temperature variation and aridity) Weak governance and onerous permits in the rezoning process Limited production due to the high energy coastline and a water-scarce inland area	Growing public support, expertise and FDI in aquaculture through NEPAD's Fish for All Summit (2005) and the Food and Agriculture Organization's Special Programme for Aquaculture Development in Africa Increasing Marine Protected Areas (MPAs) to help conserve fish stocks and marine life (e.g. South Africa's share of MPAs increased from 0.43% in 2016 to 5% in 2020) Business-oriented aquaculture boosting domestic private feed and diversify cultured fish species	Tourism possibly posing risks through waste and coastal habitat degradation Increasing intensification creating environmental and socio-economic risks Large fish meal volumes impacting wild stocks (adults and juveniles)

Source: Authors' compilation.

Annex 2.A2. Examples of flagship initiatives to mobilise investments in Africa

Table 2.A2.1. **Selected flagship initiatives to mobilise foreign investments in Africa**

Country (Lead agency)	Initiative (Latest update/end year)	Key features
China (Ministry of Foreign Affairs' Department for Africa)	Forum on China-Africa Cooperation (FOCAC) (2000-ongoing)	The main commitments of FOCAC have been related to increasing trade, scaling up foreign direct investment and fostering South-South co-operation. According to Chinese officials, through FOCAC, China has cancelled interest-free loan debts for 15 African countries. The forum is held every 3 years, and the latest took place in November 2021 in Senegal.
European Union	Africa Investment Platform (AIP) (2017-ongoing)	The AIP provides blending grant resources from the European Union to mobilise loans from the European Investment Bank and other eligible financing institutions.
	Africa-Europe Alliance for Sustainable Investment and Jobs	The Alliance leverages investment and trade to boost employment and sustainable growth in Africa. It builds on "a new framework enabling a substantial increase of private investment from both Africans and Europeans", as well as on the European Commission's proposals for the next Multi-Annual Financial Framework and the outcomes of the European Union-African Union Commission meetings. A EUR 40 billion investment in Africa has been proposed for 2021 through 2027.
France (AFD and PROPARCO)	Choose Africa (2018-22)	Choose Africa was initially set at EUR 2.5 billion to financially support African start-ups and micro, small and medium-sized enterprises and assist them at the various stages of their development, particularly through local partners.
	Choose Africa Resilience (2020-22)	The second part of the Choose Africa initiative added EUR 1 billion to support the formal and informal private sectors in Africa, which were weakened by the COVID-19 crisis. This mechanism comprises tools for loans, guarantees, equity investments and assistance tailored to the crisis situation.
India (Confederation of Indian Industry and Export-Import Bank)	CII-EXIM Bank Conclave on India-Africa Project Partnership (2005-ongoing)	The Conclave is key in building partnerships and enhancing the economic engagement between India and Africa. It is supported by India's Ministry of External Affairs and the Ministry of Commerce and Industry. The 16th edition of the Conclave was held in July 2021.
Japan (Ministry of Foreign Affairs)	Tokyo International Conference on African Development (TICAD) (1993-ongoing)	The last TICAD conference, in 2019 (TICAD VII), focused on business promotion and pledged to achieve over USD 20 billion in private investment. The TICAD process has a follow-up mechanism to hold ministerial conferences to track African development initiatives adopted by TICAD summits.
Spain (Ministry of Foreign Affairs)	Focus Africa 2023 plan of action under Plan Africa III (2021)	Focus Africa 2023 implements Plan Africa III. This blueprint pays strategic attention to fostering trade and increasing Spanish investment and the presence of Spanish firms in Africa. It prioritises the following sectors: agri-food; water sanitation and waste management; renewable energies; transport infrastructure; the chemical and pharmaceutical industry; and the digital transformation.
United States (USAID)	Prosper Africa (2020-26)	Prosper Africa is the United States Government's initiative to substantially increase two-way trade and investment between Africa and the United States. Worth up to USD 500 million over five years, for every USD 1 of public funding, Prosper Africa is expected to leverage more than USD 9 in private investment.
	African Growth and Opportunity Act, AGOA (2015-2025)	The AGOA provides 38 eligible sub-Saharan African countries with duty-free access to the United States market for over 1 800 products, in addition to the more than 5 000 products that are eligible for duty-free access under the Generalized System of Preferences programme.
United Kingdom (British International Investment plc, formerly CDC Group)	UK-Africa Investment Summit (2020-ongoing)	At the first Summit (in January 2020), the United Kingdom both announced that it would expand the Manufacturing Africa programme, generating considerable new FDI in manufacturing for West Africa and that it would deliver new partnerships with Investment Promotion Agencies in Nigeria and South Africa (funding of GBP 25 million).

Source: Authors' compilation.

Note

1. The United Kingdom Social Time Preference Rate has two components: a time preference (capturing the preference for value now rather than later) and a wealth effect (reflecting changes to values thanks to expected growth in per capita consumption over time).

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Chapter 3

Integrating value chains in Southern Africa and the automotive industry

This chapter examines the prospects and challenges to the development of regional value chains in Southern Africa (Angola, Botswana, Eswatini, Lesotho, Malawi, Mozambique, Namibia, South Africa, Zambia and Zimbabwe). It sketches the economic and trade background in the region by describing existing value chains and patterns of trade, growth and financial flows. It subsequently explores a case study of value chain development with respect to the automotive sector in Southern Africa: the current status and recent history of automotive value chain development as well as the major constraints to further development. The analysis draws out recommendations for deepening value chain industrialisation in the Southern African region and relates this to the AfCFTA as well as the consequences of the COVID-19 pandemic.

IN BRIEF

Southern Africa specialises in exporting primary products and is more integrated into value chains than any other African region. Southern Africa's backward participation in global value chains is generally low for primary goods exporters but is higher than for the continent as a whole. The contribution of the automotive sector to value chains, which is the subject of this chapter because it has much potential to grow, is only a small proportion of total value chain participation (on average 4%) and of gross output (about 12%).

Since 2016, the region has faced economic challenges evidenced by low growth and investment. The COVID-19 pandemic has added to these headwinds in that it has had strong negative impacts on trade and will likely be felt in decreasing global value chain trade – and possible value chain "reshoring" as well. Nevertheless, the industry could drive recovery thanks to the resource endowment of the region, the growing domestic and export market, and progress in regional integration. Constraints on the development of Southern Africa's automotive value chain include trade and regulatory policy as well as infrastructure and skills. There is considerable scope for the automotive sector to develop within the region and to contribute to greater intra-African trade and the formation of regional value chains.

For this to become a reality, policy makers need to pay attention to the following:

- improving the business environment and creating sufficient "policy space" for trade policy and the development of manufacturing capabilities and skills across the region, drawing on South Africa's experience in the automotive sector
- investing in scaling up assembly plants in the region so that they can overcome competition from used vehicle imports that reduce demand for local production
- prioritising economic recovery over the medium term while remaining vigilant towards ongoing developments in the COVID-19 pandemic, including new viral strains.

Southern Africa

Southern Africa and global value chains

GVC participation:

Metal products

Petroleum

Non-metallic minerals

South Africa is responsible for most of Southern Africa's economic activity



63% of its GDP

76% of its gross exports

Opportunities for automotive value chains in Southern Africa

1%

Africa produces only 1% of the world's motor vehicles

45 car owners per 1 000 people

Africa's vehicle ownership rates are low compared to the world average (203 per 1 000)

X2

South Africa to double its workforce by 2035 through its Automotive Master Plan

Constraints to the development of automotive value chains

High barriers to entry

Minimum requirements for a new automotive factory include:

X 80 000 vehicles produced per year

USD 200 million in investment

Lack of RVCs



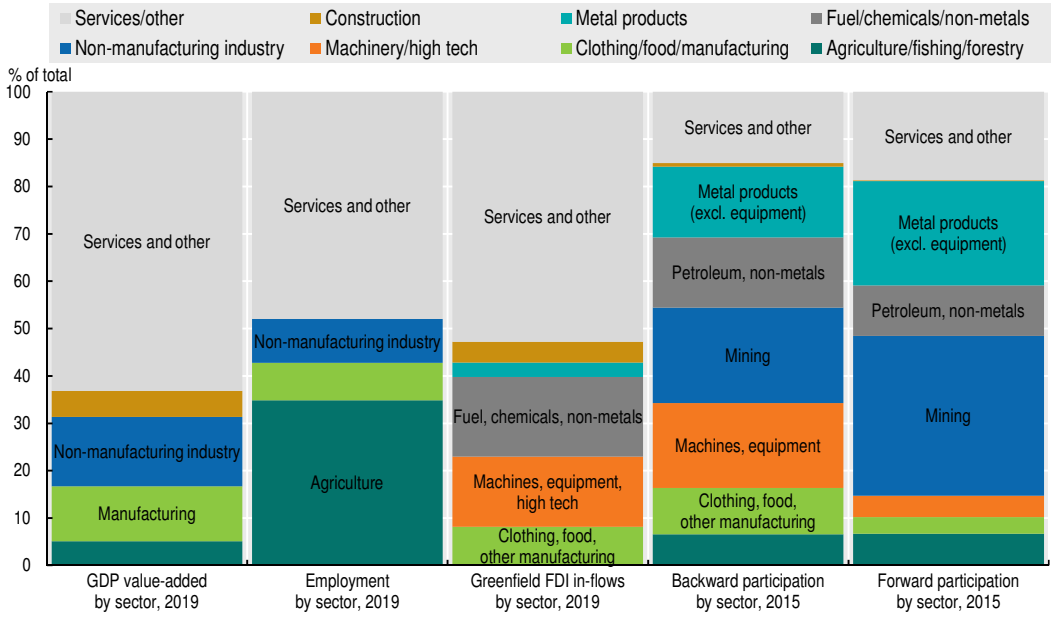
Only **1.1%** of Southern Africa's imports of automotive intermediate goods come from Africa

What's next ?

- **Build two-wheeled vehicles** and electric personal transportation
- **Support the automotive components** and aftermarket parts sector
- **Expand the local and regional suppliers** of the Southern African automotive industry

Southern Africa regional profile

Figure 3.1. **Economic and trade profiles of Southern Africa, expressed as % of total**

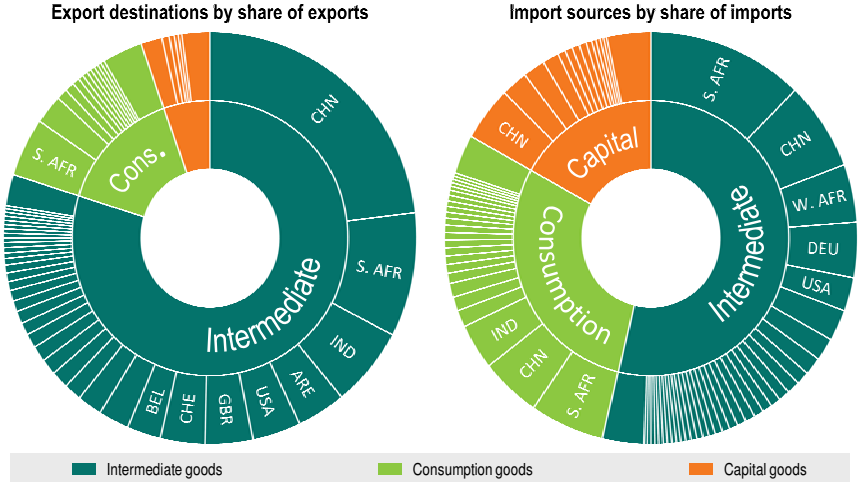


Notes: GDP = gross domestic product; FDI = foreign direct investment. The different sources for the data do not share common definitions of economic sectors, commodities or activities. However, colouring is used in this figure in order to indicate shared themes across datasets.

Source: Authors' calculations based on World Bank (2020), *World Development Report 2020, GVC Database*, www.worldbank.org/en/publication/wdr2020/brief/world-development-report-2020-data; fDi Markets (2021), *fDi Markets* (database), www.fdiintelligence.com/fdi-markets; and World Bank (2021), *World Development Indicators* (database), https://databank.worldbank.org/source/world-development-indicators

StatLink https://doi.org/10.1787/888934298035

Figure 3.2. **Southern Africa's most important trade partners broken down by volume of trade in intermediate, consumption and capital goods**



Notes: Countries are presented using their three-letter ISO codes. The African countries are aggregated into the five sub-regions defined by the African Union as follows: C. AFR = Central Africa, E. AFR = East Africa, N. AFR = North Africa, S. AFR = Southern Africa, W. AFR = West Africa. Interior trade within the Southern Africa Customs Union is excluded.

Source: Authors' calculations based on data from CEPII (2021), BACI (database), www.cepii.fr/cepii/en/bdd_modele/presentation.asp?id=37.

StatLink https://doi.org/10.1787/888934298054

Increasing Southern Africa's participation in global value chains depends on improvements in trade, the economic context and financial flows

Primary industries have been mainly responsible for the region's economic development

Commodity exports have been a major factor in Southern Africa's economic evolution. The region's mining sector represents 15% of gross domestic product (GDP), which is higher than for Africa as a whole (12%) and for other world regions (5-7%). Southern Africa includes several major mineral exporters, and its dominant economy, South Africa, is itself a major exporter of gold and platinum, along with motor vehicles.[1] A drop in Southern Africa's economic growth rate in the late 2010s coincided with a softening of commodity prices after 2012 when per capita GDP reached a peak.

Southern Africa's economy would benefit from a shift in focus from exporting primary goods to participating in global manufacturing value chains. Global value chain (GVC) participation, or the amount of export value that is attributable to global value chains (see Box 3.1), can provide many benefits. In addition to boosting trade and growth, it can lead to industrial deepening, economic diversification, and technology and skills transfer. Southern Africa is already in a good position to shift to global manufacturing value chains, due to the well-developed motor vehicle industry in South Africa. This industry absorbs imported primary and intermediate goods and significantly drives exports of complex goods on the global market, creating a more diversified, sophisticated economy.

Box 3.1. **Global value chain participation**

Global value chain participation or integration is a measure of the proportion of the total value of a country's exports that is generated by global value chains. Total GVC participation includes backward participation and forward participation. Backward participation is the amount of a country's export value that comes from imported intermediate products. Forward participation is the amount of a country's export value that is added by national production and that is embedded in another country's exports.

By construction, there is no overlap between a country's backward participation and its forward participation. An example of backward participation is the importation by South Africa of leather vehicle seat covers from Lesotho, for further use in finished vehicle production. An example of forward participation is the export to China of commodities such as metals, which are further transformed into finished metal products such as transport equipment.

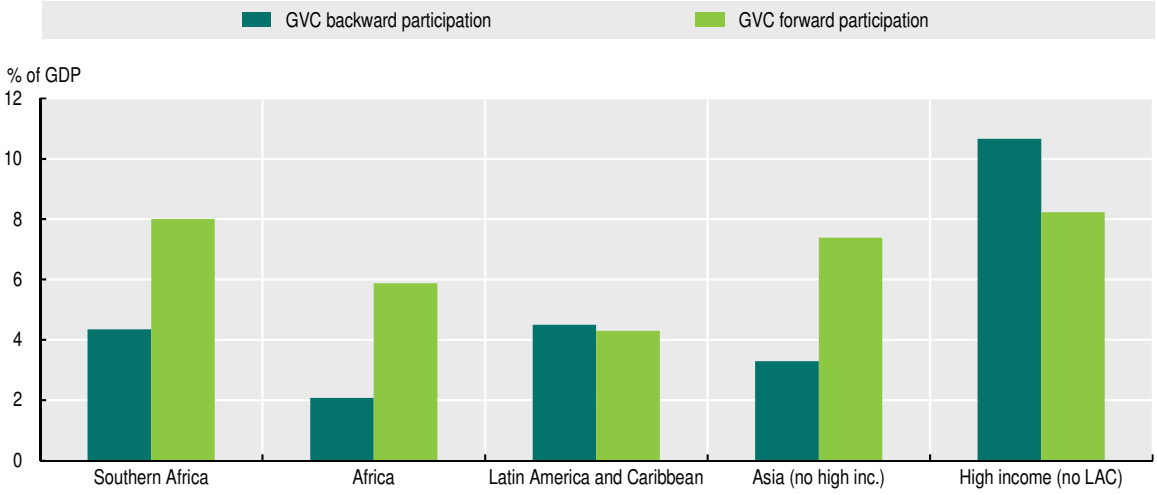
In general, the more a country's production occupies the end of the production chains, the more it tends to have backward GVC participation, and the less it tends to have forward GVC participation (and there is no forward GVC participation if the production is of finished goods, by definition). Southern African countries, being overwhelmingly primary goods producers, would be expected to be far more integrated into forward participation than backward, as is confirmed in Figure 3.3.

Southern Africa has higher GVC participation thanks to forward participation in mining and to backward participation in manufacturing industries such as automobiles

In 2019, Southern African forward participation in global value chains was nearly twice as high as its backward participation (Figure 3.3), but due to its manufacturing industries, backward participation was still higher than in other African regions. In

2015, three industries in Southern Africa had both the highest backward and the highest forward participation in global value chains. They were, in descending order: mining/quarrying, metal products and petrochemicals/minerals. All three of these industries had significantly higher forward than backward participation, but forward participation in mining was over two and a half times higher than backward participation (Figure 3.3).

Figure 3.3. **Total backward and forward global value chain (GVC) participation, Africa and Southern Africa compared with other world regions, 2019 (as a percentage of gross domestic product)**



Source: Authors' calculations based on data from Casella et al. (2019), *UNCTAD-Eora Global Value Chain Database*, https://worldmrio.com/unctadgvc/.
StatLink https://doi.org/10.1787/888934298073

On the other hand, in Southern Africa's transport equipment sector, backward participation is more than four times greater than forward participation, which is contrary to the pattern observed for the economy as a whole (Figure 3.3**).** Table 3.1 provides some key indicators of GVC integration in the transport equipment sector in Southern Africa for the full period over which reliable sectoral data was available, 2000-15. Backward participation stands at 8.8% and forward at just 1.4%, reflecting a relatively small involvement in transport equipment value chains, especially those resulting in re-exports and further beneficiation down the chain. This implies that the region's transport equipment sector is more mature ("upgraded") as a manufacturing sector than the aggregate production in the region.

Table 3.1. **Global value chain (GVC) participation with respect to the transport equipment sector in Southern Africa, 2000-15**

Indicator	USD million
GVC backward participation – Total	314 773
GVC backward participation – Transport equipment	27 720
GVC backward participation – Transport equipment as a proportion of total	8.8%
GVC forward participation – Total	472 618
GVC forward participation – Transport equipment	6 708
GVC forward participation – transport equipment as a proportion of total	1.4%

Note: The values for backward and forward participation were calculated relative to the totals for GVC backward and forward participation, in order to scale the transport equipment sector's GVC participation.
Source: Authors' calculations based on World Bank (2020), *World Development Report 2020, GVC Database*, www.worldbank.org/en/publication/wdr2020/brief/world-development-report-2020-data.

Among the Southern African countries, GVC participation as a percentage of gross exports ranged from 31% to 55% in 2015 but tended to be higher in countries with larger manufacturing sectors (Table 3.2). The lower percentages of gross exports corresponded to countries whose manufacturing sectors were smaller compared to their total outputs, such as Angola (6.0% of GDP) and Mozambique (9.3%). The countries on the upper end of the range had greater manufacturing outputs, such as Eswatini (33.2%) and Lesotho (16.9%).

Table 3.2. **Comparisons of global value chain (GVC) trade with gross trade and manufacturing in Southern Africa (excluding Zimbabwe), 2015**

	GDP (USD million)	Gross exports (USD million)	GVC participation (USD million)	GVC participation as % of exports	GVC participation as % of GDP	Manufacturing as % of GDP
South Africa	317 578	118 445	49 366	41.7%	15.5%	13.4%
Angola	116 194	26 108	8 029	30.8%	6.9%	6.0%
Zambia	21 245	4 273	1 459	34.1%	6.9%	7.9%
Mozambique	15 951	901	285	31.6%	1.8%	9.3%
Botswana	14 445	1 059	446	42.1%	3.1%	6.4%
Namibia	11 450	2 148	899	41.9%	7.9%	12.4%
Malawi	6 402	1 102	368	33.4%	5.7%	10.8%
Eswatini	4 061	1 129	561	49.7%	13.8%	33.2%
Lesotho	2 207	304	168	55.2%	7.6%	16.9%
Southern Africa	**509 532**	**155 468**	**61 581**	**39.6%**	**11.8%**	**11.2%**

Source: Authors' calculations based on World Bank (2020), *World Development Report 2020, GVC Database*, www.worldbank.org/en/publication/wdr2020/brief/world-development-report-2020-data.

South Africa dominates the region in terms of GVC participation in the transport equipment sector, and the bulk of this is backward participation. Table 3.3 presents 2015 data on GVC participation by country and specifically for the transport equipment sector; the first and fourth columns reveal that South Africa's quantum in both categories dwarfs that of the other countries. The table shows that there is little meaningful GVC participation by any of the other countries in Southern Africa. Even South Africa's forward transport equipment GVC participation is small at only 1.7% of all forward participation in global value chains.

Table 3.3. **Indicators of global value chain (GVC) participation with respect to the transport equipment sector in Southern African countries (excluding Zimbabwe), 2015**

	GVC backward participation (USD million)			GVC forward participation (USD million)		
	Transport equipment	All products	Transport equipment as % of total	Transport equipment	All products	Transport equipment as % of total
South Africa	1 931	20 185	9.6 %	507	29 181	1.7%
Angola	2	1 353	0.2 %	4	6 676	0.1%
Zambia	6	545	1.1 %	2	914	0.3%
Mozambique	2	78	2.7 %	2	207	0.7%
Botswana	24	291	8.4 %	1	155	0.7%
Namibia	49	600	8.2 %	2	299	0.6%
Malawi	4	140	2.8%	1	228	0.4%
Eswatini	5	422	1.2%	1	139	0.4%
Lesotho	1	135	0.6%	0	32	0.8%
Southern Africa	**2 025**	**23 748**	**8.5%**	**519**	**37 832**	**1.4%**

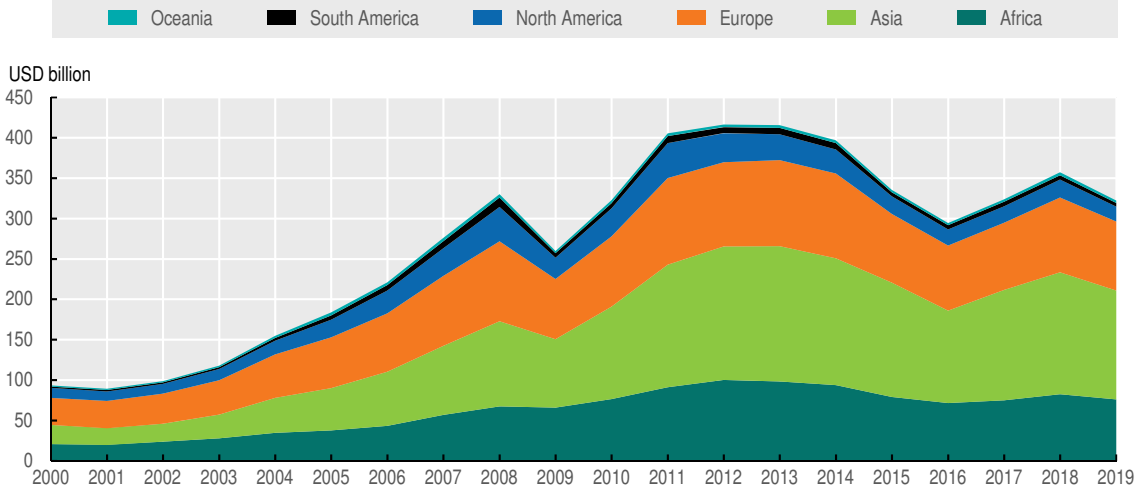
Source: Authors' calculations based on World Bank (2020), *World Development Report 2020, GVC Database*, www.worldbank.org/en/publication/wdr2020/brief/world-development-report-2020-data.

During a period of decreased overall trade, Southern Africa is increasing trade in intermediate goods within Africa

Southern African trade has declined, while shifting towards Asia and countries in other African regions. After reaching a peak in 2012, and especially since 2014, total Southern African trade has decreased (Figure 3.4), but the shares of trade with Asia and other African countries have increased. This greater Asian share of Southern African trade could pose a challenge to efforts to increase manufacturing intensity, because Asia's manufacturing value added as a percentage of GDP is twice that of Africa and because Asia produces fewer primary goods.

On the other hand, the increased intra-African trade by Southern African countries could be a sign of a strengthening trading block. There is currently twice as much trade between Southern African countries as between Southern African countries and other countries in Africa, reflecting the high level of integration of the Southern African Customs Union (SACU) and to a lesser extent, the Southern African Development Community (SADC). Also, the advent of the African Continental Free Trade Area (AfCFTA) holds the promise of trade integration further afield than SADC, since market access to the rest of Africa and co-operation in areas such as investment and trade in services will improve.

Figure 3.4. **Total trade for Southern Africa by world region, 2000-19**

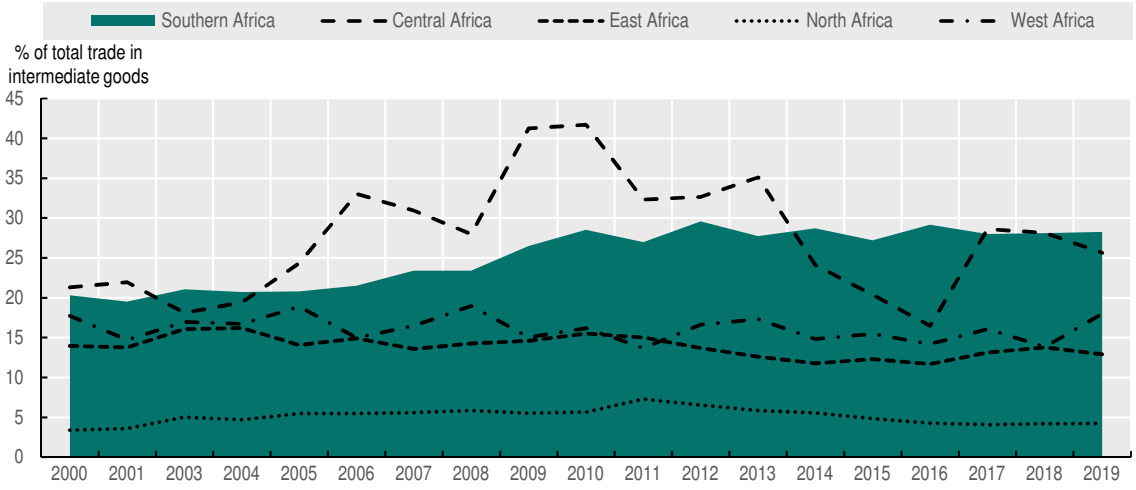


Source: CEPII (2021), *BACI* (database), www.cepii.fr/cepii/en/bdd_modele/presentation.asp?id=37.

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Southern African intra-continental trade in intermediate goods represents a higher percentage of total trade than that of any other African region and is nearly double Africa's aggregate (Figure 3.5).[2] The comparatively high degree of trade in intermediate goods in the Southern Africa region is being driven by the highly economically integrated countries of SACU plus Mozambique, Zambia and Zimbabwe. This group of Southern African countries participates in trade in intermediate goods to a greater extent than the other African regions, and Southern Africa's intermediates trade is almost double that for the continent as a whole (CEPII, 2021).

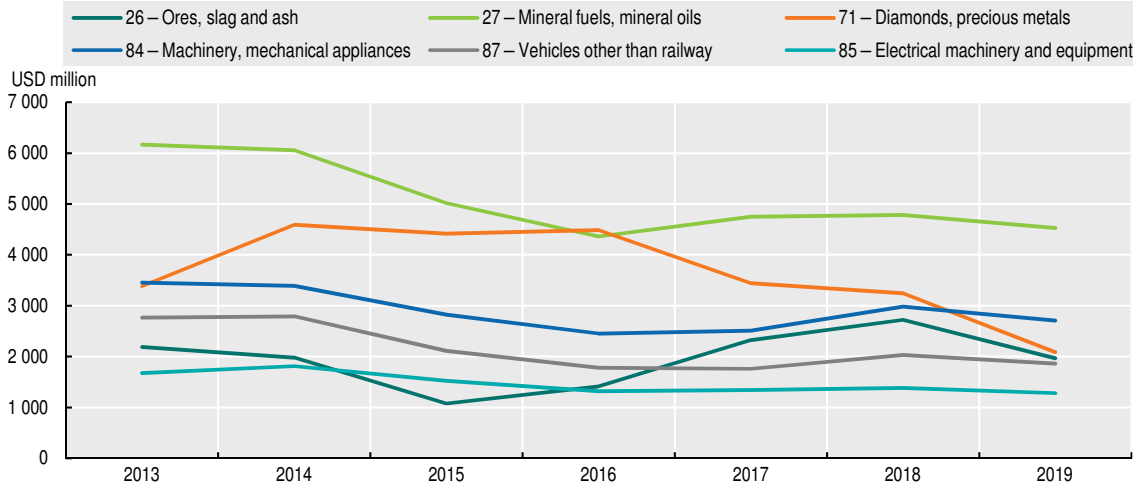
Figure 3.5. **Intra-continental trade in intermediate goods as a percentage of all trade in intermediate goods for Southern Africa and other African regions, 2000-19**



Source: CEPII (2021), *BACI* (database), www.cepii.fr/cepii/en/bdd_modele/presentation.asp?id=37.
StatLink https://doi.org/10.1787/888934298111

Vehicle products are the fifth most important traded product group within Southern Africa and one of three manufactured products groups in the top six. Fuels, mechanical machinery and diamonds top the list, but vehicle products are not far behind (Figure 3.6). Among motor vehicles, transport and passenger vehicles are the most traded product types but have been in decline recently while trade in vehicle parts, tractors and trailers has been more stable. Trade in transport vehicles (commercial vehicles) has increased with Japan and China, at the expense of Southern Africa. Trade in passenger vehicles, on the other hand, increased with India and the United Kingdom.

Figure 3.6. **SADC's top six intra-traded 2-digit product groups, 2013-19 (USD million)**



Note: The broad 2-digit export product categories from UN Comtrade's *Harmonised System* of 1996 are referenced here: 26 – "Ores, slag and ash"; 27 – "Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes"; 71 – "Natural, cultured pearls; precious, semi-precious stones; precious metals, metals clad with precious metal, and articles thereof; imitation jewellery; coin"; 84 – "Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof"; 85 – "Electrical machinery and equipment and parts thereof; sound recorders and reproducers; television image and sound recorders and reproducers, parts and accessories of such articles"; 87 – "Vehicles; other than railway or tramway rolling stock, and parts and accessories thereof".
Source: ITC Trade Map (2021), *Trade Map Data Portal*, https://trademap.org.
StatLink https://doi.org/10.1787/888934298130

COVID-19 has had a strong negative impact on trade volumes, and the automotive value chain is no exception

Global trade volumes plummeted as a result of the pandemic and its associated lockdowns, and Africa was more severely impacted than the global aggregate. The global economy was dealt a severe economic blow by the lockdowns, travel restrictions and business restrictions due to the pandemic. The worst effects on trade were felt during the second quarter of 2020, when global exports plunged 23% year on year (UN Comtrade, 2021) (see Table 3.4). For Africa and Southern Africa, the drop in that quarter was even greater, at 42% and 39%, respectively. After Q3, however, Southern Africa was less severely impacted. This appears to be the result of Southern Africa experiencing smaller negative impacts to its fuels and metals exports than the African aggregate, presumably due to better logistics mitigation in the presence of pandemic-driven slowdowns in transport facilities.

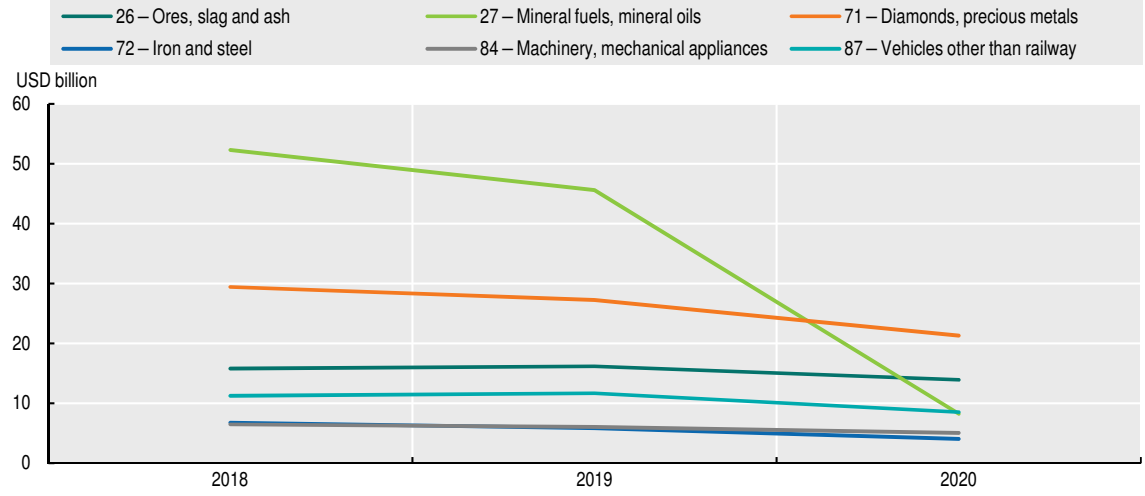
Table 3.4. **Year-on-year change in total exports in the world, Africa and SADC region**

	2020-Q1	2020-Q2	2020-Q3	2020-Q4
World	-9%	-23%	-25%	-19%
Africa	-10%	-42%	-26%	-17%
SADC	-8%	-39%	-14%	-3%

Source: Authors' calculations based on ITC Trade Map (2021), *Trade Map Data Portal*, https://trademap.org data.

SADC exports declined in all six of its most important export product categories in 2020, which includes automotives (Figure 3.7). Fuel products dropped 84% between 2018 and 2020, while the other top five export categories saw two-year declines ranging from 12% to 40%. Although COVID-19 had an enormous negative impact on African trade for all of these product categories, trade was already in decline in 2019, before COVID-19 had spread.

Figure 3.7. **Total exports from SADC countries for selected export categories, 2018-20 (USD billion)**



Note: The broad 2-digit export product categories from UN Comtrade's *Harmonised System* of 1996 are referenced here: 26 – "Ores, slag and ash"; 27 – "Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes"; 71 – "Natural, cultured pearls; precious, semi-precious stones; precious metals, metals clad with precious metal, and articles thereof; imitation jewellery; coin"; 72 – "Iron and steel"; 84 – "Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof"; 87 – "Vehicles; other than railway or tramway rolling stock, and parts and accessories thereof".

Source: ITC Trade Map (2021), *Trade Map Data Portal*, https://trademap.org.

StatLink https://doi.org/10.1787/888934298149

Among the measured economic impacts of the pandemic on Southern Africa include the following:

- Economies such as Botswana and South Africa had GDP growth shocks reaching -10% (Green, 2021).
- Greenfield foreign direct investment (FDI) projects across Southern Africa declined by 45% (Fennell, 2021).
- 83% of South African tourism businesses experienced at least 50% less revenue as a result of the pandemic (TBCSA, 2020). Other Southern African countries, for which tourism is also important, such as Botswana, Namibia and Zimbabwe, can be expected to be similarly impacted.

The impacts of the pandemic on global value chains will likely follow the impacts on trade, given that global value chains are the backward chains of value that generate the finished products that are demanded globally. In the context of these shocks to GDP growth and trade volumes, strong adverse effects on global value chains seem inevitable. Added to this must be the fact that the automotive value chain in Africa was already under pressure before the pandemic, with 66% of enterprises reporting a decline in earnings (Deloitte, 2020: 11).

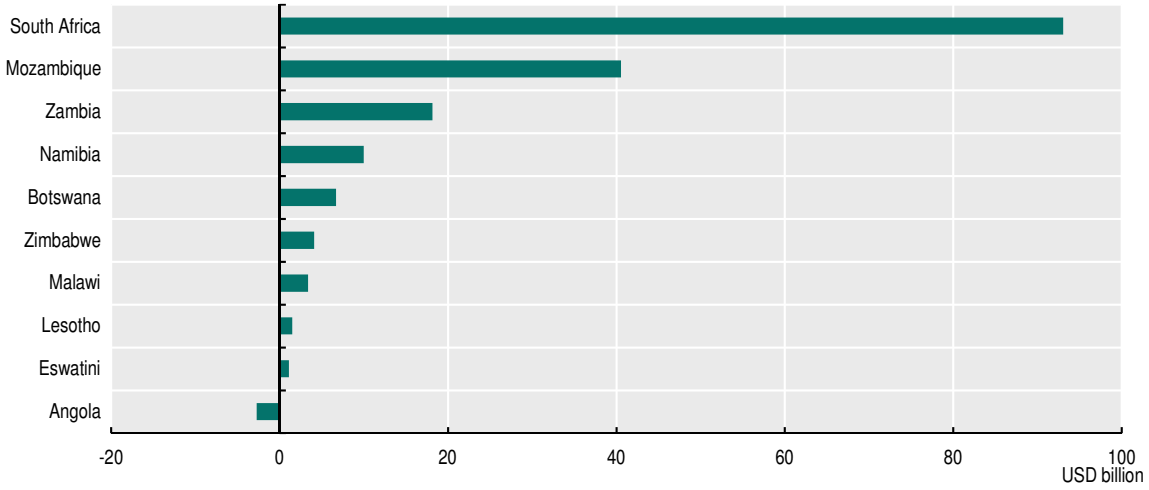
The shocks to global value chains, which threaten production, employment, tax revenues and foreign exchange revenues, have prompted some transnational corporations to consider re-shoring production and "shortening" global value chains (Görg, 2021). Southern Africa is geographically removed from the main automotive industrial areas, i.e. the Far East and Europe, and this could negatively impact South Africa, still the most important African producer of automotive products. Policy responses to the pandemic and its fallout are addressed in the final section of this chapter.

Foreign direct and portfolio investments into Southern Africa are slowing, but greenfield investments into the automotive sector remain healthy

As with various indicators analysed hitherto, financial inflows to the Southern African region reflected the worsening economic climate, driven by the global trade war and its impact on the demand for commodities. Net FDI inflows dropped precipitously after 2015, both in levels and as a proportion of GDP (World Bank, 2021). The latter movement is somewhat surprising given that GDP growth itself slowed quite sharply over the same period. Analysis shows that portfolio investment net inflows were reversed even earlier, in 2009 (World Bank, 2021). These changes, given that they are pre-pandemic movements, do not bode well for the post-pandemic state of the region and underline the need for concerted effort to drive a sustained recovery.

The performance of FDI flows per capita into the region has been mixed, not necessarily following a pattern of better performance for the larger economies. FDI flows per capita for South Africa outrank the region's smaller countries, while Mozambique and to a lesser extent Zambia have had large relative FDI inflows given their economic size (Figure 3.8). The other countries appear to have benefited from FDI inflows in proportion to their economic size, with the exception of Angola which had net FDI outflows. Angola's net FDI outflows reflected its disproportionately prominent oil sector that was hit with high price shocks during the pandemic. FDI into Angola should rebound along with the recovery in fuel prices.

Figure 3.8. **Real foreign direct investment net inflows by Southern African country, 2000-19 (USD billion)**



Source: Authors' calculations based on World Bank (2021), *World Development Indicators* (database), https://databank.worldbank.org/source/world-development-indicators.

StatLink https://doi.org/10.1787/888934298168

Despite the negative movements in FDI, greenfield investment in South Africa's automotive industry remained strong at the end of the last decade, with several large projects undertaken and initiated. According to TIPS (2020: 4-9), these included the following projects in 2019:

- Bridgestone completed upgrades valued at ZAR 400 million at its Brits manufacturing plant.
- Toyota completed a ZAR 454 million project to upgrade its light passenger vehicle plant in the Durban area. Part of this upgrade is the capacity to produce small truck kits for export and completion in Kenya. Toyota also announced a ZAR 2.43 billion investment to manufacture a new passenger vehicle, to begin in late 2021.
- Isuzu announced investment in a ZAR 1.2 billion upgrade for its small truck production plant at Struandale.
- KLT Automotive and Tubular announced a ZAR 525 million investment to expand a chassis manufacturing plant in Brits.

One of the largest recent investments is that announced by Ford in early 2021. It involves a USD 1 billion investment to expand production of the new Ranger model to 200 000 units per annum (Ford, 2021).

The automotive value chain can contribute to economic recovery in Southern Africa

The automotive industry has played a major role in the development of a number of countries and regions globally and has significant potential in Southern Africa and the rest of the continent. The sector has attracted considerable policy support due to its large size and the fact that it incorporates a wide range of manufacturing processes including metal working, plastics and electronics. It has also played a role in facilitating regional integration, for example in the North American Free Trade Agreement, the Association of Southeast Asian Nations (ASEAN) and the early stages of the formation of the European Union.

This case study examines the automotive industry in Southern Africa with a specific focus on regional value chains and the prospects for their further development. The automotive regional value chain is not yet well developed but is seen as having considerable potential (SADC, 2017) and is therefore key to future policy development. The case study emphasises Southern Africa but also briefly considers developments in the rest of the continent. This is important given the economies of scale necessary for developing regional production networks for the automotive industry.

The automotive industry is a sector with strong growth and job creation potential in Southern Africa and Africa more generally. With its sustained economic growth and rapidly expanding middle class, Africa represents one of the last major sources of growth for the global automotive sector. Vehicle ownership rates across the continent are low at 45 per 1 000 compared to a global rate of 203 per 1 000 (AIEC, 2021). The potential for expanded African production is also being boosted by rapid population growth and closer regional integration.

While the automotive sector is not very labour intensive, the multiplier effects are significant. In South Africa, which is far from realising its potential, 107 000 people were directly employed in vehicle assembly and component manufacture in 2020 (AIEC, 2021). The South African Automotive Masterplan targets the doubling of employment by 2035 through expanded vehicle production and increased localisation of parts.

Investing in the growth of motor vehicle manufacturing needs to be paired with a more sustainable transportation sector in Southern Africa. Developing competitive mass public transportation systems in Southern Africa will help create more sustainable cities and decrease air pollution, congestion, inefficient use of urban space and distortions of political priorities (Gössling, 2020). Reducing road deaths and injuries, already described as a "national emergency" in South Africa, is also important (Rondganger, 2021). Any investments in the automotive sector must therefore include plans to obtain or develop greener technologies and be reconciled with plans to develop sustainable quality infrastructure.

The Southern African automotive industry has considerable potential, with production dominated by South Africa

The Southern African automotive market has potential but, outside of South Africa, is dominated by used imports. South Africa accounted for 67% of SADC's total automotive market in 2019. While the market grew rapidly in the previous period, slow growth especially in South Africa has led to stagnant market conditions over the last decade (Table 3.5). Apart from South Africa, the market is mainly being met by imports, especially of used cars.

Table 3.5. **Motor vehicle sales, 2007-19 (units)**

	2007	2009	2011	2013	2015	2017	2019
South Africa – New vehicles	676 108	395 222	572 241	650 745	617 749	555 716	536 611
Rest of SADC – New vehicles	48 554	53 179	75 685	93 853	78 712	65 638	46 185
South Africa – Pre-owned imports	0	0	0	0	0	0	0
Rest of SADC – Pre-owned imports	225 394	190 323	241 959	314 548	217 584	178 812	222 208
Total SADC sales	**950 056**	**638 724**	**889 885**	**1 059 146**	**914 045**	**800 166**	**805 004**

Source: Compiled from Barnes, Erwin and Ismail (2019), "Realising the potential of the Sub-Saharan African automotive market: The importance of establishing a sub-continental automotive pact" and the BMA database based on UN Comtrade (2021), *UN Comtrade database*, https://comtrade.un.org/data/.

Africa only accounts for less than 1% of global output, and South Africa dominates production. Africa produced only 720 000 vehicles in 2020, following a drastic decline in

production mainly as a result of COVID-19. Relatively large-scale production takes place mainly in the south (South Africa) and in the north (Morocco and to a lesser extent Algeria and Egypt), but there is little vehicle production between them. Certain countries, such as Ethiopia, Ghana, Kenya and Nigeria, have some small-scale assembly, most of which takes place on a semi-knocked-down (SKD)[3] basis with little domestic value added. South Africa dominates production on the continent and in Southern Africa, with an output of 447 218 vehicles in 2020 (AIEC, 2021). Growth over the past decade, even before COVID-19, was constrained by weak domestic economic conditions in South Africa.

Table 3.6. **Vehicle production by major African producers, 2016-20 (units)**

	2016	2018	2020
South Africa	599 004	610 854	447 218
Morocco	345 106	402 081	248 430
Egypt	36 230	18 500	23 754
Algeria	42 008	70 797	754[1]
Total	1 022 348	1 102 232	720 156

Note:
1. Small-scale SKD type operations are not included here. Algeria's output virtually came to a halt in 2020 as a result of the closure of a number of plants following a corruption controversy and changed regulations (Arab Weekly, 2021).
Source: Authors' calculations based on OICA (2020), www.oica.net/, and AIEC (2021), *South African Automotive Export Manual 2021*, https://aiec.co.za/downloads/AutomotiveExportManual2021.pdf

South Africa is a major exporter of automotive products, but further integration is necessary for regional value chains to develop

South Africa is a large automotive exporter to global markets. In 2020, the country's automotive exports amounted to USD 10.7 billion, down from USD 14 billion the previous year. The exports included 271 288 vehicles valued at USD 7.4 billion, and components were valued at USD 3.3 billion (AIEC, 2021). Vehicle exports accounted for 61% of output, with the main market being Europe.

Intra-continental automotive trade consists mainly of exports from South Africa, and regional value chains are weakly developed. South Africa's exports to the region principally include vehicles, aftermarket parts and, increasingly, SKD kits. Morocco exports mainly to the European Union. With the automotive industry on the continent concentrated in just a few countries, the outcome is unbalanced trade.

South Africa's automotive exports to the rest of Africa, while significant, have not grown very rapidly over the last decade. Exports to the rest of the continent represented 17% of South Africa's total automotive exports in 2020, but they have declined since 2010. Africa's share of South Africa's component exports is more significant. These accounted for 30% of total component exports in 2020 and amounted to USD 761 million but have also been declining. These automotive exports mainly go to other SACU and SADC countries (Table 3.7). Total automotive exports to SADC (including SACU) amounted to USD 1.46 billion in 2020, 81% of South Africa's total automotive exports to Africa. The bulk of component exports to SADC are for the aftermarket comprising products such as tyres (USD 65.3 million), engine parts (USD 41.8 million), transmission shafts (USD 37.8 million), engines (USD 26.1 million) and gauges/instruments/parts (USD 23.1 million) (AIEC, 2021). The concentration of exports within SADC and especially SACU illustrates the impact of closer integration.

Table 3.7. **South African automotive exports to the world and Africa, 2010-20 (USD million)**

	2010	2012	2014	2016	2018	2020
World	9 478	10 571	10 653	11 629	13 497	10 671
Africa	2 418	3 155	2 912	2 128	2 393	1 797
Africa, percentage of total	26%	30%	27%	18%	18%	17%
BELN	1 229	987	1 388	1 134	1 049	741
SADC (excluding BELN)	669	1 157	995	721	998	719
BELN, percentage	51%	31%	48%	53%	44%	41%
SADC (excluding BELN), percentage	28%	37%	34%	34%	42%	40%
The rest of Africa (excluding BELN and SADC), percentage	21%	32%	18%	13%	14%	`19%
Passenger and light vehicles	628	1 328	1 391	993	1085	797
Medium and heavy vehicles	105	146	341	272	320	239
Components	1 684	1 681	1 179	863	988	761

Note: BELN = Botswana, Eswatini, Lesotho and Namibia.
Source: AIEC (2012, 2015, 2018, 2021), *Automotive Export Manual*, https://aiec.co.za/

While South Africa is a major exporter to the rest of Africa, it imports little from the continent. The biggest suppliers to South Africa from the rest of Africa are Botswana, Morocco, Lesotho, Tunisia, Eswatini and Egypt, but the amounts are small, amounting in 2020 to less than USD 100 million (Table 3.8). This represents just 1.1% of South Africa's imports of original equipment and aftermarket parts.

A few labour-intensive suppliers have left South Africa to take advantage of lower labour costs. An example is the relocation of Pasdec, a wiring harness manufacturer, which shifted production to Botswana in 2015 (Barnes et al., 2021). Another example is a leather seat manufacturer which relocated to Lesotho, where wages are much lower. Labour unions in South Africa strongly opposed this move. Leather seating is a very labour-intensive operation and used to be one of South Africa's major component exports, with seat kits being flown into Europe. But most export production has moved to Central Europe to be closer to major assembly plants, and the industry has declined in both South Africa and Lesotho.[4] While these examples signify the development of regional value chains, they are quite limited in scale and constitute a key policy challenge (Markowitz and Black, 2019).

Table 3.8. **South Africa's automotive exports and imports in Africa, 2020 (USD million)**

Exports to the rest of Africa		Imports from the rest of Africa	
Namibia	320.3	Botswana	79.1
Botswana	288.7	Morocco	6.5
Zimbabwe	213.2	Lesotho	2.6
Zambia	162.5	Tunisia	1.6
Mozambique	146.8	Eswatini	1.6
Eswatini	78.6	Egypt	1.3
Kenya	70.0		
Democratic Republic of the Congo	67.3		
Ghana	63.2		
Lesotho	54.5		

Source: AIEC (2021), *Automotive Export Manual 2021*, https://aiec.co.za/downloads/AutomotiveExportManual2021.pdf

Regional integration and regional value chains are of critical importance in developing the automotive sector, and prospects are improving. The small size of most national markets in Africa makes regional integration essential to expand effective market size. The level of development of regional value chains in the automotive industry in Africa

and in Southern Africa is limited, but the prospects in the medium term are good. This is due to three factors: growing continental demand for vehicles, closer economic integration and the fact that a number of African governments have set clear objectives for developing the industry. But given the scale of the industry and its tendency to cluster in a few locations, not every country can participate meaningfully. This means that a broader process of developing regional value chains that incorporates all sectors will be critical to spread the gains of regional integration and industrialisation.

The automotive industry is scale intensive especially in relation to the small size of the market in Africa. Estimates vary, but production of around 80 000 units per annum is normally needed to justify investment in a new assembly plant, and this may require investment of USD 200 million or more (Barnes et al., 2021). The world-scale Renault plant in Morocco, which is the largest assembly plant on the continent, required an investment of USD 1 billion. Small SKD operations require minimal investment but add negligible value. Low-volume complete-knocked-down (CKD) operations can be developed with relatively low investment costs, but production costs will be high, and the operations lack the scale to attract component investments. It is clear, therefore, that for significant investments to be made in the industry, market access to regional and/or international markets is required.

National automotive industries are unevenly developed in Southern Africa and across the continent

South Africa and Morocco dominate production on the continent, but a number of other African countries have embarked on programmes to develop the sector. In Southern Africa, Angola and Namibia are working to boost the automotive sector with sector-specific programmes. In other regional groupings, Ethiopia, Ghana, Kenya and Nigeria are actively promoting the industry. But in nearly all the smaller producer countries, programmes generally allow for minor SKD-type assembly. This section outlines the main developments in these national industries and the policies that are being applied. The emphasis is on Southern Africa, although the industries in other regions also receive mention.

South Africa is home to seven light vehicle producers as well as several assemblers of medium and heavy vehicles. The seven are Toyota, Nissan, Ford, Isuzu, BMW, Volkswagen and Mercedes Benz. Much of the assembly of medium and heavy commercial vehicles takes place on an SKD basis.

Box 3.2. South Africa's automotive policy and industry development

The development of the South African automotive industry has been largely driven by specific policy programmes that have made it a globalised and export-oriented industry. Historically, the sector was protected by high tariffs and local content requirements until 1989 when the first steps were taken to liberalise it.

A major change took place in 1995 soon after the first democratic elections, with the introduction of the Motor Industry Development Programme (MIDP). Since that point, the industry has increasingly become internationally integrated. One of the key objectives of the MIDP was to encourage a rationalised industry structure. This meant increasing the scale of production per model, as this was the only way component production could become competitive (Black, 2009). Tariffs were gradually lowered from high levels, and the introduction of import-export complementation arrangements allowed local vehicle assemblers to rebate import duties by exporting. They could, for instance, specialise in producing one model for the domestic and export market and import other models.

Box 3.2. **South Africa's automotive policy and industry development *(continued)***

In 2013, the MIDP was replaced by the Automotive Production and Development Programme (APDP). There have been no further tariff reductions below the 25% level. The APDP provided production rather than direct export incentives. While rapid export growth was achieved, the level of localisation of parts manufacture remains low, with local content levels of around 40%.

The recently developed South African Automotive Masterplan (SAAM) has ambitious objectives in terms of raising output and local content. But with the setback of Covid-19 and low growth in South Africa, these objectives may be difficult to achieve. A key objective of the SAAM is to expand vehicle and component production for the regional market.

In Southern Africa, outside of South Africa, automotive development is limited. Zimbabwe has the most experience with automotive production, with companies such as Willowvale Mazda Motor Industries. This company produced up to 9 000 vehicles per annum in the 1990s and counted 2 000 employees in 1997. But Zimbabwe's economic difficulties since 2000 led to Willowvale Mazda Motor Industries closing down although some aftermarket parts production has remained. Small-scale assembly has restarted on an SKD basis in collaboration with the Chinese firm Beijing Automotive Group Co., Ltd. (Barnes et al., 2021). A country with a potentially large vehicle market is Angola. It has indicated a desire to establish the industry as part of its diversification efforts and some small-scale SKD assembly is underway.

Small-scale automotive development is taking place within SACU, some of which is integrated into the South African industry. An SKD plant in Botswana was established under licence from Hyundai in the 1990s, mainly supplying the South African market. To meet South African regulations, it was required to invest in CKD assembly. However, the plant shut down in 2000 due to financial difficulties (Zizhou, 2009). Botswana has nonetheless become a large supplier of wiring harnesses to the South African automotive industry with two companies in operation: Pasdec and Kromberg & Schubert. Lesotho had two large leather seat operations supplying export markets via South African assemblers, but this industry has suffered a major decline.

Namibia has ambitions in the automotive industry and is actively trying to promote investment. The country's Pilot Investment Promotion Strategy for the automotive sector mentions attracting investment in automotive testing, metal components, wiring systems and the assembly of commercial vehicles (Industriall, 2020). A small SKD operation, Peugeot-Opel Assembly Namibia, a joint venture between PSA and the Namibia Development Corporation, has been established. It undertakes SKD assembly of Peugeot and Opel vehicles in a small facility in Walvis Bay (Industriall, 2020). But because this is an SKD plant, it cannot export to South Africa, as this contravenes SACU rules, which require full-scale assembly.[5] This has led to threats by PSA to close the facility. Also in Namibia, the firm Windhoeker Maschinenfabrik undertakes assembly of light armoured vehicles for the defence and security industries.

Vehicle production in the rest of Africa takes place mainly in Morocco. Morocco is the second-largest producer on the continent and has attracted investment from Renault, PSA as well as major first-tier suppliers (Stuart, forthcoming). The country is closely integrated into the European Union and mainly exports to the European market. Egypt has a long history of automotive production but has never attained sufficient scale to enable competitive production and significant exports.

In East and West Africa, a number of countries are planning to develop their small-scale automotive industries, and opportunities are improving. Ethiopia, Ghana, Kenya and Nigeria have developed automotive policies[6] and have attracted investment, including by multinational firms. But these are small-scale assembly operations that mainly take place on an SKD basis (Markowitz and Black, 2019; Ugwueze, Ezeibe and Onuoha, 2020). The problem with small-scale SKD production is that it creates minimal potential for developing value chains that incorporate manufacturing original equipment components. There is also small-scale motorcycle assembly as well as a small component industry that mainly produces for the aftermarket (Black, 2017).

Key constraints on the development of Southern Africa's automotive value chain include trade and regulatory policy as well as infrastructure and skills

Southern Africa (and Africa as a whole) comprises a large number of mainly small economies. Even South Africa, with a new vehicle market in excess of 500 000 units per annum (pre-COVID), lacks the market size to constitute an independent market in the automotive sector. The term "automotive space" was used by Sturgeon and Florida (1999) to denote the market size required for the development of the industry. This could constitute a very large market, such as China or India, or a large adjoining market, as is the case for Morocco in relation to the European Union. An alternative type of "automotive space" is a regional trade agreement such as the Southern Common Market (MERCOSUR) or ASEAN which effectively enlarges a number of smaller markets. The AfCFTA with its combined market of USD 3.4 trillion and population of 1.38 billion certainly makes this possible, but there are a number of stumbling blocks.

Imported used vehicles provide a cheap source of transport but militate against regional assembly. Used cars and commercial vehicles account for the bulk of vehicle imports into most countries in Southern Africa although they are barred in South Africa. Within SADC, apart from South Africa, imported pre-owned vehicles represented an estimated 73% of the market in 2019 (see Table 3.5). In these countries, used vehicles are imported at low cost from advanced countries and domestic assembly cannot compete. The ban on used car imports in South Africa is a longstanding regulation and is quite effectively implemented, although small numbers of used vehicles, ostensibly headed for neighbouring markets, find their way into the South African market. Countries that are unlikely to attract new vehicle assembly would be reluctant to give up the right to import used cars. The issue of used cars provides a good example of the contending regional interests which create obstacles to regional integration and industrialisation raised by Byiers et al. (2018).

The automotive industry can help fast track regional integration but can also lead to protectionist pressures. Multinational firms can pressure governments to increase market access and improve cross-border infrastructure (Lung and van Tulder, 2004). But efforts by large numbers of countries to develop their own industries could frustrate regional integration. As we have seen, a number of countries have established small-scale SKD operations for the domestic market. These add little value or employment and do not serve as a basis for industrial development. While countries may intend to transition to CKD production, this seldom happens as firms baulk at the large investment required. The proliferation of these small national industries has also led to countries installing tariffs to protect their infant firms from competition from neighbours.

South Africa's automotive policy regime creates a number of complications for further regional integration. Some SADC member states are concerned that if they loosen tariffs and establish a regional tariff scheme, South Africa, with APDP support, will outcompete their prospective industries. Within SACU, countries must comply with the APDP which offers significant support, but the smaller member states (Botswana, Eswatini, Lesotho

and Namibia) have limited capacity to conform to the highly complex regulations (Barnes et al., 2021). To qualify for a Production Rebate Credit Certificate for exporting, they need a level of domestic value addition which may be difficult to attain (Markowitz, 2016). There are, therefore, a number of complications in promoting free trade even within SACU and more generally within SADC (Barnes et al., 2021).

Logistics and delivery reliability is also of key importance. This is a major reason why component firms cluster close to major assembly plants. For regional value chains to develop, easy cross-border transport is necessary. This in turn requires both high-quality cross-border infrastructure as well as efficient and low-cost border transit formalities (Stuart and MacLeod, forthcoming). Apart from these, transport links, power and other infrastructure issues need to be addressed.

The automotive industry has extremely high technical and quality standards which require a skilled workforce and advanced manufacturing capabilities. Developing the supply chain demands a skilled workforce and also more enhanced manufacturing capabilities among potential second- and third-tier firms. The African Union Development Agency's Skills Initiative for Africa seeks to promote innovative skills development throughout the continent in conjunction with the private sector. It operates a Finance Facility and Technical Component. The South African-based industry could also play a role in transferring skills and industrial capabilities to the region, which would be another benefit of closer integration and an unfolding regional automotive production network (Barnes et al., 2021). Policy pressure to expand the supplier industry could lead multinational assemblers and first-tier suppliers to build capabilities among second- and third-tier suppliers.

Expanding vehicle assembly and the production of original equipment components, motorcycles and aftermarket parts can boost regional value chains

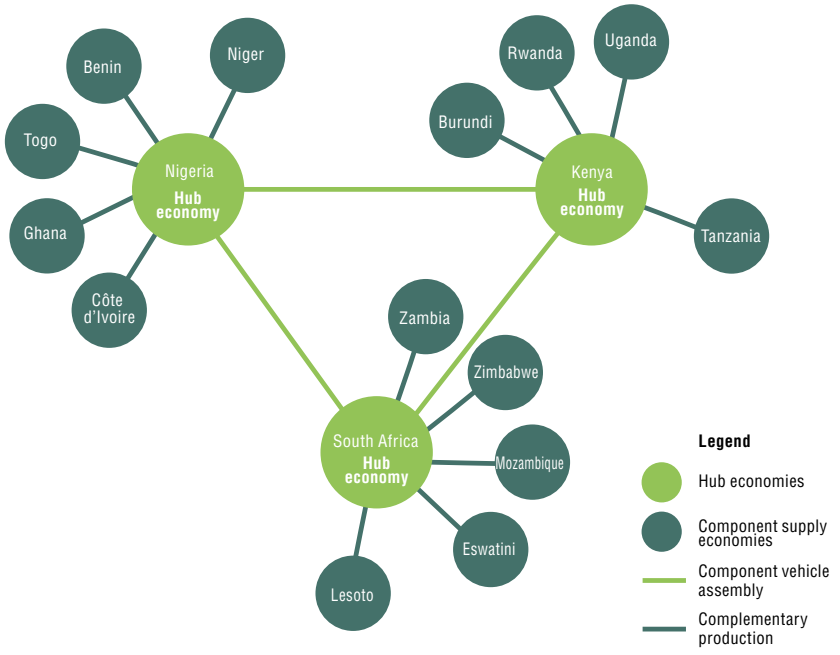
The development of regional value chains in the automotive sector requires much greater production in a number of countries in Southern Africa. Significant opportunities exist in assembly and original equipment components. Motorcycle production has potential as an entry point to vehicle production and possibly also to electric vehicles. Likewise, producing aftermarket parts can contribute to strengthening the automotive value chain.

There are opportunities for expanding vehicle assembly and deepening the supply chain in South Africa and the broader region. In Southern Africa, vehicle assembly is likely to continue to be based primarily in South Africa. The South African Automotive Masterplan, which comes into effect in 2021, aims to increase the level of local content in domestically assembled light vehicles from 40% to 60% by 2035. Even if local content reaches only 50%, this would have a significant impact in terms of creating new opportunities for suppliers from the region. For the purposes of the Masterplan, local content is currently defined as production within SACU.

Establishing a supplier base in countries in Southern Africa is a clear opportunity but will be difficult to realise. Established in 2015 to push for integration, the African Association of Automotive Manufacturers (AAAM)[7] is actively promoting a Pan African Auto Pact. The proposal is for a hub-and-spoke model (Figure 3.9) in which assembly takes place in various regional centres which are then supplied with parts from adjoining countries (Barnes, Erwin and Ismail, 2019). In Southern Africa, this would comprise South Africa forming the assembly "hub" with other countries in the region providing components. This is certainly a possibility in the medium to longer term, but the potential for all countries to be involved is limited. The automotive industry tends to cluster in a few locations, and assemblers prefer to have local parts makers in close proximity. Poor logistics and border hold-ups are anathema to modern, large-scale production. Even

Lesotho, which is well located in relation to major South African production centres in Gauteng, Durban and the Eastern Cape and is part of a customs union with South Africa, has found it difficult to attract new automotive component investment (Black, 2017).

Figure 3.9. **Hub-and-spoke model for developing an automotive pact in sub-Saharan Africa**



Source: Barnes, Erwin and Ismail (2019), "Realising the potential of the Sub-Saharan African automotive market: The importance of establishing a sub-continental automotive pact".

Motorcycle production is a value chain with potential because it offers an easier entry point into automotive production and numerous other advantages. A number of African countries have high motorcycle densities, including Angola, Mozambique, and parts of East and West Africa. They mostly import their motorcycles, but there is some domestic assembly. Motorcycle technology is simpler, and given the large size of the market in many African countries, it is easier to attain economies of scale. Smaller two-wheeled vehicles are also better adapted to the development of sustainable cities. It is important to note that motorcycle production played a key part in the development of the industry in parts of Asia, including India, Thailand and Viet Nam.

An interesting possibility is the prospect for electric two-wheelers, to develop a more sustainable vehicle fleet. These vehicles already dominate the Chinese two-wheeler market and are growing rapidly in other parts of Asia, again including India, Thailand and Viet Nam (Black et al., 2019). Apart from the fact that electric two-wheelers are becoming competitively priced relative to conventional motorcycles, they are being actively promoted in Asia as a means of reducing urban air pollution. Ambient particulate matter pollution is a rapidly growing problem in Africa (OECD, 2021a). In Southern Africa, the worst affected counties (according to the measure of premature deaths per million population) are Mauritius, South Africa and Botswana, in that order (OECD, 2021a). In Asia, electric two-wheelers are also seen as a means to develop electric technology which looks set to dominate vehicle transport within the next two decades. In addition, fuel-importing countries consider them as a way of reducing the import burden. Rwanda is actively promoting electric mobility, and three companies – Ampersand, Safi and

Rwanda Electric Mobility – are reportedly undertaking or planning small-scale assembly of electric two-wheelers (Industriall, 2020).

The production of aftermarket parts offers an opportunity for industrialisation and for the development of regional value chains. Under difficult circumstances, such production clusters have developed in many parts of Africa such as Nnewi, Nigeria (Abiola, 2008) and Suame, Ghana (Adeya, 2008). With growing numbers of cars (including older cars) on the roads, the aftermarket potential is significant. While aftermarket parts are not inputs into other production processes, they do require numerous inputs and sub-components, which could be supplied from the region. They could also provide the basis for producing original equipment components as assembly develops in countries outside of South Africa. Equally, the development of an original equipment component industry would facilitate aftermarket production.

Public policies can strengthen the automotive value chain in Southern Africa

With progress being made towards regional integration, most notably with the establishment of the AfCFTA, important continent-wide initiatives are underway. In its September 2021 Declaration, the African Union's Specialized Technical Committee of the Ministers of Trade, Industry and Minerals called on the African Union Commission, Afreximbank, the African Development Bank, the United Nations Economic Commission for Africa, the United Nations Industrial Development Organization and AAAM to accelerate the creation of a continental automotive development strategy. The basic requirements are, firstly, a viable "automotive space" of sufficient size to attract large-scale investment. Secondly, the market requires a modest level of protection and policy support. In this context, protection refers to the regional entity as a whole while allowing for free internal trade. South Africa has the only established automotive manufacturing industry in the region, and a higher level of protection and support would be necessary for smaller countries and nascent industries. The third requirement is to continually upgrade infrastructure and industry capabilities. The COVID-19 pandemic aside, prospects are now much better. This is because the market has growth potential and a number of countries are developing policies to promote the industry.

Regional integration and an appropriate trade policy are crucial for a successful automotive industry

Only a large integrated market can begin to offer the scale required for major investment. This requires the continued removal of tariffs and other barriers within the continent as well as easier cross-border access. In this regard, SADC is the obvious regional economic community (REC) for integrating the automotive industry and facilitating cross-border value chain trade. Besides being a free trade area, SADC has adopted the SADC Industrialisation Strategy and Roadmap, which calls for decisive action by members to promote regional industrialisation, investment and trade. In addition, to enable a successful regional automotive industry, countries in Southern Africa should play a role in the value chains commensurate with their comparative and competitive advantages in the supply of components to the hub countries assembling the vehicles.

A modest level of protection (tariff and non-tariff barriers) on imports from outside the continent is necessary to develop the automotive industry and regional value chains in Southern Africa. There is tension between policy approaches that seek to protect and localise the industry and those that allow it to be exposed to competition. The South African automotive industry was established behind trade barriers and with wide-ranging policy support, including subsidies. Similar protection measures, including local content requirements,[8] were used to establish automotive industries in many other emerging

market countries (Lee and Mao, 2020). Yet trade barriers also work to counteract the development of regional value chains in that they restrict the through-flow of imports and also, therefore, exports (containing imported inputs) (OECD, 2013). In addition, experience in Asia shows that longer-term success in automotive value chains is not achieved just through protection but also through exposure to competition (Lee and Mao, 2020).

Multilateralism is important for establishing regional value chains – it means that regional industrial prerogatives are addressed by negotiation between participants. The AfCFTA and, more directly, SADC will be key in policy development for a Southern African regional value chain in the automotive sector for several reasons:

- Trade barriers with third parties, that pertain to the automotive regional value chain, can be made consistent across member states.
- Investment agreements can be negotiated at the REC level with third parties and designed to be equitable across member states.
- Exports can be boosted through plurilateral trade agreements such as the European Union economic partnership agreements (EPAs) and the African Growth and Opportunity Act. An EPA between the European Union and the members of SADC (currently excluding Angola) provisionally entered into force in October 2016.
- The smaller countries in SADC can integrate their trade and investment by leveraging REC policies on free trade and the promotion of regional investment (OECD, 2013, 2016). Within SACU, Botswana and Lesotho have been able to do this to a degree.

The business environment and incentives are vital for attracting investment

The general business environment is key to appeal to investors – trade, industrial and regional policies will fail if the business environment is not conducive to investment. This is an area where Southern Africa lags behind. An improved business environment requires the following:[9]

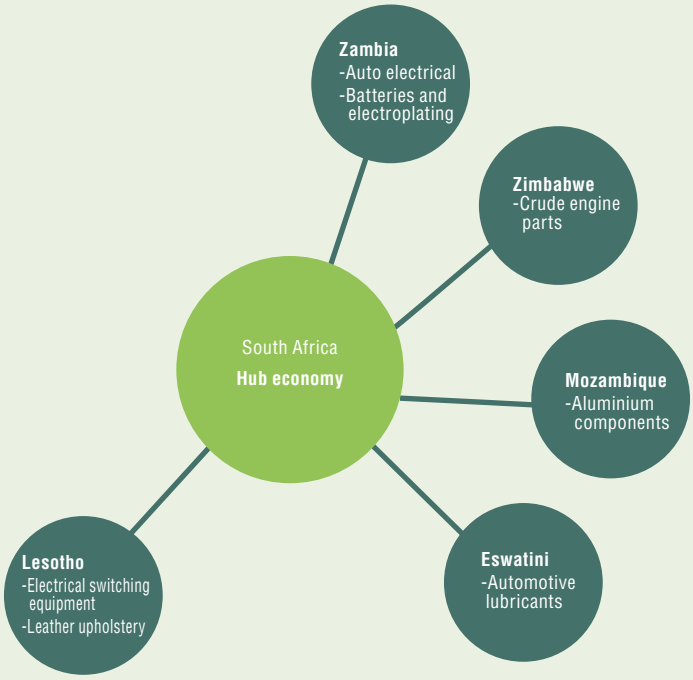
- *Upgraded power, water, bulk services, ports, air, road and rail infrastructure.* Even South Africa, with its relatively advanced infrastructure, suffers from severe power constraints, and high port and rail costs pose a major challenge. With its far-flung supply chain, demanding quality standards and just-in-time production, the automotive industry is particularly demanding in terms of transport infrastructure. This also poses challenges for the development of regional value chains.
- *Stronger institutions including property rights, commercial contracts, policy and regulatory certainty as well as personal and business safety and security.* Any deterioration in the strength of institutions, policy effectiveness or regulatory quality will compromise regional industrialisation strategies.
- *More developed backward-linked services sectors, such as transport, financial, distribution, communications and business services.* In addition, with the rising technological content of motor vehicles and components, the technology services sector must be capable as well. At present, Cape Town is the best-known technology hub in Southern Africa and could serve as a model and a means for technology development elsewhere in the region (Stuart, 2019). The important ingredients for success in developing technology services are to promote education, support technology entrepreneurship and provide incentives for innovation.
- *A competitive steel industry.* An aspect of the business environment for the automotive sector is the backward-linked steel industry, which needs to be able to supply steel inputs competitively. South African automotive industry representatives cite this as a problem which has resulted in the high proportion of imported steel products used in the industry (OECD, 2016).

Box 3.3. **Regional trade and industrial policies need to consider the specific issues in the automotive sector**

Efficient production requires large-scale assembly plants which are necessary to attract investment in the component sector. The proliferation of small-scale SKD-type operations is the outcome of inappropriate policy (such as exceptionally high rates of effective protection for minor final assembly) and should be discouraged. Such operations provide negligible value addition or possibilities for the domestic supply of components. In addition, firms that use SKD assembly may seek to thwart policy measures designed to attract larger-scale investments. Policies need to promote specialisation and large-scale production in order to support local and regional suppliers. Thus not all countries should try to enter the industry, especially the vehicle assembly sector. Regional integration requires regional specialisation, which would be better for all stakeholders. Other industrial sectors may offer greater prospects in line with comparative advantage.

One possible method for identifying the distribution of value chain participation among countries is revealed comparative advantage (RCA) analysis, where a country's existing export successes inform its potential role in value chains. Venter (2019) and Stuart (2020) refer to RCA analysis to suggest, for example, that Zambia's copper industry could position itself for value chain participation in auto-electrical components production. Other examples from Stuart (2020) are Lesotho specialising in electrical switching components, Mozambique specialising in the production of aluminium components such as cylinder heads and Zimbabwe specialising in aspects of basic engine construction.[10] This potential configuration is visualised in Figure 3.10.

Figure 3.10. **Potential hub-and-spoke model for developing an automotive pact in Southern Africa**



Source: Authors' elaboration.

Box 3.3. Regional trade and industrial policies need to consider the specific issues in the automotive sector *(continued)*

Approximately 80% of the value of a car lies in the components, which therefore comprise the bulk of industrialisation opportunities for the development of regional value chains. Policies should take account of this from the outset and aim at developing an assembly industry with a significant proportion of parts produced domestically or in the region. Currently, even in the South African industry, local content levels of approximately 40% (using an expanded definition)[11] are quite low. Supplier development policies are key.

The widespread importation of used vehicles poses a major challenge to industry development, and well-designed policy could gradually phase down these imports. Except for South Africa, the bulk of vehicles entering Southern African markets are used vehicle imports, mainly from Japan. A wide range of measures apply, ranging from no restrictions (Lesotho, Madagascar, Malawi and Zambia) to various incremental taxes based on vehicle age and emission standards (UNEP, 2017). An initial step would be to move towards greater harmonisation of the policies regarding used car imports applicable in the region. It is unlikely that the current pattern – substantial importation by some countries and zero or little by others – could be changed overnight. However, harmonisation would have to become an aspect of any regional value chain industrialisation strategy. This harmonisation would need to consider the potential for domestic industrialisation opportunities as well as the benefits to consumers of low-cost used car imports. There are also trade-offs between the environmental benefits of used car sales in terms of increasing the vehicular lifespans, contrasted with the harms of using older, more polluting vehicles.

Policy should take account of today's global transition to electric vehicles and sustainable transportation. Africa does not face the problem of large-scale sunk investment in internal combustion engine technology and can leapfrog to the new technologies. South Africa may be compelled to make this leap as Europe rapidly transitions to electric technology, following a roadmap to ban petrol and diesel vehicles in the European Union by 2035. In addition, many cities around the world are also seeing enormous economic benefits from developing more walkable urban designs. Low motor vehicle ownership could create more openings for sustainable transportation, such as light rail. At the end of 2019, Alstom Ubunye inaugurated a rail factory in South Africa[12] which contributes to the manufacturing of X-Trapolis Mega electric trains and is seen as crucial to the development of the entire African rail market.

Investment incentives can play a role in attracting the FDI necessary to build participation in automotive value chains. Many countries, such as the Czech Republic, Mexico and Turkey, have used incentives to attract FDI to their automotive sectors (OECD, 2016). Incentives have included tax breaks, training allowances, low-cost land and direct investment subsidies. In most emerging market producer countries, the assembly sector is foreign-owned or operates under foreign technology licences. However, a large-scale assembly sector creates opportunities for supplier development including of domestically owned firms.

Manufacturing capabilities and skills need developing

Manufacturing capabilities and skills need strengthening across the region. While South Africa has a long history of large-scale automotive production, it faces a shortage of skills. Neither the technical and vocational education and training colleges nor the Sector Education and Training Authority system is regarded as delivering what is required.

One result is the scarcity and high cost of technicians, artisans and managers in the automotive sector.

There are, however, a number of interesting public-private collaborations involving foreign and domestic firms, industry organisations, and local or national governments. Below are examples from South Africa; neighbouring countries could draw on this experience perhaps with the support of agencies such as Skills Initiative for Africa:

- The **Durban Auto Cluster**, which runs programmes on best practices.
- The **Automotive Industry Development Centre (AIDC)**, an initiative of the Gauteng provincial government. The AIDC is engaged in supplier development that includes a range of training activities (lean manufacturing, quality management, clean production, maintenance), and runs incubation centres for small firms located close to assembly plants in Gauteng province.
- The **Mercedes-Benz Learning Academy** in East London is a public-private initiative equipped with world-class technologies for training artisans in the fields of robotics, plant automation and metal joining technologies. It provides shop floor, apprenticeship and advanced skills training in the automotive and other industries.
- The **Automotive Supply Chain Competitiveness Initiative (ASCCI)** is a national collaborative project which seeks to promote localisation of suppliers (Black, Barnes and Monaco, 2019).

COVID-specific responses have attempted to address the large shocks to the economy

The policy responses to COVID-19 by Southern African governments have been mixed but reflect a typical response to a severe economic shock. How countries continue to react to the impacts of the pandemic will be critical for the automotive industry and will have repercussions on it for decades to come. In some ways, the situation of the automotive value chain in Africa currently mirrors that of the global and especially the United States automotive industry following the 2008 financial crisis – the last major global recession. At that time, United States policy makers implemented a range of measures, for example direct financial assistance as well as indirect measures such as taking over liabilities; purchase subsidies paid to consumers; and quasi-nationalisation of the industry, though only temporarily until the industry recovered (Van Biesebroeck and Sturgeon, 2010: 217-218).

African governments have lesser ability to provide direct financial support but can take other useful measures proven by policy responses to COVID-19. Liquidity easing, tax credits, and other incentives and waivers are possible in that they involve revenue forgone rather than revenue paid out. The bulk of COVID-19 measures by Southern Africa comprise the following:

- **Monetary measures to promote liquidity.** Angola, Eswatini, South Africa and Zambia all dropped their central bank lending rates to historically low levels.
- **Financial support to industry either through direct means such as wage subsidies or indirect means such as tax relief measures.** Angola introduced two subsidy plans, one aimed at micro, small and medium-sized enterprises (MSMEs) and another at larger enterprises. Botswana provided a relief package including loan guarantees to MSME firms. Malawi implemented two tax relief measures and one subsidy measure aimed at all enterprises and specifically at MSMEs in certain sectors. The South African Department of Labour implemented a subsidy for workers below a certain wage threshold.

- **Support to vulnerable sectors of society via grants and other forms of aid.** Botswana implemented a relief package, part of which included wage subsidies and income grants. Mauritius provided wage subsidies to workers and direct financial assistance to the self-employed. South Africa momentarily raised existing social grants and extended a temporary grant.

COVID-19-specific policy measures are probably too limited to prevent damage to the automotive value chain. COVID-19 policies pursued in Southern Africa as an initial response to the pandemic fallout are unlikely to prevent negative impacts on the automotive value chain. This is because these measures are by implication limited in scope, focusing only on emergency and temporary relief. In some cases, support measures were exhausted before the end of 2020 – such as South Africa's Unemployment Insurance Fund relief. The lowering of interest rates to historical levels and the extension of loan guarantees in many Southern African countries are policy measures aimed at providing temporary relief to industries facing sharp reductions in demand, but in themselves they cannot solve the fundamental problem, which are negative impacts on global demand.

Nevertheless, at the time of writing, the impacts of the COVID-19 pandemic are abating, with a resurgence in the demand for commodities and with Africa's most important trade partner, China, recovering well economically. In the first quarter of 2021, global commodities demand began to recover, led by a rise in the crude oil price. This reflects renewed confidence that a recovery is in sight. Demand for commodities is higher than for finished goods, however, and going forward the automotive industry faces not just this challenge but also the more general one of moving from internal combustion engine power to electric. Recovery is possible, but it will require building back not just to consolidate existing markets but also to address the requirements of greener transport technologies in future.

While the process of recovery is underway, there is a real danger of the "shortening" of value chains and the re-shoring of production. Rather than go this path, the countries of Southern Africa should use the opportunity to rebuild better trade and production relationships and creatively extend them to meet the considerable potential of the region.

Notes

1. South Africa dominates the region in terms of economic size, at 63% of the region's GDP, but there are asymmetries. For example, South Africa accounted for 52% of the region's foreign direct investment in 2019 whereas Mozambique represented 33%, but foreign direct investment is only responsible for 3% of the region's GDP (data sourced from the World Bank, 2021). The Southern African regional automotive sector is significantly dominated by South Africa, but value chain development in general is not limited by South Africa's current structural issues. For example, value chains have developed independently between the members of the Southern African Customs Union – such as those in the minerals sector between Botswana and Namibia.
2. Note, however, that although the basis of value chain trade is trade in intermediate goods, not all trade in intermediate goods is necessarily value chain trade. For example, some intermediate goods such as automotive spares are not exclusively used in value chain production of automobiles, but some are used in the repair of existing automobiles.
3. SKD assembly means that the partly assembled vehicle is imported with minor assembly taking place, for example the installation of the engine.
4. Under Phase VI of South Africa's automotive programme and then the Motor Industry Development Programme, automotive leather benefited from significant incentives, which were reduced under the Automotive Production and Development Programme.
5. See Furlonger (2018).
6. See, for example, Kenya's Draft National Automotive Policy (Kenya State Department of Industrialization, 2019).
7. AAAM is an Africa-wide association of multinational car companies, many of which have their regional headquarters in South Africa. See https://aaamafrica.com/.

8. Note that local content requirements are no longer permitted by the World Trade Organization.
9. Refer also to the OECD-NEPAD sustainable investment programme for Africa, which undertakes country-specific analyses and corresponding policy reform programmes (OECD, 2021b).
10. Niche automotive component specialisation by Southern African countries that already exists would be Lesotho's production of leather automotive seats and Botswana's production of electrical wiring harnesses.
11. Local content is defined here as wholesale value less all imported content and therefore includes the assembly process.
12. See Zasiadko (2019).

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Chapter 4

Integrating value chains in Central Africa and the wood industry

This chapter discusses the extent to which Central Africa and its nine countries (Burundi, Cameroon, the Central African Republic, Chad, the Republic of the Congo (Congo), the Democratic Republic of the Congo (DRC), Equatorial Guinea, Gabon and São Tomé and Príncipe) are integrated into global value chains (GVCs). It provides an overview of the sub-region's participation in GVCs, identifying strategic products and sectors. Focus then shifts to the wood value chain on account of its potential, its size and the restrictions imposed on it as a result of the COVID-19 pandemic. Finally, this chapter sets out proposals for public policies designed to drive the development of value chains in Central Africa, in particular the wood value chain, and discusses the need to improve the macroeconomic framework and the investment climate, address the lack of transport infrastructure and logistical infrastructure and develop professional skills in line with the needs of the market.

IN BRIEF

Central Africa's participation in GVCs is still limited compared to Southern Africa and North Africa but greater than West Africa and East Africa. It is based mainly on forward linkage activities (trade and services) and only very slightly on backward linkage activities (research & development and design). Its integration into GVCs is driven by the primary sector, whereby exports of unprocessed raw materials (86.6% of total exports in Chad, 63.3% in Equatorial Guinea and 61.4% in the Republic of the Congo) do not contribute to the creation of added value or the redistribution of income.

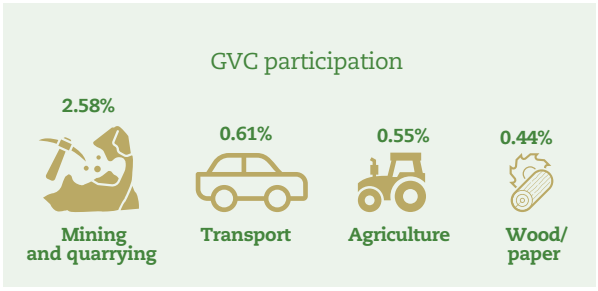
Central African countries have a competitive advantage across a wide range of products, in particular ores and natural abrasives (hard rocks), cocoa, cotton and raw wood. Six of the sub-region's nine countries are home to nearly 26% of the world's remaining tropical rainforests, constituting the second largest area of its kind on the planet after the Amazon. The forestry sector, more precisely the wood industry, boasts opportunities for value chain integration. However, the countries need to implement strategies to scale down informal activities in favour of developing sustainable production chains as sources of growth and employment.

Despite the huge potential of the wood value chain, Central Africa's share of the global market is still low: 6.28%, 9.70% and 5.38% of global production of tropical sawnwood, wood veneer and roundwood, respectively, in 2020. This weak position is only compounded by high transport costs, a lack of technical, commercial and marketing innovation, the pressure of competition from emerging economies and the issues associated with informality.

This chapter proposes three policies for consideration: i) improve the macroeconomic framework and the investment climate so that they are conducive to the development of the forestry sector; ii) address the lack of logistical infrastructure and transport infrastructure; and iii) develop professional skills that better meet the needs of the market.

Central Africa

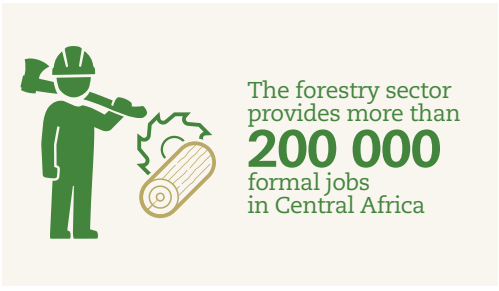
Central Africa and global value chains



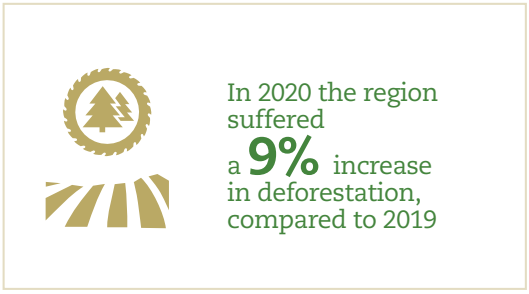


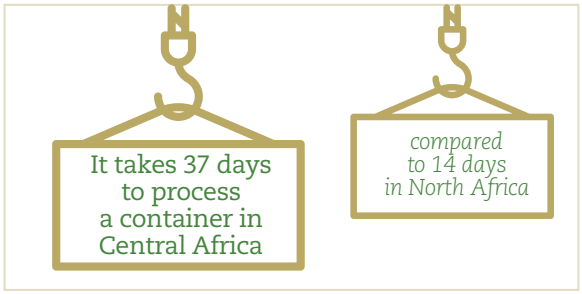
Opportunities for wood value chains in Central Africa





Constraints to the development of wood value chains



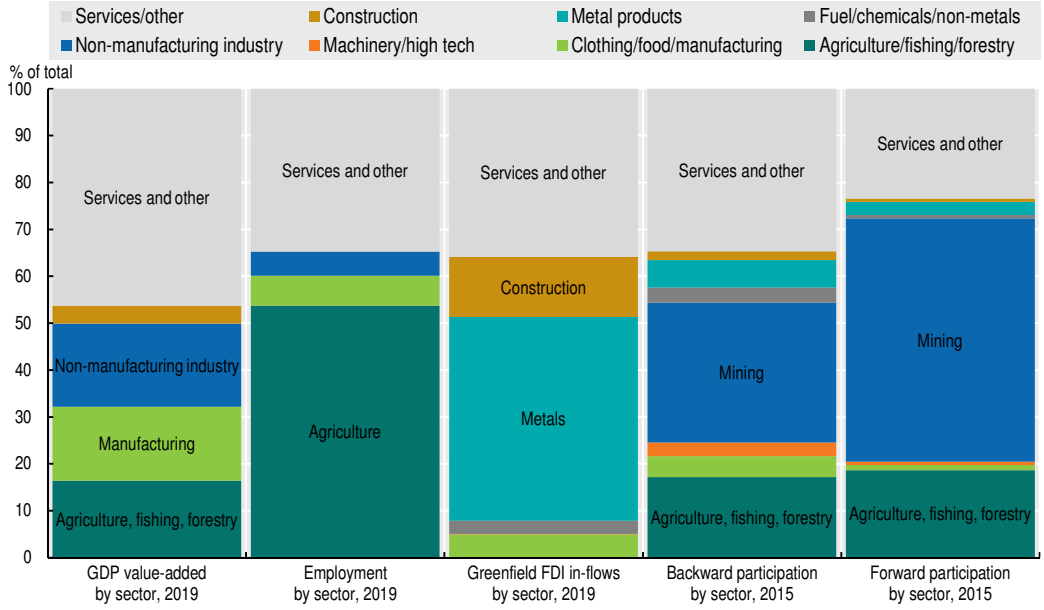


What's next ?

- **Train more workers** in wood processing techniques
- **Reduce deforestation**, forest degradation and GHG emissions linked to forestry
- **Collaborate with local communities** and the private sector on sustainable forestry
- **Promote sustainable forestry** certification

Central Africa regional profile

Figure 4.1. **Economic and trade profiles of Central Africa, expressed as % total**

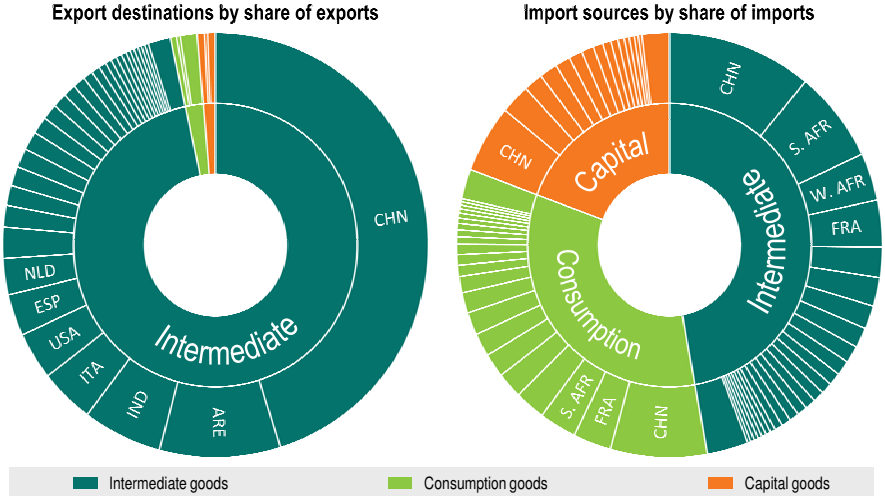


Notes: GDP = gross domestic product; FDI = foreign direct investment. The different sources for the data do not share common definitions of economic sectors, commodities or activities. However, colouring is used in this figure in order to indicate shared themes across datasets.

Source: Authors' calculations based on World Bank (2020a), *World Development Report 2020*, GVC database, http://www.worldbank.org/en/publication/wdr2020/brief/world-development-report-2020-data; fDi Markets (2021), *fDi Markets* (database) www.fdiintelligence.com/fdi-markets; and World Bank (2021), *World Development Indicators* (database), https://databank.worldbank.org/source/world-development-indicators.

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Figure 4.2. **Central Africa's most important trade partners broken down by volume of trade in intermediate, consumption, and capital goods**



Notes: Countries are presented using their three-letter ISO codes. The African countries are aggregated into the five sub-regions defined by the African Union as follows: C. AFR = Central Africa, E. AFR = East Africa, N. AFR = North Africa, S. AFR = Southern Africa, W. AFR = West Africa. Interior trade within the Southern Africa Customs Union is excluded.

Source: Authors' calculations based on data from CEPII (2021), *BACI* (database), www.cepii.fr/cepii/en/bdd_modele/presentation.asp?id=37.

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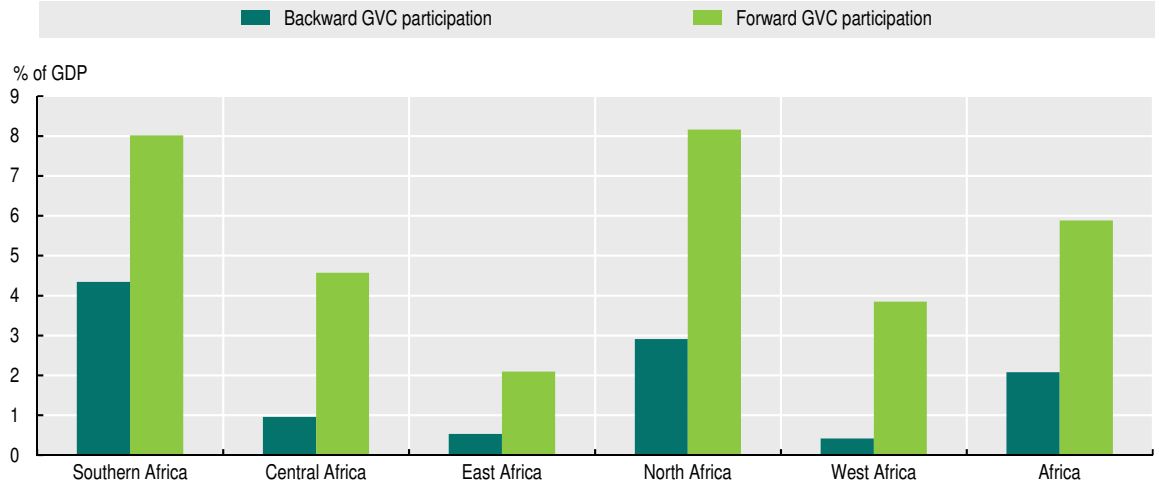
Central Africa is still poorly integrated into GVCs

Central Africa is still one of the sub-regions least integrated into GVCs, while its participation is based mainly on forward linkage activities in value chains. Similarly, the foreign value-added content of exports (backward participation) is still relatively low compared to the domestic value-added content of exports (forward participation). Backward GVC participation accounted for just 1% of GDP in Central Africa in 2019 compared with 2.1% across Africa on average and 4.3% in Southern Africa (Figure 4.3).

This average figure conceals the fact that there are large disparities between the individual countries. The Republic of the Congo and Gabon are one step ahead, as their level of participation in GVCs is dominated by the forward linkages that they have been developing with the other countries (AUC/OECD, 2021a). In the Republic of the Congo, this is mainly due to the oil industry, which accounts for the lion's share of exports, with local processing of the black gold. In addition to Congolaise de Raffinage (CORAF), which has been operational since 1982 and boasts capacity of close to 1 million tonnes a year, another refinery is currently under construction in Pointe-Noire which will have an estimated capacity of 2.5 million tonnes a year.

The diversification strategy adopted by the Gabonese government has had a positive impact on the development of new sectors of activity, most notably in the agri-food and wood industries. The cultivation of oil palms, Para rubber trees and Indian rubber trees has been developed on an industrial scale thanks to the investment of the Singaporean Olam Group, which has accounted for more than 45% of total foreign direct investment (FDI) entering Gabon since 2010 (AfDB, 2020). Chad and Burundi's weak participation in GVCs is due to the difficulties they have in processing their raw materials (AUC/OECD, 2018). Chad, where oil accounts for 75% of total exports, received approximately USD 1.38 billion in export revenue from unprocessed goods in 2018 compared with just USD 5 million from processed goods (Table 4.A1.1).

Figure 4.3. **Total backward and forward GVC participation of the sub-regions of Africa in 2019 (as a percentage of GDP)**



Note: GVC participation is measured based on the backward component, the forward component and the total rate of participation combining those two components.

Source: Authors' calculations based on data from Casella et al. (2019), *UNCTAD-Eora Global Value Chain Database*, https://worldmrio.com/unctadgvc/

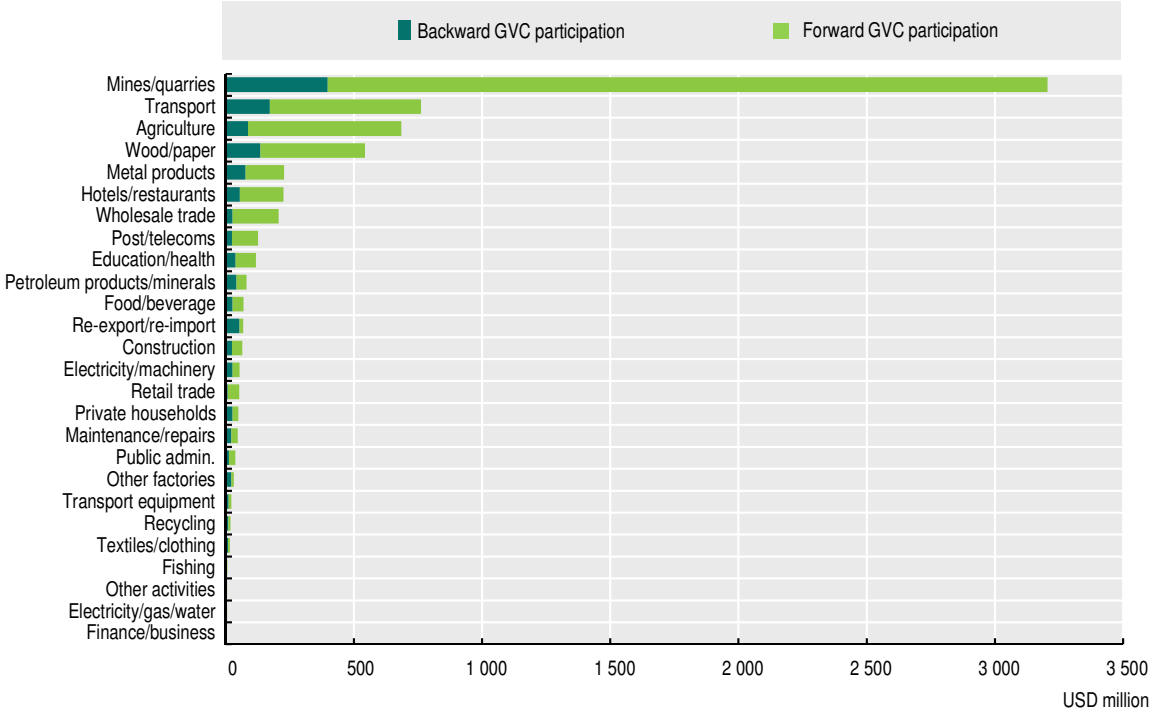
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In Central Africa, the relatively high level of forward participation (more than 4% of GDP) at the expense of backward participation (1% of GDP) is due to the importance of

trade in goods and services. According to the "smiling curve" principle, backward linkage activities such as research & development (R&D) create more added value than forward linkage activities such as marketing and distribution (Shih, 1996; Dedrick and Kraemer, 1998). In 2019, the sub-region ranked second in the continent in terms of intra-African trade in semi-finished goods, just behind Southern Africa (AUC/OECD, 2021a).

Central Africa's integration into GVCs is still primarily driven by the primary sector and is dominated by exports of unprocessed raw materials on which the sub-region was, on average, 61% reliant in 2018 (AUC/OECD, 2021b). Mines and quarries, transport, agriculture and wood account for the largest proportion of its forward GVC participation (Figure 4.4). The domestic value-added content resulting from the exploitation of mining products and contained in the exports of the sub-region's countries is estimated at over USD 3 billion, considerably higher than that of other sectors (AUC/OECD, 2021a). Furthermore, in Central Africa, exports of fully processed goods in 2018 totalled USD 191 million (Table 4.A1.1), far behind the continent's other sub-regions (USD 23.7 billion in North Africa, USD 18.57 billion in Southern Africa, USD 6.13 billion in East Africa and USD 2.38 billion in West Africa).

Figure 4.4. **Total value of export-related backward and forward GVC participation for Central Africa, in USD million, 2015**



Source: Statistical annex to the AUC/OECD report (2021a).
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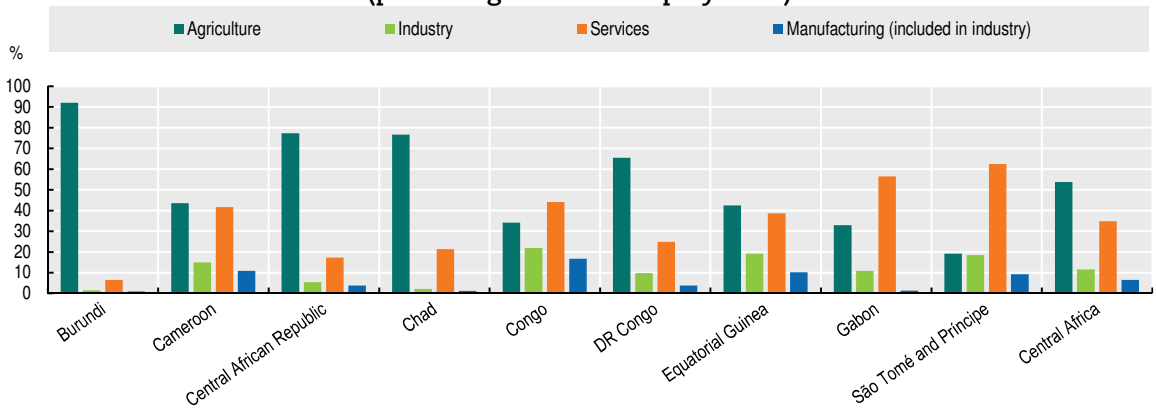
The sub-region's countries that have registered an increase in exports also rely on raw materials and hydrocarbons, which is why they are vulnerable to external shocks. The countries are split into three clear groups based on the structure of their exports: countries which are dependent on oil (Cameroon, Chad, the Republic of the Congo, Equatorial Guinea and Gabon), countries which are dependent on non-renewable natural resources (more than 25% of exports in the Central African Republic and the Democratic Republic of the Congo), and countries which are not dependent on mineral resources (Burundi and São Tomé and Príncipe). For almost half of the countries, the exports-to-GDP ratio has

increased, but only as a result of a rise in global demand and in domestic production of natural resources (whether oil or otherwise). This is the case for Chad, the Republic of the Congo, Gabon and the Democratic Republic of the Congo. Apart from Cameroon and Equatorial Guinea, the countries which have suffered a decline in exports in relation to GDP are Burundi and São Tomé and Príncipe, which are struggling to integrate into GVCs (Allard, Kriljenko and Chen, 2016).

Central Africa's exports have increased over the past ten years thanks to discoveries of new oil fields and/or other non-renewable natural resources. Export volumes have developed in line with prices. By contrast, countries which have been unable to benefit from such resources or those whose governments have prevented proper exploitation of such resources have seen their export volumes decline. Overall, in almost all of the countries, raw materials are the driving force behind foreign trade.

Primary sector industries, which are sources of GVC integration, create a lot of precarious employment with low added value. The primary sector, in particular agriculture, accounts for the lion's share of employment in Central Africa (Figure 4.5). Although it varied heavily from country to country, agriculture was on average estimated to account for 52% of employment in 2019 and provided jobs to more than 75% of the working population in Burundi, the Central African Republic and Chad. Agricultural employment is still largely informal, and in 2018 informal employment accounted for 90% of total employment in Central Africa (ILO, 2020). The prevalence of informal employment makes it difficult for labour law to be properly enforced and restricts workers' productivity in the face of strong competition in particular from countries in the Asia-Pacific region.[1] In certain countries, such as São Tomé and Príncipe, Gabon and the Republic of the Congo, the wholesale and retail sector is still a rich source of employment accounting for more than 40% of all jobs.

Figure 4.5. **Employment by sector in Central Africa in 2019 (percentage of total employment)**



Source: Authors' compilation based on data from the International Labour Organization (ILO), the United Nations Statistics Division, national accounts (analysis of main aggregates, dataset downloaded in July 2021) and the World Bank's World Development Indicators (database and data issued by the central banks, national statistical institutes and the World Bank's country offices).

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The intercontinental market represents an opportunity to develop RVC trade but remains insignificant for Asian and European partners. Trade between Central African countries is valued at USD 300 million, i.e. 3% of exports (AUC/OECD, 2018), compared with more than USD 500 million with Southern Africa, Central Africa's main trading partner in Africa (CEPII, BACI international trade database). These figures do not take into account the existence of a large volume of informal cross-border trade which accounts for

close to 43% of the sub-region's revenue (ILO, 2020). As such, although the statistics may not be fully accurate, they do show that this trade is comparable with that of regions such as the Caribbean and Latin America.

Box 4.1. **Opportunities for processing mineral products in Central Africa**

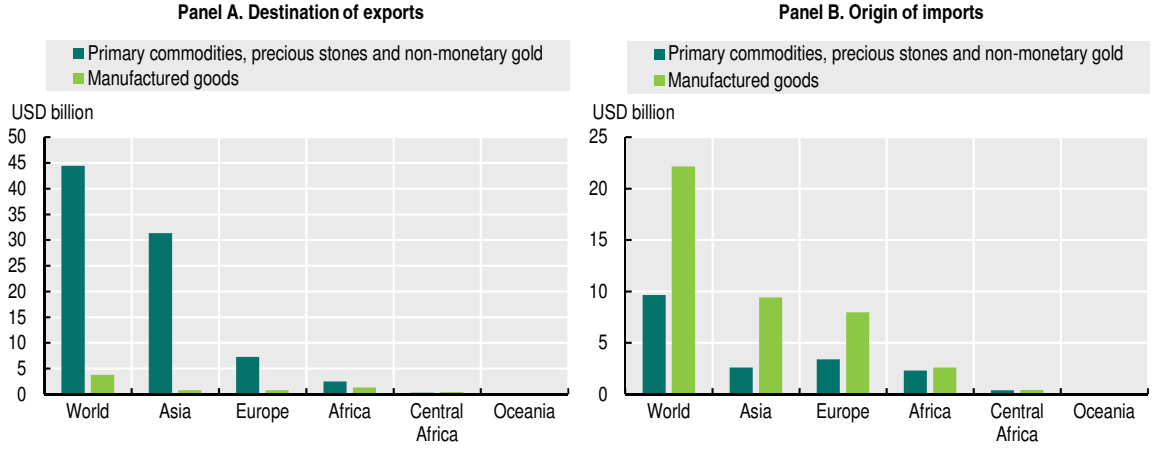
Copper, oil and bituminous minerals account for the lion's share of the sub-region's total exports – 86.6% in Chad, 61.4% in the Republic of the Congo and 63.3% in Equatorial Guinea (AUC/OECD, 2021a). These raw materials, exported to other regions of the world, improve these countries' GVC participation, which is why policies designed to promote industrial hubs for processing them locally are so important.

The development of potash in the Republic of the Congo, for example, valued at USD 2 billion (UNECA, 2020), could result in a regional value chain (RVC), especially given that the sub-region continues to allocate vast resources to imports of food products: 38% of imports in Equatorial Guinea in 2017, 24% in Gabon, 21% in the Central African Republic, 18% in São Tomé and Príncipe, 17% in the Republic of the Congo and around 16% in Cameroon and the Democratic Republic of the Congo (AUC/OECD, 2019). Yet, the extraction and exportation of potash to Cameroon would, thanks to the existence of a large and qualified workforce, enable it to be processed into fertiliser, in turn enabling the sub-region's demand for agricultural inputs to be met.

Furthermore, with 70% to 80% of the world's columbite-tantalite (coltan) reserves (an ore used by the electronics and aviation industries, a substantial proportion of which comes from the Democratic Republic of the Congo), Central Africa could promote an integrated operations policy. According to official statistics from the Democratic Republic of the Congo, it exported 1 038.33 tonnes of coltan for a value in excess of USD 20 million in the first half of 2020 (Ministry of Mines of the Democratic Republic of the Congo, 2021). The construction of coltan processing plants pooling the production of the countries concerned would provide a thriving industry with numerous opportunities – instead of creating endless conflicts over the open-cast mines in eastern Congo.

Outside of the continent, Asia and Europe are still Central Africa's main trading partners. Although the main exports to Asia and Europe consisting of raw materials are valued at close to USD 31 billion and USD 7 billion respectively, imports are primarily of manufactured goods (Figure 4.6).

Figure 4.6. **Main destinations/origins of primary commodities and manufactured goods exported from/imported to Central Africa, 2020 (in USD billion)**



Source: United Nations Conference on Trade and Development (UNCTADstat).
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Box 4.2. **Analysis of certain strategic value chains in Central Africa**

Central Africa boasts revealed comparative advantages (RCAs) with regard to several products, including raw wood, cotton, ores and natural abrasives. In 2019, raw wood generated nearly USD 1.16 billion in export revenue in the Central African Republic, the Republic of the Congo, Equatorial Guinea and Gabon (Table 4.1), followed by cotton which generated USD 113.5 million in Chad. In the 2020-21 season, cotton production experienced growth and reached 125 000 tonnes (t) compared with 116 000 t in 2019-20 and 76 000 t in 2018-19 (*Financial Afrik*, 2021). Ores and natural abrasives rank third among products with the greatest RCA, in particular in the Democratic Republic of the Congo on account of coltan. In São Tomé and Príncipe and Burundi, cocoa and tea provide the greatest RCA.

Table 4.1. **Analysis of certain strategic value chains in Central Africa**

Country	Products with the greatest RCA	Exports in 2019 (USD million)	Opportunities	Challenges to overcome
Burundi	Tea	16.58	Second cash and export crop after coffee. 13% of the value of exports on average over the 2007-15 period (Ndimubandi and Schuster, 2018).	Implementation of a regulatory body to limit economic constraints – limited investment, volatility of exorbitant production costs and prices (*Burundi Eco*, 2021).
Chad	Cotton	113.52	One of the mainstays of the economy. Sector benefiting from partnership with the European Union (EU, including France, Germany, Belgium, Portugal and Spain).	Maintenance of rural tracks to facilitate the transportation of production from fields to ginning plants.
DRC	Natural abrasives, coltan	107.12	The DRC was home to between 60% and 80% of the world's known coltan reserves in 2020.	Safety of producers, logistics and administrative issues relating to exportation and certification (Ecofin Agency, 2017).
São Tomé and Príncipe	Cocoa	11.34	Primary source of revenue from exports: USD 9.5 million in sales in 2017, i.e approx. 93% of the country's total exports and 2.4% of its GDP (IFAD, 2020).	Training for farmers on how to process their crops and implement sustainable practices.
Central African Republic Congo Equatorial Guinea Gabon	Raw wood or squared timber	51.47 249.06 3.64 860.57	World's second largest area of tropical rainforests. The wood industry makes a significant contribution to GDP and to employment in the countries concerned (see below).	High transport costs and poor state of commercial and logistical infrastructure.

Source: Authors' calculations and compilation based on the sources mentioned in the table above; data on RCAs and exports taken from the UNCTAD Merchandise Trade Matrix (UNCTADstat, https://unctadstat.unctad.org/EN/RcaRadar.html, consulted on 9 August 2021).

Case study: Promoting the wood RVC is essential

The forestry sector has been chosen on account of its huge potential

The forests of Central Africa constitute the world's second largest area of tropical rainforests and are home to terrestrial ecosystems that are vital to the region's development. They account for 26% of the planet's remaining tropical rainforests, 10% of forest carbon emissions and 70% of Africa's rainforest cover (FAO, 2020) and span across six countries: the Democratic Republic of the Congo, Gabon, the Republic of the Congo, Cameroon, the Central African Republic and Equatorial Guinea (Table 4.A1.3). Thanks to the immense quantity of carbon stored in their abundant vegetation, they act as a buffer mitigating global climate change and help to safeguard the food security of local populations. The sustainable management of these forests is essential for achieving several Sustainable Development Goals (SDGs), in particular those relating to responsible

consumption and production, life on land and climate action. The forests of the Congo Basin carry out invaluable ecological services such as controlling floods and regulating the climate both in the local area and the wider region. Certain areas could be more sensitive to global changes than others (Réjou-Méchain et al., 2021).

The numerous plans to develop the forest value chain (FVC) have not resulted in the sustainable management of this key resource. The forests of Central Africa and their extremely rich biodiversity are brimming with the resources required for the Central African countries to participate in the global wood value chain. In 2003, the African Union (AU) defined the FVC as a future chain for Central Africa, since it boasts opportunities for developing low-carbon materials and could boost green building, drive growth and create jobs. The decision "taken by the countries to allocate production forests" could secure the forest cover and the economic activity generated could help to fight poverty, which is an indirect cause of deforestation.

The countries have struggled to enforce regulation of the exploitation of resources, threating Central Africa's equatorial forests for many years on account of deforestation (Table 4.2). In 2020, no fewer than 600 000 hectares (ha) of primary forests were cut down in the Democratic Republic of the Congo, Cameroon, the Republic of the Congo, Gabon, Equatorial Guinea and the Central African Republic, constituting an increase of 9% compared to 2019. What is more, following deforestation, the forests that grow back are less dense. There are several possible causes of this deforestation phenomenon: shifting cultivation, the expansion of infrastructure, the harvesting of wood and conflicts in certain countries such as the Democratic Republic of the Congo, which hinder the monitoring of forest areas by public authorities. Furthermore, the COVID-19 pandemic is likely to increase deforestation due to reduced monitoring by public agencies.

Table 4.2. **Rate of annual loss of forest cover in Central Africa**

	Forest area (1 000 ha)		Rate of annual loss of forest cover (as a percentage)
	2010	2020	2010-20
Cameroon	20 900	20 340	0.27%
Congo	22 075	21 946	0.06%
Central African Republic	22 603	22 303	0.13%
DRC	137 169	126 155	0.83%
Gabon	23 649	23 531	0.05%
Equatorial Guinea	2 532	2 448	0.34%
Central Africa (average)			0.28%

Source: FAO (2020), https://www.fao.org/3/ca9825en/ca9825en.pdf.

Despite its modest contribution to GDP, the formal forestry sector remains a major source of employment in Central Africa (Table 4.3). Forestry activities make a limited contribution to GDP, between 2.67% and 5% in 2018 (ATIBT, 2020a), but account for 200 000 direct and indirect jobs (Table 4.3). In Gabon, the forestry sector represents the biggest source of employment after the State, providing 13 000 direct jobs, including 5 000 civil servant roles and 600 support officer positions in public forestry departments.

The forestry sector's full contribution to economic growth is underestimated in official statistics due to the significance of the informal sector. Despite the difficulty involved in measuring the size of the informal wood market, informal production is estimated (in roundwood equivalent) to be 2.4 million m^3 in Cameroon and 4 million m^3 in the Democratic Republic of the Congo (ATIBT, 2020a). The informal sector is a source of employment, just like the formal sector, even if it involves unpaid subsistence activities related to the harvesting of wood, used as an energy source.

Table 4.3. **The forestry sector's contribution to GDP and direct and indirect employment in Central Africa**

Country	Contribution to GDP as a percentage, 2018	Jobs	
		Direct jobs	Indirect jobs
Cameroon	4.7%	13 000	150 000
Gabon	3.3%	13 000	between 2 000 and 5 000
Central African Republic*	5.0%	4 000	6 000
DRC	0.15% (2016)	4 523	–
Congo	2.67%	7 500	5 000
Equatorial Guinea	–	–	–

Sources: International Tropical Timber Technical Association (ATIBT, 2018 and 2020a), Activity Report, https://www.atibt.org/files/upload/Activity_report/ATIBT-ACTIVITY-REPORT-2020.pdf, and *AfDB (2018), https://www.afdb.org/sites/default/files/documents/publications/developpement_integre_et_durable_de_la_filiere_bois_dans_le_bassin_du_congo_-_regional_0.pdf.

The impact of the COVID-19 pandemic on the wood value chain in Central Africa has led to political responses

Like the rest of the world, Central Africa is gradually recovering from the worst economic recession recorded since the end of the 1980s. In addition to the health impact, COVID-19 has also taken its toll on business in the sub-region's countries which had already been weakened by the recessionary effects of the fall in oil prices and security crises. During the first half of 2020, the respective governments implemented travel restriction, lockdown, social distancing and border closure measures in order to slow the spread of the pandemic. These measures led to a contraction of the sub-region's real GDP growth of 5% in 2020, the worst performance in over two decades. Thanks to the partial lifting of the restrictions on account of a slowdown in the number of infections, there has been economic recovery in 2021 even though growth is expected to be zero according to forecasts (AUC/OECD, 2021a).

The measures designed to stop the spread of the pandemic have had a major impact on the forestry sector in general and the wood industry in particular. Border closures have hampered wood supply chains, which in turn has led to longer-term supply and demand issues. On the supply side, the cessation in some cases of the free movement of persons and goods has prevented businesses with links to the wood industry, from operating at full capacity leading to the postponement or cancellation of orders for wood and processed goods (Andrianarison and Nguem, 2020). Similarly, hold-ups along logistics chains have increased the risk of disruptions to supplies that are essential to production, thus impacting production capacity. All the sub-region's countries have seen their export volumes decline (Table 4.4). In Cameroon, for example, exports of roundwood and furniture fell from USD 394 million and USD 805 000 respectively in 2018, to USD 131 million and USD 184 000 in the first half of 2020.

Exports have been affected by reduced demand from the sub-region's main trading partners such as China and EU Member States, which have been heavily impacted by the pandemic. Central Africa's wood-producing countries export the majority of their production to China, and most logs (roundwood) removed in Africa are marketed by Chinese companies. Statistics produced by Global Wood Markets Info (GWMI, 2021) show a decline in China's imports of wood since the start of the pandemic. Instead of the forecast 17.5 million m³ of wood, China imported just 13.9 million m³ between January and May 2020, which is a reduction of 21% (Lubala and Mounzéo, 2020). In Cameroon and Gabon, forestry activity has decreased due to the decline in demand from China for the ovangkol and okoumé species (ITTO, 2021). In the Republic of the Congo, Congolaise Industrielle des Bois (CIB) and Interholco were the only companies that were operational during the

first quarter of the lockdown (Ministry of Finance and the Budget of the Republic of the Congo, 2020). The sub-region's economies have also been hit by a local demand shock in relation to the restrictive measures imposed by the governments but also the decline in household income.

Table 4.4. **Exports of primary wood products and secondary processed wood products (wooden furniture) in Central Africa, 2018-20 (in USD thousand)**

Country	Roundwood			Wooden furniture		
	2018	2019	2020 (first half)	2018	2019	2020 (first half)
Burundi	0.09	–	–	99.69	138.63	10.05
Cameroon	394 002.3	280 592.9	131 181.2	805.85	288.18	183.56
Central African Republic	66 826.13	41 446.2	59 745.87	16.77	22.08	1.09
Chad	–	–	–	82.69	5.79	–
Congo	298 387.7	300 870.5	260 288	140.93	242.69	43.69
DRC	40 995.88	34 914.59	62 322	67.07	20.54	1.54
Equatorial Guinea	345 393.20	190 706	68 493	14.64	14.71	–
Gabon	19 797.05	16 856	993.55	222	283.86	133.27
São Tomé and Príncipe	–	–	–	6.38	36.46	36.46

Note: – = lack of information.
Source: Authors' calculations based on ITTO data (2021), https://www.itto.int/biennal_review/?mode=searchdata.

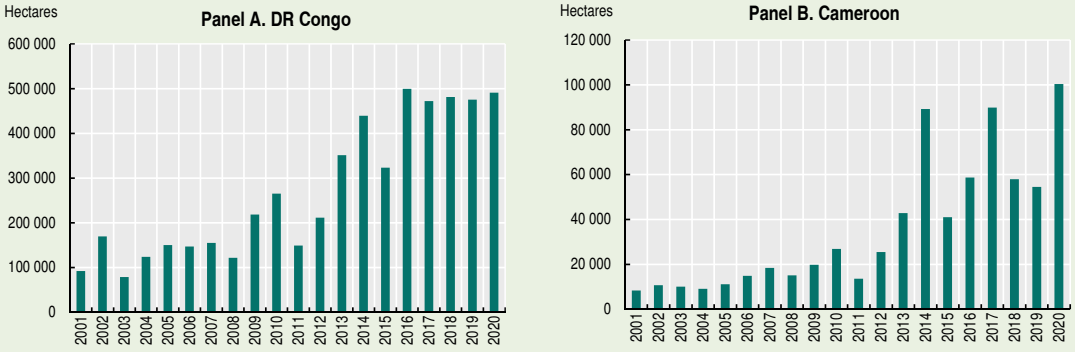
Direct impacts in the wood industry have had knock-down effects on the sub-region's workforce and companies. The industry is a major source of employment in Central Africa (Table 4.3). The strategic vision for the industry drawn up by the Central African Forests Commission (COMIFAC) sets out the creation of 60 000 jobs over the period from 2018 to 2030 (Forum Africain du Bois, 2018). However, high occupational safety and health risks, increased during the pandemic, added to the sanitary measures in place, make this vision unrealistic. These measures and other COVID-19-related travel restrictions, have led to important job losses in the forestry sector, where labour-intensive tasks are commonplace.

The pandemic has hampered efforts to promote sustainable forest management in Central Africa. Since those employed in the informal forestry sector are at high risk of losing their jobs, they may resort to undertaking illegal forestry activities such as producing charcoal and harvesting non-timber forest products (NTFPs) to meet medicinal, dietary and nutritional needs (UNDP, 2021). Furthermore, the pandemic is likely to lead to an increase in deforestation due to reduced monitoring by public forestry agencies (Box 4.3). The pandemic has resulted in an increase in illegal forestry activities in Central Africa due to shortcomings in the governance and funding of forestry agencies (Mbzibain et al., 2020).

Box 4.3. **Impact of COVID-19 in terms of loss of forest cover in the Democratic Republic of the Congo and Cameroon**

Between 2001 and 2020, the total surface area covered by primary rainforests in the Democratic Republic of the Congo and Cameroon fell by 5.1% and 3.7% respectively, constituting a loss of nearly 5.32 million ha and 708 000 ha of primary rainforest. Deforestation accelerated in Cameroon in 2020. When the COVID-19 pandemic hit in 2020 causing travel restrictions and a global economic slowdown, Cameroon lost more than 100 000 ha of its primary forests in 2020, which is nearly double the surface area of primary forests destroyed in 2019 (Figure 4.7). According to data from GFW (2021a), most forest losses in Cameroon are attributable to agriculture. More than 60% of the losses were recorded in the central and eastern parts of the country, which are its main forest regions. In the Democratic Republic of the Congo, of the 1.21 million ha of forest cover lost in 2019, 494 000 ha were attributable to forestry and 203 000 ha to forest fires.

Figure 4.7. **Loss of primary forest cover (in hectares) in the DR Congo and Cameroon, 2001-20**



Note: The graphs represent the loss of humid primary forests, reaching 16% and 34% respectively of the total loss of forest cover in Cameroon and DR Congo between 2001 and 2020.

Source: GFW (2021a), https://gfw.global/3ekT11P.

StatLink https://doi.org/10.1787/888934298301

The number of fire alerts in these countries has increased tenfold since the start of the pandemic. Taking only high-confidence alerts into account, some 10 034 Visible Infrared Imaging Radiometer Suite (VIIRS) alerts were recorded between 19 October 2020 and 17 May 2021 in Cameroon, which is high compared to previous years dating back to 2012 (GFW, 2021a). Over the same period, the number of high-confidence VIIRS alerts for the Democratic Republic of the Congo was estimated at 19 589.

A range of measures have been taken by the sub-region's countries and numerous development partners in order to offset the impact of the pandemic on the wood industry. Governments, the private sector, civil society, the United Nations and the African Development Bank (AfDB) have joined forces to tackle the pandemic (Table 4.5).

Table 4.5. **Various political measures taken to offset the impact of the pandemic on Central Africa's forestry sector**

Country/countries	Measure(s)
Congo, DRC and Central African Republic	**April 2020:** The Green Climate Fund Board approved 15 new projects totalling USD 1.2 billion in new climate funding designed to provide developing countries with firm support in order to enable them to ramp up their climate action in the face of COVID-19 (CBFP, 2021a).
Congo	**April 2020:** The Ministry of Finance and the Budget drew up and published customs, fiscal and financial measures designed to enable numerous tax and duty payments to be postponed and import and export taxes to be reduced in order to support forestry companies suffering a decline in activity (ATIBT/BVRio, 2020).
Central Africa	**May 2020:** The Wildlife Conservation Society put forward a package of strategic measures designed to reduce the risk of future epidemics of infectious diseases caused by bushmeat in Central Africa. The specific aims are to improve public health infrastructure, raise awareness so as to protect the health of indigenous peoples and local communities, stop supplies travelling from rural areas to urban areas, prevent the sale in towns and cities of mammalian species as bushmeat and develop early warning systems for emerging zoonotic diseases at the interface between humans, wildlife and forests (CBFP, 2021b).
Central Africa	**May 2020:** The International Tropical Timber Technical Association (ATIBT) adopted measures designed to maintain the activities of a responsible industry essential to the economic equilibrium of the sub-region's countries. These measures concern five companies based in Cameroon, the Republic of the Congo and Gabon.[2] Interholco (northern Congo), for example, which employs 1 000 people, implemented regional civic and educational programmes for employees and their families in collaboration with government bodies. Sanitary measures for staff and local residents were taken, including the acquisition of medical and hygienic equipment (ATIBT, 2020b).
Chad	**June 2020:** The AfDB awarded a grant of more than USD 20 million in order to finance the Support Project for G5 Sahel Member Countries to Combat the Coronavirus (COVID-19) Pandemic. The project's objectives are to build case management capacity, ensure the availability of medical products for the prevention, control and treatment of symptoms and implement social protection measures in target communities including refugees and displaced persons, for example those from the Lake Chad area (G5 Sahel, 2021).
Central Africa	**June 2020:** The Food and Agriculture Organization of the United Nations (FAO) organised a forestry webinar on the topic "Building back better: COVID-19 pandemic recovery contributions from the forest sector". A joint survey was conducted by FAO's Forestry Division and partners within and outside of FAO of between 200 and 400 participants a day, in particular representatives of countries, UN bodies, NGOs, international organisations, civil society and universities as well as individuals with an interest in the forestry sector. The findings indicated that the most relevant measures for mitigating the impacts of the pandemic were the adoption of digital technologies, resource efficiency and support designed to improve health facilities and healthcare in locations where main operations are carried out. For governments, the most relevant responses to the survey concerned support measures for accessing markets and stabilising supply and trade (legal, logistical and public procurement measures, etc.) and subsidised loans and/or tax exemptions for small and medium-sized forestry enterprises (Linhares-Juvenal, 2020).
Central African Republic	**October 2020:** Networks of civil society organisations such as the Global Greengrants Fund raised awareness of COVID-19 among local communities and indigenous peoples in the forest area in the south-west of the country. Communities benefited from awareness-raising initiatives and the distribution of hygiene kits (Wallot, 2021).
Cameroon, Congo and Gabon	**December 2020:** A platform was set up from 17 to 18 December for direct communication and co-operation among Chinese companies and ATIBT member companies working in Africa in order to promote the development of sustainable trade in hardwood (CBFP, 2021c).
Cameroon	**December 2020:** On 15 December, the Ministers for Forestry and Wildlife, Public Works and Public Contracts signed a joint order setting out provisions for the use of legally sourced wood in public procurement projects in Cameroon. This order forces operators involved in the construction of buildings and/or public procurement projects relating to wood products to provide proof that the wood being used was legally sourced.
Cameroon	**January-February 2021:** As part of the Regional COMIFAC Support Project, between January and February 2021 the German Corporation for International Cooperation (GIZ) conducted COVID-19 healthcare support missions in communities surrounding Lobéké National Park (22 to 30 January 2021) and Nki National Park (16 to 22 February 2021) located in the southeasternmost point of Cameroon. The aim of these missions was to distribute sanitary and medical equipment (CBFP, 2021d).
Central African Republic and Congo	**June 2020:** A module dedicated entirely to the risk analysis of wood and wood product supply chains was launched. "Ekwato" is a digital innovation designed to enable users to monitor and proactively analyse risk in relation to wood products.
Gabon	**July 2021:** On 2 July, a memorandum of understanding was signed between Gabon and Togo for a term of five years designed to facilitate the importation to Togo of Gabonese wood products that have undergone primary, secondary or tertiary processing.

Source: Authors' compilation based on the sources mentioned in the table.

Strengths and weaknesses of the forestry sector

Despite huge potential to increase its integration into global wood value chains, Central Africa's share in the global market is still weak. In 2020, the sub-region accounted for just 6.28%, 9.70% and 5.38% of global production of tropical sawnwood, wood veneer and roundwood, respectively (Table 4.A1.2). Between 2010 and 2020, roundwood production increased, but the sector is still dominated by Asia which is responsible for more than

half of production across all of the industry's segments. Gabon, which is the world's fifth largest producer of wood veneer, is the only exception. It has its sights set on second place after Viet Nam, which primarily sources plantation wood (AfDB, 2018).

Table 4.6. **SWOT (strengths, weaknesses, opportunities and threats) analysis of Central Africa's wood industry**

Strengths	Weaknesses
• The forests of the Congo Basin constitute the second largest rainforest area after the Amazon, accounting for: – 26% of tropical rainforests; – 70% of Africa's rainforest cover; and – 200 protected areas spanning 800 000 km^2. • The forestry sector provides more than 200 000 direct and indirect formal jobs in Central Africa. • The multifunctionality of the forests is taken into account. • The forests of the Congo Basin accounted for more than 3% of the region's GDP during the 2010s. • The forests are predominantly public: leverage for providing structure. • The Congo Basin is a carbon pool, storing it in the form of biomass.	• Limited domestic processing of wood. • Transport costs which negatively affect price competitiveness. • Limited appeal of the industry's professions and related training. • Lack of communication regarding wood, wood-related professions, products and companies. • Lack of respect for the law and lack of governance. • Production of sawnwood, roundwood, wood veneer and plywood is relatively low compared to Asian countries. • Issues relating to informal operations, in particular for productive activities with added value.
Opportunities	**Threats**
• Contribution to climate action: – opportunities to develop low-carbon and renewable materials; – opportunities to boost the green building and green renovation industries; and – opportunities to optimise and streamline renewable energy industries. • Large workforce ready to be trained. Creation of additional jobs in Central Africa. • Transition of wood markets to more sophisticated products with greater added value.	• Deforestation in Central Africa is steadily increasing (9% in 2020 according to Global Forest Watch). • Increasing development of firewood, requiring a structured approach in order to prevent disputes over usage. • High transport costs. • Lack of technical, commercial and marketing innovation. • Pressure of competition from emerging economies, in particular China. • Hazardous weather conditions.

Sources: AfDB (2018), GFW (2021a) and Ecofin Agency (2021b).

The wood industry is at the heart of the development strategies adopted by the Central African countries in the 2010s. Gabon launched an ambitious plan in 2010 designed to catapult the country to the ranks of the emerging economies by 2025. Its entire industrialisation strategy hinges on the wood industry. Since 2010, Gabon has invested EUR 10 million, i.e. around XAF 6.5 billion (Central African CFA francs) within this framework (Le Nouveau Gabon, 2018). It is expected that 50 000 new jobs be added in by 2025 (Ecofin Agency, 2021b). Of the 400 known species of wood in Gabon, 60 are logged, the main one being okoumé (80% of wood exports in 2009).

There are strong signs of political will to industrialise the wood industry since the decision to ban logs (roundwood) exports was taken in 2010. This measure was designed to create new jobs and increase profits by exporting semi-finished products ready for consumption on the global market. For its part, in 2012, the Government of the Democratic Republic of the Congo set up an advisory committee to draw up the country's new industrial policy. The wood industry was identified as a strategic challenge for insertion into GVCs. As such, integration via wood value chains can help modernise the private sector, create jobs and contribute to the green economy (DGF/DRC, 2018).

The Central African countries' share of the tropical timber export market remains modest across all segments of the industry. In 2020, roundwood exports totalled 7% compared to 53.7% in the Asia-Pacific region (Table 4.7). However, the informal sector is prevalent, due to poor employment prospects in industry and agriculture. The volumes related to informal activities may significantly exceed those of industrial production (ATIBT, 2020a). A number of unresolved issues remain concerning the sustainable management of forest resources, the fight against corruption and the mobilisation of domestic resources by states. The latter remains limited with a tax-to-GDP ratio of 8.8%

for 2018 (AUC/OECD, 2021a). Processed goods by SMEs are not oriented enough towards the continental and international markets. Companies involved in processing wood for domestic construction or the manufacturing of furniture do not manage to enter international markets and only achieve artisanal level production. Their access to credit could be improved, and tax barriers could be lifted to attract the necessary capital to increase productivity.

Table 4.7. **Global exports of tropical roundwood and processed tropical timber products in 2020 (in thousands of m³)**

	Roundwood	Sawnwood	(Peeled or sliced) wood veneer	Plywood
Global tropical timber exports	11 192.8	9 212.1	1 922.7	6 638.6
Africa	3 044.7	2 204	405.5	119.5
Share of global tropical timber exports	27.2%	24%	21.1%	1.8%
Central Africa	784	222	9.42	0
Share of global tropical timber exports	7%	2.4%	0.5%	0%
Asia-Pacific	6 010.7	5 884.8	1 400.9	5 900.1
Share of global tropical timber exports	53.7%	63.9%	72.9%	88.9%
South America	2 059.1	725.5	77.3	271.9
Share of global tropical timber exports	18.4%	7.9%	4%	4.1%

Source: Authors' calculations based on data from the International Tropical Timber Organization (ITTO, 2020), https://www.itto.int/biennal_review/?mode=searchdata.

In most cases logging is carried out under concessions, but European companies, which tend to demonstrate greater respect for certification, have been surpassed by Asian conglomerates. Forest certification, a sustainable forest management tool, constitutes an investment and encourages companies to self-regulate in order not to lose the label. As such, large European companies comply with legal standards requiring forest management plans, which have become obligatory. By contrast, Asian companies are often accused of conducting illegal activities.

With the help of foreign companies, countries have implemented international standards guaranteeing that wood is sourced from a sustainably managed environment. This move towards certification falls under the umbrella of sustainable forest management (Box 4.4). There are two types of certification in Central Africa: certificates concerning responsible forest management and those concerning the legal sourcing of wood (Table 4.8).

Box 4.4. **The move towards certification**

On the initiative of Global Forest Watch (GFW), a public-private partnership was set up in 1997 in order to create a source of verified information for the main forestry companies in Central Africa. Several large-scale producers have taken the necessary steps to obtain certification via recognised international forest certification systems. This voluntary move has gained traction as a result of the fact that the global wood market is becoming increasingly sensitive. In early 2004, the German company Congolaise Industrielle des Bois (CIB), announced its intention to strive to achieve the certification standards of the internationally recognised system of the Forest Stewardship Council (FSC) (COMIFAC, 2005).

The first FSC certificate was issued to CIB in 2005. As such, CIB was granted an initial concession covering 1.3 million ha, forming a buffer zone around the Nouabalé-Ndoki National Park in the north of the Republic of the Congo and ensured continuity with the Lake Télé Community Reserve in the south. In 2019, the total surface area of FSC-certified

Box 4.4. **The move towards certification *(continued)***

forests in the Republic of the Congo was approximately 2.5 million ha, attributed to the same companies (ATIBT, 2019). These companies all operate under forest concessions located in the northern part of the Republic of the Congo, which has the 12th largest surface area of FSC-certified forests in the world and the largest in Africa.

Since 2011, the international NGO Programme for the Endorsement of Forest Certification (PEFC International) deployed out an initiative designed to support the development of national standard systems in Central Africa, in particular in Gabon, Cameroon and the Republic of the Congo. Through the regional project entitled Pan-African Forest Certification – PAFC Congo Basin, ATIBT plans to expand the range of "third-party certification" services for sustainable forest management. It should be noted that this regional approach is a brand new, innovative step for PEFC. A webinar was organised on 1 February 2021, at the end of which the three countries, supported by Germany's KfW Development Bank and ATIBT, expressed desire for this regional certification system to be implemented swiftly.

Weak governance of agroforestry production chains reduces the income of harvesters of agricultural resources (Ingram, 2017). Despite the adoption of standards in Cameroon, the Republic of the Congo and the Democratic Republic of the Congo, the main stakeholders in the value chains of non-timber forest products (honey, bush mangoes, cola and fuelwood, etc.), are vulnerable to price fluctuations of raw materials. Over recent years, the way that value chains are actually organised has diverged from the discourse of official authorities, donors and NGOs to become more dynamic and involve more stakeholders. Yet, informal management involving multiple stakeholders penalises the farmers, who are more vulnerable to corruption and at the mercy of unpredictable production costs. The most productive value chains are therefore those that are exclusive (i.e. that do not include stakeholders in the governance arrangements) because they are developed based on government arrangements with appropriate customary rules and restricted tenure and resource access (Ingram, 2017).

Table 4.8. **The different certification systems in place in Central Africa**

	Certificates concerning responsible forest management
FSC	The Forest Stewardship Council (FSC), created in 1993 under the auspices of major international NGOs such as WWF, Greenpeace and the Rainforest Alliance, is considered to have the most demanding forest management certification system. This certification system is very active in Central Africa.
PAFC	The Pan-African Forest Certification (PAFC) system was set up in the mid-1990s and was designed to incorporate the values and socio-economic realities of forest management in Africa (Kouna Eloundou, Demaze and Djellouli, 2008). It has been operational in Gabon since 2004 and in Cameroon since 2007. There is also a PAFC organisation in the Republic of the Congo, and this association became a member of the PEFC Alliance in mid-2017 (ATIBT, 2018). The national members of Cameroon, the Republic of the Congo and Gabon have joined forces under the name PAFC Congo Bassin in order to develop a regional certification system.
PEFC	This programme, created in 1999, is based on the Rio Forest Principles. It involves a voluntary certification scheme designed to promote sustainable forest management which is certified by an independent third party (Kombila-Moulougui, 2019).
ISO	The system adopted by the International Organization for Standardization (ISO) provides a framework for the certification of environmental management systems. The ISO 9001 and ISO 14001 series cover more or less the same domains as forest management certification except that they do not set out any performance standards with regard to forest management and do not authorise the use of a label for products (Delvingt and Lescuyer, 2007).
	Certificates concerning the legal sourcing of wood
OLB	The system known as Origine et Légalité des Bois, which provides a certificate attesting to the wood's origin and legality, was developed by Bureau Veritas.
VLC	Verification of Legal Compliance.

Source: Authors' compilation based on the sources mentioned in the table.

Many hurdles remain to strengthen participation in GVCs

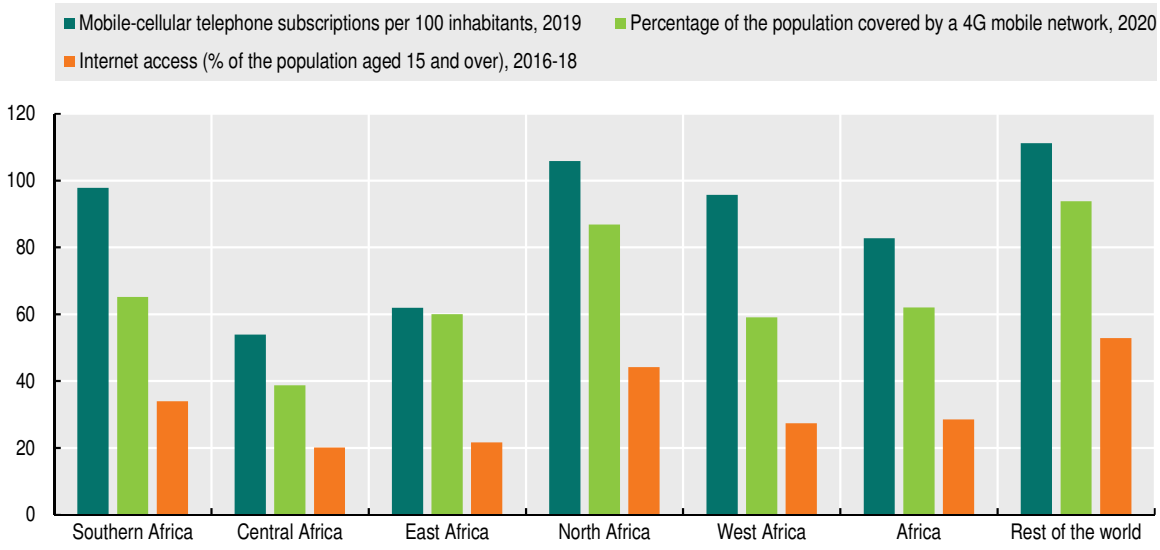
Central Africa faces numerous challenges in promoting sustainable wood value chains, namely in relation to the lack of infrastructure, insufficient staff training, and forest governance.

The development of the value chains is reliant on higher-quality infrastructure and non-tariff cost control (Box 4.5). In Central Africa, high inland transport costs restrict the countries' ability to diversify and participate in GVCs (Plane, 2021). The dense rainforests of the Congo Basin are located in remote areas. The forestry sector is therefore highly dependent on logistical infrastructure and the transport sector. While logistical corridors are multimodal (road, rail and waterway transport), road transport is more prevalent in Central Africa, which ranks amongst the least efficient in the world. Asphalted road networks total just 7 253 km and 1 630 km in Cameroon and Gabon compared with 14 700 km in Kenya and 44 215 km in Morocco (Ecofin Agency, 2020). Furthermore, it took 37 days to process a container in Central Africa compared with just over 14 days in North Africa, between 2010 and 2014 (Plane, 2019).

Integration into GVCs is heavily impeded in Central Africa by a severe lack of infrastructure with regard to services, in particular access to digital technology. Access to communication infrastructure in Central Africa is the poorest in the continent. According to the World Bank (2020b), the sub-region lags behind in terms of access to digital tools: in 2019, the mobile telephone subscription rate was 53.9%, and 20% of the population had Internet access compared to averages across the continent of 82.7% and 28.5% (Figure 4.8). Furthermore, the existence of numerous taxes on Internet services limits not only the expansion of such services but also, and most importantly, their integration into business activities (AUC/OECD, 2021b). ICT infrastructure enables companies involved in exports to access international markets swiftly, efficiently and cost-effectively. It increases the competitiveness of exports of manufactured goods and the ability of agricultural exporters to fulfil certain (sanitary and phytosanitary) requirements of international markets. ICT infrastructure also plays an essential role in increasing the productivity of the informal sector, as it enables informal companies to start using innovative technology and reduce transaction costs. However, it should be noted that the COVID-19 crisis has expedited the digitalisation process and the production transformation process of Africa in line with the African Union's (AU) vision set out in Agenda 2063.

A lack of adequate skills hinders upgrading in the global wood value chain. Staff training courses offered at most training schools in Central Africa date back to before Independence, although they have evolved and must meet market requirements. These national schools of water resources and forestry are grouped together as part of the Réseau des Institutions de Formation Forestière et Environnementale en Afrique Centrale (Network of Forestry and Environmental Training Institutions in Central Africa – RIFFEAC). The National School of Water Resources and Forestry (ENEF) of Cap Estérias in Gabon, which has a regional focus, and the School of Water Resources and Forestry of Mbalmayo in Cameroon are two examples (Diansambu, 2020). ENEF-Gabon offers new training courses linked to the Bachelor's-Master's-Doctorate system, but only 27 students obtained a Master's degree in wood science between 2013 and 2018 (Nkoumakali, 2020). This course will soon be enhanced by the introduction of training for engineers specialising in wood processing procedures. Such initiatives must be encouraged and supported.

Figure 4.8. **Current situation with regard to communication infrastructure in the sub-regions of Africa and the rest of the world**



Sources: International Telecommunication Union (ITU) – online ICT Indicators Database (July 2020), GSMA Intelligence (updated in June 2020) and Gallup World Poll (consulted on 15 December 2019).

StatLink https://doi.org/10.1787/888934298320

Box 4.5. **The example of the Nkok special economic zone (SEZ) in Gabon**

The Nkok SEZ, which was created in 2012, has become a model for the local wood processing industry and is attracting numerous investors. It is the largest furniture manufacturing hub in Central Africa. This model has inspired other countries in the Economic and Monetary Community of Central Africa (CEMAC), which decided during a teleconference held on 18 September 2020, to ban wood exports in the form of logs (roundwood) by all Central African countries as of 1 January 2022 (CBFP, 2020).

The Africa Finance Corporation (AFC) specialises in the financing of infrastructure in Africa, and has financed the creation of a furniture export industry in Gabon through the construction of two ports, creating some 6 000 jobs. When the two ports were sold on to international operators, AFC re-employed the capital, leveraging the organisational capacities it created to act as a fast-moving project development agency. The Gabon model is implemented in other West African countries (AFC, 2020). This financing and entrepreneurship example, led by African players and enabling linkages between foreign direct investment and local businesses, is key to realising the potential of African economic integration, especially in the context of the new African Continental Free Trade Area (AfCFTA) (OECD/ACET, 2020).

Any improvement in companies' forest management is reliant on the application of various international standards adopted by the sub-region's countries. Several forest management certification systems were in place in the 2000s (Table 4.8), but their implementation did not manage to prevent illegal logging. Stakeholders strove to improve forest governance in Central Africa in the 2010s through approaches designed to reassure importers and clients about the conditions under which the wood was produced, given the lack of management control system in place. However, some companies still struggle to meet forest management certification requirements.

The significance of the informal timber trade in Central Africa should encourage certification bodies to reach a compromise by striking a fair balance between environmental conservation and economic factors. Most Central African countries have demonstrated a keen interest in the Forest Law Enforcement, Governance and Trade (FLEGT) Action Plan by attending various meetings (Soh Fogno, 2018). Although this plan was adopted in 2003, it was not until 2010 that the first Voluntary Partnership Agreements (VPAs) were signed between certain wood-producing countries of Central Africa and the EU. As such, Cameroon (2010), the Republic of the Congo (2010), the Central African Republic (2012) and Gabon (2013) have signed VPAs negotiated as part of the FLEGT process (Soh Fogno, 2018; Kombila-Moulougui, 2019) banning illegal timber trade on the European market.

Sustainable and inclusive resource management is crucial for safeguarding the volume and quality of production from the forests of the Congo Basin. Ore mining and oil and gas production are expanding rapidly in Central Africa. These practices threaten biodiversity and sustainable logging, as they are uncontrolled. In fact, forest cover degradation impacts soil fertility, reduces rainfall and could endanger agricultural production and food security (Doumenge, Palla and Itsoua Madzous, 2021). Other threats come from forest degradation and fragmentation and all mining operations that encroach into the forests. Many biodiversity issues are caused by a lack of infrastructure and regulation concerning ore mining, the need for better governance, the displacement of population groups and conflicts – in particular in the east of the Democratic Republic of the Congo in the region that borders the Virunga National Park, where conflicts intensify during periods of scarce resources as different groups vie for the opportunity to operate the mines.

Several avenues need to be explored with regard to economic policy

CEMAC has developed a 2025 emergence plan designed to make member countries an area of shared prosperity. However, its implementation may be compromised by competing national projects on several fronts, such as the execution time frames and the similarity of economic programmes. Mindful of this situation, the CEMAC Heads of State have instructed the President of the CEMAC Commission to review this plan in order to place CEMAC at the heart of the sub-region's development process. As a result, this institution should implement a strategy to pool all resources in order to identify any plans of community interest that are deemed to be sustainable only at national level. The development of regional value chains is part of the same aspiration. The following economic policy proposals are designed to reposition CEMAC as an institution for the promotion of sub-regional economic integration.

The macroeconomic framework should be improved in order to ensure a favourable investment climate for the development of value chains

Like all economic activity, participation in GVCs requires a stable macroeconomic framework. For Central African countries, this means, striking a balance between mitigating the impacts of the crisis and maintaining macrofinancial stability. In this respect, it is worth differentiating between the CEMAC countries which participate in monetary co-operation as part of the CFA Franc Zone and other countries of Central Africa. According to medium-term forecasts of the Bank of Central African States (BEAC), year-on-year inflation in CEMAC should stabilise around 2.3% by the end of 2021 and 2.7% by the end of 2022 and then return to 2.4% by the end of 2023. The debt ratio remains a community-wide concern at an average of 50%, although it is well below the limit of 70%. BEAC's foreign exchange reserves should gradually increase in the medium term and reach 4.71 months of imports of goods and services by the end of the fourth quarter of 2022, compared with 3.73 months in 2021 (BEAC, 2021).

In addition, the sub-region's enhanced value chain participation requires a reliable institutional environment that ensures a sustainable reform of the business climate. Improving the business climate would not only retain current investors but also attract new ones. Since 2015, the sub-region has been carrying out reforms such as those concerning the Uniform Acts of the Organization for the Harmonization of Business Law in Africa (OHADA) and those concerning national legislation, all of which has provided minority investors with new-found protection and made it easier to obtain loans (AUC/OECD, 2018).

Besides continued reforms, there is room for additional structural and institutional measures. Firstly, the liberalisation of imports could further attract investors and help develop the sector. In fact, offering other actors the opportunity to operate on the market is a way to stimulate competition and encourage local companies to improve their performance and increase their spending on research and development. Secondly, compliance with national rules and international certification standards must be enforced. In its plan to accelerate the forestry sector's transformation, Gabon, for example, has set out reforms designed to ensure compliance with international certification standards, such as those concerning deforestation and carbon emissions, which have ushered in more foreign direct investment.

Investments need to be made once strategic sectors have been identified

In order to improve the level of value chain participation, it is important for each country to identify the strategic sectors and products for which it has a revealed comparative advantage. This is the case with tea in Burundi, cotton in Chad, coltan in the Democratic Republic of the Congo, cocoa in São Tomé and Príncipe and wood in the Central African Republic, the Republic of the Congo, Equatorial Guinea and Gabon (Table 4.1). The development of high-productivity sectors could also improve the participation of the sub-region's countries in RVCs and GVCs. For Burundi and Chad, this would mean investing more in agriculture, which accounts for the lion's share of the total value of GVC participation (AUC/OECD, 2021b). Similarly, diversification of agricultural produce, as recommended in Chad's 2013 five-year plan (Ministry of Agriculture and Irrigation of Chad, 2013), could boost agricultural production whose levels are unable to meet national demand in many of these countries.

Lower transport costs in Central Africa can increase regional economic integration. Transregional corridors act as a catalyst for the transformation and regional integration of Africa. A prime example is the Congo–Central African Republic–Chad corridor. The roadworks designed to interconnect these three countries were planned to start in 2021 (Ecofin Agency, 2021a). They are expected to cost more than USD 1.7 billion and are part of the 11 major projects prioritised by the Economic Community of Central African States (ECCAS) to enhance sub-regional integration. Central African countries would benefit from rolling such initiatives out at the wider regional level. Waterway transportation is a low-cost and reliable option which is already heavily used by several operators.

The sustainable and inclusive management of strategic value chains needs to be strengthened

The objectives of the wood industry could be processed product-oriented rather than volume-oriented, following the example of Gabon. Of the 18 million hectares of forest in Gabon, 12 million are reserved for the production of wood. Exports of unprocessed logs (roundwood) have been banned since 2009. Total production fell from 3.4 million m^3 in 2007 to 1.6 million m^3 in 2017, while favouring an increase in the added value of the exported goods. Since 2016, the majority of exported wood has been processed, starting

with sawnwood. Finally, all forest concessionaires must be registered with the FSC (IsDB, 2019).

Sustainable value chains can be developed as part of continued policies for reducing emissions from deforestation and forest degradation (REDD+). Central African countries have achieved the Aichi Biodiversity Target[3] of ensuring that 17% of terrestrial areas in the forests of the Congo Basin are protected (Doumenge, Palla and Itsoua Madzous, 2021). Countries must use financial and administrative means to encourage informal industries to make the transition to formal industries in order to safeguard the sustainability of logging. In the short-term, they could adopt a two-pronged approach. First, small-scale logging must be gradually formalised as is the case with the PROFEAAC (promoting and formalising small-scale logging in Central Africa) project in the Yaoundé region. Second, the development of production chains around bioenergy, environmental services or carbon sequestration would provide operators involved in the informal sector with sustainable alternatives. In parallel, areas with the richest biodiversity should be protected from extractive industries, and environmental impact assessments should be required in the zones where such industries are authorised.

Authorities must adopt a collaborative, bottom-up approach with local communities and the private sector in order to better manage informal activities. Community forestry schemes were adopted at the national level by Cameroon and the Democratic Republic of the Congo in the 2000s. Despite ambitious management, in particular by listing the environmentally-friendly forestry activities, sustainable logging is being undermined by the mismatch between the financial needs of the local population and the actual managerial and financial implications. Communities offset the high cost related to land titles and operation licenses (USD 150 000 in the Democratic Republic of the Congo) by breaching the current conditions to ensure that their operations are financially viable (Lescuyer et al., 2012). Since 2020, in Cameroon, the Nachtigal Hydro Power Company has been committed to adopting environmental compensation measures for covering community forest areas with water for the construction of a hydraulic dam. The main measure concerns "payment for environmental services". The most important of these measures, "payment for environmental services", entails supporting populations for ceasing logging activities and carrying out conservation work on the remainder of the community forest areas.

The outcomes of the management of strategic value chains should be assessed and monitored in the long term whilst rolling out REDD+. Since 2011, the countries of the Congo Basin have been issuing guides to forest concessionaires to help them understand the policies. Another positive practice could consist of raising awareness about agroforestry systems and sustainable forestry among informal operators.

Skills should be developed and vocational training improved

The mismatch between market needs and training courses is a major obstacle hindering Central Africa's insertion into GVCs. Ambitious reforms of the education system are required in order to close this gap. Local governments must prioritise the creation of specialised institutions geared towards sectors with high added-value potential. These specific skills would supplement basic education (OECD, 2017). Furthermore, governments need to promote R&D to seize the opportunities offered by GVCs and reap the greatest economic rewards.

The best approach in terms of vocational training would be to implement programmes designed to develop the skills required for those working in the wood industry to be able to carry out productive and environmentally-conscious operations. Central African countries could take inspiration, to a certain extent, from the model adopted in

Germany where operators of chainsaws and other forestry equipment are required by law to complete a three-year course led by a forest supervisor. Furthermore, to become a supervisor, individuals must complete an additional higher training course lasting 800 hours (Ackerknecht, 2010).

Forestry training programmes must be continuously updated in order to meet the requirements of this fast-changing sector and ensure that Central African countries have the qualified human resources to achieve the goal of sustainable forestry. The countries of the Congo Basin face the major challenge of having to improve the quality of teaching and training in the forestry sector. Numerous initiatives have been put in place in order to meet this challenge. Between 2012 and 2019, RIFFEAC rolled out the intraregional human resource capacity-building project in the sub-region's national forestry schools (Dieterle, 2020). Finally, investment in non-timber forestry industries (such as tourism) that are more environmentally-friendly and protect forests from deforestation is an issue that could be further explored.

Annex 4.A1. Additional tables

Table 4.A1.1. **Trade by manufacturing intensity in Central Africa in 2018 (in USD million)**

Country	Total exports of unprocessed goods	Total exports of semi-processed goods	Total exports of fully processed goods	Total exports of processed and unprocessed goods	Total imports of unprocessed goods	Total imports of semi-processed goods	Total imports of fully processed goods	Total imports of processed and unprocessed goods
Burundi	107	152	10	269	64	524	215	803
Cameroon	2 621	1 581	33	4 236	387	3 210	1 917	5 514
Central African Republic	79	17	3	99	14	121	78	213
Chad*	1 386	141	5	1 532	65	396	277	737
Congo*	7 304	2 673	53	10 030	172	1 385	832	2 389
DRC*	3 040	7 658	22	10 720	302	4 230	2 436	6 968
Equatorial Guinea*	4 006	1 718	11	5 735	22	559	261	842
Gabon*	4 826	867	52	5 745	81	1 177	791	2 049
São Tomé and Príncipe	13	8	2	23	7	111	43	160
Central Africa	***23 383***	***14 815***	***191***	***38 389***	***1 114***	***11 713***	***6 850***	***19 676***

Note: *Resource-rich countries.
Source: FAO (2021), https://doi.org/10.4060/ca9825fr

Table 4.A1.2. **Global production of tropical roundwood and processed tropical timber products in 2020 (in thousands of m^3)**

	Roundwood	Sawnwood	(Peeled or sliced) wood veneer	Plywood
Global tropical timber production	310 809	37 645	5 091	11 091
Africa	55 160	7 578	1 090	633
Share of global tropical timber production	17.75%	20.13%	21.42%	5.71%
Central Africa	16 722	2 362	494	52
Share of global tropical timber production	5.38%	6.28%	9.70%	0.48%
Asia-Pacific	212 851	25 872	4 179	-
Share of global tropical timber production	68.48%	63.9%	82.10	-
Latin America	2 059.13	725.50	77.35	271.88
Share of global tropical timber production	18.40%	7.90%	4.03%	4.10%

Source: Authors' compilation based on data from the International Tropical Timber Organization (ITTO, 2020), https://www.itto.int/biennal_review/?mode=searchdata.

Table 4.A1.3. **Forest area, land area and population density in Central Africa**

Country	Land area (1 000 ha)	Population density, 2018 (people/km^2)	Forest area (1 000 ha)
Burundi	2 568	435	280
Cameroon	47 271	53	20 340
DRC	226 705	37.08	126 155
Central African Republic	62 298	7.49	22 303
Congo	34 150	15.36	21 946
Gabon	25 767	8.22	23 531
Equatorial Guinea	2 805	46	2 448
São Tomé and Príncipe	96	201	52
Chad	125 920	12.29	4 313

Source: Authors' compilation based on data from (FAO, 2020), https://fra-data.fao.org/

Notes

1. Approximately 43% of workers are employed in the tertiary sector in Central Africa (ILO, 2020).
2. In addition to Interholco (northern Congo), this includes Rougier (Gabon, 1 100 employees), CIB-Olam (northern Congo, 1 800 employees), Pallisco-CIFM (Cameroon, 500 employees) and Precious Woods (Gabon).
3. The Aichi Biodiversity Targets cover five major strategic goals: address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society, reduce the direct pressures on biodiversity and promote sustainable use, improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity, enhance the benefits to all from biodiversity and ecosystem services, and enhance implementation through participatory planning, knowledge management and capacity building.

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Chapter 5

Integrating value chains in East Africa and the agri-food industry

This chapter analyses the opportunities and challenges for the development of regional value chains in East Africa (Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Mauritius, Rwanda, Seychelles, Somalia, South Sudan, Sudan, Tanzania and Uganda). It first examines existing participation in global value chains. The chapter then analyses East Africa's agri-food value chains and discusses their growth potential, opportunities and constraints. Finally, it addresses three policy domains for strengthening value chain integration in East Africa. The first domain concerns regional co-ordination, especially via the East African Community, to reduce barriers to intra-regional trade. The second policy domain regards how investment and cluster policies can help develop regional capacity in key value chains such as agri-food. The third domain identifies the public policies necessary to realise the regional Single Digital Market.

IN BRIEF

East Africa needs to enhance its participation in global value chains (GVCs). GVC participation in East Africa decreased from 3.8% of gross domestic product (GDP) in 2010 to 2.6% in 2015, a level below Africa's average. Backward participation in global value chains plays a relatively more important role than elsewhere in Africa, but its share has been declining. COVID-19 has had a nuanced impact on the region. The collapse of global tourism has badly affected the most integrated countries in East Africa (Mauritius and Seychelles), while the larger and less integrated countries (such as Ethiopia and Tanzania) registered positive GDP growth in 2020.

Going forward, regional value chains such as agri-food can help accelerate industrialisation and create jobs. The African Continental Free Trade Area (AfCFTA), demographic growth, urbanisation and digital transformation create favourable conditions for the agri-food sector. However, policy interventions will be necessary to overcome persistent competitiveness issues and high intra-regional trade costs.

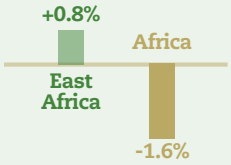
The region can address these challenges by focusing on three policy levers:

- using the momentum from AfCFTA to reduce barriers to intra-regional trade, especially in reviewing the Common External Tariff and trade facilitations of the East African Community (EAC)
- co-ordinating industrial strategies to strengthen regional competitiveness in key value chains such as agri-food, particularly with investment and cluster policies
- co-operating in areas related to digital infrastructure, skills and regulatory harmonisation to realise the Single Digital Market.

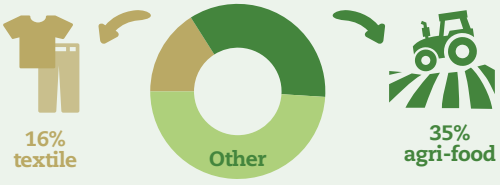
East Africa

East Africa and global value chains

GDP growth showed resilience in 2020



GVC participation



Opportunities for agri-food value chains in East Africa

The AfCFTA could boost East Africa's exports to Africa by 16%

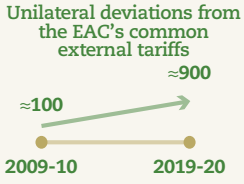


East Africa is a global leader in mobile money use



Constraints to the development of agri-food value chains

Trade barriers remain too high



Transport and logistics can improve further



In Uganda, smallholder farmers lose up to **40%** of their fresh produce

Weak competitiveness



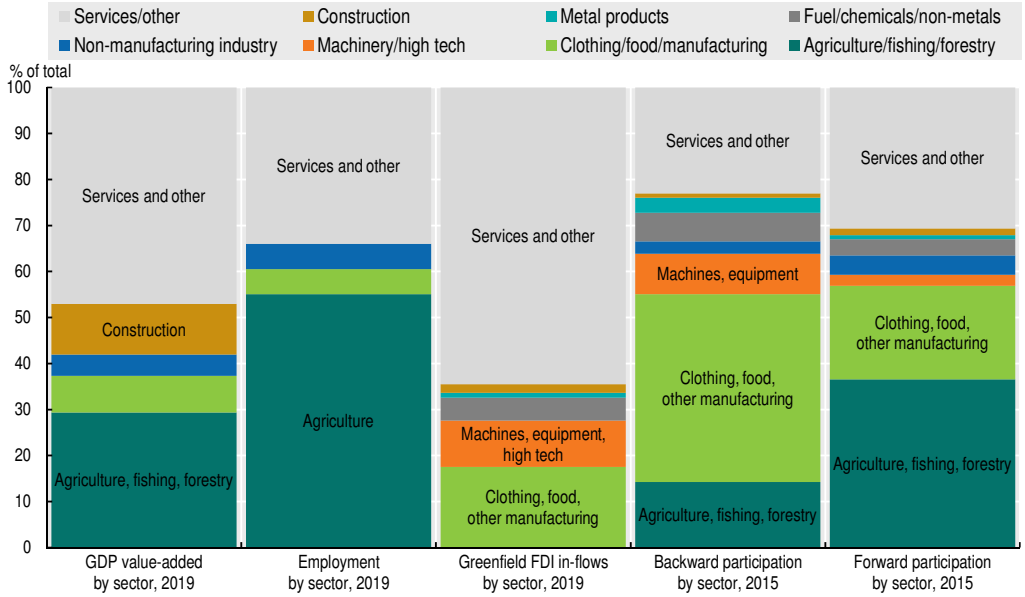
The informal sector produces **80%** of the region's milk, with little quality control

What's next ?

- **Review the EAC's Common External Tariff** and reduce non-tariff barriers
- **Promote interactions** between industrial clusters across countries
- **Expand the One Network Area mobile roaming initiative** beyond the EAC

East Africa regional profile

Figure 5.1. **Economic and trade profiles of East Africa, expressed as % of total**

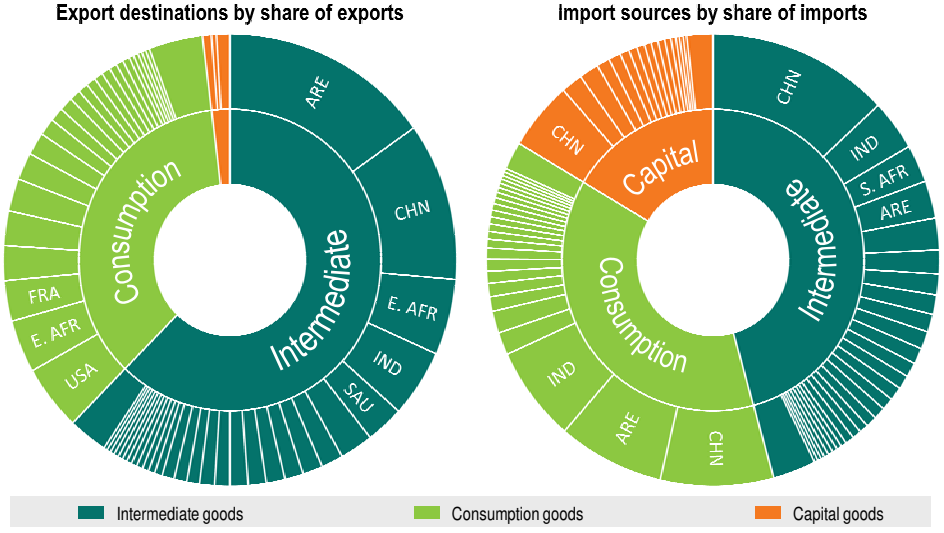


Notes: GDP = gross domestic product; FDI = foreign direct investment. The different sources for the data do not share common definitions of economic sectors, commodities or activities. However, colouring is used in this figure in order to indicate shared themes across datasets.

Source: Authors' calculations based on World Bank (2020), *World Development Report 2020, GVC Database*, www.worldbank.org/en/publication/wdr2020/brief/world-development-report-2020-data; fDi Markets (2021), *fDi Markets* (database), www.fdiintelligence.com/fdi-markets; and World Bank (2021), *World Development Indicators* (database), https://databank.worldbank.org/source/world-development-indicators.

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Figure 5.2. **East Africa's most important trade partners broken down by volume of trade in intermediate, consumption and capital goods**



Notes: Countries are presented using their three-letter ISO codes. The African countries are aggregated into the five sub-regions defined by the African Union as follows: C. AFR = Central Africa, E. AFR = East Africa, N. AFR = North Africa, S. AFR = Southern Africa, W. AFR = West Africa. Interior trade within the Southern Africa Customs Union is excluded.

Source: Authors' calculations based on data from CEPII (2021), *BACI* (database), www.cepii.fr/cepii/en/bdd_modele/presentation.asp?id=37.

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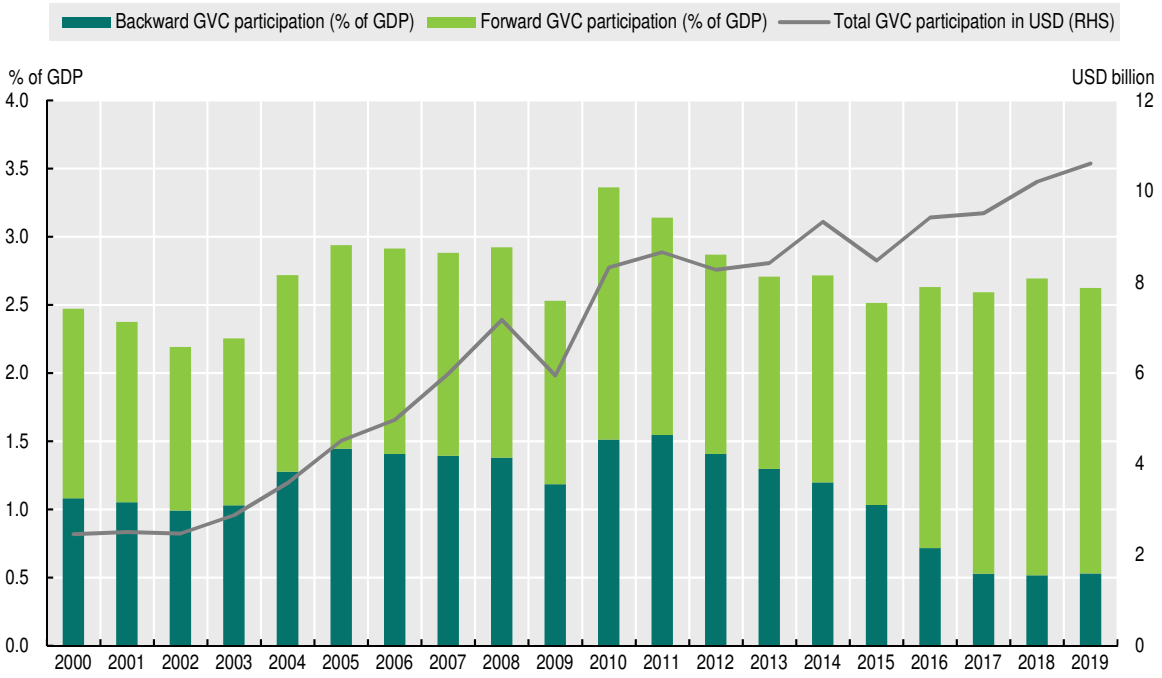
East Africa needs to enhance its participation in global value chains

East Africa's participation in global value chains has been stagnating, largely due to subdued backward participation

East Africa ranked lowest in levels of GVC exports as a share of GDP in 2019, compared to other African regions. For countries in East Africa, GVC participation as a share of GDP was below the African average of 8% in 2019. Unlike in Africa's two most integrated regions, North and Southern Africa, East Africa's GVC participation as a share of GDP has not improved since 2000, according to our calculations based on data from the *UNCTAD-Eora Global Value Chain Database* (Casella et al., 2019). East Africa's low level of GVC participation can be linked both to economic fundamentals such as landlockedness and small market size and to policy factors such as low levels of domestic productivity, the high cost of transportation and communication infrastructure and, for some countries, a relatively closed economy.

The region's total GVC participation stagnated between 2010 and 2019 (Figure 5.3)**.** Despite increasing slightly in nominal USD terms, as a share of total GDP, GVC participation declined from 3.4% in 2010 to 2.6% in 2019. This trend largely follows global trends in GVC participation, following the 2008 global financial crisis, uncertainties around trade agreements, trade conflicts between major trading partners and the emergence of labour-saving technologies which dampened incentives for the outsourcing of manufacturing (World Bank, 2020; UNCTAD, 2020).

Figure 5.3. **East Africa's participation in global value chains, 2000-19**



Note: GVC = global value chain; RHS = right-hand side. The GVC participation for East Africa reported here is an average of national figures for GVC participation as a percentage of GDP weighted by national GDP expressed in PPP dollars.

Source: Authors' calculations based on data from Casella et al. (2019), *UNCTAD-Eora Global Value Chain Database*, https://worldmrio.com/unctadgvc/.

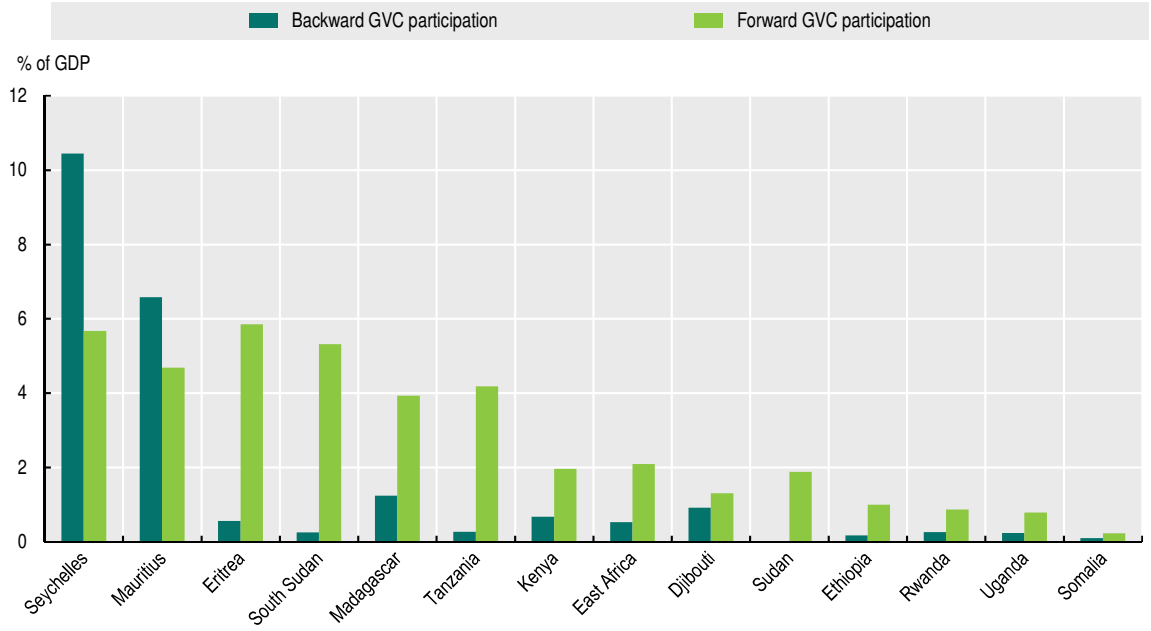
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The decrease in GVC participation was largely driven by the declining role of backward GVC participation. Backward participation refers to the share of a country's imported inputs embedded in its exports. Between 2010 and 2019, backward participation decreased from 1.5% of GDP to 0.5% (Figure 5.3). This is a cause for concern, as global experience suggests that backward participation is more conducive to learning and upgrading among local producers (see Chapter 1).

In contrast, forward GVC participation increased over the period 2010-19, rising to 80% of East African GVC participation. Forward participation measures the share of a country's exports that are used by an importing country for export production. Overall, forward participation as a share of GDP stood at 2.1% in East Africa in 2019, lower than Africa's average (5.9%) due to the limited role of fuel and mining commodities in East Africa's export basket (Figure 5.3). According to estimates based on country-by-country matrices of exported added value, between 2010 and 2019, forward GVC participation as a percentage of GDP increased by 0.24 percentage points, while backward participation decreased by 1 percentage point.

The composition of GVC participation varies considerably across countries. Mauritius and Seychelles have the strongest backward participation as a share of GDP (Figure 5.4), partly due to the importance of the large global-oriented luxury tourism sector that depends on foreign inputs and materials. Among members of the EAC, only Kenya (0.7%) outperforms the East African average of backward participation as a share of GDP (0.5%), whereas Mauritius (6.6%) and Seychelles (10.5%) both lead among non-EAC members, surpassing the African average of 2.1%.

Figure 5.4. **Backward and forward participation in global value chains in selected East African countries, 2019**



Note: The GVC participation for East Africa reported here is an average of national figures for GVC participation as a percentage of GDP weighted by national GDP expressed in PPP dollars.

Source: Authors' calculations based on data from Casella et al. (2019), *UNCTAD-Eora Global Value Chain Database*, https://worldmrio.com/unctadgvc/.

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East Africa's participation in global value chains can bring new technology to the region and facilitate learning among local producers, which can help them internationalise their products, as shown in Kenya. For example, for the horticulture global value chain in Kenya, lead firms define how output is produced, processed and stored and indicate specific social and environmental conditions to follow. Furthermore, all of Kenya's foreign-owned agricultural investors and about 80% of the country's foreign-owned suppliers give some level of support to local companies. In fact, Kenyan farmers have started relying on rainwater harvesting techniques to adhere to environmental standards and using new seed varieties to make their produce more attractive to global consumers. Following the supermarket revolution in Kenya, local producers gained more independence from prior sales channels, which enabled them to forge more direct ties with global retailers. This allowed a new group of smaller local companies to enter the global value chain through sub-contracting arrangements (Qiang, Zhenwei and Steenbergen, 2021).

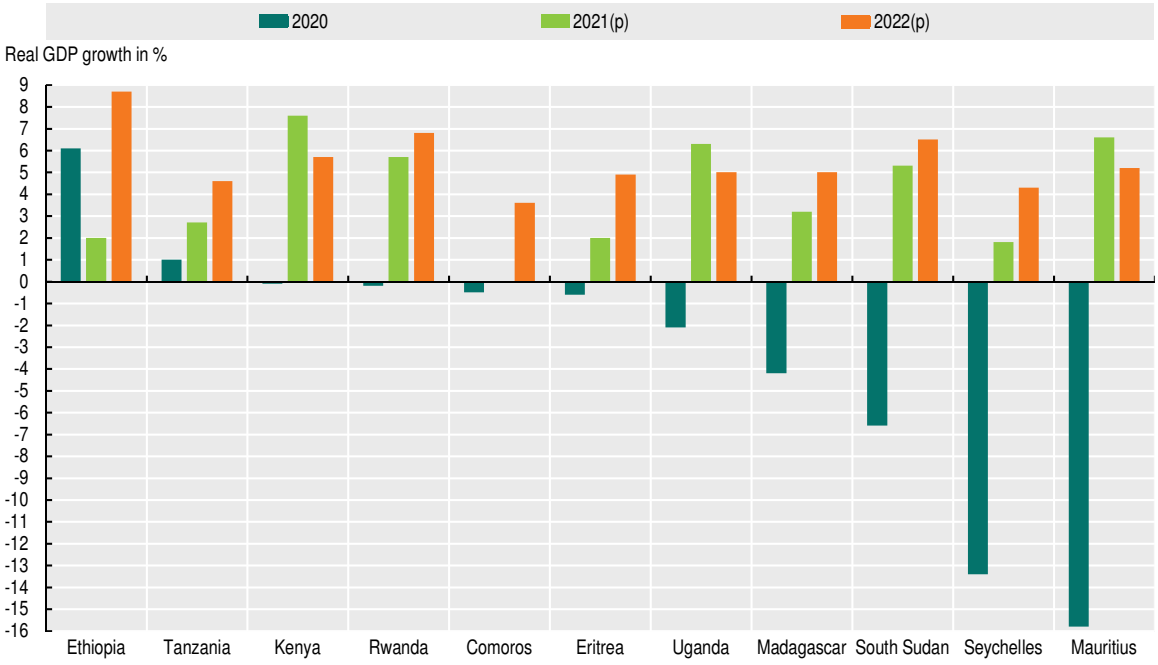
However, GVC firms are sometimes disconnected from the rest of the economy, thus limiting the potential for broad-based economic and social upgrading. This was shown by Newman et al. (2020) who compare linkages between multinational enterprises and domestic firms, predominantly located in special economic zones in Ethiopia, Ghana, Kenya, Mozambique and Uganda in Africa and Cambodia and Viet Nam in Asia. They found a lower incidence of long-standing supplier relationships between multinational enterprises and domestic firms in Africa than in Asia. They also noted that multinational enterprises in Africa are more likely to exclusively produce for the export market and to form backward and forward linkages with other multinational enterprises in the same country. Binding contracts are the most prevalent form of direct technology transfer to domestic firms in the African sample.

The impact of COVID-19 varies across countries and value chains in the region

Overall, East Africa's GDP has shown resilience to the COVID-19 crisis. GDP growth has remained relatively resilient at 0.7%, compared to Africa's GDP decline of -1.6% (IMF, 2021). Structural factors such as the low share of the population living in urban areas, the dominance of the rural economy (especially small-scale farming activities) and the youthful demographic structure have helped contain the spread of the pandemic. As net commodity importers, several economies in East Africa have also benefited from lower import bills for oil and food during the pandemic (Mold, 2020). Furthermore, this resilience reflects the relative isolation of some countries in the region from the global contraction. For example, two East African countries with relatively low levels of GVC participation as a share of GDP, Ethiopia and Tanzania, grew at the positive rates of 6.1% and 1% respectively in 2020 (Figure 5.5).

This macroeconomic resilience also reflects East African governments' relative success in containing the COVID-19 health and economic shocks. East African countries adopted several strategies to mitigate supply- and demand-side shocks induced by the COVID-19 crisis. Light manufacturing continued operations thanks to workplace re-engineering and diversification into COVID-related essential goods; this was despite initial pandemic-related supply chain disruptions and light manufacturing not getting "essential sector" status. Most governments in the region encouraged business diversification and investment in personal protective equipment and essential goods.

Figure 5.5. **Real gross domestic product growth in East African countries, 2020-22**



Source: IMF (2021), *Regional Economic Outlook: Sub-Saharan Africa*, https://www.imf.org/en/Publications/REO/SSA/Issues/2021/10/21/regional-economic-outlook-for-sub-saharan-africa-october-2021.

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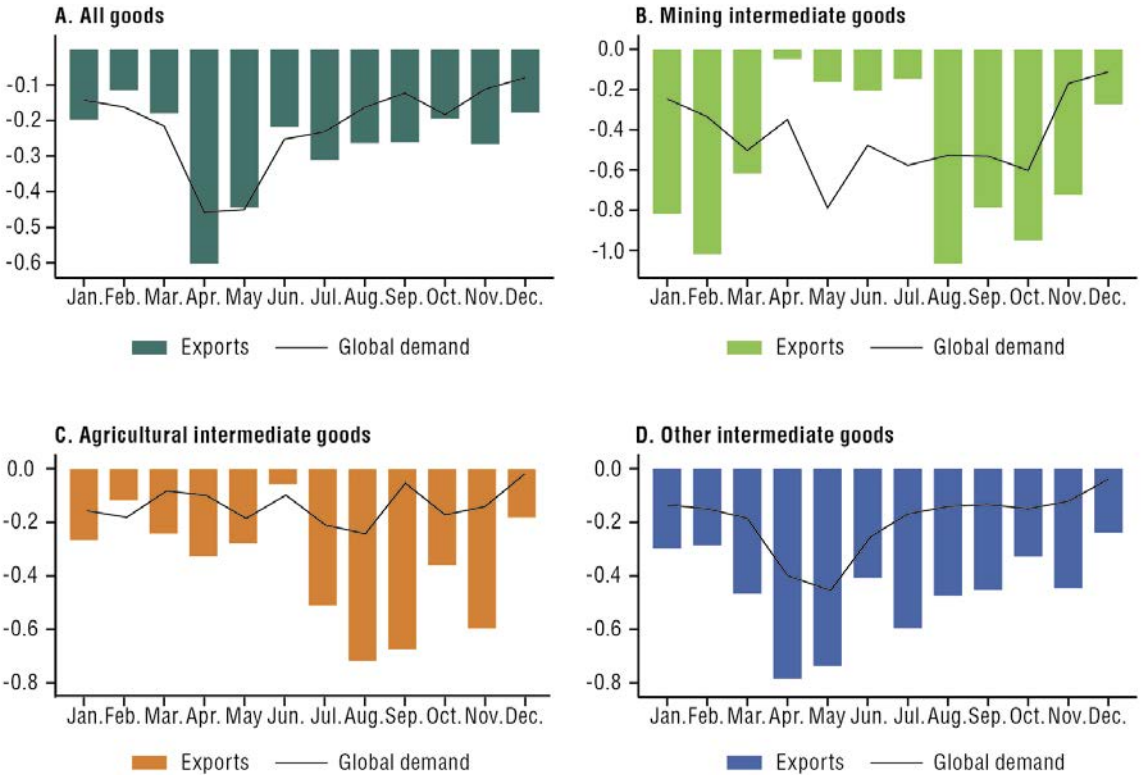
The region has also accelerated its digital transformation during the COVID-19 crisis. The digital economy has thrived due to East African countries adopting more digital technology. The region has experienced a significant surge in the market valuation of technology-enabled health and education services, e-commerce and telecommunications (AUC/OECD, 2021; ITU, 2021). The business process outsourcing sector in some countries, such as Kenya, has remained resilient and gained the reputation of an adaptable business environment and strong destination for foreign direct investment (FDI) (Mitchell et al., 2021). A number of East African countries accelerated the use of mobile money payments to curb the impact of the COVID-19 crisis. For example, Kenya's biggest telecommunications company, Safaricom, announced a fee waiver on East Africa's key mobile-money product, M-PESA, to lower the physical exchange of currency. The company made all person-to-person transactions under 1 000 Kenyan shillings free for three months (Bright, 2020).

Nonetheless, several tourism-dependent countries in the region face considerable economic setbacks. In 2020, GDP contracted by 15% in Mauritius and 13% in Seychelles. Closed borders have caused an estimated 70% contraction of Mauritius' tourism industry's compared to pre-COVID levels (Qiang, Zhenwei and Steenbergen, 2021). The return to pre-COVID levels in tourism-related service sectors is predicted to be slow. Travel, tourism and transport services account for significant shares of annual gross export earnings of Djibouti (58%), Kenya (32%), Rwanda (35%), Mauritius (54%), Seychelles (41%), Tanzania (52%) and Uganda (37%), according to our calculations based on data from *UN COMTRADE* (UN, 2021). The slow recovery of global tourism will continue to affect the prospects of these countries.

GVC exports from East Africa also faced sharp drops due to global supply chain disruptions. At the onset of the COVID-19 crisis in 2020, East Africa witnessed significant

declines in trade flows, supply chain disruptions, border closures, increased surveillance and social distancing measures, delays in port handling, hikes in freight charges, and a general drop in port performance indices (Trademark East Africa, 2020). The restricted movement of goods and traders caused overall export values to high-income countries to drop by 39.9% and 24.4% between April and May 2020 (Figure 5.6).

Figure 5.6. **Export growth versus global demand growth for East Africa, 2019-20**



Note: The figure shows a comparison of each month's exports in 2020 with the same month's exports in 2019.

Source: Authors' calculations based on monthly trade data from UN (2021), *UN COMTRADE* (database), https://comtrade.un.org/.

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Overall, the impact of COVID-19 on value chains depended on whether the value chains were global or regional, whether production and distribution continued, and whether the specific sector was considered essential by consumers both domestically and globally. While the timing of collapse varied across product categories, sharp drops in international demand and the cancellation of orders adversely affected major agricultural exports (for example, coffee, tea, flowers and horticulture) and the region's emerging light manufacturing sector (for example, the garment industries in Ethiopia and Mauritius) (EABC, 2021).

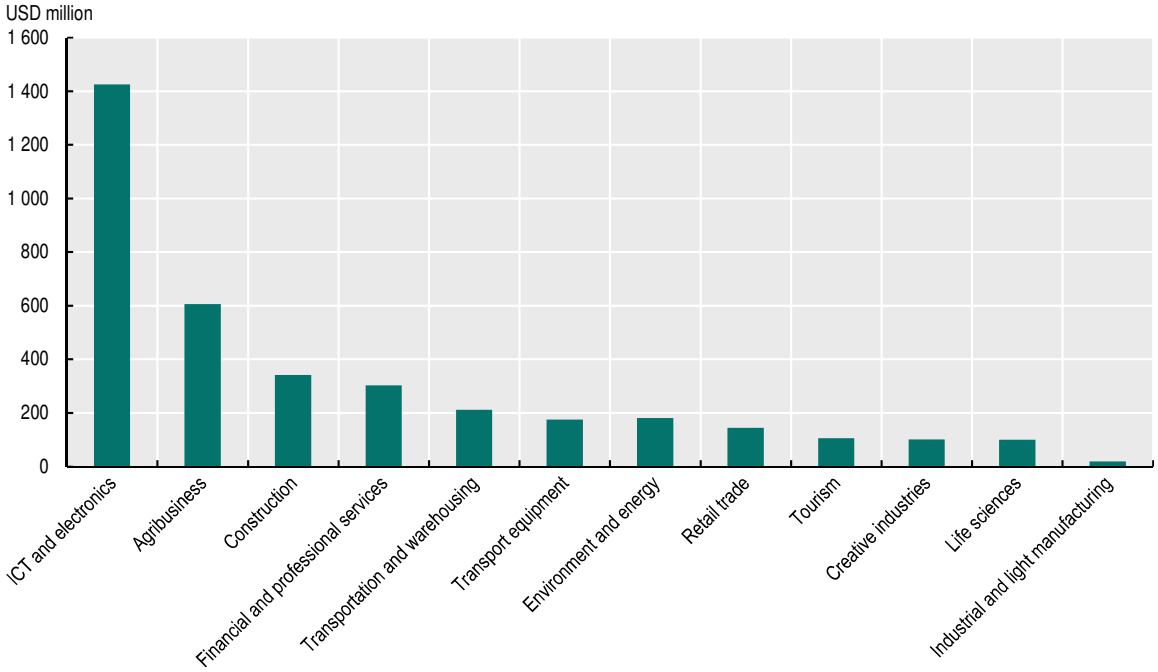
COVID-19 is changing the investment landscape, which will have important implications for medium-term GVC participation. Foreign direct investment, which typically follows GDP and trade recovery trends at a slower rate, fell by 16% in East Africa in 2020, as companies put mergers, acquisitions and greenfield investments on hold. In 2020, foreign direct investment slightly increased for Djibouti (8%), Somalia (4%) and Tanzania (2%), though most East African countries experienced a decline [e.g. Kenya (35%), Uganda (35%), Mauritius (48%) and Rwanda (62%)]. FDI inflows are likely to gain momentum

by 2022 due to an expected rise in demand for commodities, new opportunities due to restructuring of global value chains and the finalisation of the AfCFTA investment protocol (UNCTAD, 2021a).

The COVID-19 crisis could create long-term opportunities for the continent, as multinationals may re-shore and near-shore their operations and diversify their supplier networks. The reconfiguration of global supply chains could lead to notable changes in certain sectors, such as fashion or electronic components. Promoting intra-regional investment could help to boost trade within the continent and reduce risks related to disruptions in international supply chains.

Since the COVID-19 crisis, East African countries have been breaking into new sectors while rebuilding existing ones. For example, the acceleration of the digital transformation has increased the attractiveness of information and communications technology (ICT) and agribusinesses in East Africa relative to other sectors (Figure 5.7). In fact, the economic recovery plans of the governments of Kenya (local value chains and component manufacturing), Mauritius (pharmaceutical and blue economy) and Rwanda (business process outsourcing) list strategic sectors to build relevant capability and competitiveness and to attract foreign direct investment. The rise of tech start-ups and regional platforms and the expansion of Africa-focused investments and acquisitions are expected to reshape the continents' investment landscape.

Figure 5.7. **Greenfield foreign direct investment to East Africa, by sector, March 2020-September 2021**



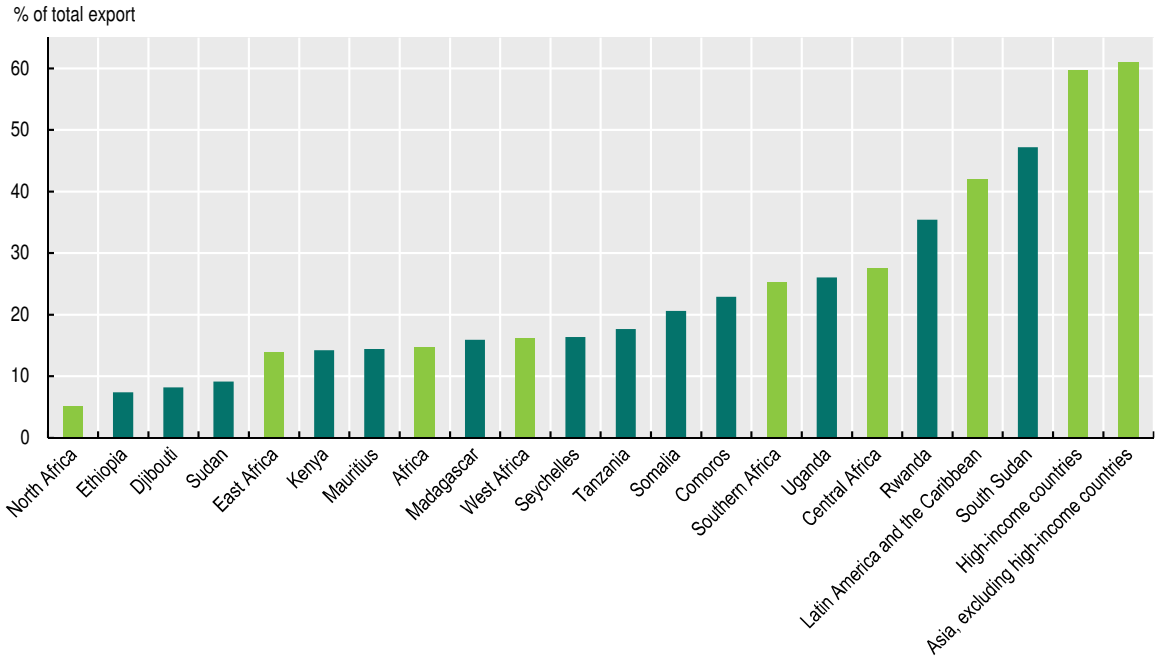
Source: Authors' calculations based on fDi Markets (2021), *fDi Markets* (database).
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The African Continental Free Trade Area provides new opportunities for developing regional value chains in East Africa

In trade in intermediate goods, East Africa lags behind Central and Southern Africa as well as Asia and Latin America and the Caribbean (Figure 5.8). The region's performance

in trade in intermediate goods (13.9%), while comparable with the African average (14.7%), is much lower than that of the continent's two regions that trade the most [Central Africa (27.6%) and Southern Africa (25.2%)]. East Africa's trade in intermediate goods is far behind that of Asia (61%) and Latin America and the Caribbean (42%). Djibouti, Ethiopia, Kenya, Mauritius and Sudan perform below the African average, while Madagascar and Uganda perform above it. Rwanda demonstrates a performance comparable to Latin America and the Caribbean, and South Sudan comparable to Asia.

Figure 5.8. **Intra-continental trade in intermediate goods, 2000-19 average**



Notes: Intermediate goods are the products classified by UN COMTRADE within the Broad Economic Categories 4, 21, 22, 31, 42, 53, 111, 121 and 322.

Source: The data presented in this figure are based on the international trade by commodity reported in the CEPII (2021), *BACI* (database), www.cepii.fr/cepii/en/bdd_modele/presentation.asp?id=37.

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High trade costs and weak competitiveness help explain East Africa's lack of growth and upgrading in regional value chain participation. High tariffs on intermediate goods, restrictive rules of origin and insufficient services for connectivity are major impediments to the growth of RVC exports. For example, roaming costs in the EAC are notably higher than those for other regional economic communities; they are approximately double those in the Southern African Development Community (de Melo and Twum, 2020). The lack of competitiveness also prevents producers from breaking into the more complex manufacturing stages that have more demanding requirements. In East Africa, the agricultural investments are predominantly structured around the production of commodities such as sugar cane, raw milk and oil seeds. In the food sector, they are highly concentrated in beverages, tobacco, dairy and other processed food products.

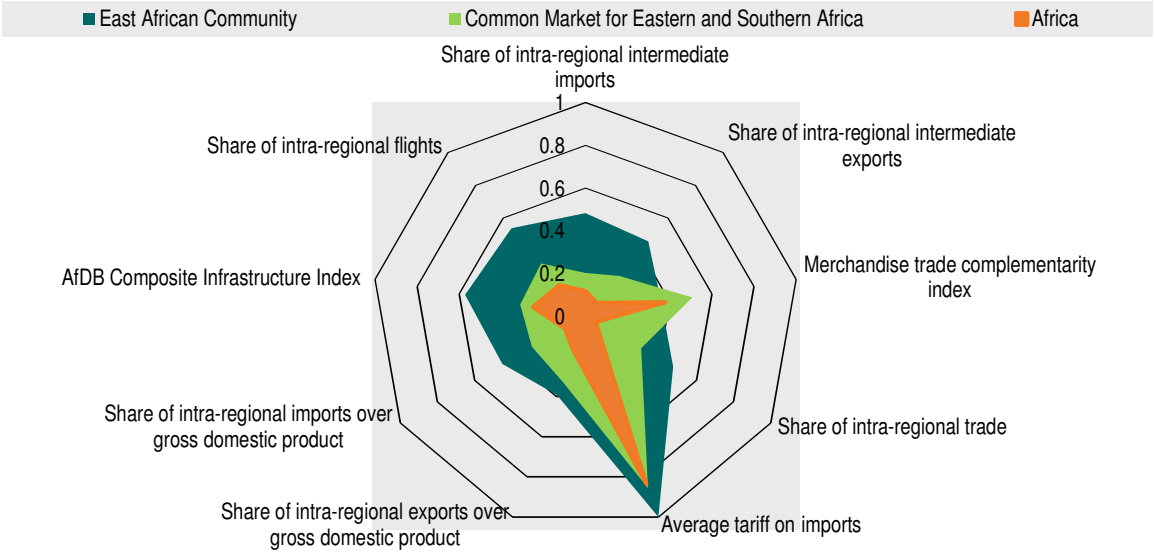
Many East African countries have similar industrial capacities and compete in the same segments of global value chains, which limits their ability to find and exploit complementarities. Agriculture is among the top five sectors of GVC participation for nine East African countries. The textile and clothing sector is among the top five sectors for five of the region's countries (Djibouti, Ethiopia, Madagascar, Mauritius and Tanzania),

while the transport services sector is among the top five for ten countries. The similarity in relative comparative advantages or industrial policy sameness limits regional sourcing and production networks (Odijie, 2019).

Countries in the region, especially in the EAC, have co-operated to address issues with notable successes. The efforts include operationalising the EAC Common Market, which has facilitated the free movement of goods, labour, services and capital. Individual successes include i) harmonising regional standards for several agricultural and food products, for example dairy and maize; ii) setting up the EAC Customs Union and building the capacity of the related trade institutions; iii) establishing a Common External Tariff in the region; and iv) instituting a single tourist visa that allows visitors to travel freely between Kenya, Rwanda and Uganda.

Productive and infrastructure integration,[1] the main building blocks of regional sourcing and production networks, remain the weakest links in regional integration for East Africa's Regional Economic Communities.[2] Among Africa's Regional Economic Communities (RECs), the EAC has the highest share of intra-REC trade in intermediate goods and the lowest average tariff on intra-regional imports, while COMESA scores the highest in merchandise trade complementarity (Figure 5.9). Total intra-REC trade in the EAC, while the second highest among African Regional Economic Communities, is lower both in levels and in growth than intra-REC trade in Asia and Latin America and the Caribbean [the Association of Southeast Asian Nations and the Mercado Común del Sur (MERCOSUR), respectively] (de Melo and Twum, 2021).

Figure 5.9. **Trade and infrastructure integration: Intra-regional performance scores**



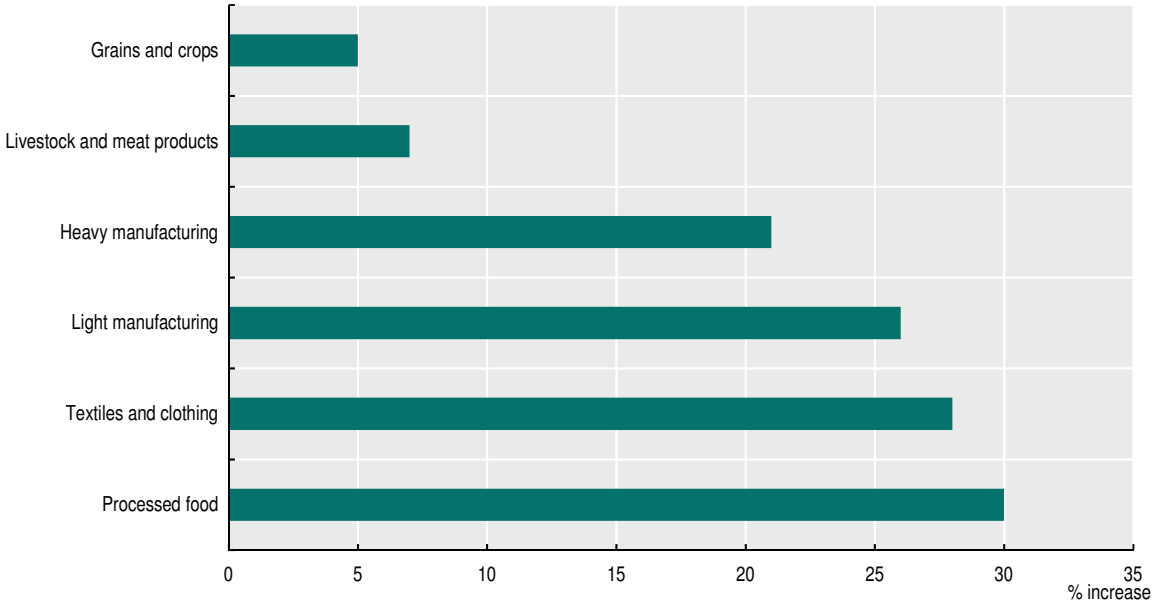
Source: AUC/AfDB/UNECA (2019), *Africa Regional Integration Index Report 2019*, www.integrate-africa.org/fileadmin/uploads/afdb/Documents/ARII-Report2019-FIN-R40-11jun20.pdf.

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The AfCFTA offers renewed opportunities for East African producers to tap regional and continental markets, especially in the agri-food value chains. A computable general equilibrium model based on data from the Global Trade Analysis Project suggests that completely removing existing tariffs on all intra-African trade could increase East Africa's exports to the rest of the continent by 16% (UNECA/TradeMark, 2020). Benefits would be particularly pronounced for sectors like processed food, textiles and clothing, and

light manufacturing (Figure 5.10). Producers would have access to the whole East African market, with a GDP of USD 880 billion. Furthermore, the AfCFTA opens up the possibility of trading with the rest of the continent under a single set of rules and of progressively eliminating tariffs and non-tariff barriers to trade.

Figure 5.10. **Modelled increase in East African exports to Africa thanks to the African Continental Free Trade Area, by sector**



Source: UNECA/TradeMark East Africa (2020), *Creating a Unified Regional Market: Towards the Implementation of the African Continental Free Trade Area in East Africa*, https://archive.uneca.org/sites/default/files/PublicationFiles/tmea_afcfta_report_5_june_2020.pdf.

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Regional agri-food value chains offer great potential for industrialisation and job creation but require supportive policies

Developing agri-food value chains is critical to tackling long-term challenges in East Africa

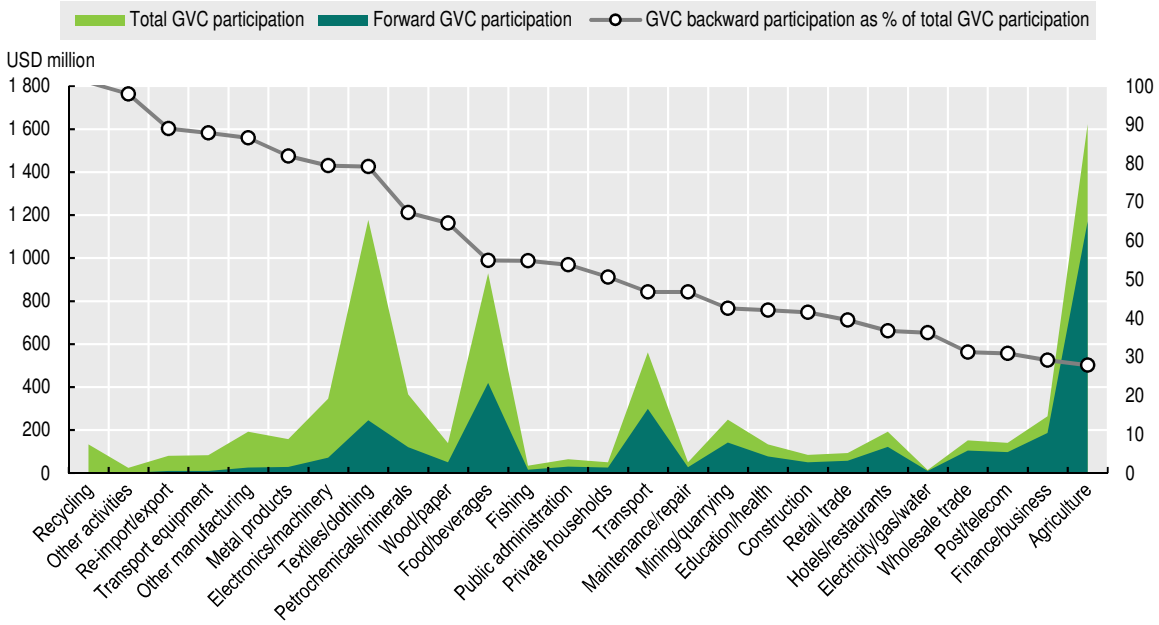
The development of agri-food value chains is imperative to resolve the challenge of food security in the region, fueled by demographic growth. The rising population and growing food demand are elevating the risks of food insecurity. East Africa's population growth rate of 2.9% per year is increasing pressure on agriculture, food and nutrition. As the region is not self-sufficient in most of these basic food commodities, its dependence on imports is set to increase. Between 1998 and 2018, food imports rose by over 1 000% in Ethiopia, 300% in Kenya and 122% in Tanzania (Mitchell et al., 2021).

Strengthening agriprocessing can help diversify rural markets both directly and indirectly. Agriprocessing is a subset of the manufacturing sector that processes raw materials and intermediate goods from the agricultural sector. By adding value to small and medium-sized farms' agricultural produce, agriprocessing can increase revenues from farming production, accelerate farming productivity and drive employment growth. Higher farm revenues, in turn, tend to generate greater rural demand for non-farm products, opening up business opportunities for the rural population and stimulating broader rural development.

Downstream segments of agri-food value chains (such as food processing, packaging, transport and retail) offer opportunities for creating non-farm jobs to absorb agricultural labour and accelerate structural transformation in the region. Agriculture remains the largest employer in East Africa, accounting for 55% of total employment in 2020 – the highest share in Africa. A large majority of workers in this sector are women, youth and informal workers. Employment in manufacturing, on the other hand, has been declining; it dropped from 8% of total employment in 2000 to 5% in 2020. Analysis based on data from Ethiopia, Malawi, Mozambique, Tanzania, Uganda and Zambia suggests that labour productivity (measured as GDP per hour worked) in food manufacturing is about eight times higher than in farming (Tschirley, 2015).

In particular, the food processing segment of the agri-food chain appears most promising for increasing backward participation in global value chains. Food processing includes activities in which raw agricultural products undergo chemical, mechanical or physical transformation to become new products for human consumption. For example, milk can be processed into high-value concentrated dairy products with long shelf lives. While agriculture accounts for 22% of the region's GVC participation, it is the least performing in backward participation (28%). In contrast, the food and beverage activity accounts for 14% of East Africa's GVC participation, with backward participation making up 55% of that (Figure 5.11).

Figure 5.11. **East Africa's participation in global value chains, by sector, 2015**



Source: Authors' calculations based on data from World Bank (2020), *World Development Report 2020, GVC Database*, www.worldbank.org/en/publication/wdr2020/brief/world-development-report-2020-data.

StatLink https://doi.org/10.1787/888934298529

Box 5.1 presents the example of dairy value chains, which have demonstrated significant potential in the region. Currently, a large portion of domestic food processing consists of simple transformations, such as grinding maize, rather than creations of marketable processed products. For example, in Uganda, where food processing accounts for 40% of the country's manufacturing output, half of this amount is attributed to sugar, coffee and tea processing (Fowler and Rauschendorfer, 2019).

Looking further forward, rapid urbanisation and the rising middle class create new opportunities for upgrading in these value chains through increased demand for higher-value and more processed foods. According to the United Nations estimates, 29% of East Africa's population currently lives in urban areas, and the number is expected to rise to 41% by 2050. This urbanisation is being accompanied by a transition in dietary patterns that favours foods with better quality and higher protein content (FAO, 2017). Tschirley et al. (2015) projected that the post-farm segment of the agri-food system in East and Southern Africa would rise from 8% in 2014 to 10-12% by 2025 and 11-14% by 2040. In contrast to rural populations, most urban dwellers do not produce food but resort to local markets. Urban demand is now over 50% of all food demand, and a 2-5% rise in per capita incomes further increases urban demand through markets (Tschirley et al., 2015).

Box 5.1. East Africa's dairy value chains

The dairy industry is one of the fastest-growing agricultural subsectors in East Africa. It has generated significant economic returns, employment opportunities, food security and rural development. East Africa has a relatively large consumption of milk and dairy products compared to other African regions (Bingi and Tondel, 2015). The emergence of the middle class in most East African cities and urban areas has fuelled high demand for dairy products, which has accelerated the subsector's growth. As a result, the dairy industry has become an attractive destination for investors and has generated important returns, including through the transfer of technology.

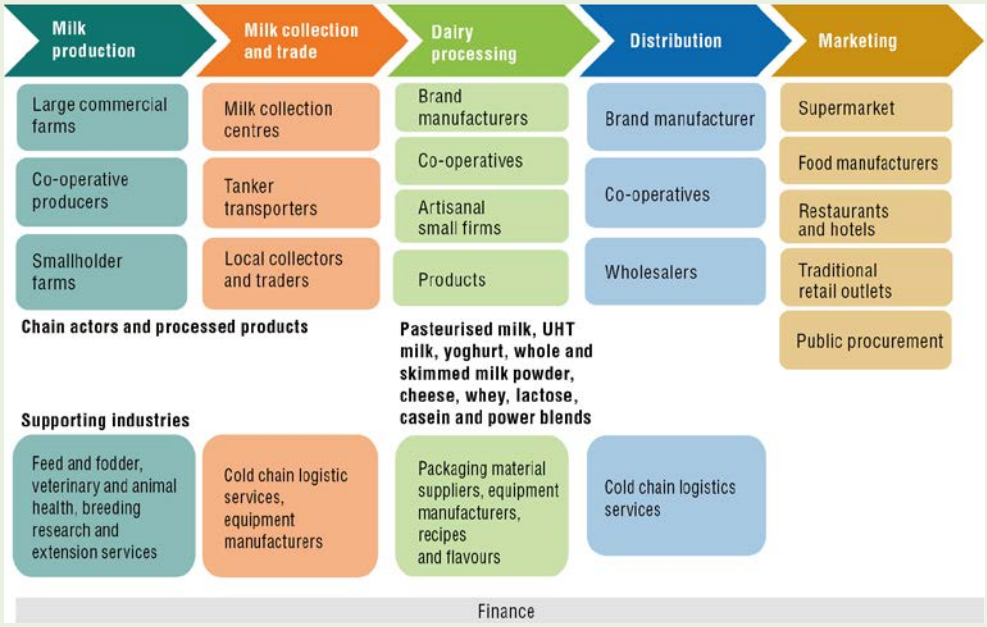
Producers have taken advantage of the EAC's institutional trade arrangements to develop regional dairy value chains. The Single Customs Territory, the 60% Common External Tariff on dairy products originating outside the region and the harmonisation of regional standards for dairy products have helped facilitate intra-regional trade. Between 2002-05 and 2010-13, the volume of average annual intra-regional trade in dairy products in East Africa increased 11 times from 1 530 tons to 18 449 tons. In the EAC, Uganda has become the first exporter of dairy products, exporting to both the regional and overseas markets. Rwanda exports small quantities of dairy products to Burundi, the Democratic Republic of the Congo (DRC), and South Sudan (Bingi and Tondel, 2015).

Upgrading remains a challenge for producers in the dairy value chain. More than 80% of the milk produced in East Africa (up to 98% in Ethiopia and 95% in Tanzania) is still generated by the informal sector, thus eluding quality control measures and limiting the scope for value chain investment and structuring. Only in a few countries, including Kenya and Uganda, are the dairy value chains more advanced, with a large number of stakeholders, milk processing plants and distributors. Yet, they face both difficulties in obtaining stable and quality sources of milk and in reaching consumers.

Increased investment and policy interventions can accelerate upgrading within the dairy value chains. Greater and more targeted investment can help reduce capacity gaps in areas such as innovation and product development, distribution and marketing to enhance dairy supply chains in the EAC. EAC countries can also enhance their negotiation position when engaging with large global firms by acting as a regional block. In the milk collection segment of the industry, better training and licensing of milk collectors can improve milk collectors' adherence to quality standards. Furthermore, better co-ordination between public and private stakeholders and international development agencies is imperative for implementing harmonised regional standards or better aligning investment flows in the EAC. For example, the Rwanda National Dairy Platform helped create a joint long-term plan for market upgrading which can be a vehicle for better-structured policy actions and co-ordination of private investment.

Box 5.1. **East Africa's dairy value chains *(continued)***

Figure 5.12. **Dairy regional and global value chain**



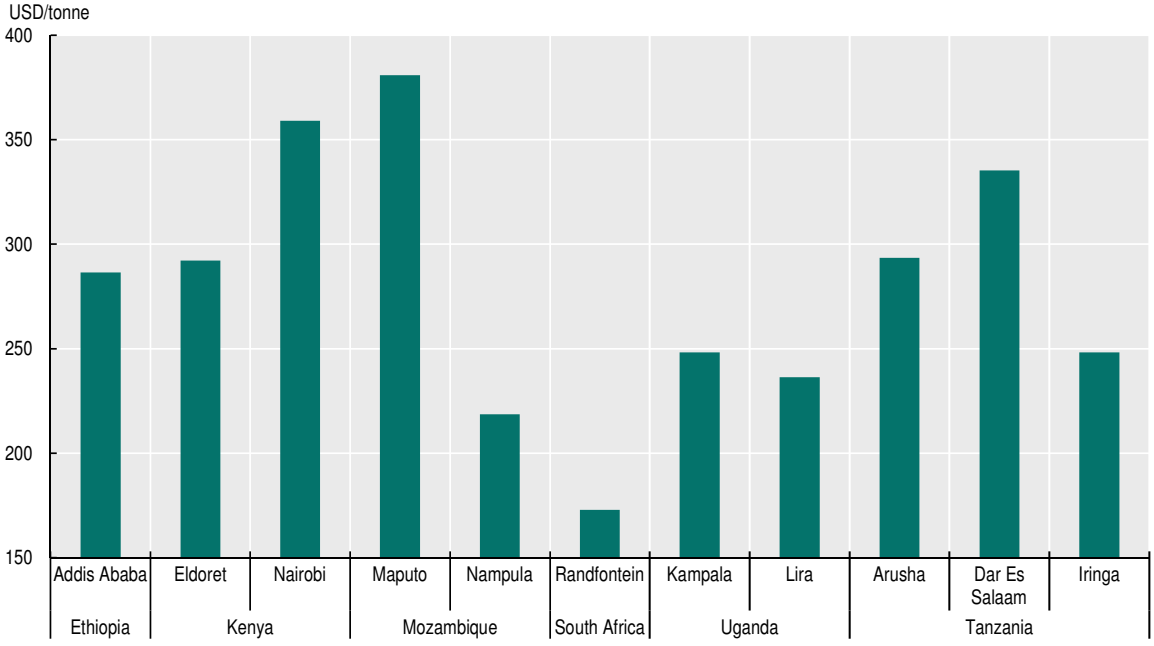
Source: Adapted from Abdulsamad and Gereffi (2017), *Dairy value chains in East Africa*, www.theigc.org/wp-content/uploads/2017/03/Dairy-chain-brief.pdf.

The COVID-19 crisis highlights weaknesses in productive capacity and intra-regional trade of agri-food products

The high costs of regional trade contribute to the fragmentation of East Africa's agriprocessing value chain. The variation in maize prices across different East African cities (Figure 5.13) demonstrates the lack of market integration in the region due to both tariff and non-tariff barriers (Oiro, Owino and Mendez-Parra, 2017; OECD/FAO, 2020). These include non-tariff barriers to trade, in particular high transportation costs, inefficiencies at border posts, sanitary and phytosanitary regulations, and discretionary exports controls, among others.

Developing the transport and logistics service sector can reduce high trade costs. In Uganda, small-holder farmers lose up to 40% of their fresh produce because of a lack of reliable cold storage systems. Inefficient logistics raises the costs of trading and reduces the potential for trade. Small and medium-sized enterprises typically face twice the logistics costs of large firms because of their lower economies of scale. Better storage management for food produce can increase the efficiency of the food supply chain, reduce food waste and open up new opportunities for landlocked and remote areas.

Figure 5.13. **Price spreads for maize across East Africa**



Note: This figure is based on the wholesale prices collected by the FAO GIEWS FPMA tool for 2018.
Source: OECD/FAO (2020), *Agricultural Outlook 2020-2029*, https://doi.org/10.1787/888934141798.
StatLink https://doi.org/10.1787/888934298548

Weak production capacities and low-quality inputs prevent upgrading in these chains. Local producers often lack adequate capacities to upgrade and meet higher standards, and the economies in which they are embedded provide limited opportunities for scale production. For example, maize farmers in Rwanda and Uganda are in want of appropriate warehouse and storage capacities, quality inputs (seeds and fertiliser), liquidity, and clear market information (notably on standards). In Uganda, the informal market is the source of 85-90% of all seeds used by farmers, where improved varieties constitute only 5-15% of seeds and public enforcement of quality standards is difficult (Daly et al., 2017).

Local production capacities need to be enhanced to address increasing food dependency. As the region is not self-sufficient in most basic food commodities, its dependence on imports is set to increase. Joint region- and continent-wide measures to increase domestic production are necessary to prevent shortages, including attracting investments, both domestic and foreign, in food and agri-food subsectors.

The COVID-19 crisis has had immediate consequences on regional production. East Africa's food processing industry has suffered labour shortages and delays in the supply of agricultural inputs. In Kenya, for example, food processors face labour shortages as well as reduced imports of agricultural inputs for processing, owing to significant delays in cross-border trade. At the same time, trade interruptions and mitigation measures have disrupted local agri-food value chains in the short to medium term by creating bottlenecks in transport, logistics, processing and sales in urban and peri-urban areas. Vulnerable people who must commute daily to provide services and labour to cities are also affected, as lockdowns restricting such commutes often signify a total loss of income for casual labour, small food outlet vendors, minibus drivers and others reliant on daily wages.

The pandemic may also have strong knock-on effects on farmers and aggravate the food crisis. Although rural areas may have been less affected by the pandemic in

the beginning, the disruptions in local value chains have created an additional shock to smallholder farmers. In the medium term, smallholders are likely to face rising levels of poverty, food insecurity and malnutrition, as food becomes less accessible and as staple food prices climb. In Ethiopia, Kenya, Tanzania and Uganda, the impact of COVID-19 on food security has been exacerbated by a second outbreak of desert locusts in April 2020, causing significant damage to crops and pastures. Lower farming income together with a reduction in remittances may reduce the ability for farmers to access inputs. This heightens the risk of producing crops and livestock below capacity and worsens a food crisis previously triggered by droughts and economic mismanagement.

The COVID-19 crisis has further limited the movement of agricultural goods and remittances, which could discourage future investment in regional agri-food value chains. Most countries in East Africa have restricted movement across borders, limiting the informal cross-border trade of basic food staples such as cereals and remittances. In fact, there have been significant delays of border crossings for cargo trucks between Kenya and Uganda and between Kenya and Tanzania, which have had ripple effects on agri-food value chains downstream. Furthermore, governments in the region responded to previous food shortages by introducing export bans of agri-food products, which reduced the incentives for firms in East Africa to source their critical inputs from other countries in the region (Brenton and Hoffmann, 2016).

The digital transformation can facilitate agri-food value chains with the help of accommodative public policies

Both East African governments and start-ups have used new digital business models and innovations to make the agri-food value chains more efficient. East Africa is a global leader in mobile money use. The region counts 1 106 registered mobile money accounts for every 1 000 adults, compared to 600 for all of Africa, 533 for Asia and 245 for Latin America and the Caribbean. The rapid development of mobile money has lifted about 2% of Kenyan households (about 194 000) out of extreme poverty and has helped 185 000 women to transition from subsistence farming into business or sales occupations (Suri and Jack, 2016). The Kenyan business Twiga Foods established a new partnership with the e-commerce platform Jumia to distribute fruits and vegetables directly to customers' homes. Twiga Foods has over 100 000 customers in Kenya that rely on its services and distributes more than 600 tons of products to 10 000 retailers daily (Kene-Okafor, 2021).

Applying digital applications has enhanced the functioning of trade-related services. Automated customs procedures and electronic certificates of origin can accelerate the movement of goods across borders and improve tracking along supply chains. The new Kenya-based start-up Solar Freeze provides mobile solar-powered cold rooms to small-scale farmers to store their temperature-sensitive produce. It works with 3 000 small-scale farmers and has helped to increase agricultural yields by more than 150% since 2016 (Kibiti and Strubenhoff, 2019).

Digital solutions can help tackle longstanding challenges in agricultural production. Digital solutions have increased agricultural output and farmers income and developed more effective management of food security and agricultural transformation. Tumaini, an app used in Uganda, relies on artificial intelligence to determine product diseases from photographs taken by farmers (McKinsey, 2021). Advances in technology are also making it possible to comprehensively secure land rights in participatory and cost-effective ways that were unimaginable even a decade ago. For example, in 2018, the Rwanda Land Management and Use Authority, the Rwandan Information Society Authority and the United States Medici Land Governance established a blockchain-driven electronic

process for land registration, which enables faster and more transparent data sharing to accelerate land transfers.

Digital solutions require supportive policy interventions. Barriers such as access to digital infrastructure, skills and financing prevent the widespread adoption of digital technologies. In many cases, digital solutions require complementary regulations and physical investments. For example, Kenya's Land Registration Act 2012 gave the Registrar of Lands the mandate to develop an electronic registry of land. However, the automation programme has stalled due to various challenges including damaged or missing land records and poor ownership. Social institutions remain essential for providing locally legitimate processes to adjudicate on disputed claims (e.g. clarifying rights and agreeing on boundaries prior to a formal register entry).

Regional co-ordination is key to strengthening East Africa's agri-food value chains

Policy makers in East Africa need to maintain the momentum in reducing barriers to intra-regional trade

Policy makers and the private sector have expressed strong interest in greater economic integration of the EAC. Contrary to other regional integration blocks in Africa, countries in EAC have signed, ratified and implemented most protocols into a treaty. These include the EAC Customs Union in 2005, the EAC Common Market in 2010 and the EAC Single Customs Territory in 2014. All of these have helped reduce tariffs but have also resulted in a rise in non-tariff barriers largely related to sanitary and phytosanitary standards, vehicle axle load and weight limits, insurance requirements, trade administration costs, suspended taxes and rules of origin, among others.

For the EAC, a comprehensive review of the Common External Tariff (CET) is imperative to maintain the stability and protect the integrity of the CET. The rising use of exclusions and duty remissions and revisions destabilises the CET and provides room for protectionism and unhealthy competition (Rauschendorfer and Twum, 2020). Governments can protect the integrity of the CET from entrenched interests by adopting simplified tariff bands and product classifications, strengthening regional competition authorities, and leveraging private sector champions and representation. In reviewing the CET, countries should aim towards limiting duty remissions and revisions to strictly essential interventions and introducing the progressive liberalisation of protected industries. Renegotiating the exclusion list can allow each member state to specialise in a particular segment to serve the regional market. In contrast, completely abandoning the exclusion list would be politically difficult, as the list permits small countries to develop and protect livelihoods.

Countries need to continue investing in the automation of trade and customs procedures such as electronic certificates of origin (e-CoO). A recent assessment of progress of e-CoO indicates that implementation has been slow both in COMESA and SADC, with only Mauritius having completely developed its facility (Mafurutu, 2020). The use of e-CoO in conjunction with the adoption of simple and easy rules of origin under the AfCFTA is of paramount importance to commercial exporters.

East Africa introduced trade facilitation measures in response to the COVID-19 crisis. The EAC issued a common region-wide strategy for recovery from the crisis. The strategy comprises a harmonised system for certifying and sharing test results, the adoption of an EAC digital surveillance and tracking system for drivers, the support of agricultural value chains and the establishment of special-purpose financing schemes for small and

medium-sized enterprises. Other initiatives include the Regional Electronic Cargo Tracking System (RECTS), created by Uganda in 2013 and since adopted by Kenya and Rwanda, which helps monitor and track cargo operations and increases the interoperability of transport monitoring systems in East Africa. In addition, the Transport Corridor Trip Monitoring System to be piloted along the Zambia-DRC border is aimed at building a regulatory framework that ensures cross-border transport and transit monitoring to reduce COVID-19 transmission. This system will be integrated with the RECTS.

Reducing barriers to service trade can also help strengthen East Africa's potential as a hub for service sectors such as ICT, travel and transport. Kenya, Madagascar, Mauritius and Rwanda have developed key capabilities to compete in the global value chains of ICT-enabled services, but there are ongoing challenges in breaking into the global value chains of business process outsourcing (Mann and Graham, 2016). For the service sectors, investment protocols and trade and investment facilitation are intricately linked with market liberalisation issues, with a commercial presence abroad being the most prevailing mode of delivery for trade in services. Yet, negotiations on trade in services are the most contentious, and the outcomes are often the most difficult to implement.

Regional co-ordination of national industrial strategies can help strengthen regional competitiveness

Regional co-operation needs to strike a balance between protecting domestic interests and promoting regional capabilities in strategic industries. The current global context reflects rising levels of economic protectionism and a retreat from market liberalisation and integration. Many governments have protected strategic sectors, including their state-owned enterprises (SOEs) and healthcare-related sectors (e.g. with export bans). In East Africa, especially within the EAC, countries have identified opportunities for regional industrial competitiveness and co-ordination in key sectors such as agri-food and textile. It also launched a Cotton, Textiles and Apparel Strategy in 2019, which aims at an integrated and globally competitive textiles and apparel industry (see Annex 5.A1).

Global lead firms can strengthen key segments of value chains. Global lead firms can help stimulate upstream industries in domestic economies, boost productivity through the transfer of technology and skills, and improve access to credit and markets for local producers. In agri-food value chains, foreign investments in infrastructure and the introduction of modern production practices can yield substantial benefits to small-scale farmers and local communities (UNCTAD, 2015). Value chains driven by market-seeking foreign direct investment need a well-crafted investment protocol governing such investment and the facilitation of capital mobility. Globally competitive, low-cost labour-intensive value chains require a different approach (especially greater sourcing flexibility) than skill- and capital-intensive manufacturing value chains.

Cluster policies can facilitate linkages if successfully designed and funded

Cluster policies can help create useful linkages between global lead firms and the local producers. Due to the low level of competitiveness by most East African producers, proactive policy support is necessary to promote local sourcing and the participation of domestic firms. One such form of support is cluster policies. They help concentrate public investment, capacity and co-ordination, and the close proximity inherent in clusters is conducive to knowledge transfer and innovation from lead firms. The scale, density and economic interactions that industrial clusters provide help facilitate connections between lead firms and local industrial networks through forward and backward linkages, between firms and workers (through labour pools and specialised skills) and between firms and consumers (through better access to market).

The success of clusters depends on policy design and many other criteria. Notably, local sourcing and participation of domestic firms are contingent on the policy designs of clusters such as special economic zones (including zone eligibility criteria, investor incentives, foreign ownership requirements and local market supply restrictions), the density and capability of supplier base, and sectoral specialisations of zones (Farole, 2011). Such place-based industrial policies command technical expertise, bureaucratic competence and the continuous upgrading of capabilities. Countries compete for foreign direct investment with a well-defined proposition based on cluster dynamism, comparative advantage and well-crafted incentive package. Therefore, more needs to be done to strengthen supplier development programmes and to build institutional capabilities to effectively implement cluster policies.

East African countries need to increase their efforts in retaining foreign direct investment as part of their COVID-19 response. Countries in the region have already implemented a range of FDI-retention policies. Ethiopia, for example, created a USD 6.5 million fund for wage subsidies to businesses in industrial parks (Table 5.1). Global experience suggests that keeping an arm-length relationship between the cluster management board and the lead firms is critical to facilitating joint problem-solving while avoiding policy capture.

Table 5.1. **Cluster policy instruments to retain foreign direct investment and promote exports in response to COVID-19 in East Africa**

Programme approach	Example
Transportation and export advantages	**East Africa:** Free railway transport of manufacturing goods between Djibouti and Ethiopia, discounted logistics prices for exporters, and the lifting of the minimum price set by the National Bank of Ethiopia (NBE) for horticulture exports
Wage subsidies/Job protection	**Ethiopia:** A USD 6.5 million fund for wage subsidies and incentives to reward businesses in industrial parks that are able to adapt to COVID-19
New industrial parks	**Ethiopia:** New garment industrial park in Hawassa by China's Sinoma International Engineering Co.
Liberalisation of foreign direct investment	**Ethiopia:** Opening up all industries to foreign direct investment of at least USD 200 000 for a single project and allowing foreign direct investment in certain transport services
New investment incentives	**Rwanda:** Revised investment incentive scheme and investment code to reduce operational costs
Fast-track development of industrial parks	**Uganda:** Fiscal support including accelerated development of industrial parks, support of import substitution and export promotion through funding to Uganda's Development Bank

Source: Authors' compilation.

In East Africa's agri-food value chains, public investments and regional co-ordination can help increase the competitiveness of domestic producers. Public investments in agricultural research and development and extension services can help to boost productivity, as can programmes to promote farmers' access to inputs (seeds, fertilisers, machinery) and to financing. Regional co-ordination can also address persistent challenges such as transboundary crop and livestock diseases, limited national research and breeding capacities, knowledge sharing, and the establishment of databases and of early warning and forecasting systems. To this end, the EAC has been actively pursuing a regional approach to enhancing food supply chains that includes policy harmonisation to enable the free flow of food staples from surplus areas to deficit areas, driven primarily by price incentives and market forces.

Cross-border special economic zones can promote interactions between industrial clusters across countries. Ethiopia and Kenya agreed to establish a free trade zone and develop infrastructure along the Moyle border region to create a commonly administered economic hub. This follows previous experience in West Africa (cross-border economic zone encompassing Burkina Faso, Côte d'Ivoire and Mali) and in Southern Africa (Musina/Makhado Special Economic Zone in South Africa). The Tatu City Special Economic Zone in

Nairobi attracted USD 70 million from Cold Solutions to construct the largest cold storage warehouses in East Africa.

These cross-border special economic zones (SEZs) require strong institutional capacities. Cross-border SEZs involve deep policy integration and require political support from all governments involved and co-ordination at both state and local levels is crucial. Although cross-border industrial development is challenging, more countries are trying to align their SEZ strategies within regional efforts (UNCTAD, 2021b; World Bank, 2021). For example, ministers of industry from the 21 COMESA member states have approved the implementation strategy of the regional local content policy framework and the management of SEZs and industrial parks. The strategy aims to facilitate regional peer learning, to profile select SEZs as centres of excellence and to strengthen regional cross-border SEZs. Adherence to such frameworks can help guide member states when implementing SEZ strategies and industrial parks at the national level.

East African countries should co-operate to achieve the regional Single Digital Market

East Africa has a promising digital economy. For example, Kenya is among the three big e-commerce players in Africa, and Rwanda aspires to be a digital hub for business process outsourcing and knowledge process outsourcing, having just become the African e-commerce hub headquarters of the AfCFTA (Tralac, 2020; Banga, 2020). Kenya and Rwanda are pioneers of digital economy blueprints and digital financial inclusion, as well as cyber security.

The Single Digital Market for East Africa can help consolidate the region's emerging digital economy and, like the Digital Economy Accelerator for Development (DEA4D) project, contribute to countries' individual digital development. The Single Digital Market can facilitate regional connectivity, build data and online markets, and support ongoing regional integration initiatives (AUC/OECD, 2021). It aims simultaneously to harmonise the regional digital economy and to improve and develop national digital infrastructure. The Single Digital Market is currently in the initiation stage, following the development of a roadmap report, which defined its vision and strategic actions for implementation. Kenya, Rwanda and Uganda are also pursuing national digital development under the DEA4D project which addresses country-specific constraints identified through digital economy diagnostics. For example, it helped formulate Kenya's Digital Economy Blueprint (Nyakanini et al., 2020).

Promoting universal coverage of the One Network Area (ONA) and investment co-operation in digital infrastructure is imperative to further reduce communication costs and achieve affordable access to digital infrastructure, notably for landlocked countries. ONA is an initiative to lower cross-border roaming charges, initially in Kenya, Rwanda and Uganda. In 2020, Tanzania joined the network, ahead of the EAC deadline. Tanzania currently provides telecommunications services to seven countries in the region and aspires to be a telecommunications hub of East and Central Africa. Also in 2020, Rwanda and Tanzania initiated talks to expand the partnership to the telecommunications sector. Burundi is the only East African country that has yet to join the network (Anami, 2021).

Harmonising regulations on digital trade, consolidating and ensuring the interoperability of digital platforms and payment systems, and promoting mutual regulatory co-operation are imperative. For example, under the Smart Africa Alliance, national governments, development partners and members of the private sector co-operate to advance smart procurement of digital infrastructure. The initiative aims to harmonise digital development through benchmarking country progress against the

digital economy blueprint and to pilot selected initiatives in member states, with an emphasis on harmonisation.

Attracting investment in regional digital infrastructure and strengthening digital economy enablers are crucial to promoting regional value chains in the digital economy. Challenges in digital development include disparate and non-existent digital strategies, platform interoperability, and under-developed digital economy enablers such as skills (see Box 5.2). The e-commerce protocol in the AfCFTA could address issues of facilitation, market access and co-ordination with regional organisations working to meet the infrastructural challenges (through initiatives such as the Africa e-commerce platform and Afreximbank's Pan African Payment System) (Tralac, 2020; ITU, 2021).

Box 5.2. Developing skills for the digital era in East Africa

Strong public-private partnerships can help overcome East Africa's shortage of digital skills and eliminate gender disparities in those skills. By investing in sound partnerships between governments, industries, and technical and vocational education and training institutions, countries can increase educational opportunities. For example, the public-private partnerships of Enabel and MTN established digital services (including computers, servers and Internet connections) for innovation hubs in nine vocational training institutions. They provided youth with the opportunity to use the educational resources for skills development. In Rwanda, to address gender disparities in digital skills, WeCode offers ICT training to working-age Rwandan women irrespective of whether they have a prior ICT degree.

Countries can pool resources in developing regional centres for skills development. For example, the African Leadership University (ALU), with campuses in Mauritius and Rwanda, equips students with key skills that young entrepreneurs will need in the future and builds strong linkages between potential employers through work placements. The ALU will be expanded to 25 campuses across the continent to train 3 million young leaders over the coming 50 years. Another example is the Master's programme African Masters of Machine Intelligence in Rwanda, which is supported by Google and Facebook. The programme, at the African Institute for Mathematical Sciences, trains African researchers and engineers to use artificial intelligence in a variety of sectors. Students from the institute have a completion rate of 91%, with all students accepting jobs within the continent.

Promoting intra-regional skills mobility to alleviate skills shortages and foster further integration. Skills mobility is an important determinant of backward and forward participation in global manufacturing value chains for African countries (Yameogo and Jammeh, 2019). Mutual recognition agreements implemented in the Regional Economic Communities lay the groundwork for professional licensing standardisation to support the AfCFTA's implementation. For instance, the Common Market Protocol of the EAC recognises academic and professional labour qualifications, which facilitates sector-specific mutual recognition agreements in accounting, architecture, engineering and veterinary practices.

Annex 5.A1. Textile and clothing global value chains in East Africa

The textile and clothing sector is a critical source of employment in East Africa. The sector is composed of a majority of micro, small and medium-sized enterprises, generating large-scale employment – both for skilled and unskilled workers – especially for youth and women. In Ethiopia, the textile and clothing sector creates more than 80 000 jobs, and almost 80% of the workers employed in its apparel and garment segment are women. Furthermore, the apparel and garment segment has been growing in Kenya, Madagascar, Mauritius, Rwanda, Tanzania and Uganda (see Table 5.A1.1).

Table 5.A1.1. **Performance of the textile and clothing sector in East Africa, 2016**

Country	Number of major factories	dominant products	Apparel, in USD million, (%) and as a % of GDP	Direct employment	Exports, in USD million	Imports, in USD million
Kenya	22	Apparel, second-hand clothing	374 (91%) 0.5%	40 000	412	1 871
Uganda	3	Cotton fiber, apparel, home textiles, second-hand clothing	Not available	5 000	22	108
Tanzania	17	Cotton fiber, apparel, home textiles, second-hand clothing	47.6 (40%) 0.1%	20 000	236	977
Ethiopia	70	Apparel, home textiles, cotton yarn	81.4 (76%) 0.15%	80 000	107	773
Madagascar	70	Apparel, fabric	625 (94%) 6.4%	100 000	662	573
Mauritius	100	Apparel, fabric, cotton yarn	702 (89%) 6.4%	45 000	785	354

Source: Authors' compilation based on UN (2021), *UN COMTRADE* (database), https://comtrade.un.org/, and a review of empirical literature.

Most countries in the region have substantial untapped resources for growing cotton and developing a vibrant export-oriented textile and clothing sector. For example, Kenya has an estimated 385 000 hectares of land suitable for cotton production. However, only a fraction of that land is under cotton cultivation. The annual production of cotton lint in Kenya is approximately 7 000 tons versus a potential production of 200 000 tons of lint (ITC, 2020). The country has a vibrant textile and clothing sector with 22 major factories employing about 40 000 employees. In 2016, Kenya's apparel exports to the rest of the world were valued at USD 374 million (USAID, 2018). Furthermore, between 2013 and 2018, Ethiopia's textile and apparel industry has grown by 51%.

East Africa's textile and clothing value chain has integrated into global production networks, with limited regional linkages. For textile and footwear production, for example, the region's import of intermediate goods more than doubled in ten years, from USD 911 million in 2009 to USD 2 089 million in 2019, while the share of regional sourcing dropped from 4.5% to 2.6% over the same period.

The global textile and clothing value chain is expected to continue to provide jobs. Large-scale automation in the textile and clothing sector is unlikely to occur in the near future, especially in labour-intensive segments such as sewing. Recent estimates suggest that in the next 15 to 20 years, manual labour in the sector will remain economically more attractive than automation (Tilman et al., 2020). Rising wages in China could push 81 million low-cost industrial jobs, including those in the textile and clothing sector, to other countries, such as those in East Africa.

Increasing competitiveness is critical to reducing the region's dependence on preferential access to global markets for attracting investments. In terms of labour productivity, Ethiopia is the only country in the region that can compete with other global production hubs, such as Bangladesh and Viet Nam. While producers in the many East

African countries benefit from duty-free market access to the European Union (under the Economic Partnership Agreement and Everything But Arms initiative) and to the United States (under the African Growth and Opportunity Act), they need to increase their competitiveness to sustainably take advantage of such opportunities. In the past, the loss of preferential market access has led to a complete burst of the domestic industry in Madagascar and Mauritius (Fernandes et al., 2019). At home, local producers also face difficulty in competing with imported second-hand clothing.

A lack of skilled technicians and specialists limits productivity gains and value addition in the textile and clothing value chain. A shortage of skills can lower gains from capital investment because often companies do not have adequately skilled staff to operate new equipment. For example, in Ethiopia, the weak linkage between universities and technical and vocational educational training institutions, insufficient standardised certifications of training, and the absence of in-company training courses are bottlenecks to skills upgrading. Furthermore, as Ethiopia's textile and clothing sector is relatively young, many managers lack sector-specific knowledge and locally owned companies find it more difficult to access foreign expertise than do foreign-owned companies (ITC, 2015).

Disregarding environmental and social standards can have negative spillover effects and render producers ineligible to supply to socially concerned buyers. For example, in Ethiopia, factory workers often exceed the maximum amount of allowed working hours and are exposed to technologically outdated and environmentally damaging machinery. In fact, few Ethiopian factories have certifications from the European Union's Business Social Compliance Initiative or the United States Worldwide Responsible Accredited Production, which could help increase demand for products. In addition, the Ethiopian textile and clothing sector constitutes a major part of the manufacturing sector and hence defines the country's environmental and social conduct for other manufacturing production chains (ITC, 2015).

Notes

1. The Productive Integration Index captures the extent to which countries regionally source intermediate goods and complement each other with their merchandise exports, whereas the Infrastructural Integration Index proxies for cross-border road connectivity, cross-border electrical infrastructure, the cost of mobile roaming. The latter is a composite index of nine measures of the state of electricity, transport, information and communication technologies, and water and sanitation in an area. It serves in place of comprehensive, reliable data on regional infrastructure (AUC/AfDB/UNECA, 2019).
2. "This implies that production is not geographically dispersed within the continent and countries are not reaping the benefits of variations in comparative advantage across countries. This may largely be due to poor or inexistent logistics that are necessary for regional supply to be operational." (AUC/AfDB/UNECA, 2019)

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Chapter 6

Integrating value chains in North Africa and the energy industry

This chapter analyses public policies to revitalise the energy value chain and thus speed up post-COVID economic recovery in North Africa (Algeria, Egypt, Libya, Mauritania, Morocco and Tunisia). These countries face institutional, logistical, infrastructural and technical constraints that prevent them from taking full advantage of the energy value chain despite their immense natural endowments. The chapter opens with an overview of the macroeconomic context and how it relates to North African countries' level of integration in value chains. The focus then shifts to the region's energy potential and the importance of energy both to macroeconomic stability and to promoting employment. Finally, the chapter identifies the challenges and opportunities of the post-COVID environment before putting forward public policies to develop the energy value chain (EVC) in North Africa.

IN BRIEF

The instability of the macroeconomic environment, as exemplified by the 1.7% decrease in growth in 2020, makes it difficult for North African countries to integrate value chains, including energy value chains (EVCs). Nonetheless, as a result of the region's non-renewable resource wealth (42.3% of its exports in 2018) and its significant potential for renewable energy (10.33 GW in 2020), energy remains a dominant factor in North Africa's positioning in global value chains (GVCs). These endowments favoured the region's GVC participation in 2000-19 along forward rather than backward activities (at 80% and 20% respectively), due to the limited sophistication and diversification of its fossil-fuel exports.

Although the renewable energy sector is a factor for macroeconomic stabilisation and leverages employment in the sub-region, institutional and technical constraints still weight on the EVC and hamper its development. However, the new possibilities and changes emerging from the COVID-19 pandemic are a source of opportunities. Those opportunities are enhanced by the ratification of the African Continental Free Trade Area (AfCFTA) by all North African countries. Specifically, policies to consolidate the EVC must build human capital, facilitate trade in energy through regional harmonisation of trade policies, develop transport and logistical infrastructures and improve the business climate.

North Africa

North Africa and global value chains

Average annual GVC participation, 2000-19



80% *of which was forward participation*

North Africa's main trading partners (% of exports, 2019)



Opportunities for the energy value chains



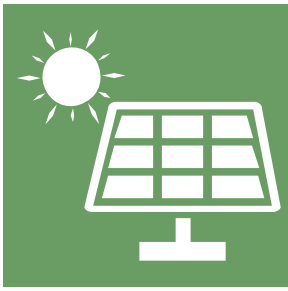
1 MW of renewable energy generates:



Five temporary jobs in the early stage or construction phase



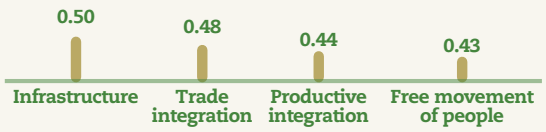
Two permanent jobs in maintenance



In 2020, North Africa's renewable energy capacity was estimated at **10.33 GW**, thanks to 2 000-3 600 hours of sunshine per year

Constraints to the development of energy value chains

On a scale from 0 (worst) to 1 (best) the region posts an index of:





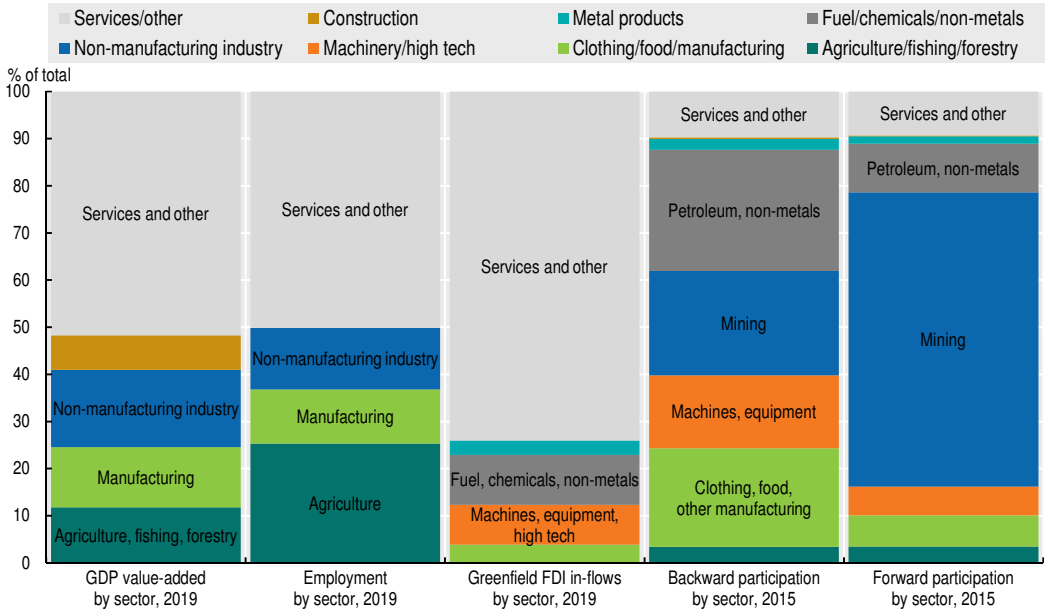
The drop in FDI in energy is estimated at **20%** in North Africa for 2020

What's next ?

- **Avoid distorting practices** (e.g. non-tariff barriers), especially for trade in intermediate goods
- **Invest in training specialisation** and labour mobility
- **Develop regional power pools and transport networks** (road, rail and maritime) such as the Trans-Maghreb multimodal corridor

North Africa regional profile

Figure 6.1. **Economic and trade profiles of North Africa, expressed as % of total**

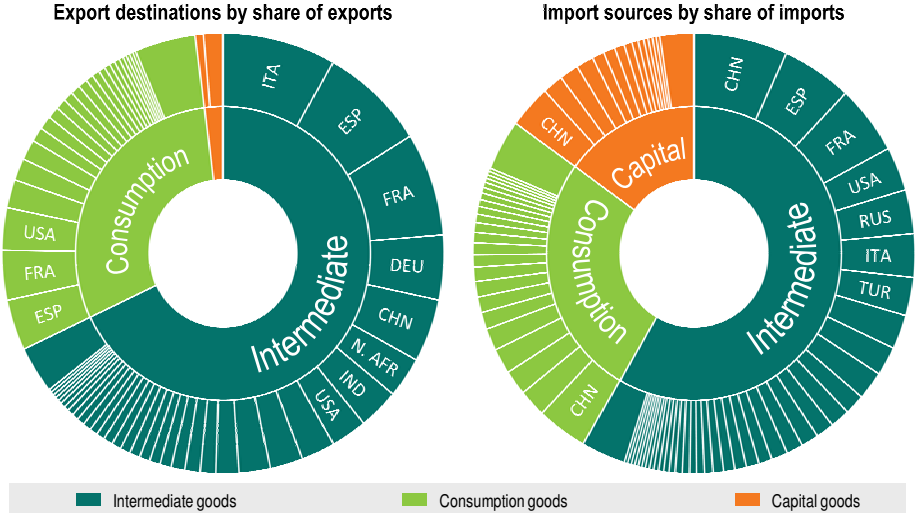


Notes: GDP = gross domestic product; FDI = foreign direct investment. The different sources for the data do not share common definitions of economic sectors, commodities or activities. However, colouring is used in this figure in order to indicate shared themes across datasets.

Source: Authors' calculations based on World Bank (2020a), *World Development Report 2020*, GVC database, www.worldbank.org/en/publication/wdr2020/brief/world-development-report-2020-data; fDi Markets (2021), *fDi Markets* (database); and World Bank (2021a), *World Development Indicators* (database), https://databank.worldbank.org/source/world-development-indicators.

StatLink https://doi.org/10.1787/888934298567

Figure 6.2. **North Africa's most important trade partners broken down by volume of trade in intermediate, consumption and capital goods**



Notes: Countries are presented using their three-letter ISO codes. The African countries are aggregated into the five sub-regions defined by the African Union as follows: C. AFR = Central Africa, E. AFR = East Africa, N. AFR = North Africa, S. AFR = Southern Africa, W. AFR = West Africa. Interior trade within the Southern Africa Customs Union is excluded.

Source: Authors' calculations based on data from CEPII (2021), *BACI* (database), www.cepii.fr/cepii/en/bdd_modele/presentation.asp?id=37.

StatLink https://doi.org/10.1787/888934298586

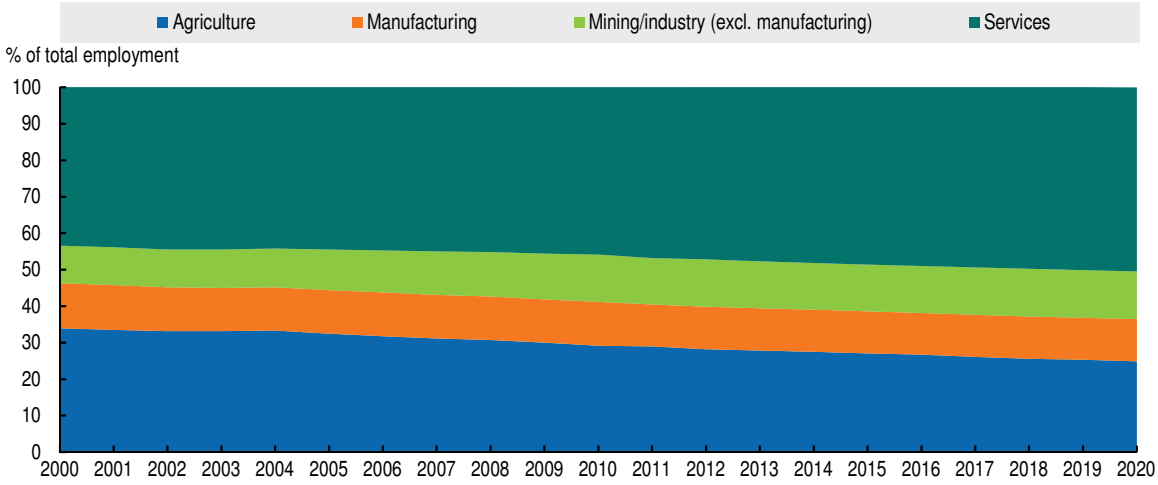
The macroeconomic environment makes it difficult for North African countries to further participate in value chains

The macroeconomic environment in North Africa remains unstable

The outlook for economic growth in North Africa continues to be relatively stable following the 1.7% drop recorded in 2020 as a result of the COVID-19 pandemic. Having risen steadily from 1.6% to 4.2% between 2014 and 2019, activity fell by 1.3% in 2020 (IMF, 2021). The drop was linked to the health crisis and sparked the worst depression for 20 years. The contraction caused by the collapse in oil prices was strongest in Libya (-59.7%), followed by Tunisia and Algeria, albeit to a lesser extent. The overall outlook, which assumes average growth of 5% over the next five years, can be improved if North Africa increases its participation in regional value chains (RVCs) and GVCs.

Despite the improved quality of the labour force, sectoral distribution of employment has not benefited industry and manufacturing. Over the 2000-20 period, the share of employment in services rose from 43% to 50%, and from 10% to 13% in mining and industry, whereas employment in manufacturing remained fairly steady (12%, Figure 6.3).

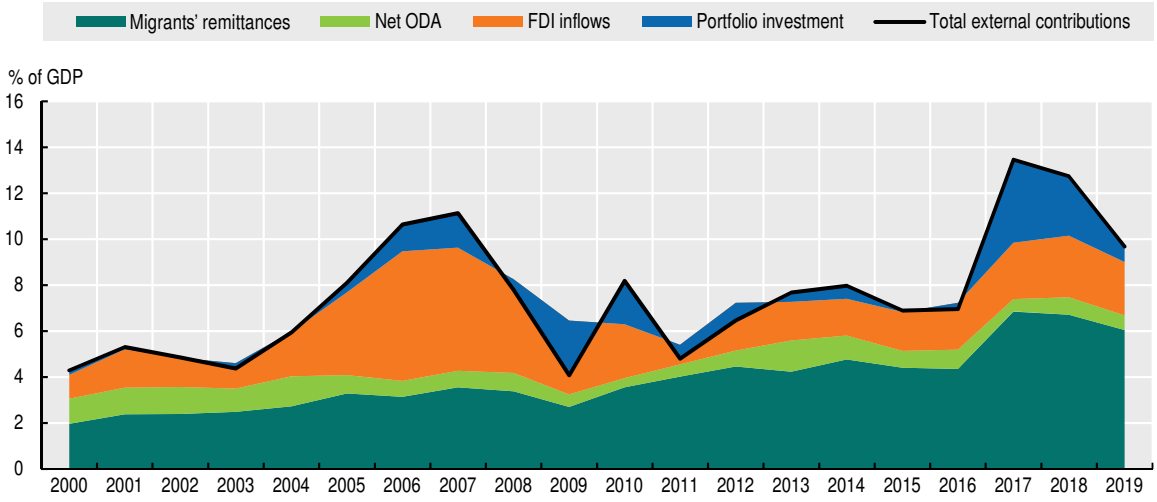
Figure 6.3. **Sectoral distribution of employment in North Africa, 2000-20**



Source: Authors' compilation based on data from the ILO (2020), *ILOSTAT* (database), www.ilo.org/ilostat.
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With the exception of migrants' remittances, foreign financial flows to promote integration in value chains are not only weak but erratic. Upgrading domestic economies costs money. That money can come from the rest of the world if domestic savings are inadequate. The performance of foreign financial flows is erratic (Figure 6.4). Overall, the flows increased from 4.3% to 9.9% of GDP between 2000 and 2019, but were driven by migrants' remittances (averaging 4% between 2000-19), which are intended for domestic consumption rather than productive investment. Foreign direct investment (FDI) and portfolio investments are crucial to GVC development. Certain countries such as Egypt, Morocco and Tunisia have provided for measures to improve the business climate so as to attract FDI. However, performance of FDI flows reflects general volatility. For instance, FDI inflows in North Africa represent 2.4% of GDP on average, compared to 2.9% in East Asia and the Pacific and 4.2% in Europe and Central Asia over the same period (World Bank, 2021a). Consequently, the under-development of industry in North Africa and the resulting low involvement of the region in GVCs can be explained by the weakness and instability of productive external financial flows. Harnessing FDI in industry remains a crucial step towards improving North African countries' positioning in GVCs.

Figure 6.4. **Financial inflows to North Africa as a percentage of GDP, 2000-19**



Source: Author's calculations based on OECD-DAC (2021), International Development Statistics (IDS) online databases, www.oecd.org/dac/stats/idsonline; UNCTADStat (2021), UNCTAD Statistics, http://unctadstat.unctad.org/wds/ReportFolders/reportFolders.aspx; World Bank (2021b), *World Bank Migration and Remittances Data*, www.worldbank.org/en/topic/migrationremittancesdiasporaissues/brief/migration-remittances-data; IMF (2019), *World Economic Outlook Database*, October 2019 Edition, www.imf.org/en/Publications/WEO/weo-database/2019/October (portfolio flows and gross private savings are not included in more recent editions of this dataset).

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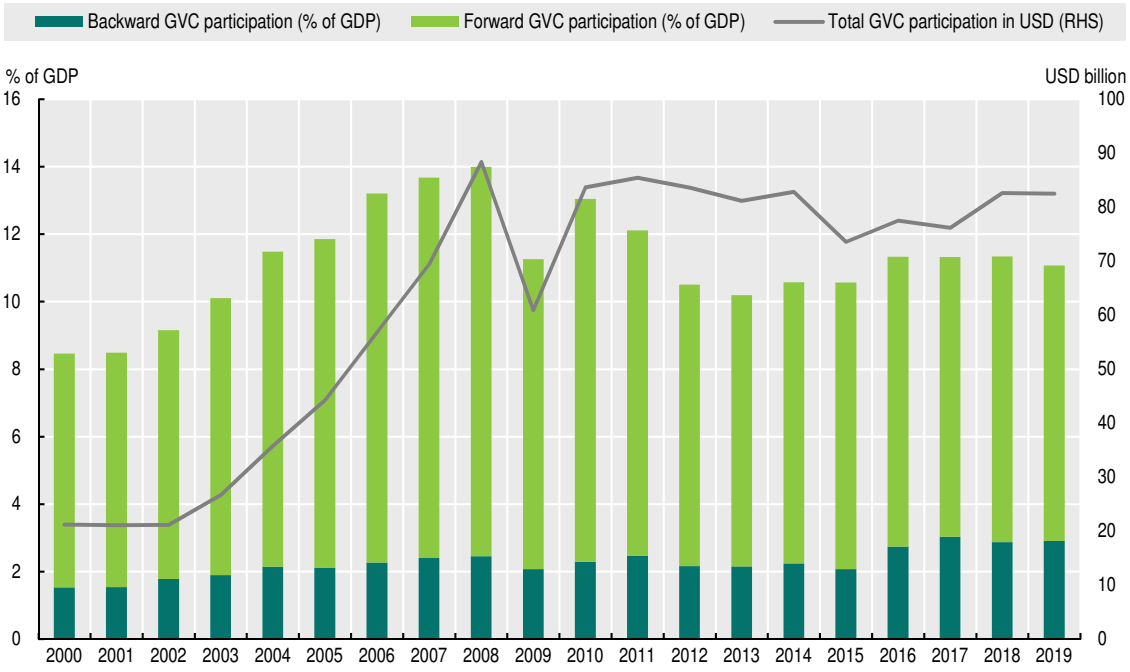
North African countries continue to make slow progress in GVCs

Several factors have resulted in North Africa being better integrated in GVCs than any other African sub-region. Significant investment in infrastructure and manufacturing capacity has enabled flows of goods seamlessly to become part of GVCs in recent years. The region benefits from its proximity to the European Union (EU), and many of its countries have preferential access to the EU and US markets through association and free trade agreements (UNECA, 2016). Although North Africa has not taken full advantage of these strengths, it has been able to satisfactorily position itself in certain GVCs.

However, the fact that GVC participation is predominantly forward rather than backward reduces its GVC participation. While backward participation in value chains refers to the foreign value-added content of a country's exports, forward participation refers to the local value added of third countries' exports. For example, the degree of backward participation of a country that exports unprocessed raw materials is low because its exports contain no foreign added value. However, its forward participation will be higher because, once processed into finished products by third countries, the raw materials will contain a high level of value added by the country that imported the raw materials.

North Africa's forward participation in GVCs increased more rapidly than backward participation in the period between 2000 and 2019. Overall, North Africa's GVC participation was trending upwards (Figure 6.5) until the sharp fall caused by the international financial crisis of 2008. What is more, the countries of North Africa are integrated in the least profitable GVC segments. A high share of the value-added they generate is contained in third countries' exports. Over the 2000-19 period, backward participation represented on average 20% of total GVC participation and forward participation represented 80%. The reason for this lies in the low level of sophistication and diversification of the region's exports. Although it is crucial for North Africa to participate in GVCs, the priority must be to achieve better positioning through stronger backward participation. Developing chains for processing raw materials into finished or semi-finished products would make that objective achievable.

Figure 6.5. **North Africa's participation in global value chains**



Note: GVC = global value chain; RHS = right-hand side. The GVC participation for North Africa reported here is an average of national figures for GVC participation as a percentage of GDP weighted by national GDP expressed in PPP dollars.

Source: Authors' calculations based on data from Casella et al. (2019), *UNCTAD-Eora Global Value Chain Database*, https://worldmrio.com/unctadgvc/.

StatLink https://doi.org/10.1787/888934298643

There are two models of GVC integration. The first is that of Algeria, Libya and Mauritania and involves strong forward participation. These countries' leading exports are raw materials including gas for Algeria and Libya, and iron ores and fisheries products for Mauritania. Almost all manufactured and finished products are imported. In the second model, comprising Egypt, Morocco and Tunisia, exports have progressed from agricultural commodities to manufactured products. The private sector is comparatively developed and has better backward GVC participation. However, although the non-oil-producing countries have diversified, their participation in value chains is not better than that of the oil-exporting countries. During the 2000-19 period, the two countries with the highest average GVC participation were Libya (23%) and Algeria (21%), two oil-exporters. Tunisia and Morocco, on the other hand, which mostly export more complex products such as automobiles, wires and garments, had average GVC participations of 14% and 10%, respectively. Food products account for 49.3% of Egypt's exports (AUC/OECD, 2019), but Egypt's participation in GVCs was only 3% between 2000 and 2019.

Sector/product-based analysis shows that the energy sector dominates North Africa's GVC participation. Exports of minerals/oil represent 42.3% of the total figure, way ahead of services (16.7%) and agriculture (13.7%, Table 6.1). These statistics show that the EVC plays a key role in North Africa's GVC participation. The bulk of oil-exporting countries have several refineries that increase their backward influence on the chain: there are 10 in Egypt, five in Algeria and five in Libya. These three countries are medium-sized players in the global market (ranking 26th, 16th and 10th respectively in terms of oil reserves). The other North African countries are net importers of oil and gas but have significant deposits of their own. In 2020, Libya's proved oil reserves stood at 48.4 billion barrels (2.8% of world reserves), Algeria's stood at 12.2 billion (0.7% of world reserves) and Egypt's at 3.3 billion (0.2% of world reserves) (BP, 2021).

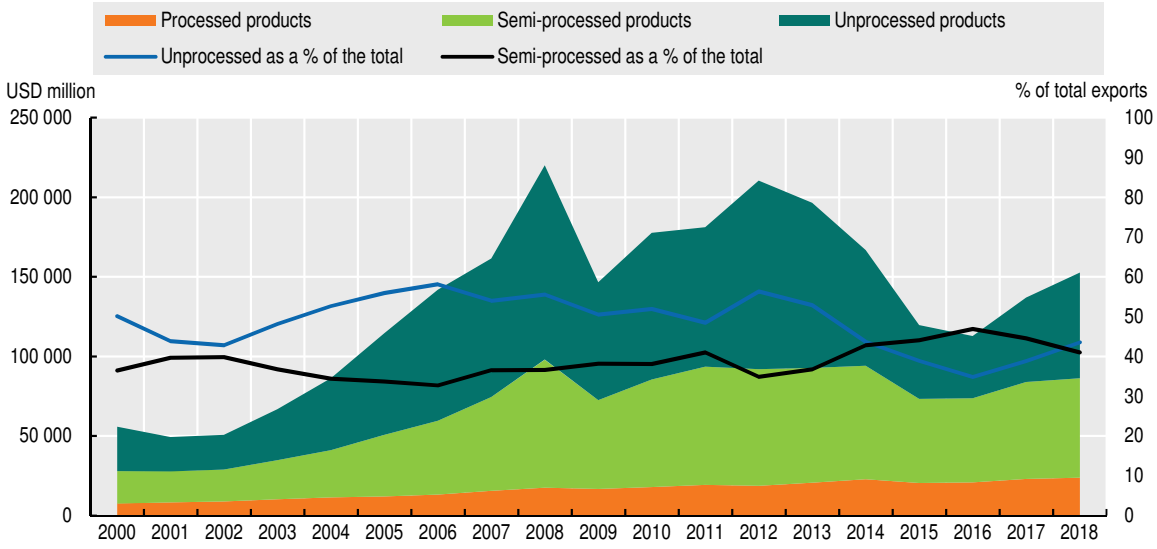
Table 6.1. **Export shares by sector in North Africa (2018, as a percentage)**

Sector	Algeria	Egypt	Libya	Morocco	Mauritania	Tunisia	Annual average
Agriculture	0.8	10.2	0.2	13.6	48.0	9.6	13.7
Chemicals	3.7	10.3	0.3	9.1	0.6	5.1	4.9
Electronics	0.1	3.3	0.0	10.7	0.2	20.9	5.9
Machinery/equipment	0.2	0.6	0.0	1.1	0.4	6.0	1.4
Metals	0.2	4.6	1.1	1.4	0.8	2.9	1.8
Minerals/oil	94.7	16.8	95.7	4.0	35.8	6.7	42.3
Others	0.2	0.3	0.1	0.5	0.3	0.3	0.3
Services	0.0	42.3	0.0	37.7	0.0	20.1	16.7
Stones	0.1	4.9	2.6	0.6	13.6	0.5	3.7
Textiles	0.0	6.5	0.0	12.5	0.1	23.6	7.1
Vehicles	0.0	0.2	0.0	8.9	0.2	4.4	2.3
Overall total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Growth Lab (2021), *Atlas of Economic Complexity*, https://atlas.cid.harvard.edu.

Over the 2000-18 period, exports of processed and unprocessed products grew overall, pointing to the region's growing participation in international trade (Figure 6.6). Exports of unprocessed products, especially oil, fell sharply between 2013 and 2016 because of the supply glut triggered by the collapse in international prices. Between July 2014 and February 2016 the price of Brent crude oil fell by more than 65%, from USD 110 to USD 35 per barrel (INSEE, 2021). The slow-down in North African exports is linked to the economic downturn in China and the emerging countries, and to Iran's return to the petroleum market following the Vienna Agreement signed on 14 July 2015.

Figure 6.6. **Total exports by product manufacturing intensity**



Source: Authors' calculations based on modelling by Rieländer and Traoré (2015) and updated data from the International Trade Database at the Product-Level (BACI) developed by the Centre d'Études Prospectives et d'Informations Internationales (CEPII, 2020).

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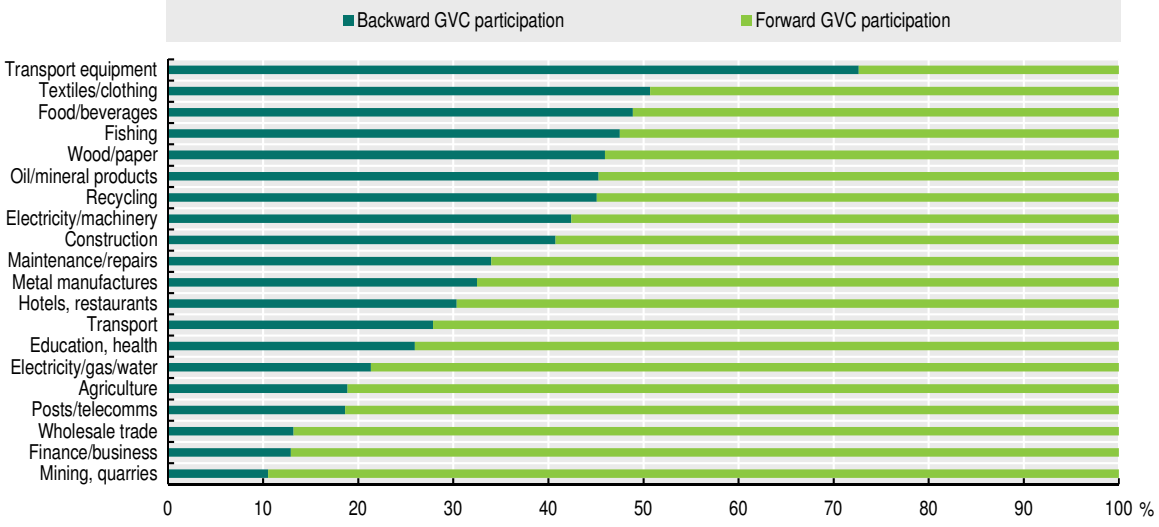
On average, oil is still the area's primary product (40.3%), followed by manufactures (33%), food (13.1%), gold and metals (10.8%). Specifically, petroleum and its derivatives account for 97.7% of Libya's exports and 95.9% of Algeria's (AUC/OECD, 2019). This high dependence on black gold was reflected in a Herfindahl-Hirschmann Index (HHI), a measure of export concentration, of 0.76 for Libya and 0.32 for Algeria in 2018. By contrast,

the export profile is more diversified in Egypt, Morocco (HHI of 0.04 in 2018) and Tunisia (HHI of 0.03 in 2018) – an asset for better integration in value chains.

Additionally, the African continental market is an untapped opportunity to extend trade and develop RVCs. The North African countries do not trade much with each other (4.8% of exports in 2019) or with other African countries (8.2%). Their trade is mainly with Europe (50.9%) and, to a lesser extent, China (5.3%) and the United States (5.8%). Moreover, their integration is inadequate because of the low share of intracontinental trade in intermediate goods (average 7.2% between 2000-19, see Figure 6.A1.1 in the Annex), but also because of the similarity between their economies and the nature of the goods they export and import. Algeria and Morocco appear to have less involvement in intraregional trade in intermediate goods.

In order to boost the post-COVID recovery, North African countries should seek to increase their backward participation in other GVCs where they have a comparative advantage. To that end, they should continue to improve their positioning in those GVCs of greatest strategic importance in terms of employment and value creation. In Egypt, Morocco and Tunisia, services (finance/business, education/health, hotels/restaurants, etc.) dominate growth. Backward participation nears or exceeds 50% in transport equipment, textiles and clothing, and agri-food because of the progress in manufacturing (Figure 6.7). For these sectors, the control of the energy supply is still a major constraint that must be overcome in order to unleash growth and employment.

Figure 6.7. **North Africa's backward and forward sectoral participation in GVCs, 2015**



Source: World Bank (2020a), *World Development GVC Database*, https://www.worldbank.org/en/publication/wdr2020/brief/world-development-report-2020-data.

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Energy still dominates North Africa's GVC positioning

The EVC is decisive for macroeconomic stability in North Africa

Control of the EVC is crucial to the macroeconomic stability of the oil-exporting countries of North Africa. Oil price volatility exposes them to external shocks. Since 2009, the price of a barrel of Brent crude increased steadily to settle above the USD 100 mark, between May 2011 and August 2014, before dipping to USD 30.7 in January 2016. Since

then, the price of Brent crude has risen again and hovers around USD 60 (INSEE, 2021). Libya's black gold revenues decreased from 62.4% of GDP in 2012 to 20.2% in 2016, before climbing again to 43.9% in 2019. The situation is similar in Algeria, where income from oil was 27.3%, 10% and 14.4% of GDP in 2011, 2016 and 2019 respectively (World Bank, 2021a).

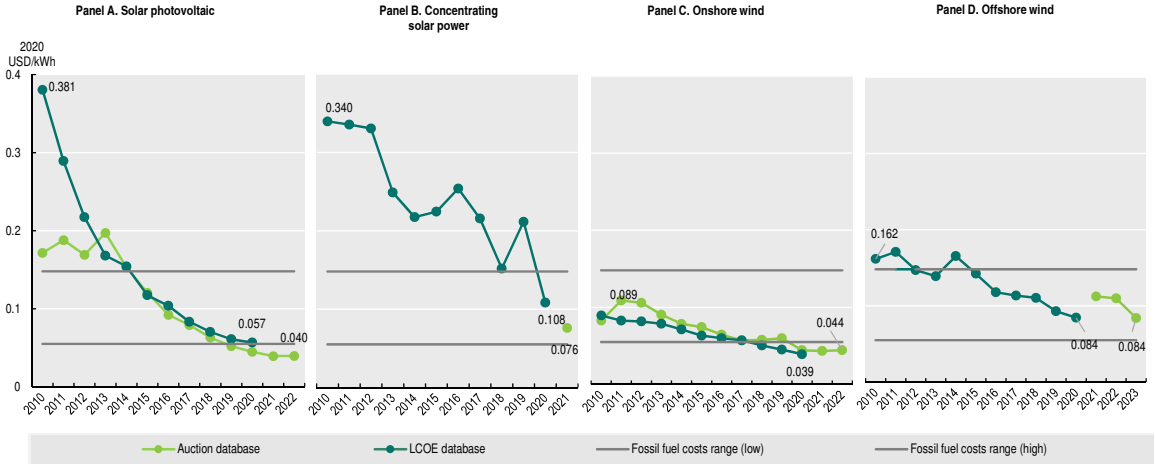
The COVID-19 pandemic has exacerbated macroeconomic imbalances in the oil-exporting countries. In Algeria, where the selling of hydrocarbons finances 60% of the state budget, revenues from exports fell by 40% between 2019 and 2020 because of the COVID-19 crisis (Ecofin Agency, 2021). In Libya, the double whammy of the oil embargo and the health crisis was a heavy blow to public finances. Oil rents fell from USD 22.4 billion to USD 1.7 billion between 2019 and 2020. The abyssal 92.2% drop resulted in a budget deficit (59.3% of GDP) and a current account deficit (52.6% of GDP) (Directorate General of the Treasury, 2021). Lowering export revenues increase the pressure on foreign exchange reserves and undermines the economic and monetary situation. Integration in GVCs for petroleum derivatives would allow diversification of revenue sources and reduce reliance on exports of crude oil.

There is scope for non-oil-producing countries in North Africa to develop value chains based on renewable energy (RE) so as to reduce the energy bills that worsen their trade deficits. The low refinery capacity of North Africa's oil-producing countries affects the energy dependence of non-oil-producing countries such as Morocco and Tunisia. Between 2011 and 2014, Morocco imported on average, 90.6% of its energy consumption, compared to 28.6% by Tunisia (World Bank, 2021a). In 2015, Morocco's energy imports accounted for 6.5% of GDP despite the drop in world prices (OECD, 2017). In 2019, Morocco imported the bulk of its butane gas consumption from the United States (44%) and Europe (40%), followed by Algeria (16%). Its petrol supplies come mainly from Europe – Spain, Italy, the Netherlands (87%) – and Russia (12%) (El Mouden and El Harrak, 2020). The region's oil and gas needs are met by imports from Italy, Kuwait, Russia, Saudi Arabia, Spain and the United States (UNECA, 2018). Moreover, for non-oil-producing countries, imports of petroleum add to the trade deficit: Mauritania (-7.1% of GDP in 2019), Tunisia (-6.3% of GDP in 2019) and Morocco (-6.2% of GDP in 2019) (IMF, 2021).

For both models of GVC integration, greater deployment of RE would appear crucial to reduce structural dependence on world oil prices. Algeria, Egypt and Libya are among the 15 countries that have the largest bills for energy consumption subsidies, at USD 15.8 billion in Egypt in 2019, USD 13.1 billion in Algeria and USD 4.5 billion in Libya, amounting to 5.2%, 7.6% and 16.7% of their respective GDPs (IEA, 2019). In Morocco and Tunisia, the energy import bill weighs heavily on the external balance.

The objective of deploying RE could be achieved more easily because of the steadily falling costs of RE generation, which are close to those of fossil fuels. Wind and solar power cost between USD 0.07 and USD 0.18 per kWh, compared to USD 0.05 to USD 0.17 per kWh for fossil fuels (IRENA, 2021). The downward trend is also evident in other RE sources, as Figure 6.8 suggests. With this in mind, the Mediterranean Solar Plan (MSP) for North Africa forecasts cumulative capacity for export to Europe of 22 000 MW by 2030 (UNECA, 2018).

Figure 6.8. **Trend in the global weighted-average LCOE and PPA/auction prices for solar PV, onshore wind, offshore wind and CSP, 2010-23**



Source: IRENA (2021), *Renewable Power Generation Costs in 2020*, https://www.irena.org/publications/2021/Jun/Renewable-Power-Costs-in-2020.

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The EVC, which is cross-cutting in nature, not only acts as an input in other value chains but also improves their productivity. North African countries are integrated in many GVCs: the most important of these are the textile, agri-food, automotive and aeronautics GVCs. Developing and controlling the supply of low-cost energy encourages production units that are more competitive and productive as well as being conducive to job creation. For example, petroleum derivatives (packaging) make it possible for the fuels/minerals value chain to supplement the agri-food value chain. Similarly, hydrocarbon derivatives (kerosene, gasoline, diesel) support the aeronautics and automotive value chains. Finally, control of the energy supply is a decisive criterion for foreign investors. The EVC is essential for GVC upgrading.

Renewable energies provide a significant platform where sustainable growth and job creation, both objectives for North Africa, can be accommodated

The renewable energy value chain (REVC) is of growing interest in view of environmental constraints. Renewable energies, especially solar energy, are the alternative to fossil fuels. North Africa is part of a world strategy to supply Europe with clean energy, and the projections are for clean energy to comprise at least 20% of the energy mix by 2030 (UNECA, 2012). The region has immense potential for solar thanks to its annual 2 000-3 600 hours of sunshine, compared to 1 500-2 000 hours in non-Mediterranean Western Europe, Canada and Russia. RE endowments have already enabled North Africa to make progress under well-constructed, precise national programmes for the next decade (Table 6.2). Between 2010-20, RE capacity rose by more than 40% to 10.3 GW in the sub-region (IEA, 2020).

Table 6.2. **Renewable energy capacity in 2019 and objectives for 2030 in North African countries**

	Algeria	Egypt	Morocco	Libya	Tunisia
Cumulative capacity	0.7 GW	5.5 GW	3.7 GW	0.01 GW	0.4 GW
Objective for 2030	22 GW	54 GW	10 GW	4.6 GW	2.8 GW

Source: IEA (2020), *Clean Energy Transitions in North Africa*, https://www.iea.org/reports/clean-energy-transitions-in-north-africa.

North Africa already has an edge in RE development. In 2016, Morocco opened a large solar power station (580 MW) in Ouarzazate. The country's hybrid thermal and solar power station in Aïn Beni Mathar has a capacity of 470 MW, of which 20 MW is solar. In 2018, Algeria had 24 photovoltaic power stations with a total capacity/power of 344 MW. Tunisia opened its first solar power station in 2019 in Tozeur with a capacity of 10 MW, and, in the same year, Egypt started operating the Benban solar farm, capacity 1 650 MW. In terms of wind energy, Morocco has 10 farms including Tarfaya power station (301 MW). Egypt has three wind farms (Hurghada, Zafarana and Gabal El-Zayt), whereas Tunisia has nine and plans to construct others such as Tbaga (Cap Bon), financed by the French Development Agency (AFD). Algeria launched its first wind farm (10 MW) in June 2014.

Additionally, national programmes set clear targets for the coming decade. According to Morocco's National Electricity and Drinking Water Office (ONEE), in 2020 the country had an installed capacity of 10 557 MW, including 36.8% in RE, following the investment of MAD 3.5 billion (Moroccan dirhams) (USD 390 million) that same year. The aim is for 52% of installed power generation capacity to utilise renewable sources by 2030 and, by the same date, to reduce energy consumption by 15% compared to 2016 levels. Tunisia has signed several public-private partnership (PPP) contracts to boost the share of RE from 12% to 30% of power generation by 2030. Meanwhile, in 2014, Egypt launched a national strategy to diversify its energy mix that aims to raise its share of RE to 20%, then 42% of domestic production by 2022 and 2035, respectively.

The REVC is a positive catalyst for skilled jobs and will help to improve young people's employability. It contributes both directly and indirectly to job creation, a major challenge faced by the region. The establishment of solar and wind farms gives rise to new, often skilled jobs (Box 6.1). Studies suggest that RE creates close to three times as many jobs per investment unit as fossil fuels (IRENA, 2020). However, the greatest contribution to employment is likely to be indirect (Box 6.1), namely to skilled jobs, because the new production niches encouraged by RE involve innovative sectors and/or fairly complex goods. For instance, the solar energy value chain is fairly complex and requires expertise in advanced technologies, including the photovoltaic industry, the installation of photovoltaic panels, solar condensation and the transformation of solar energy into electricity (UNECA, 2018). In this light, North Africa's participation in the REVC is along forward activities. For instance, domestic businesses import equipment either as complete units or as individual components for assembly into photovoltaic panels and installation.

Box 6.1. **REVC's job creation potential in North Africa**

REVC activities and technology transfer can create direct jobs in five chain segments: manufacturing, construction, installation, operation and maintenance. Direct job profiles throughout the photovoltaic solar value chain are described in Figure 6.9. Indirect (sales, consulting, training) and induced jobs are also created, which are linked to the demand in industries that may be independent of RE. Ignoring for a moment the jobs created in related sectors, the African Development Bank (AfDB) estimates that 1 MW of renewable energy generates five temporary jobs in the starting or construction phase, and two sustainable jobs, mainly in maintenance (Table 6.3). Another promising field is the energy efficiency in the building sector, which creates even more jobs than the production or installation of solar boilers, the installation of photovoltaic systems, wind power or concentrating solar power stations (AfDB, 2016). However, jobs in the RE sector are vulnerable because of their reliance on public subsidies.

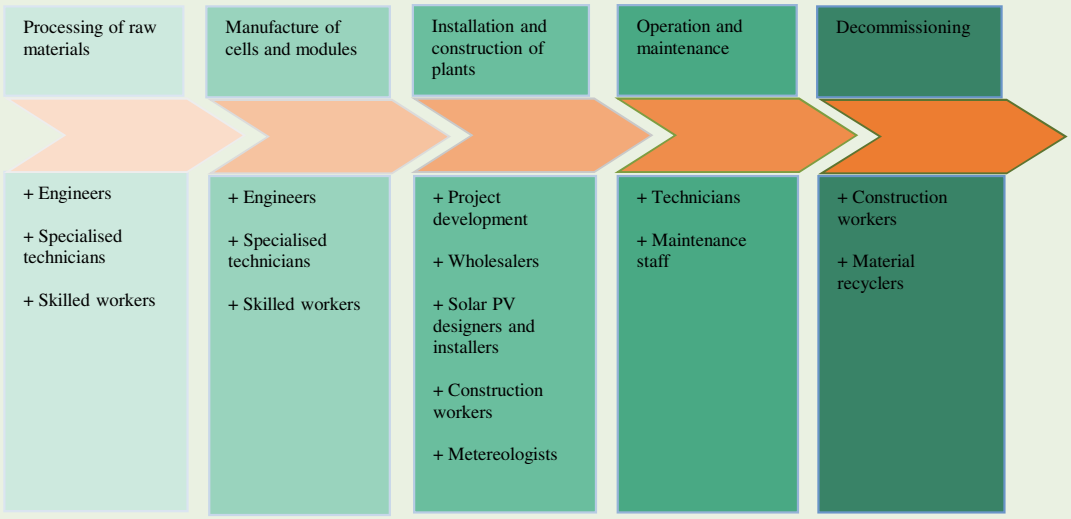
Box 6.1. **REVC's job creation potential in North Africa *(continued)***

Table 6.3. **Current and potential jobs in the RE sector**

Technology	Morocco	Tunisia	Algeria
Current jobs in the RE field (all technologies)	3 000 approx.	3 350 (1 445 direct, 975 indirect, 930 in the energy efficiency sector)	3 000 (direct and indirect)
Solar-thermal energy/STE (projected jobs)	- 920 permanent jobs by 2020, 1 600 by 2030 (PROMASOL Programme); - 5 000 (Blohmke et al., 2013)	No information	No information
Photovoltaic – PV (projected/potential jobs)	23 000 (Blohmke et al., 2013)	4 000 (direct and indirect)	No information
Wind energy (projected/potential jobs)	46 000 (Blohmke et al., 2013)	No information	No information
Projected/potential jobs in RE (all technologies)	35 120 by 2020	7 000-20 000 by 2030	137 000 (direct and indirect) by 2025; 252 000 by 2030

Source: AfDB (2016) and Blohmke et al. (2013).

Figure 6.9. **Direct employment along the full photovoltaic solar value chain**



Source: Compiled by the authors based on data from IRENA (2011) and GGGI (2020, Annex 6).

Ongoing constraints in developing the EVC in North Africa

Structural barriers hamper the development of the EVC

The institutional and legal framework, combined with governance issues, act as barriers to establishing energy-based RVCs in North Africa. Despite reforms to the institutional, legislative and regulatory frameworks in Morocco, Algeria and Tunisia, work remains to be done to strengthen the institutional frameworks in Egypt, Libya and Mauritania with a view to promoting RE and energy efficiency. Differences in the costs and complexities of RE technologies make it impossible to establish a feed-in tariff that ensures efficiency in domestic markets. Moreover, the absence of an intra-regional standard on harmonisation of feed-in tariffs makes the RE market uncompetitive and limits cross-border energy transfers. Governance and corruption, especially in the petroleum sector, are unfavourable to productive investment aimed at establishing

RVCs. By way of illustration, the oil-exporting countries score comparatively poorly on business climate: the *Doing Business* index ranked Algeria and Libya 157th and 186th in 2020 respectively, compared to Morocco (53rd) and Tunisia (78th).

Interconnected production plants are required (backward and forward) in order to expand energy RVCs. Even though Tunisia and Morocco have relatively high trade integration indexes (0.78 and 0.55 respectively) because of their trading relationships with sub-Saharan Africa, North African regional integration is still too weak to enable full RVC development. The region has a trade integration index of 0.48 compared to a productive integration index of 0.44, and indexes of 0.50 and 0.43 for infrastructure and free movement of people, respectively (AU/AfDB/UNECA, 2019).

Although infrastructural development in North Africa is relatively high, the region is held back by the lack of EVC-specific infrastructure. Transport and distribution of fossil fuels are challenging because pipeline penetration is inadequate and storage capacity is limited. Theft, a common occurrence along the entire length of the pipelines, can interrupt and reduce supply flows. Often, pipelines cross dangerous areas where groups of insurgents may damage them or take control of the supply (Hafner, Tagliapietra and de Strasser, 2018).

Poor performance in logistics is a major constraint to the emergence of the EVC, which requires significant quantities of semi-finished products to be transported and stored. The connectivity of roads and ports in the region is inadequate, diminishing the likelihood of forming direct links between production sites in different countries, which is crucial to establishing RVCs. The average Logistics Performance Index in North Africa is 2.5, and customs clearance procedures are inefficient. Transhipment costs, difficulties encountered in transit and the absence of harmonised regulations also remain burdensome (AUC/OECD, 2019).

North Africa's delayed adoption of new RE technologies and the size of fossil fuel subsidies are major constraints on the development of RE. Although the costs of RE have fallen in recent years, the industry is not yet commercially mature to enable economies of scale, except in the wind sector. The technology gap, combined with imports of RE components and under-developed innovative, preferential finance facilities, prevent North Africa from improving its positioning in REVCs.

The expansion of the energy RVC in North Africa suffers from poor progress in energy efficiency and the rise in emissions. Despite their efforts, countries have not yet managed to fully unlock the potential benefits of efficient energy use. Additionally, emissions from the hydrocarbons sector constrain their competitiveness. The average annual growth in CO_2 emissions between 2009 and 2019 was 4.2%, 2.3% and 4.1% in Algeria, Egypt and Morocco, respectively (BP, 2021). Natural gas flaring, a frequent occurrence in Algeria and other countries, is a heavy producer of greenhouse gas emissions. Restricting flaring could provide opportunities for regional co-operation and encourage the emergence of a clean energy RVC.

COVID-19: A conjunctural constraint to revitalise the EVC

The COVID-19 pandemic disrupted EVCs in many ways. It affected supply and mobility operations through depletion of the materials, capital and inputs required for production and processing. The depletion is regarded as an additional shock to energy-based economies, as it restricted the resources needed to manage the health situation and undermined the opportunities for recovery and future growth.

FDI fell sharply during the health crisis because of social distancing measures and lack of investor confidence in regional economies. The latest forecasts show a drop of

between 25% and 30% for Africa. The investments that are most affected are in energy and primary industries as a result of the fall in petroleum prices and the difficulties faced by airlines and tourism (UNCTAD, 2020). Foreign direct investment in energy is estimated to have fallen by 20% in 2020 as a whole in the region (IEA, 2020), slowing integration in energy GVCs.

The combination of demand and supply shocks from the COVID-19 pandemic has had repercussions on production and trade in oil-exporting countries. The dramatic fall in international prices, estimated at 70% between January and April 2020, led to one of the most serious shocks to the energy market. Net revenue in Algeria and Libya plummeted by 75-90%, severely straining these countries' scope for countering the economic damage caused by the pandemic (IEA, 2020) and further undermining involvement in the EVC.

Decarbonisation is a significant challenge that will continue to disrupt energy demand worldwide. European giants that specialise in the automotive and aeronautic industries have established new manufacturing strategies that take the ecological challenges into account. Green energy will be an opportunity for several countries as part of the process of reshoring value chains, including in North Africa. This will boost the potential for certain niches in the mechanical and electronics industries that are already in place in oil-importing countries.

Demand for power has fluctuated widely, especially for industrial and commercial activities, owing to health restrictions. Disruption of the power market has had repercussions for production and trade in various industries, especially in countries that are net importers of petroleum. By contrast, in some of those countries, the fall in energy prices has led to a fall in the cost of power generation. In Tunisia, for example, the energy gap fell from USD 1.9 billion to USD 1.8 billion between 2019 and 2020 (INS, 2020).

Although less affected by the health crisis, the REVC has experienced some disruption. The depth of the crisis affected the production of components and the transportation of equipment rather than project management or maintenance. Containment measures and restrictions at borders led to the temporary closure of several factories manufacturing materials used to generate solar and wind power. Moreover, port closures and flight bans affected imports of batteries, solar panels, inverters and smart meters that are needed in the REVC.

Finally, the health crisis triggered a significant shock for SMEs in the solar energy sector. In particular, SMEs specialising in the photovoltaic industry experienced significant delays in delivery times. Residential solar panel installers faced ever-weakening demand because of the fall in purchasing power and consumer uncertainty. Maintenance activities were partially affected by restrictions on movement.

Nonetheless, there are opportunities for the integration of North Africa into energy value chains

Despite the threats, COVID-19 is an opportunity to develop EVCs

COVID-19 has encouraged reshoring and/or regionalisation of production activities, paving the way for North African countries to become better integrated in regional trade. The quest for greater resilience, reliability and autonomy in EVCs makes North Africa's role inevitable. One of the key aspects of its involvement will be in the development of clean energy, an undertaking that is likely to have a ripple effect on the energy programmes of the countries in the region. The recovery plan for Europe announced by the EU illustrates this perfectly (Box 6.2).

Box 6.2. **Recovery plan for Europe and EVCs for North Africa**

The plan is the largest recovery package ever financed in Europe. A budget of EUR 2.018 trillion has been allocated to rebuilding a post-COVID-19 Europe, as a greener, more digital, more resilient Union. The package focuses particularly on fighting climate change, earmarking 30% of the EU funds to it – the highest share ever (e.g. up to EUR 30 billion for hydrogen).

The plan regards co-operation with neighbours on the southern shores of the Mediterranean as a key to success, a factor that could encourage the countries of North Africa to prioritise RE and hydrogen (Moreno-Dodson, 2020). Certain key factors could help these countries to promote the integration and development of EVCs, such as their strategic geographical location, rich resource endowments, a diversified mix of energy sources, and the necessary transmission infrastructure to get started.

Thus Europe's search for strategic autonomy in energy, through the recovery plan, will increase North Africa's attractiveness. This could take the form of agreements on production-sharing or trade facilitation, or investment in physical infrastructure and support the mobility of factors that are key to RVC development.

Source: EU (2021), *The EU's 2021-2027 long-term Budget & NextGenerationEU*.

The reorganisation of GVCs is an opportunity for regional structural transformation and the development of EVCs. In their "Great Reset" agenda, Schwab and Malleret (2020) take the view that supply chains will be shorter, businesses will ensure they are no longer reliant on a single country or a single business in another country, and new opportunities will emerge that require significant investment in energy, a vital feature in many sectors and value chains (including pharmaceuticals, health materials and telecommunications). There is a genuine opportunity for North African countries to diversify, especially those that are most deeply rooted in globalisation and rely on GVCs to help them further industrialise; attract investment opportunities and gain market access; and benefit from technology acquisition and transfer (Egypt, Morocco and Tunisia in particular). For these countries, the development of specific REVCs will have the advantage of diversifying the risks and remedying the structural weaknesses of the region's economies. The industries that could be involved in the REVCs include phosphates and their chemical by-products, agri-food, clothing, and oil and gas processing.

The pandemic has demonstrated the importance of digital technology in the management of GVCs, including EVCs. Digitalisation is increasingly shaping North African countries' integration in GVCs. The COVID-19-induced expansion of digital technologies has led to improvements in supply chain management and monitoring, including over long distances. Therefore, the presence of start-ups specialising, for example, in the development of input delivery solutions and/or the provision of insurance and finance may bolster the North African countries' integration in EVCs.

Digitalisation also offers an opportunity to develop REVCs. Poor regional integration in North Africa and the existing inadequate and unresponsive interconnections between the region's economies have exacerbated the impact of the COVID-19 pandemic on supply chains. Clearly, greater digitalisation of procedures encourages interconnections. New electronic means of trading with neighbours and reduced commercial costs make digitalisation a vehicle for developing RVCs, including in energy.

The pandemic has also increased the need to speed up the energy transition so as to ensure a sustainable recovery and a more stable, more resilient economy in the future. The new environmental mechanisms introduced in the immediate aftermath of the crisis

offer an opportunity to achieve economic transformation and technological innovation in North Africa. This would involve developing solar and wind energy technologies, for example by implementing plans for sea-water desalination plants powered by RE sources, while jump-starting ecological public transport systems.

The AfCFTA is good news for better integration in EVCs

The AfCFTA can help develop RVCs by removing barriers to trade, thus helping to support the industrial strategies of the region's countries. The continental free trade agreement can encourage each country to evaluate their comparative advantages and bolster their industrial development. This would enable them to replicate successful business models and spread them across the region, thereby creating quality jobs in leading industries. Morocco has already managed to develop a quality fertiliser industry and has signed trade and investment agreements with sub-regional organisations in sub-Saharan Africa such as the Community of Sahel-Saharan States (CEN-SAD) and the West African Economic and Monetary Union (WAEMU). Under the AfCFTA, the Moroccan experience can be replicated, and energy-based processing industries in North Africa could be developed, thus improving the integration of the region's countries in value chains.

The AfCFTA may also provide the impetus for the countries in the region to align their economic policies, encouraging the development of energy RVCs. The agreement could prove to be an opportunity to streamline and harmonise non-tariff barriers, including sanitary and phytosanitary rules and/or standards imposed on the oil and gas processing industries (chemicals and plastics industries, synthetic fibres and fabrics, etc.). It may also result in the removal of quantitative restrictions on imports of the components required for the photovoltaic industries (modules, panels, etc.). Finally, the agreement may encourage the regulatory harmonisation required for investment in solar energy (solar power stations for example). The ensuing convergence of economic policies would boost the development of RVCs in the oil and natural gas sector as well as in the RE sector.

Economic liberalisation within the framework of the AfCFTA may also result in efficient resource allocation, a move that would have favourable repercussions on the development of EVCs. Liberalisation should facilitate the flow of skills and technology transfer, encourage complementarity in infrastructure, reduce reliance on traditional markets (including the European market) and provide genuine opportunities for growth, especially for local businesses, which will be able to diversify and/or upgrade their products. If liberalisation occurs, it will allow oil and gas processing industries to develop in oil-exporting countries, and will provide a kick-start to industries associated with the assembly and installation of photovoltaic panels or the development of solar energy (production of silicon, wafers and photovoltaic cells) in petroleum-importing countries.

Finally, the AfCFTA may trigger the expansion of RVCs in North Africa by providing investment opportunities. Successful implementation of the AfCFTA would help to reduce production and processing costs, especially in energy-intensive manufacturing. Implementation of the agreement would have a favourable impact on, *inter alia*, trade and investment as a result of the relaxation of rules of origin, a re-consideration of export prohibitions, a review of investment and competition policies and more flexible property rules. Such trade and investment could promote the development of EVCs.

Appropriate public policies are a crucial stimulus to revitalise energy RVCs and GVC integration.

The countries of North Africa can count on solid PPP frameworks. Over 75% of installed renewable capacity in North Africa was deployed under policies that are

attractive to private stakeholders (IEA, 2020). This includes competitive auctions between independent power producers (IPPs), feed-in tariffs and long-term corporate power purchase agreements.

Algeria has gradually established regulatory incentives for RE development, creating the *Fonds national pour les ER*, or National Fund for Renewable Energy (NFRE) in 2009, to which 1% of petroleum royalties has been allocated since 2011. The adoption of two Executive Decrees in 2017 (No. 17-98 and No. 17-204) requires that RE generation projects are distributed through calls for tenders and auctions.

Law 13-09 of 2010 introduced gradual liberalisation of the energy market in Morocco. The law authorises the production and export of electricity by any private producer provided it uses RE sources. The Moroccan Agency for Sustainable Energy (MASEN), established in 2012, is a "one-stop" government establishment that organises auctions, facilitates the land and infrastructure for the projects and issues the permits. In Morocco, competitive auctions among IPP for CSP have decreased bid prices by 25% from USD 190/MWh for Noor I Ouarzazate in 2012 down to USD 140/MWh for Noor II in 2015 (IEA, 2020). Between 2016 and 2019, competitive auctions drove down solar PV bids to USD 49/MWh for Morocco's Noor PV I and to USD 24/MWh in Tunisia.

The development of regional integrated production networks is necessary in order to boost the advantages of EVCs

Joint public policies can be deployed to promote the region as a platform for power generation and export. The first step is for the regional integration agreements already established to become operational, namely the Greater Arab Free Trade Area (only Mauritania is not a member) and the Agadir Agreement signed in 2004 by Egypt, Jordan, Morocco and Tunisia. These agreements provide for a degree of equal treatment in terms of regulation of the region's various trading partners. The ensuing removal of tariff and non-tariff barriers will encourage the establishment of oil and gas processing facilities in exporting countries and will facilitate the establishment of plants to manufacture the components to develop solar energy in the petroleum-importing countries.

These regional policies will encourage economic stakeholders to take advantage of the segmentation of production chains and meet specific needs of their economies. Under this framework, countries are called upon to develop clusters that encourage bridge-building between complementary production plants. Examples include areas where there are plastic-producing plants and composites alongside industries working in the automotive and aeronautics fields; or plants manufacturing synthetic fibres and fabrics alongside textile factories; or plants producing chemicals and fertilisers close to companies producing gas and phosphates. In Egypt, for example, industrial facilities in Ain-Sokhna are in close proximity to oil and gass processing plants (chemicals and pharmaceuticals, plastics, etc.).

The clustering of logistical platforms, support services, research centres and other relevant facilities would also enhance area-based approaches and stimulate positive, collaborative synergies. In this context, policies to attract global industrial partners can build energy-generating capacity in North Africa. This would involve, for example, attracting investors that specialise in oil refining or gas processing (notably in oil-exporting countries), together with multinationals specialising in the production of the wafers, photovoltaic cells and panels needed for solar energy (namely in countries that are net importers of oil). Similarly, the establishment of co-production platforms where foreign businesses are invited to set up production and processing subsidiaries in the region would be an interesting step towards establishing EVCs. Tanger-Med, for instance, is the ultimate industrial platform for domestic and international supply chains

linked to the RE sector. Its strategic location close to the Strait of Gibraltar makes it an essential gateway to cross-border energy trade. Tanger-Med has positioned itself as an industrial ecosystem favourable to foreign investors by developing activities associated with RE (e.g. construction of wind turbine blades by Siemens).

Support to develop extractive industries and oil and gas processing can be provided by establishing special economic zones (SEZ). Such zones allow local businesses to take advantage of the expertise and know-how of multinationals, as well as more diversified structures of production and trade. More specifically, public policies that encourage more integration with leading firms could result in greater product complexity, potentially resulting in greater profits and stronger backward and forward integration. In May 2020, Egypt's General Authority for Investment and Free Zones (GAFI) announced it had authorised licences for projects in the natural gas industry in accordance with free zone regulations, thus allowing the development of companies producing fertilisers and petrochemicals. Additionally, tax incentives by way of temporary reductions of certain types of investment, tax waivers, tax concessions and tax credits were awarded to Chinese investors established in the Suez SEZ. As a result, Egypt has been able to progress in the extraction value chain, after becoming a manufacturer of oil rigs and joints for drilling platforms, and is servicing groups operating on its territory.

The arrival of one or more multinational firms specialising in photovoltaics, followed by a rapprochement with local stakeholders, would likely help to develop this RVC. Encouraging manufacturers of photovoltaic panels to establish subsidiaries in at least one of the countries in the region would help them to break into the market. In Egypt, the use of tax and other incentives to attract recognised manufacturers of wafers, photovoltaic cells and panels made it possible to develop the industries required for the solar photovoltaic industry value chain, including steel, glass and pumps manufacturing.

Education and training reforms are vital to build production capacity and improve integration in the EVC

Higher-quality human capital, compliance with international standards and specialised skills are pre-requisites for GVC and RVC upgrading. To achieve this, investment in training will have to target technical and managerial skills as part of exchange programmes between energy multinationals and their local partners. Also, authorities must support research and development (R&D) because the ability to innovate is crucial in the extractive industries. Significant skill needs in RE remain. Applied research programmes for the energy sector and energy development need to be set up. In that respect, Tunisia's technology clusters, which are regarded as training centres of excellence, are an experiment that should be widely rolled out across North Africa. The clusters provide platforms for innovation to assist businesses and enable them to benefit from technological progress.

The EVC requires the upskilling of the workforce, area in which North African countries still lag behind. For example, high skill levels are vital for the development of the REVC in the region. The need is particularly pressing for solar researchers, wind farm project managers and operators, geothermics technicians, energy modellers, and climate and thermal solar energy engineers (AfDB, 2016). Work has been done in North Africa in the past few years to establish R&D structures so as to develop research in RE, encourage energy efficiency and foster exchanges between businesses.

Government authorities can establish training centres specialising in energy. The regional centres, which would produce a pool of skilled workers that the region's private-sector employers could tap into, could bolster integration in regional and global energy value chains. They would enable countries to achieve economies of scale, specialise,

and develop comparative advantages in energy. Engineering and project management should be the focus for extractive economies seeking greater integration in the oil and gas value chains. Economies that want to improve their positioning in REVCs need to build capacity through centres for technology, engineering and innovation. For example, Morocco has established institutes for RE training and energy efficiency (IFMEREEs) that operate according to a management model commissioned by the State from professionals in the sector. Such innovative approach gives businesses a key role in vocational training based on skill acquisition and work-study programmes involving hands-on experience and classroom learning.

The countries in the region can also bolster their education and training partnerships, especially those related to green energy and the environment. Collaborations of this kind make it possible to expand technical and professional training networks with partners (especially in Europe) and to reduce the costs of investment and training in the specialist area of RVCs. The Western Mediterranean Forum for Education, Research and Innovation (part of the "5+5 Dialogue"), which brings together education ministers, proposes specific programmes in line with prevailing priorities in scientific research, innovation and higher education (Moreno-Dodson, 2020). Another example is the Regional Center for Renewable Energy and Energy Efficiency (RCREEE) that proposes capacity-building programmes at the request of countries in the Middle East and North Africa region (MENA) that are seeking to build and strengthen their skills, qualifications and expertise in RE and energy efficiency.

The education and training systems in North Africa must evolve so as to ensure better control of EVC integration. There should be a shift towards mixed systems that combine general and vocational education. In the same vein, vocational training in energy and study programmes with private-sector involvement need to be developed, together with expanded use of apprenticeship models that give young people an opportunity to learn while working (World Bank, 2020b). Excellence pathways should also be encouraged to include work-study programmes. The existence of domestic R&D structures is apt to facilitate entry into EVCs, for example the Renewable Energy Development Center (CDER) in Algeria, the Center for Energy Research and Technology (CRTEn) in Tunisia and the *Institut de Recherche en Énergie Solaire et en Énergies Nouvelles*, or Solar and New Energy Research Institute (IRESEN) in Morocco. These structures are part of national strategies, while global technological, economic and social progress requires a regional response. The financial and human resources needed can be met only as part of a regional R&D strategy, in partnership with similar structures in the North (UNECA, 2012).

A more flexible, more mobile workforce can build human capital and thus help to develop the REVCs. Mobility provides easy access to specialised labour, a factor that encourages efficient use of available human resources and has a positive impact on sectoral investment (David and Marouani, 2017). It also drives demand by increasing inflows of human capital (Plaza and Ratha, 2011). Public policies that encourage mobility are therefore required in North Africa, especially harmonisation of education, social protection and employment policy in the region. Despite divergent policies in the region, some initiatives are in place in the form of membership of international technical bodies, such as the World Association of Public Employment Services (WAPES) whose aim is to bolster co-operation, knowledge exchange between countries. Its members include Tunisia, Algeria, Mauritania and Morocco.

Trade facilitation and harmonisation of trade policies are crucial to EVC development

A trade policy where the rules of the game are clearly set out can stimulate intraregional trade, and thus encourage the establishment of RVCs. To this end, additional measures are vital: countries need to remove barriers to the free movement of goods and services in

the region, simplify customs and border control procedures, and sign bilateral agreements on the mutual recognition of conformity assessment for high added-value products (AUC/OECD, 2019). Mutual recognition of conformity assessments allows for the removal of technical barriers in the EVC, including environmental, security and health standards. Article 6.2 of the Free Trade Agreement between Morocco and the United States could be replicated: it provides that goods should be cleared by customs, to the extent possible, within 48 hours of arrival. It requires goods to be released at the point of arrival, without interim transfer to warehouses or other locations.

North African countries should prevent unfair competition, especially in respect of trade in intermediate goods. They are urged to get rid of non-tariff barriers, which are often used for non-economic purposes (boosting profit, supporting cartels, etc.), and to introduce a mutual recognition system for technical, sanitary and phytosanitary standards. This encourages trade in intermediate goods utilised in the oil and gas processing industries, and trade in the materials required to manufacture, assemble and install the equipment needed to generate RE. Countries are also called on to harmonise their tax systems or at least enter into co-operation agreements for subsidy/compensation schemes. The reform of the hydrocarbons compensation system in Egypt and the introduction of the mechanism for the automatic adjustment of fuel prices in Tunisia could be a good starting point for the region as a whole.

The standardisation of trade facilitation measures is required to defragment the production process in North Africa. This would entail the development of trade corridors, the introduction of common border posts, co-ordination of trade documents and the establishment of common agreements on regional transit. Harmonisation of customs regulations could enhance the trade potential of the entire region. The general roll-out of the UNI-PASS in Algeria is relevant here. The system originated in South Korea and helps to reduce customs clearance times, limit fraud, enable the establishment of a one-stop shop for the exchange of electronic data between foreign trade operators, and digitalise customs procedures.

Digitalisation can facilitate trade and value chain development in North Africa. It favours intra-sectoral integration, decarbonisation of value chains and the development of intra-regional trade. In such an environment, it is important to establish a one-stop shop to found businesses, speed up import and export procedures for the goods required in EVCs and launch online platforms to certify imported goods. Online issuance of licences restricts direct contact with the authorities and reduces corruption. PortNet, in Morocco, is a one-stop shop for external trade procedures. It is a national platform that integrates the information systems for the entities involved, improves supply chain efficiency and accelerates the movement of goods through automation of procedures while reducing the costs and delays of logistical operations (UNECA, 2020).

The development of transport infrastructure, logistics and networks is a driver for regional integration and EVC consolidation

Improving road transport capacity must continue to be a priority in North Africa for the EVCs. Accordingly, public policies should resolve issues of inefficiency and lack of capacity that are often reflected in hesitancy among businesses operating in the energy sector. In particular, this involves setting up regional and national programmes covering projects for transport infrastructure and logistics. Major trans-African road projects are under way, including the Central Section of the Trans-Maghreb Motorway Axis, which stretches from Agadir in Morocco to Ras Ajdir on the border between Tunisia and Libya, the Cairo-Dakar or the Algiers-Lagos highways. These will improve transport of intermediate goods and the components required by EVCs in North Africa while reducing journey times and transit costs.

Creating inexpensive, rapid transport corridors between various centres in the region is vital, as shown by Central Asia's experience (Box 6.3). They will be linked to each other across the entire chain so as to facilitate the movement of goods in the region. To that effect the logistics infrastructure between the various specific points must be modernised. This will encourage rapid, low-cost transportation of the components required to operate EVCs, thus facilitating the system of shared production all along the chain.

Box 6.3. **Transport corridors: Central Asia's experience**

The new transport corridors have changed the industrial landscape of Central Asia by modifying trade and production models, giving rise to significant socio-economic and geopolitical powers and logistical changes.

Several transport-corridor projects aim to boost regional development and integration by providing high levels of transport connectivity and integrating different modes of transport.

The largest initiative, announced in 2013 by Chinese President Xi Jinping during his visit to Kazakhstan as part of the new "Silk Road", aims to revitalise trade across Asia, Europe and Africa. After initially focusing on energy and infrastructure, the project later expanded to trade, manufacturing, the Internet and tourism.

The initiative has two main segments: the Economic Road Belt, which includes land corridors connecting China with different parts of Asia, the Middle East and Europe, and the Maritime Belt linking Asia, Africa and Europe (ITF, 2019). Linking production networks reduces delivery times for certain types of consumer goods and high value-added equipment, including in the energy sector. Central Asia will benefit from transhipment, maintenance and refuelling activities. It will have better market access for its natural resources and agricultural products, and this will help it to develop RVCs and position itself effectively in GVCs.

Source: https://www.itf-oecd.org/sites/default/files/docs/connectivity-freight-central-asia.pdf.

The development of maritime and railway lines is crucial for trade flows and reducing costs – two important pre-requisites for developing energy RVCs in North Africa. New shipping lines that could boost trade in hydrocarbons are planned, like that of Wazzan II in Morocco, which links the ports of Tangiers, Casablanca, Monrovia, Abidjan, Tema, Takoradi and Cotonou. Another shipping line will link the cities of Gabès and Sfax to Dakar, Abidjan and Tema (AUC-OECD, 2019). Additionally, development of the rail network would speed up trade in mining products and boost RVCs. The aim of Morocco's 2040 Rail Strategy is to develop the national network and contribute to regional development. The scheduled re-opening of the line between Tunis and Annaba in Algeria should accelerate regional connectivity.

Countries in the region should also consider joining existing major energy projects and favour intra-regional undertakings. The EuroAfrica Interconnector project includes the development of a 2 000 MW electricity network between Egypt, Cyprus and Greece. Similarly, the Elmed project concerns the development of a new, underwater, 600 MW high-voltage direct current link between Tunisia and Sicily. It is also possible to link power stations (Tobruk in Libya and Saloum in Egypt, Tataouine in Tunisia and Al-Rowis in Libya, Jendouba in Tunisia and El-Hadjar in Algeria) and to strengthen their power generation capacity. The aim is to increase RE exports to Europe and within the sub-region.

The shortfalls in infrastructural management and finance must be resolved if the process of developing value chains in North Africa is to succeed. To that end, devolving the management of ports and airports to efficient state-owned entities would reduce waiting times and improve consignment monitoring. In Morocco, for example, the Moroccan Agency for Logistics Development (AMDL) was set up as part of the Strategy to improve National Competitiveness in Logistics for 2010-15: private funds were harnessed and logistics platforms were developed within industrial zones. The strategy has been updated and has become the National Integrated Strategy to Develop Competitiveness in Logistics by 2030. Its primary objectives are to reduce logistics costs, speed up GDP growth and contribute to the sustainable development of Morocco.

Similarly, further efforts are needed in order to create a reliable environment for public-private partnerships (PPPs). To that effect, updated laws and the creation of bodies or units specifically dedicated to PPPs within existing institutions could lead to more efficient investment in infrastructure, bring in new technologies and skills and reduce the funding burden. In Egypt, for example, the revised law on PPPs streamlined contracts of this kind, particularly by reducing the publishing time for call for tenders and by introducing new mechanisms for private-sector sub-contracting (OECD, 2021). The new law made possible several infrastructural projects of interest to the energy sector, including the development of the Safaga Industrial Port.

The establishment of dedicated regional energy networks could increase trade in North Africa and encourage the development of EVCs. Some of these countries can leverage their geographical location and energy resources to develop hydroelectric power and develop future trade in electricity throughout the region. Projects along the Nile in Egypt or in Manantali in Mauritania could boost the energy market in North Africa. Agreements on shared production can strengthen the production of hydrogen, a chemical element that could become a new driver for energy market integration in North Africa, and between the sub-region and Europe, thus facilitating trade in electricity throughout the region.

Improving the business climate can speed the establishment of energy value chains

Improvements to the business climate continue to be necessary in order to develop EVCs in North Africa. Red tape, the time that formalities take, and corruption in the energy sector can be off-putting to multinationals and entrepreneurs. Inflexible regulations prevent them from taking full advantage of the opportunities that value chains offer. Consequently, governance must improve – a process that requires enhanced procurement procedures, evaluation and selection, and greater transparency. Accordingly, a relaxation of the regulations around production, transportation and processing activities could be a good starting point: it would open these activities up to competition and improve efficiency. For example, in 2019, Algeria began the process of approving a new law on hydrocarbons that aims to provide fiscal and contractual incentives for early investments. In Morocco, improvements to the regulatory framework boosted the presence of the private sector in RE: Law 16-08 authorised the cement industry to develop wind-power projects both for their own use and to sell surplus production to the ONEE.

Establishing independent regulatory agencies may attract greater investment in power generation, transformation and distribution networks. The fact that there are separate regulators that act in an objective and transparent manner can help to boost confidence in the region and encourage the development of energy RVCs. The presence of regulatory authorities that operate under government line ministries (as is the case in all North African countries) must not deter investors from entering the market. For instance,

Morocco was one of the first countries in the region to strengthen conditions conducive to investment in renewable electricity generation. In particular, it was able to develop and standardise regulatory concessions while reducing both the time and the procedural complexity of obtaining an authorisation.

The support of dedicated investment promotion agencies can speed up North African countries' integration in energy value chains. Such agencies play a significant role in attracting investment in those sectors regarded as priority areas, including energy (refining, fuel processing plant, factories manufacturing components required to produce solar energy, etc.). The Tunisia Investment Authority (TIA) and the country's Foreign Investment Promotion Agency (FIPA), Egypt's GAFI, Morocco's *Agence Marocaine de Développement des Investissements et des Exportations* (Moroccan Investment and Export Promotion Agency, AMDIE) and Algeria's *Agence Nationale de Développement de l'Investissement* (National Investment Promotion Agency, ANDI) are key in this respect. Policies to support the financial and human resources that these agencies need in order to operate are therefore vital.

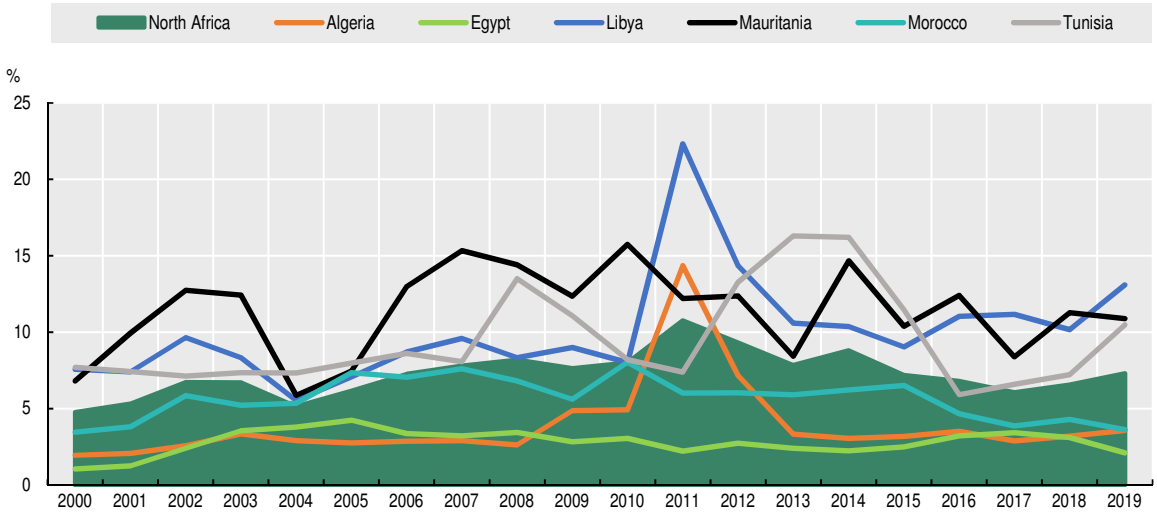
If businesses operating in value chains are to become more competitive, input costs must fall – especially in respect of transport – and access to a wide range of services must improve. Gradual liberalisation of trade in services is vital in North Africa to make FDI more attractive and improve technology upgrades (Karam and Zaki, 2020). Financial intermediation and business services is the segment where most RVCs in energy emerge and develop (Tsakas and Moukaddem, 2019). This presupposes the widespread presence of financial institutions offering a variety of tools such as Islamic finance, microfinance, participatory finance or Green Funds (Hausser, Tsakas and Moukaddem, 2019). Telecommunications and digital technology are also essential for co-ordinating and interconnecting complex, geographically dispersed production chains. The development of digital platforms for factory automation or redesigning cloud-based energy platforms can encourage the emergence of an ecosystem of private providers that support value-chain development (AUC/OECD, 2021).

Strengthening bilateral and multilateral partnership programmes in North Africa will increase national stakeholders' capacities to support RVC development. Such programmes take the form of loans, equity injections, guarantees or technical support. They also complement the authorities' efforts to support the private sector in various industries, including energy. The Tunisian-German energy partnership established in 2012, and managed by the German Corporation for International Cooperation (GIZ), is a good example of technical co-operation to promote energy transition. It is structured around thematic working groups in which government representatives from both countries participate.

Finally, the countries of North Africa must develop and co-ordinate SME-oriented policies focused on tackling the informal sector and improving competitiveness. This means facilitating access to credit by reducing guarantee requirements, providing public guarantees to profitable SMEs and developing microcredit. Streamlining taxes and charges can also support anti-corruption efforts in the energy sector. For instance, the project "Strengthening Business Integrity in Morocco" could be replicated by other countries in the region. The project is a partnership between the government, private sector and civil society representatives with the purpose of supporting anti-corruption work and promoting business integrity in three strategic sectors, including energy.

Annex 6.A1. Trade in intermediate goods for North Africa

Figure 6.A1.1. **Intracontinental trade in intermediate goods as a percentage of all trade in goods for North Africa, 2000-19**



Source: Authors' calculations based on data from the International Trade Database at the Product-Level (BACI) developed by the Centre d'Études Prospectives et d'Informations Internationales (CEPII, 2020).

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Chapter 7

Integrating value chains in West Africa and the agri-food industry

This chapter focuses on the strategic importance of agri-food value chains in West Africa to a sustainable recovery and making the African Continental Free Trade Area (AfCFTA) operational. The first section gives an overview of regional integration into global value chains (GVCs). It shows how COVID-19 has impacted an economy that is not sufficiently embedded into upstream GVCs, although there are some stand-out industries, such as mining and quarries, and agri-food. The second section looks at the potential of agri-food value chains to capitalise on the region's important agricultural resources and create quality jobs; and identifies constraints hindering their development. Finally, the third section sets out some strategic priorities for public policy to strengthen the region's integration into agri-food value chains.

IN BRIEF

The COVID-19 pandemic has taken a toll on the development of West African global value chains that were already struggling to cope with the structural problems faced by their economies. Production linkages between countries in the sub-region continue to be weak, but the linkages in the agri-food industries are no less strategically important to making the African Continental Free Trade Area (AfCFTA) operational. The region has natural strengths and an abundant supply of labour that could drive the development of agri-food value chains (AVCs) and make them a genuine vehicle for creating quality jobs. AVC development would also make it possible to create trading opportunities to meet the need for food security and encourage West African countries to participate in world trade.

However, there are a number of kinks in the various links in the AVC, including inefficient production caused by agricultural practices and environmental shocks, low rates of processing regionally, non-tariff barriers and unofficial fees. There is also an infrastructure deficit which makes it very difficult to seize new opportunities.

Two lines of action should be prioritised: i) the promotion of inclusive, sustainable AVCs that are vehicles for quality jobs; ii) enhanced regional and continental co-operation to improve the sector's competitiveness and harvest the full benefits of the AfCFTA.

West Africa

West Africa and global value chains



8 out of **15** countries in the region are expected to return to pre-pandemic GDP per capita levels by 2021

West Africa's participation in GVCs remains concentrated in low value-added sectors

Minerals | **Pearls and gems** | **Food and beverages** | **Plant products**

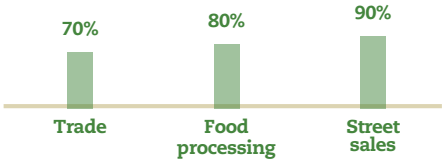
Opportunities for agri-food value chains

The food economy represents USD 260 billion



and accounts for **66%** of the region's total employment

Share of women in total agri-food employment:



Constraints to the development of agri-food value chains

Productivity

Only **10%** of West Africa's irrigable land was irrigated in 2017

Processing

Declining contribution of the manufacturing sector to GDP limits the potential of food processing



Trade



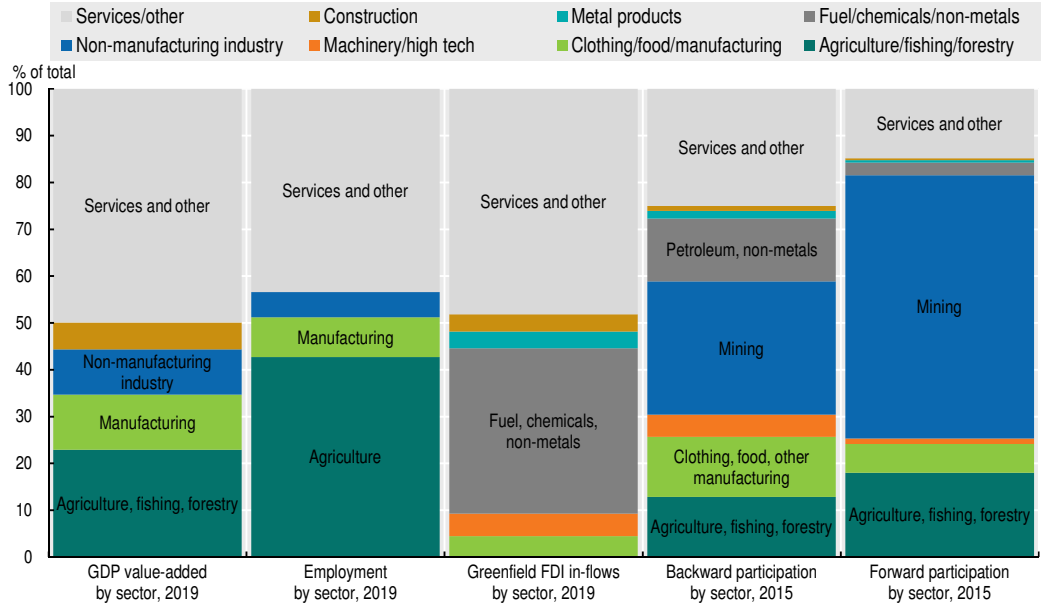
Non-tariff barriers increase the final price of food products by **15-30%**

What's next ?

- **Facilitate women's access to land**, finance and technical training
- **Develop climate-resilient farming** and the adoption of digital tools
- **Improve regional co-operation** to support the agri-food sector

West Africa regional profile

Figure 7.1. **Economic and trade profiles of West Africa, expressed as % of total**

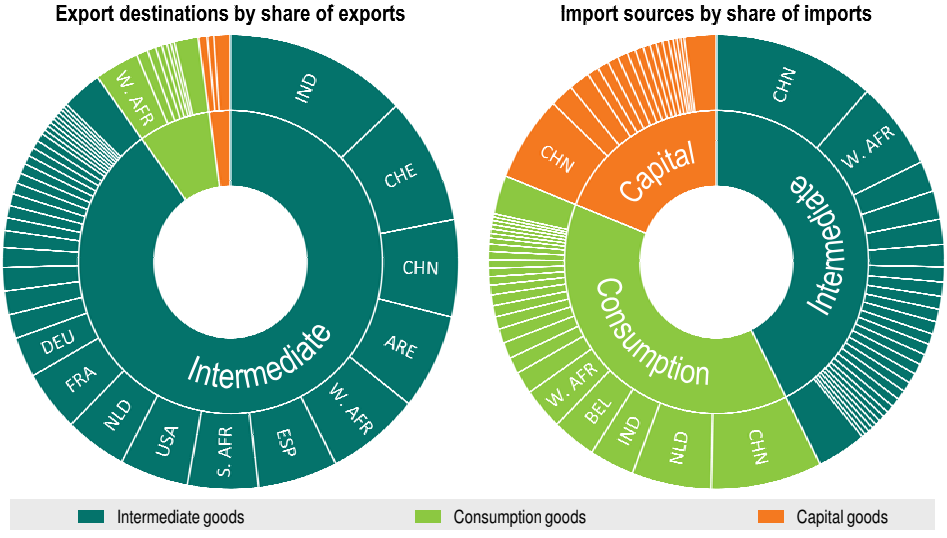


Notes: GDP = gross domestic product; FDI = foreign direct investment. The different sources for the data do not share common definitions of economic sectors, commodities or activities. However, colouring is used in this figure in order to indicate shared themes across datasets.

Source: Authors' calculations based on World Bank (2020a), *World Development Report 2020, GVC Database*, www.worldbank.org/en/publication/wdr2020/brief/world-development-report-2020-data; fDi Markets (2021), *fDi Markets* (database), www.fdiintelligence.com/fdi-markets; and World Bank (2021), *World Development Indicators* (database), https://databank.worldbank.org/source/world-development-indicators.

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Figure 7.2. **West Africa's most important trade partners broken down by volume of trade in intermediate, consumption and capital goods**



Notes: Countries are presented using their three-letter ISO codes. The African countries are aggregated into the five sub-regions defined by the African Union as follows: C. AFR = Central Africa, E. AFR = East Africa, N. AFR = North Africa, S. AFR = Southern Africa, W. AFR = West Africa. Interior trade within the Southern Africa Customs Union is excluded.

Source: Authors' calculations based on data from CEPII (2021), *BACI* (database), www.cepii.fr/cepii/en/bdd_modele/presentation.asp?id=37.

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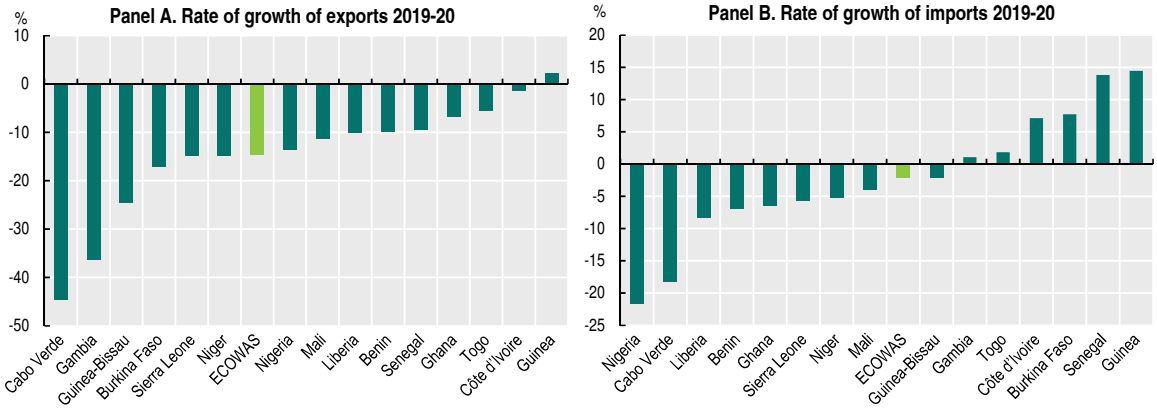
West Africa is contending with structural issues that have only been exacerbated by the COVID-19 pandemic

The COVID-19 pandemic has taken a heavy toll on the economies of the West African countries in various ways

In 2020, economic growth was affected in the 15 countries in the area, but to varying extents. The countries most exposed to external shocks were very seriously affected. In Cabo Verde, Guinea-Bissau, Sierra Leone and Nigeria, real GDP fell by between 14% (Cabo Verde) and 1.8% (Nigeria) (IMF, 2021). Growth also slowed, from 6.2% to 2.3% in Côte d'Ivoire between 2019 and 2020, and by 5.6 percentage points in Ghana. The cause: the various restrictions imposed locally and internationally, which disrupted supply chains and affected commodity prices.

Flows of goods and services contracted sharply in most countries. Exports fell by an average 15% between 2019 and 2020 in the Economic Community of West African States (ECOWAS). Imports also contracted sharply in most of the countries, falling by between 25% for those most affected, such as Nigeria, and 2% for Guinea-Bissau (Figure 7.3). Nonetheless, six countries grew their imports of goods and services, bringing the average rate of change in ECOWAS to -2% (IMF, 2021).

Figure 7.3. **Country focus: change in flows of goods and services 2019-20**



Source: Authors' calculations based on data from (IMF, 2021), *World Economic Outlook* (database), www.imf.org/en/Publications/WEO/weo-database/2021/April.

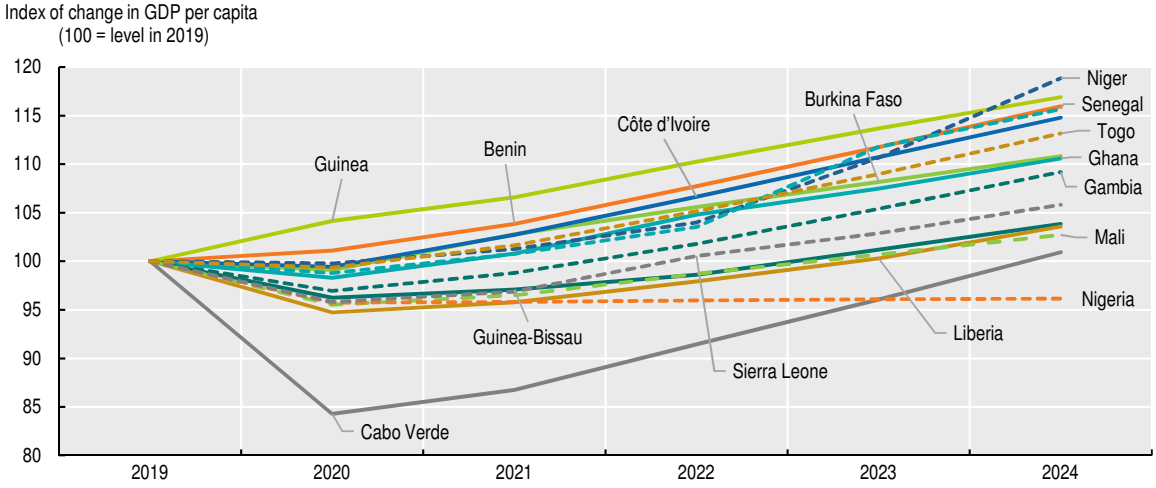
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Financial inflows into the sub-region were also affected by the severity of the crisis. The ECOWAS diaspora's remittances fell by around 20% over 2019-20 (World Bank, 2021). Remittances to Nigeria, which by itself accounted for 69% of inflows into West Africa in 2019, fell by 28% in 2020. The figure for Ghana, the second largest recipient of remittances in the sub-region with 11% of the total in 2019, fell by 12%. Additionally, there was an 18% drop in FDI over the same period (UNCTAD, 2021).

Support for production is a must for sustainable economic recovery post-COVID. Generally speaking, growth resumed in all countries but has not yet regained pre-pandemic levels, especially where per capita wealth creation is concerned. At current rates, an initial group of eight countries should be able to regain their pre-COVID-19 levels of GDP per capita by end 2021 (Figure 7.4). However, the other seven are unlikely to attain their 2019 per capita levels before end-2024, or even 2025. Budgetary room for manoeuvre is limited. The various emergency support measures for households and businesses introduced by governments in 2020 have already placed the public finances under stress in several countries. In Côte d'Ivoire, the debt-to-GDP ratio rose from 41.2% to 45.7%

between 2019 and 2020, while in Ghana it rose from 64% to 78% between September 2019 and September 2020, and in Nigeria from 29.2% to 35% (IMF, 2021).

Figure 7.4. **Projected levels of per capita GDP in the 15 West African countries (base 100 = 2019)**

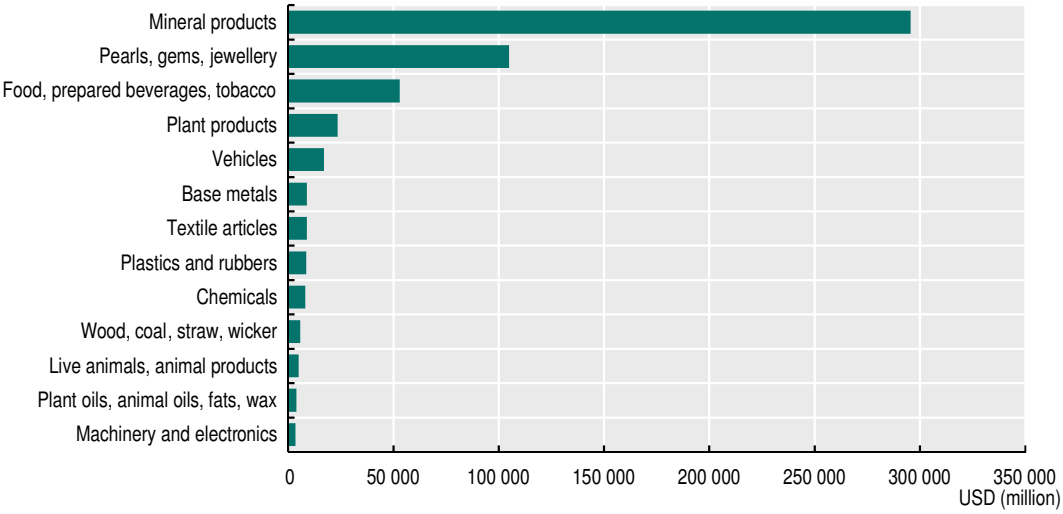


Source: Authors' calculations based on data from (IMF, 2021) *World Economic Outlook* (database), https://www.imf.org/en/Publications/WEO/weo-database/2021/October.

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The weakness of the processing industry is still a major concern at sub-regional level. In West Africa, production and exports include primarily unprocessed agricultural and mining products whose prices depend on world prices. By way of illustration, the contribution of manufacturing to GDP in the sub-region is very low and has been on a downward trajectory for several years, falling from 16% in 2000 to 12% in 2019 (World Bank, 2021). At the same time, the goods exported from West Africa are chiefly primary commodities: minerals and food (Figure 7.5).

Figure 7.5. **Cumulative exports by product category, West Africa, 2015-19 (USD million)**



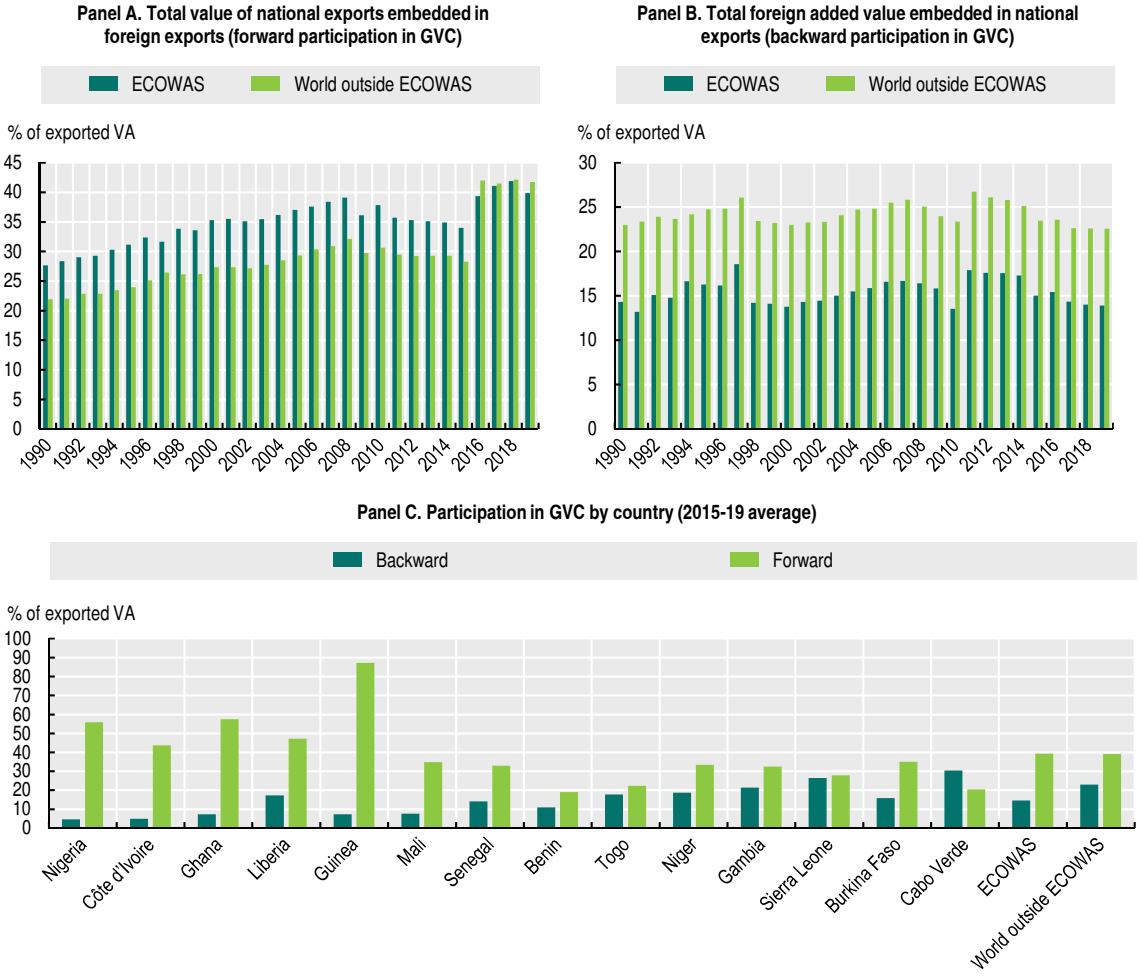
Source: Authors' calculations based on the International Trade Database at the Product-Level (BACI) at the Centre d'Études Prospectives et d'Informations Internationales (CEPII, 2021), http://www.cepii.fr/cepii/en/bdd_modele/download.asp?id=37.

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ECOWAS countries' participation in global and regional value chains is still low

The bulk of the products exported are still at an early stage of processing and have little foreign value-added. Panel A of Figure 7.6 illustrates the low backward participation by ECOWAS countries in GVCs compared to the world average for the period 1990-2019. In other words, inputs from foreign countries represent a limited share of exports from the sub-region. Forward participation is much greater, even though it inherently involves much fewer benefits than strong backward participation. The bulk of goods exported are used as intermediate goods by the importing countries. Between 2015 and 2019, ECOWAS countries had, on average, an annual forward GVC participation amounting to 39.2% of exported value-added and an annual backward GVC participation amounting to 14.5% of exported value-added (Figure 7.6).

Figure 7.6. **Overview of West African integration into global value chains (GVCs), 1990-2019**



Note: Backward and forward GVC participation are expressed as a percentage of exported value added ("exported VA"). In this figure, GVC participation and exported value added for each year are calculated using a country-by-country matrix of value added contributed by each country to each other country's exported added value. Backward GVC participation for a given country is the sum of all reported value added from foreign countries that is embedded in its exports. Forward GVC participation is the total domestically-originated value added embedded in foreign country exports. For a given country in a given year, exported value added refers to the total reported foreign and domestically-originated value added that is embedded in the country's exports.

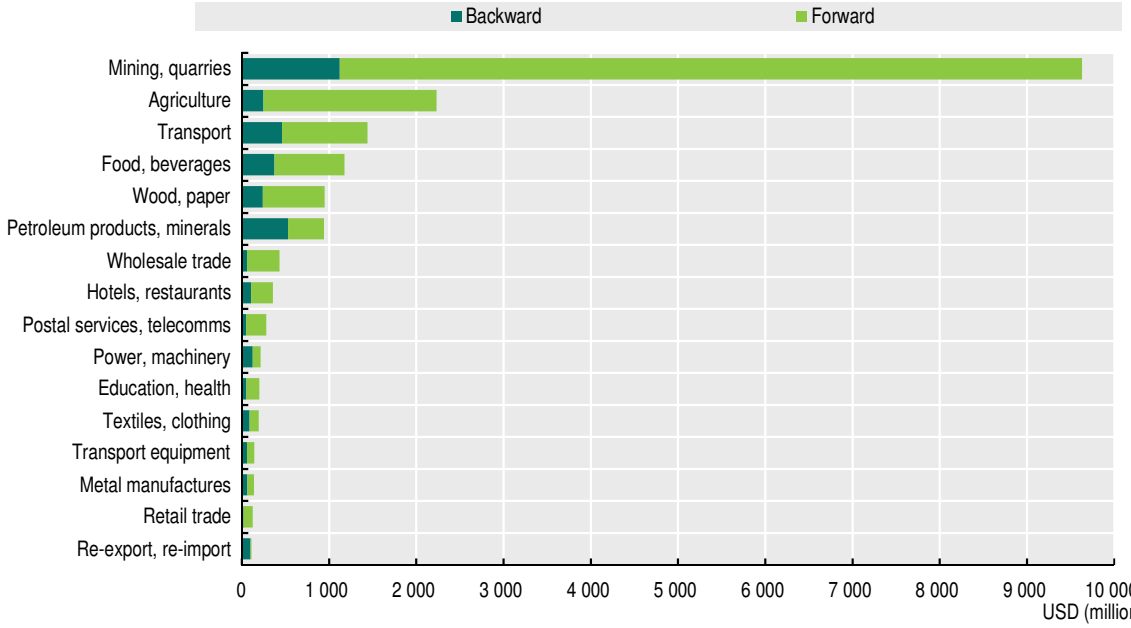
Source: Authors' calculations based on data from Casella et al. (2019), *UNCTAD-Eora Global Value Chain Database*, https://worldmrio.com/unctadgvc/.

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The ECOWAS countries are therefore upstream of the production process compared to the rest of the world. As such, the rewards associated with international trade are lower for them because they do not draw as much benefit as the rest of the world from strong backward participation, in particular with regard to quality improvements and reductions in the prices of final goods produced using better quality, imported inputs that cost less (Fally and Hillberry, 2018).

A number of key sectors are the chief contributors from ECOWAS countries to GVCs. They include mining and quarries, which generate the bulk of forward and backward participation (Figure 7.7). Agriculture and food also feature highly. This is reflected *inter alia* by the significance of foods and beverages in the region's exports, which constitute on average 10% of total flows over the period 2015-19 according to data from the CEPII, compared to 5% for the African continent in its entirety, 7% for Latin America and the Caribbean, and 2% for low-income Asian countries. At the same time, 6% of West African imports were of foods and beverages, compared to 5% for the African continent in its entirety, and 3% for low-income Asian and Latin American countries.

Figure 7.7. **Total value of backward and forward participation in GVCs by sector in West Africa (USD million), 2015**



Source: Authors' calculations based on Belotti, F., A. Borin and M. Mancini (2020), icio: Economic Analysis with Inter-Country Input-Output Tables in Stata, *Policy Research Working Paper*, No. 9156, World Bank, Washington, DC, https://openknowledge.worldbank.org/handle/10986/33361.

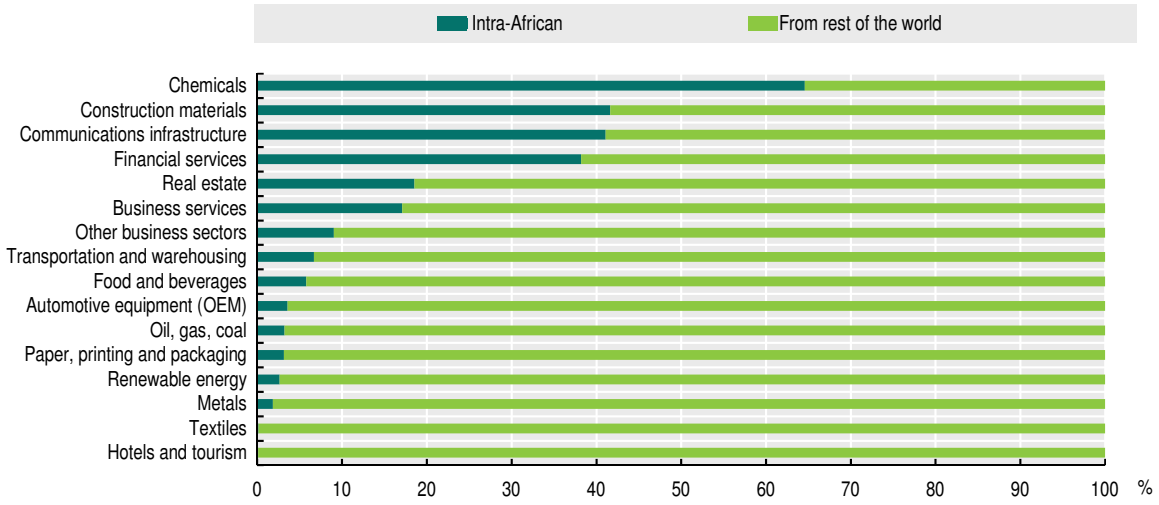
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Additionally, new "greenfield" plans for investment by other African countries are greater in some sectors. Between 2016 and 2021, the communications infrastructure, chemicals, construction materials and financial services sectors attracted proportionately more investment, both actual and projected, from the rest of Africa than other sectors (Figure 7.8). Hence their importance for generating economic linkages between African countries and encouraging economic integration. However, such linkages account for only a small fraction of forward and backward participation in GVCs by the countries in the sub-region (Figure 7.7).

It is clear that West African countries' participation in RVCs is fairly limited. Very few inputs used in production processes come from other countries in the region. On

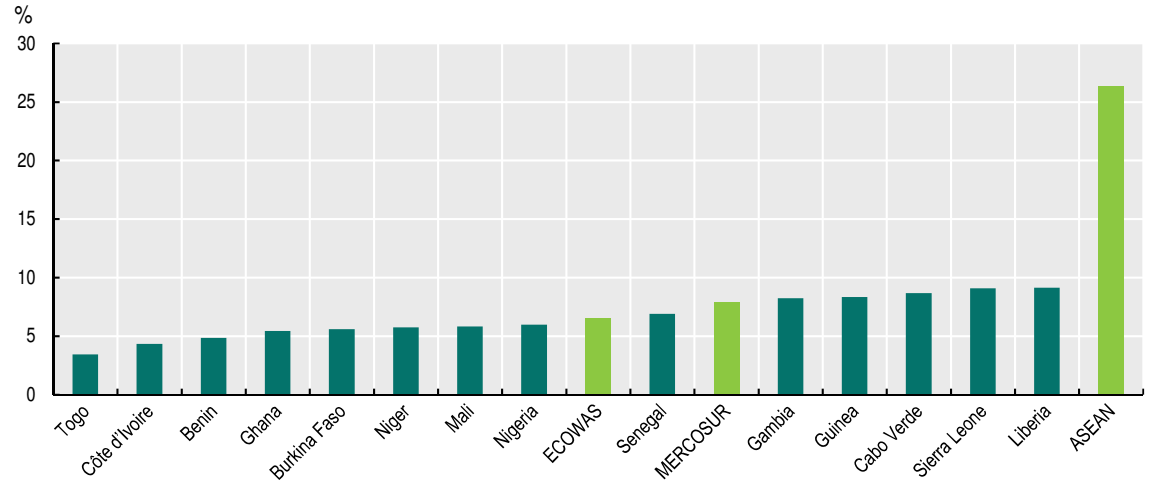
average, 6.5% of added value exported by ECOWAS member countries to their sub regional partners was re-exported to third countries (outside the sub-region) in 2015 (Figure 7.9). By way of illustration, the figure was 26% for members of the Association of Southeast Asian Nations (ASEAN), suggesting also that the level of regional economic integration is well below its potential.

Figure 7.8. **New investment projects by sector of activity in West Africa: Intra-African share of the 2016-20 total (%)**



Source: Authors' calculations based on the fDiMarkets database (2021), *Financial Times*, https://www.fdimarkets.com.
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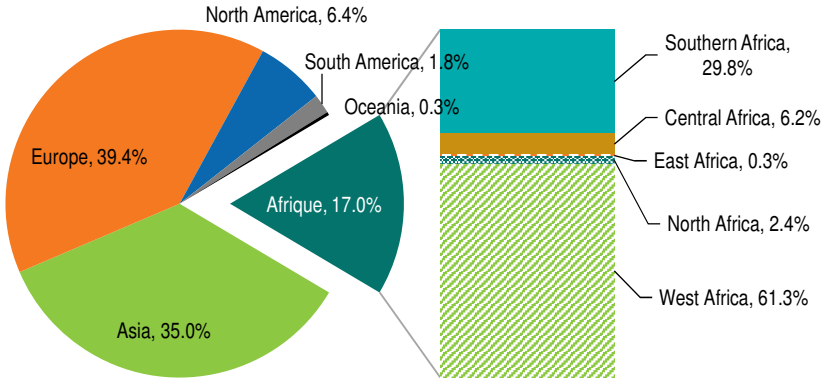
Figure 7.9. **Proportion of intra-regional exports re-exported to third countries, 2015**



Source: Authors' calculations based on Belotti, F., A. Borin and M. Mancini (2020), icio: Economic Analysis with Inter-Country Input-Output Tables in Stata, *Policy Research Working Paper*, No. 9156, World Bank, Washington, DC, https://openknowledge.worldbank.org/handle/10986/33361.
StatLink *https://doi.org/10.1787/888934298890*

In 2019, only 17% of exports from ECOWAS countries went to African countries, compared to 39% to Europe and 35% to Asia (Figure 7.10). Having said that, 61% of exports to Africa from ECOWAS countries went to countries in the sub-region, implying that the production linkages between West African countries are greater than with the rest of the continent.

Figure 7.10. **Destinations of exports from West African countries, 2019**



Source: Authors' calculations based on the International Trade Database at the Product-Level (BACI) at the Centre d'Études Prospectives et d'Informations Internationales (CEPII, 2021), http://www.cepii.fr/cepii/en/bdd_modele/download.asp?id=37.

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A sustainable economic recovery in Africa post-COVID requires a workable response to the issue of food security

Supply chains have proved to be particularly fragile. The restrictions adopted regionally and internationally – land border closures and travel restrictions – seriously disrupted the food supply in West Africa. The movement of transhumant herds was severely affected in Benin and some areas of Niger. Basic food prices were higher than the average for the five previous years (CILSS, 2020). The incomes of itinerant salespeople and restaurateurs fell. No fewer than 44% of households working in the informal sector said when questioned that the crisis was linked to a sharp drop in their income (Koffi et al., 2020). Very quickly, in fact during a video conference on 30 March 2020, it became apparent that the ministers for food and agriculture were concerned about the consequences of prolonged disruption to regional supply channels. As a result, several restrictions were eased or lifted in May 2020.

Several government measures were deployed to keep the agri-food sector afloat, especially in Burkina Faso, Côte d'Ivoire and Ghana. In Burkina Faso, CFAF (XOF) 30 billion was earmarked for the procurement of agricultural inputs and cattlefeed. In Côte d'Ivoire, around XOF 250 billion in financial support was set aside for producers of the chief export products (among them cocoa and cashew nuts), and to support the production of food crops (Government of Côte d'Ivoire, 2020). In Ghana, the number of people receiving fertilisers and seeds rose from 1.2 to 1.5 million (MoFEP, 2020). Additionally, support for businesses in the informal sector was established in several countries: XOF 5 billion for Burkinabe vendors of fruits and vegetables, and XOF 100 billion to support all informal sector stakeholders in Burkina Faso (Government of Burkina Faso, 2020).

Direct financial support and food distribution were also provided to the most vulnerable people. For example, Côte d'Ivoire earmarked XOF 170 billion to support the most disadvantaged households (Government of Côte d'Ivoire, 2020), and XOF 69 billion in Senegal (OECD/SWAC, 2020b). In April 2020, the Government of Togo launched the "Novissi" initiative to provide monthly support to the poorest people throughout the state of emergency. Three weeks later, the programme had 1.3 million people on its register and had already made first payments of between XOF 10 500 and XOF 12 500 (around USD 20) to 500 000 people's personal electronic wallets to meet basic needs (food, water, electricity, communication). In an article published in May 2020, two Nobel Prize winners in Economics, Esther Duflo and Abhijit Banerjee, welcomed this initiative (Duflo and Banerjee, 2020).

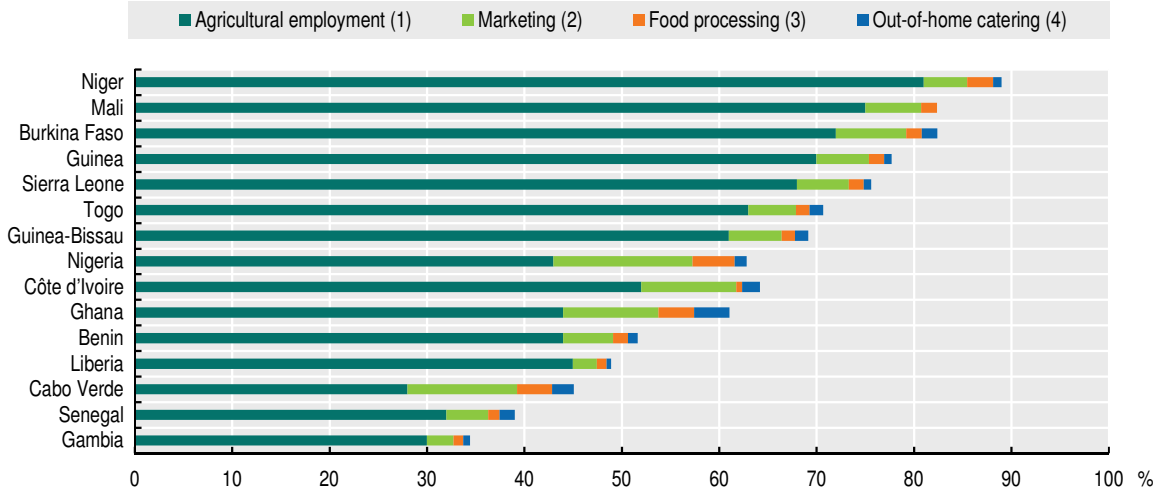
Despite these significant efforts, food security is still an issue in the region. Pre-COVID projections were that 11.4 million people were likely to experience acute food insecurity between March and May 2020, rising to 17 million between June and August – the lean season between two harvests when food stores are at their lowest (OECD/SWAC, 2020a). The COVID-19 pandemic exacerbated the situation. In 2020, crop production rose by 5.1% compared to 2019, and by 14.8% compared to the average for the five previous years within the West African Economic and Monetary Union – WAEMU (BCEAO, 2021). However, West Africa is the region of the world where under-nutrition has grown the most, from 12.9% to 18.7% between 2019 and 2020, affecting 75.2 million people in 2020 compared to 50.6 million in 2019 (FAO et al., 2021).

West Africa's strong agricultural potential can help to encourage a sustainable and inclusive economic recovery

Demographic and urban dynamics are conducive to the development of regional agri-food value chains

The agri-food economy is a key vehicle for job creation. The agricultural sector is the main job-provider in the region: over 50% of people live in rural areas, and 65% of the active labour force works in the agricultural sector. Women account for 80% of employment in the processing of agricultural production, 70% in marketing and close to 90% in sales of ready-to-eat products consumed in the street (Allen, Heinrigs and Heo, 2018; OECD/SWAC, 2019). In total, the food economy in West Africa employs 82 million people, and accounts for 66% of all employment in the region (Allen, Heinrigs and Heo, 2018; OECD/SWAC, 2021).

Figure 7.11. **Contribution of the food economy in West Africa to total employment, 2018**



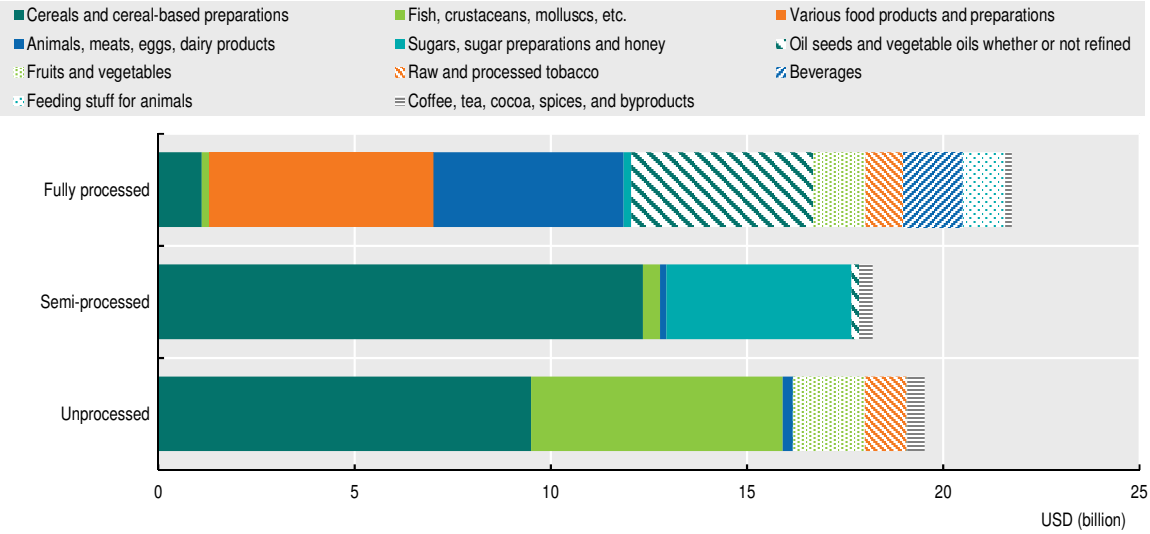
Note: (2+3+4) = Non-agricultural employment; (1+2+3+4) = Employment in the food economy.
Source: Authors' illustration, based on data modelled by Allen, Heinrigs and Heo (2018), https://doi.org/10.1787/dc152bc0-en.
StatLink https://doi.org/10.1787/888934298928

The dynamics of regional demand provide trading opportunities to farmers and to agri-food business and industries. In 2018, the value of regional agricultural production was USD 84 billion (FAOSTAT, 2020), with greater downstream opportunities. The total contribution of the food economy, from agricultural production to catering services, via marketing and processing, is USD 260 billion in West Africa, or 35% of GDP (Allen, Heinrigs and Heo, 2018). In West African households, food accounts for 50% of total spending, on

average. In Nigeria, for example, growth in the chicken sector is assessed to be 20% per year for the period 2010-20 (Adeyeye, 2017). Several local companies service the growing demand from towns in the south west using maize producer networks in the centre and north of the country for poultry-feed (Ghins and Zougbédé, 2019).

Food demand is focused more on processed products. Demographic growth and rapid urbanisation are sustaining this demand. The total population, estimated at 400 million people in 2020, is set to reach 540 million in 2030 (OECD/SWAC, 2020a). Urban transition changes food habits, particularly with the emergence of a significant African middle class which covers incomes of between USD 2-USD 20 per day inclusive per person in purchasing power parity (PPP). Towns account for over 67% of food demand, while urbanisation is producing changes in methods of consumption. Although food accounts for 55% of income, households prefer processed products (fruit juices, pastas, canned goods) which offer a better fit logistically and in terms of preparation (Allen and Heinrigs, 2016). Local processing is no longer sufficient to meet demand. Between 2016 and 2020, the ECOWAS countries imported close to USD 60 billion-worth of food products, two thirds of which (67.2%) were semi-processed or processed (Figure 7.12).

Figure 7.12. **Details of food products imported by ECOWAS by level of processing, cumulative total for the period 2016-20 (USD billion)**



Source: Authors' calculations based on modelling by Rieländer and Traoré (2015) and updated data from COMTRADE, 2021 (accessed via https://wits.worldbank.org in October 2021).

StatLink https://doi.org/10.1787/888934298947

In terms of volumes of production, the region is in a dominant position globally for several agricultural and food products (Table 7.1). Between five and nine West African countries regularly rank among the world's top 20 producers of 10 or so agricultural products (AUC/OECD, 2019). In 2018, the region alone contributed more than 33.9% of Africa's agri-food production, or USD 81.4 billion (FAOSTAT, 2020).

In terms of exports, agri-foods account for the highest proportion of the contents of a basket containing the top 20 products. Among the top 20 exports between 2016 and 2019, 15 were agri-food products and accounted for 33% of the basket's value (Table 7.2). Thus the agri-food sector provides the region with good prospects for specialisation. Local stakeholders have a solid base in the processing of several products such as vegetable oil, cassava by-products (Box 7.1), sugar-cane and tropical fruits. Côte d'Ivoire and Ghana are ploughing increasing investment into local cocoa processing. In Nigeria, industrial

processing of wheat and powdered milk is developing using imported inputs (Hollinger and Staatz, 2015).

Table 7.1. **Examples of high-potential agricultural products in West Africa**

Agricultural products	Total production, 2019 (thousands of tonnes)	West Africa's share in world production volumes 2019 (%)	West Africa's share in African production volumes 2019 (%)
Fonio	700.5	100	100
Karite nuts (sheanuts)	759.8	100	100
Yams	69 892.2	94	96.5
Cocoa, beans	3 395.8	60.7	90.5
Ginger	715.6	17.5	88.2
Fruits, citrus, nes	4 558.5	31.4	85.9
Okra	2 775.6	27.9	84.4
Kola nuts	255.9	83.5	83.5
Oil, palm fruit	17 168.9	4.2	78.5
Maize, green	1 300.9	15.7	73.8
Cashew nuts, with shell	1 696.4	42.8	72.7
Millet	9 552.4	33.7	69.7
Cashewapple	167.6	12.7	68.3
Papaya	951	6.9	64.2
Onions and shallots, green	797.3	17.7	63.3
Taro (cocoyam)	4 619.5	43.8	60.6
Groundnuts, with shell	9 350.7	19.2	56.2
Cassava	100 877.6	33.2	52.5
Pineapple	2 962.3	10.5	51.3
Sorghum	13 344.7	23.1	46.6
Chillies and peppers	452.3	10.6	43.2
Plantains and others	10 530.4	25.3	39.4

Source: Authors' calculations based on FAOSTAT data, FAOSTAT, http://www.fao.org/faostat/en.

Table 7.2. **Rankings of agri-food products among the top 20 export products by country in West Africa (2016-19)**

	Number of agri-food products in the top 20 exported products (2016-19)	Shares of agri-food products in the total value of the top 20 basket (%), 2019	Number of those exported agri-food products with an RCA greater than 10
Benin	11	17.5	3
Burkina Faso	11	5.5	5
Cabo Verde	9	85.1	2
Côte d'Ivoire	14	57.7	8
Gambia	4	91.7	10
Ghana	15	17.4	4
Guinea	9	2.2	2
Guinea-Bissau	5	95.4	1
Liberia	11	1.4	3
Mali	7	2.8	2
Niger	6	37.7	1
Nigeria	13	2.4	11
Senegal	15	29.2	2
Sierra Leone	10	10.3	8
Togo	15	11.8	6
West Africa	15	5.7	–

Note: The basket of goods comprises all goods for export that have shown a revealed comparative advantage (RCA) following the approach set out by Balassa (1965) for at least four consecutive years (2016-19). Two baskets have been identified: the first is the basket of the top 20 exports and includes all products for export. The second basket includes agri-food products only.
Source: Authors' calculations based on the International Trade Database at the Product-Level (BACI) at the Centre d'Études Prospectives et d'Informations Internationales (CEPII, 2021), http://www.cepii.fr/cepii/en/bdd_modele/download.asp?id=37.

Box 7.1. Cassava, a value chain with great potential

Cassava is one of the most important tropical root crops in West Africa: more than 100 million tonnes are produced every year, equivalent to 52.5% and 33.2% of African and global production respectively. It provides many derived food products (leaves, semolina, *gari*, flour, cake, etc.). The cassava crop is profitable, resistant to climate change and low maintenance. Its cultivation is still very much a family affair, as reflected in the groups of small-holders, and covers small areas of up to two hectares in communal fields. Women are most prevalent in the value chain, accounting for up to 80% of the workforce in terms of production, 100% of workers in processing and 90% in marketing. Nigeria produces 57 million tonnes annually of tuberous roots of manioc, making it the world's leading producer (FAOSTAT, 2020).

Processing is still done on a small scale using small industrial units, whereas sales take place through informal channels (restaurateurs, private operators exporting all over Africa and Europe). By-products such as *gari* from Nigeria and *attiéké* (semolina of cassava) produced in Côte d'Ivoire are exported to other countries including Guinea, where there is a supermarket called "Maison de l'Attiéké" (Attiéké House). New initiatives are emerging, especially in Nigeria where innovative technology is processing fresh peels into pulp for animal feed, and generating biogas for use as an alternative energy source, thus reducing fossil fuel emissions.

Source: Authors' compilation.

Nonetheless, all three links are hampered by barriers that slow the development of agri-food value chains

The three main links in the agricultural value chain – agricultural production, product processing and trade – are still subject to external and internal shocks that constrain the sector's development. They include inefficient production caused by farming practices and environmental shocks; low processing rates as a result of poor development of human capital, the financial system and socio-economic infrastructures; and non-tariff barriers and unofficial fees (Table 7.3).

Table 7.3. **Constraints on the development of agri-food value chains in West Africa**

Constraints related to agricultural production	
Low productivity, competitiveness and value added through all farming systems and value chains	• Climate variability and change • Soil degradation and depletion • Dominance of rainfed agriculture • Considerable biophysical constraints as a result of parasites, disease and weeds • Issues regarding tenure of land • Poor access to input markets and market production • Low capacity to adapt to and adopt technological innovation
Constraints related to processing	
Poor development of human capital, the financial system and socio-economic infrastructures	• Low level of technical and professional skills (engineering for the agri-food sector) • Poor integration of women in the formal workforce • Poor support for local SMEs in the agri-food sector • Low use of technology
Constraints related to trade	
Non-tariff barriers and other unofficial parallel fees	• Large number of checkpoints • Poor logistical capacity • Dysfunctional customs transit procedures • Primacy of national interests to the detriment of measures adopted at regional level • Poor quality of the business environment • Poor marking of food products • Quantitative restrictions (import quotas) • Poor certification of food products • Undeveloped market information systems • Large number of currencies

Source: Authors' compilation.

The region's infrastructure deficit increases trade costs and makes it difficult to seize new opportunities

The energy supply is still insufficient and too unreliable to support the processing of some agricultural products. Electricity access and the reliability of the grid scored 51.5 and 40.5 respectively in 2019 on a scale of 0 to 100 (WEF, 2019). This implies that there are additional costs in preserving perishable foods and also has adverse effects on market prices. Initiatives are springing up to develop the renewable energies sector, but the rate of investment is still low. In Senegal, the national strategy to diversify energy sources has increased total power generation by 22% through connection to the grid of 168 MW of photovoltaic solar power, 51 MW of wind energy and 75 MW of hydroelectricity. Côte d'Ivoire is also awaiting construction of Africa's first floating solar power station, which was announced in 2018.

Poorly developed logistics and transport infrastructures reduce opportunities for integration and adversely affect trade costs. The majority of rural areas of production are still cut off as a result of a dearth of information or inadequate transport infrastructure. The transport infrastructure deficit (roads, railways, railway network services), coupled with inadequate public service infrastructures and some specific services (marketplaces, warehouses, logistics services and communications networks, etc.) affect the efficiency of the food systems (OECD/SWAC, 2021). While 12 out of 15 countries (the exceptions being Mali, Burkina Faso and Niger) have relatively extensive coastlines, the average liner shipping connectivity score was 13.6, and efficiency of seaport services was 40.8 on a scale of 0 to 100 (WEF, 2019). The region has only two railways linking landlocked countries, namely the Transrail (Dakar-Bamako) and Sitarail (Abidjan-Ouagadougou) corridors. Moreover, the lack of co-ordination in transit management, together with operational inefficiency, makes it difficult to optimise costs and the time taken to transport goods (WCO, 2014). There are several other emerging constraints linked to infrastructure quality, the high number of unchecked parallel corridors and the payment of illegal fees on the roads (Teravaninthorn and Raballand, 2009).

Box 7.2. **Pineapple, a high-growth product facing constraints**

Between 1995 and 2016, world production of pineapples rose from 12 to 25.5 million tonnes, 3 million of which are from Africa. In 2016, Nigeria's output of 900 000 tonnes made the country the continent's top producer and the world's eighth-largest. Benin's annual output of 400 000 tonnes makes pineapple the country's third-largest subsector, accounting for 4.3% of agricultural GDP and 1.2% of total GDP (Kpenavoun Chogou, Gandonou and Fiogbe, 2017). Benin exported 2 949 tonnes to the European Union (EU), and Côte d'Ivoire and Ghana exported 21 604 t and 13 517 t to the same destination respectively.

The subsector acted as a springboard to self-employment and gave rise to micro, small and medium-sized production, processing and export enterprises. However, according to Iwuchukwu, Nwobodo and Udoye (2017), the chief constraints on pineapple production were infrastructure-related, mainly the lack of road access where West Africa has an estimated shortfall of USD 100 billion per year, and the lack of technical knowledge on the use of improved technology. Benin's produce was rejected in Europe in 2016-17 because of excess ethephon, a pesticide that accelerates pineapple production and accentuates the yellow colouring agent in the fruit. Benin had to suspend exports of pineapples coloured using the agent because ethephon residue in the fruits was higher than the levels permitted in the EU.

Box 7.2. **Pineapple, a high-growth product facing constraints *(continued)***

Some leading enterprises are putting initiatives in place to promote the quality of their products. One example is *Blue Skies* in Ghana and Benin.

- Blue Skies, a specialist in processing the region's fresh fruit and vegetables, introduces producers to agronomists who support them by providing free training and technical support. The producers also benefit from interest-free financial support and a certification process for the products they grow.
- The relationship between the management team and the local authorities is part of a public-private partnership (PPP) with clear mutual commitments. This approach helps to generate social and economic development in the producer country. Blue Skies has positioned itself as a template for sustainable AVC development and a success in making a functional move upmarket. It extended its activities in Benin in 2020.

Source: Authors' compilation drawing on *L'Économiste* (2019); AfDB/OECD/UNDP (2014); Blue Skies (2020); https://www.youtube.com/watch?v=GlYFcMF2YFQ.

Table 7.4. **Selected technological components of economic competitiveness in West Africa, 2019**

Country	Infrastructures	ICT adoption	Business-to-Consumer (B2C) index	Intellectual property protection	Innovation capability	Skills of workforce
Benin	40.2	23.4	21	50.6	28.4	50.6
Burkina Faso	34.8	26.8	19	45.9	24.8	40.5
Cabo Verde	53.7	44.7	-	47.9	24.8	48.5
Côte d'Ivoire	47.9	41.3	31	51.1	30.7	51.3
Gambia	47.4	31.4	-	49.1	30.5	54.1
Ghana	46.6	49.1	43	62	32.9	54.6
Guinea	41.7	28.7	14	40.6	34.9	54
Mali	43.9	27.9	22	32	29	45.7
Nigeria	39.7	33.4	53	33.3	32.2	38.8
Senegal	51.3	35.8	43	56.6	31.9	54.6
West Africa	44.7	34.3	-	46.9	30	49.3

Source: Authors' calculations based on the World Economic Forum Report Database (WEF, 2019) and UNCTAD (2020), UNCTADStat.

Public policies to strengthen the agri-food value chain in West Africa

The control of agri-food value chains has occupied a central place in policy agendas in West Africa since the world food crisis in 2008. The ECOWAS Regional Agricultural Policy (ECOWAP) is part of "a modern and sustainable agriculture, based on the effectiveness and efficiency of family farms and the promotion of agricultural enterprises through private-sector involvement. While being productive and competitive in the intra-Community market and international markets, it must ensure food security and provide a decent income to its working population" (ECOWAS, 2017). In order to realise this potential, however, better tools are required, especially support for small local stakeholders and region-wide structuring of value chains. This section will focus on five strategic lines of action that can play a role in achieving those objectives.

The participation of small, local producers and suppliers in high value-added activities can be promoted through better access to innovative services

Overall, AVCs have essentially grown up around the informal sector. In 2019, traditional agriculture still employed 42.19% of people in work. On average, 76.5% of West

African workers are in vulnerable employment; the situation in Cabo Verde is somewhat better, at 35.2%. Around 69.9% of young people over 15 years of age working in the sector do so independently, 17.7% provide support to families, and barely 18.5% are in salaried employment (ILO, 2020).

In the short term, national and regional policies can harness digital resources to improve integration of informal sector stakeholders into value chains. Start-ups specialising in agritech and innovative services are mushrooming in West Africa. The region hosts Africa's first unicorn (Jumia in Nigeria) as well as other dynamic start-ups in logistics (AgroCent; Kobo360) and e-commerce (Konga, Carmudi Janngo and Jovago), and especially the brightest rising stars in real-time mobile digital transactions (Interswitch, OPay, Flutterwave, etc.). Other promising innovations for agricultural development include shared-economy models, blockchain and digital tools for land rights (AUC/OECD, 2021).

Governments can work with tech companies to spread the best farming practices. Improving agricultural extension services and connecting the rural-urban supply chains can generate big wins in fighting pockets of poverty and informality in rural areas.

- For example, since 2011, the multi-country programme *myAgro* has been working with more than 89 000 smallholders in Mali, Senegal and Tanzania in order to increase market access. It began by using mobile solutions as alternatives to credit and rapidly developed to provide full support at all levels, from delivery of high-quality inputs to training. This translates in figures to a rise of USD 178 in each farmer's annual income and a 78% increase in production (Rieckmann, 2020).
- Since 2012, in partnership with Cellulant Ltd, the Government of Nigeria has used e-wallet solutions on mobile phones to manage the distribution of seed and fertiliser in remote areas, thereby reducing inefficiencies (AUC/OECD, 2021). Similar models are in place in Burkina Faso, Côte d'Ivoire, Liberia and Senegal (Goyal, 2014).
- Additionally, a good number of large agro-industry businesses are working to establish services to help with traceability (Box 7.3). Mobile solutions of this kind enable leading stakeholders to interact with small local producers, resulting in larger transaction values and volumes (GSMA, 2016).

In addition, the cost of accessing services should continue to be reduced and the regulatory framework for e-commerce strengthened. The average cost of Internet services is four times higher than in other developing countries, while communications infrastructures are not fully utilised. In 2019, the *Business to Consumer* (B2C) index, which reflects capacity to engage in e-commerce, was only 26.2 in West Africa, and ranged from 5.4 (Niger) to 53.2 (Nigeria), giving an average value for Africa of 33.6 (UNCTAD, 2020). In March 2020, Ghana became the first African country to launch a universal QR code enabling all Ghanaians to make instant merchant payments from their mobile money wallets, bank accounts or international cards (GSMA, 2021).

Box 7.3. **Last mile digitalisation of the agri-food value chain is under way**

Very few smallholders manage to accumulate savings or access formal agricultural credit, insurance and saving products. In order to mitigate existing shortfalls and promote reliable supply chains, mobile service operators and certain agri-food multinationals are increasingly investing in digital innovations for farmers.

In August 2014, Ivorian microfinance institution Advans partnered with a number of cocoa co-operatives and MTN Côte d'Ivoire to offer farmers in 40 co-operatives a branchless Advans savings account accessible via a mobile money account. In 2017, the initiative had reached 100 co-operatives (13 500 farmers, 6 000 of whom continue to be

Box 7.3. **Last mile digitalisation of the agri-food value chain is under way** ***(continued)***

active). In May 2015, the Ivorian bank Société Ivoirienne de Banque (SIB) partnered with Orange Côte d'Ivoire to digitalise 1 000 cocoa growers' bi-annual premium payments for certified sustainable cocoa.

In 2016, Swiss business Barry Callebaut introduced a geo-traceability application, *Katchilè*, enabling cocoa beans to be tracked from 65 000 farmers in Côte d'Ivoire. The app has also been launched in Ghana and Indonesia. In 2017, the US multinational Cargill launched an electronic payment initiative for 30 000 Ghanaian farmers through a partnership with mobile payment systems (E-Zwich, provided by the Bank of Ghana, MTN Mobile Money and Tigo Mobile Money). Additionally, the Singaporean business Olam has established *Ofis*, a rural information system, in 21 countries. Ofis allows farmer groups and co-operatives to manage their traceability operations, and integrates digital payments functionality. In Côte d'Ivoire, Ofis is used in cocoa, coffee, rubber and cashew nut value chains.

Source: Authors, based on GSMA (2017).

Access to finance and support for co-operatives should be increased

The low levels of SME finance are a barrier to local processing. Between 2003-15, only Burkina Faso, Mali and Niger allocated more than 10% of the national budget to agriculture and sustainable development for at least five years (ECOWAS, 2017). Over the same period, the allocation made by West Africa as a whole amounted to 5% of the public purse. One of the resolutions in the Malabo Declaration of the African Union (AU) in 2014 was to reaffirm the member countries' commitment to allocate at least 10% of public expenditure to agriculture. However, few of the countries in the region have succeeded in doing so regularly, despite the commitments they entered into.

Finance also involves harnessing private resources for agri-food. Although harnessing public resources is still paramount, the debate on finance should be widened so that all economic stakeholders in the sector have access to the financial services appropriate to their investment needs. Domestic credit to the private sector amounted to only 24% of GDP in 2019. The average score for financing of SMEs is 39.9, and venture capital availability is low (Table 7.5). The average score in the region for venture capital availability is only 26.1 out of 100, whereas the share of insurance premium volume in GDP is less than 1%. Poor development of local insurance markets has enormous effects on farmers when incidents occur.

Table 7.5. **Skills, financial system and technological capability in West Africa**

Country	Domestic credit to the private sector, % GDP, 2019	Insurance premiums, % GDP, 2014-16	Financing of SMEs, score 2018-19	Venture capital availability, score 2018-19
Benin	23.3	0.7	39.5	19.2
Burkina Faso	30	0.7	29.6	12.1
Cabo Verde	61.8	1.2	43	33.1
Côte d'Ivoire	24.6	1.2	24.4	16.6
Gambia	5.7	-	42.3	33.1
Ghana	15	1.1	46.1	30.6
Guinea	10.3	-	61.9	43.5
Mali	26.2	0.6	38.9	28.1
Nigeria	14.7	0.3	30.2	16.9
Senegal	28.2	1.2	43.3	27.4
West Africa	24	0.9	39.9	26.1

Source: Authors' calculations based on the World Economic Forum Report Database (WEF, 2019).

Encouraging access to finance for entrepreneurs and SMEs in the agricultural sector is still a *sine qua non* for strengthening value chains during their development. The system to harness private finance could be more effective.

- The bank loan guarantees provided by international bodies such as the French Development Agency (AFD) or the African Guarantee and Economic Co-operation Fund (FAGACE) to encourage access to local credit have a role to play. However, the bulk of guarantees awarded involve wide-ranging projects and should be better targeted to include small producers and local entrepreneurs. Co-operation with microcredit establishments that normally target these groups should therefore be stepped up.
- Moreover, the widespread use of stock guarantees could also alleviate credit constraints. As noted by Brulé-Françoise et al. (2016), for example, storage and warehousing capacities, as well as infrastructures for compliance with standards, are among the elements still lacking in the sub-region.

Supporting producer co-operatives and organisations is vital because they play a key role in the development of value chains. Co-operatives open the way to technical and financial assistance, investment in adequate infrastructure (refrigerated storage in warehouses, machinery, etc.). They increase farmers' bargaining power in purchases and sales and help to spread good agronomic practices. In addition, co-operatives facilitate the development of innovative activities such as certification and processing. For example:

- In Mali, a group of farmers took the initiative to organise themselves into a co-operative named *Yeleton*. They then obtained finance from the banks and support from the Government to obtain a tractor to cultivate their communal and individual farms (Diama, 2020).
- In Niger, the Made Bane Farmers' Union of Falwell experienced a significant increase in production of quality seeds, and created inputs shops and grain banks. The members of the Union have received training on improved varieties suited to local conditions and were subsequently accredited as Certified Seed Producers, enabling them now to supply other unions (Diama, 2020).
- In Togo, as part of the West Africa Agricultural Productivity Program (WAAPP), the provision of parboiling equipment to groups such as the *Femmes Vaillantes* co-operative in Anié has enabled them to triple their productivity (World Bank, 2020b).

Follow-up actions aimed at agri-food businesses can be effective in building local processing capabilities. Improving the skills of AVC stakeholders is vital. In addition to the efforts required to improve the general level of formal education, follow-up centres offering training in agri-food business skills could be of huge benefit to the region. A large share of young people in employment are already out of the education system. One third of 15-29-year-olds, a significant proportion of the population, have no education (UNESCO, 2020).

The centres could provide short, practical training to the out-of-school population who are unemployed, to encourage them to go into agriculture or the processing of agricultural products. In Mali, the Baguinéda Centre de Formation en Entrepreneuriat Agricole (CFEAB) provides people in this category with short, 10-day training courses. The trainers go to the students in a dedicated mobile vehicle, teaching them how to manufacture various products such as hibiscus syrup (bissap) and zaban, tamarind syrup or mango jam (Le Cam, 2019). Since 2010, the centre has trained more than 2 000 out-of-school young people who now have a professional training certificate and a job in the AVC. In 2017, Senegal opened its first French-language agricultural university in West Africa (Université

du Sine Saloum el Hâdj Ibrahima Niass), which aims to focus on local features to make agriculture a driver of growth. A number of co-operatives have been producing juices and jams for several decades, but there has been no proper structure in the sector for them to become canned, vacuum-packaged flagship exports. This is one statistic that could change as a result of the integrated agropolises that are under construction, which will incorporate centres for training young people in agri-business trades (Box 7.4).

Box 7.4. **Integrated agropolises and community agricultural estates in Senegal**

Senegal has decided to build several agri-food processing clusters (or integrated agropolises). The project is the flagship of the Emerging Senegal Plan (PSE), and is based on a policy of enhancing private investment initiatives (farmers, SMEs) in order to stimulate balanced, sustainable, inclusive development across the country. The objective is to increase the industrial sector's contribution from 12% to 25% of GDP between 2014-35 by developing agricultural basins with strong market potential.

The first such project began in 2020 in the south (Kolda, Sédhiou and Ziguinchor) and will be brought into service in 2022. The project should generate 49 500 jobs, 14 500 of which will be direct and 35 000 indirect, and will impact close to 65 000 households, or approximately 365 000 people, 60% of whom are young, and 50% of them women. Two other agropolises are planned for the centre (Diourbel, Fatick, Kaffrine and Kaolack) and north of the country (Louga, Matam and Saint-Louis) by 2024. The construction of the basins should encourage development and increases in the production of non-timber forest products (baobab, honey, grains and wild fruits, oils and resins, brewing, etc.), and improvements in the quality of natural resources management (smart agricultural practice, climate change adaptation, biogas energy generation and restoration of forest plant cover).

Additionally, a community agricultural estate (DAC) covering 5 000 hectares was opened July 2021. Named Keur Momar Sarr and located in Louga, the DAC is one of the first four sites in operation of the 11 that are planned in the pilot phase. It has an irrigation system, an area for packaging and packing agricultural products, cold rooms to store fruits and vegetables, and a farm specifically for training young people in the production and processing of agricultural products.

Source: Authors' compilation.

Finally, it is important to facilitate women's access to land tenure, in view of the significant contribution they make to agricultural output. Rates of discrimination against women in ten countries in the region are high or very high (Benin, Burkina Faso, Côte d'Ivoire, Gambia, Ghana, Guinea-Bissau, Niger, Nigeria, Sierra Leone and Togo). In Burkina Faso, Cabo Verde, Côte d'Ivoire, Gambia, Guinea, Mali and Senegal, women represent 43% of the agricultural workforce on average, but only 8% of land owners (OECD, 2018). These gender disparities stem primarily from the predominance of discriminatory customary laws and poorly enforced legislative frameworks governing land and property. For example, Benin's Rural Land Code (2007) grants equality in land ownership rights, but customary law stipulates that only men can inherit land.

The response to environmental pressures must include the adoption of modern production methods to encourage the production of sustainable products

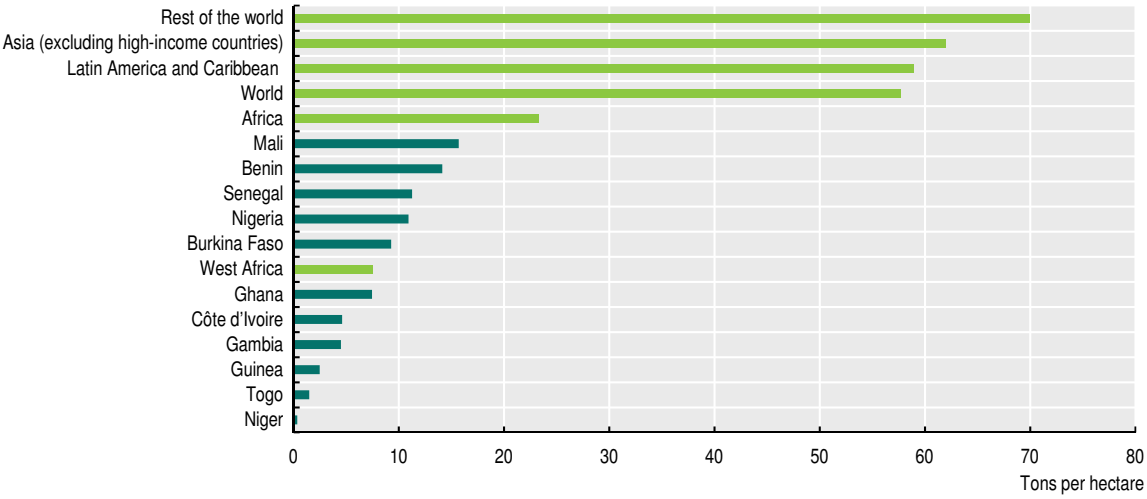
West Africa is still one of the richest regions in terms of agricultural resources, but it must respond rapidly to environmental pressures. According to FAOSTAT (2020), it covers

a total land area of 511.54 million hectares criss-crossed by major rivers, and 47.6% of the land is agricultural. In some countries, including Côte d'Ivoire, Gambia, Ghana, Nigeria, Sierra Leone and Togo, over 50% of the land is arable. However, only 42.4% of the potential was exploited in 2018. Moreover, more than 1 million hectares of land in Mali, Liberia, Nigeria and Ghana are covered by inland waters that are necessary for irrigation. The region also benefits from maritime coasts with a wealth of fisheries resources that also provide opportunities for local fish processing.

Agricultural and grazing systems remain very extensive and exert pressure on the region's ecosystems and available forestry resources. Between 1975 and 2013, forest cover shrank by 37% to only 16.6%, compared to the African average of 21.4%. Additionally, around 90% of pastureland and 80% of cultivation areas in the West African Sahel are significantly affected by soil degradation, including erosion (FAO, 2015).

Attenuating the effect of climate variability on farms' productivity will therefore involve adequate application of fertilisers and the use of improved seeds. In 2018, for example, the amount of nutrient nitrogen by area of cultivated land in West Africa was only 7.5 t/ha compared to an average of 70 t/ha in the rest of the world (Figure 7.13). In Ghana, the low demand for fertilisers is the result of modest yield response (Kolavalli, 2019). Higher returns depend on complementary actions such as the use of improved seeds and better agronomic practices. The development of the different varieties of New Rice for Africa (NERICA) by the West Africa Rice Development Association (WARDA) illustrates this and has contributed to raising the yield obtained by farmers in some countries in the region (Dibba et al., 2012; Diagne, Midingoyi and Kinkingninhoun-Medagbe, 2013). This is also the case for the development and distribution of improved cocoa seeds by the National Agricultural Research Centre (Centre National de Recherche Agronomique, CNRA) in Côte d'Ivoire, which doubled yields (CCC, 2014) while helping to combat viruses that infect cocoa plantations (Box 7.5).

Figure 7.13. **Agricultural use of nutrient nitrogen by area of cultivated land (t/ha), 2018**



Source: Authors' calculations based on FAOSTAT data (2020), online database, http://www.fao.org/faostat/en.
StatLink https://doi.org/10.1787/888934298966

Additional irrigation is also crucial. In 2017, only 10% of irrigable land was actually irrigated (FAO, 2020), the same as in 2007 (9%). Higginbottom et al. (2021) attribute this situation to the fact that projects are sometimes too ambitious and prioritise low-value crops, reducing the projects' economic viability. Nonetheless, there are some exceptions such as the Kpong Irrigation Scheme (KIS) in Ghana, which enables local rice producers

to achieve yields comparable to irrigated rice yield in Asian countries (Takeshima et al., 2013). However, the KIS project's success has not been replicated elsewhere in Ghana, despite fairly similar conditions.

Box 7.5. The cocoa sector and the challenge of climate adaptation

Cocoa is the world's third-largest food market, accounting for around USD 10 billion of trade annually. West Africa is the world's leading producer, accounting for 60.7% of world production of cocoa beans and 90.5% of African production in 2019 (FAOSTAT, 2020). The leading producers are Côte d'Ivoire, Ghana and Togo, with more than 50% of world supply. As a mainstay of the Ivorian economy, the sector contributes between 15% and 20% to GDP formation, employs close to 600 000 growers and provides a living for around 6 million people, according to the Coffee and Cocoa Board (Conseil du Café-Cocoa, CCC).

Demand for cocoa, as approximated by crushed volume, is primarily from Europe and the United States, which import 75% and 50% respectively of their stocks of beans from West Africa before they are processed and most of the value-added is derived. An industrial complex is under construction in Côte d'Ivoire to increase local processing capacity from 500 000 to 1 million tonnes (AFP, 2020).

Despite rising volumes in the past few decades, agricultural productivity remains low in order to maintain comparative advantage on the world stage. One of the major constraints on the sector relates to ageing plantations and the renewal of cocoa trees. Over 20 years, the productivity of the Ivorian orchard has stagnated at around 450-550 kg/ha. Plant diseases such as *swollen shoot* and *brown rot* that flourish in tropical countries cause 30% of the annual harvest to be lost.

The lack of training, extensive farming practices and under-use of appropriate phytosanitary products hamper yields, degrade soil quality and exert pressure on the forest-tree orchard. Between 1960 and 2019, the forested area of Côte d'Ivoire declined from 12 to 3 million hectares. Close to 80% of cocoa producers live on less than USD 3 per day.

The difficulties that growers have in gaining access to finance restrict the opportunities for developing plantations and the procurement of modern agricultural products and equipment. Moreover, tax rates amount to up to 22% of the cost-insurance-freight (CIF) value of exports, one of the highest in the world. This results in tax rates of around 40% on growers' turnover, and over 50% on their profits.

A number of initiatives are under way to improve the cocoa value chain by embedding the standards laid down by the cocoa industry under the label "sustainable cocoa" in order to provide consumers with good quality products in a sustainable fashion. The Ivorian Government and the EU – the leading buyer of Ivorian cocoa, accounting for 67% of the volume of cocoa exported – held a high-level meeting on 22 January 2021 in the aim of setting up an inclusive framework for dialogue with a view, first, to establishing a co-operative working relationship and pooling knowledge and experience and, second, to establishing a framework for co-ordination that can be used to help build sustainable cocoa cultivation.

Source: Authors' compilation, CCC.

Non-tariff barriers hamper the development of value chains at regional level

Launched in January 2021, the African Continental Free Trade Area (AfCFTA) provides a framework conducive to facilitating trade and accelerating the development of regional AVCs. The AfCFTA aims to establish a single continental market of more than 1.3 billion people by 2027. Effective liberalisation of intra-regional trade, combined with investment

in trade infrastructure, would connect landlocked markets to coastal countries: this is the basis of food demand dynamics. Measures that are absolutely crucial to accelerate the AfCFTA's entry into operation must therefore be taken in order to provide solutions to the many structural issues facing the countries in question.

To that end, there should be greater, stricter compliance with the agreements signed between states on transit facilitation. The ongoing presence of formal and informal tariff and non-tariff barriers to internal trade deters economic agents from winning regional markets. In November 2017, eight ECOWAS countries still required country-of-origin certificates for food shipments, even though they were abolished in 2003 (Mercier, 2018). This policy is a genuine barrier to trade because certificates of origin give rise to a cost that is borne by traders, and the process for obtaining them is lengthy and cumbersome (UNCTAD, 2018). These costly barriers adversely affect the competitiveness of local stakeholders on regional markets.

Enhancing the competitiveness of products also involves efforts to co-ordinate regulatory frameworks governing sanitary and phytosanitary rules and standards (SPS). The AU's SPS policy framework and Annex 7 to the text of the AfCFTA Agreement focus on the need to harmonise SPS standards at continental level. This would make it possible to organise flows of agri-foods and to limit undue restraints on trade. For example, Cadot and Gourdon (2014) estimate that SPS measures increased food prices in sub-Saharan Africa by 13%. In West Africa, work to improve matters is under way, including the adoption in 2002 of the West African Quality Programme (WAQP) adopted by WAEMU that was extended to all ECOWAS countries in 2007. The WAQP, a regional regulatory framework for SPS measures, was intended to apply within ECOWAS. However, at the time of writing, there are still financial, technical and human resources constraints on the implementation, oversight and enforcement of the measures adopted.

Initiatives for cross-border co-operation around export sectors could improve product competitiveness and attract investment

Countries should continue to focus on harmonising the regulatory and legal framework for attracting investment. In this regard, countries see considerable merit in going beyond isolated national frameworks. Improvement in the business environment throughout the region is vital in order to attract major investment. Governance and institutional factors associated with the performance of the regulatory and fiscal framework should, *inter alia*, ensure protection for property rights, attract investors and limit the effects of corruption. In 2020, the region scored 51.8 points for ease of doing business compared to the world score of 63 points and a score of 78.4 for the OECD. Togo was the highest-placed West African country, ranking 97th in the world (out of 189 countries) and ninth in Africa. Only Togo and Nigeria (131st) were among the 10 economies that implemented the most reforms (World Bank, 2020c).

Governments can also work together to rebalance the power relationship in the governance of the value chains for the region's primary export crops. By working together, states increase their room for manoeuvre in negotiations with international purchasers. This has, for example, happened in the cocoa value chain between Côte d'Ivoire and Ghana, which control 60% of the global market and now set price floors below which cocoa will not be sold; this takes the form of a decent income differential, set at USD 400 per tonne for the 2020/21 season (CCC, 2020). Other forms of co-operation such as the introduction of quality marks or rules governing shared corporate responsibilities are also possible.

The introduction of cross-border special economic zones (SEZ) could stimulate regional complementarities. The aim of the tax incentives and greater availability of infrastructures

that SEZ offer to businesses is to create hubs for employment and competitiveness within countries. The fact that they are cross-border in nature inherently promotes the development of complete value chains. It enables businesses to capitalise on regional complementarities, hence the cross-border Sikasso/Korhogo/Bobo-Dioulasso (SKBO) SEZ between Mali, Burkina Faso and Côte d'Ivoire. Established in 2018, it aims to exploit cross-border agricultural and mining potential and create jobs. There is likely to be merit in scaling up initiatives of this kind throughout the sub-region. Cross-border SEZs can play a significant role in attracting FDI because of the business facilities they provide. They could thus contribute to technical knowledge transfer, upgrading productive capacities, and therefore the opportunity to integrate product-processing activities that add value.

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Statistical annex

Data used in this edition of *Africa's Development Dynamics* have been compiled and presented in tables available for free download on the Development Centre's website (https://oe.cd/AFDD-2022) along with some additional social and economic indicators that add context to the report's analysis.

All indicators that were chosen for the annex provide national data figures for all or nearly all African countries, as well as most countries in the rest of the world. These choices were made in order to allow for both comparisons between African countries and comparisons with groups of similar countries outside of Africa that could serve as benchmarks. These data give context to the analyses presented in the report and allow readers to investigate the underlying data in more depth.

Data were obtained from various sources, including harmonised data sets of annual national data from reputable international institutions, as well as some indicators that were calculated by researchers working on the publication. Figures will get updated as new data come available so that readers can always track the latest versions of key indicators. Therefore some differences between figures in the statistical annex and figures reported in the publication may reflect changes to the data tables made after the publication of the written report.

Access the online Africa's Development Dynamics Statistical Annex here: https://oe.cd/AFDD-2022.

Data tables available for free download on line

Tables	*Titles*	*Download it here*
Table 1	Indicators of growth, employment and inequality	https://doi.org/10.1787/888934298985
Table 2	Annual real GDP growth rate, 1990-2026	https://doi.org/10.1787/888934299004
Table 3	Annual population growth rate, 1990-2026	https://doi.org/10.1787/888934299023
Table 4	Annual real GDP growth per capita, 1990-2026	https://doi.org/10.1787/888934299042
Table 5	Demographic estimates	https://doi.org/10.1787/888934299061
Table 6	Basic education indicators	https://doi.org/10.1787/888934299080
Table 7	Projected education profiles	https://doi.org/10.1787/888934299099
Table 8	Projected youth education profiles	https://doi.org/10.1787/888934299118
Table 9	Labour force characteristics	https://doi.org/10.1787/888934299137
Table 10	Sectoral breakdown of the economy	https://doi.org/10.1787/888934299156
Table 11	Indicators of inequality and poverty	https://doi.org/10.1787/888934299175
Table 12	Gender indicators	https://doi.org/10.1787/888934299194
Table 13	Communications infrastructure	https://doi.org/10.1787/888934299213
Table 14	Digitalisation	https://doi.org/10.1787/888934299232
Table 15	Basic health indicators	https://doi.org/10.1787/888934299251
Table 16	Subjective well-being	https://doi.org/10.1787/888934299270
Table 17	Growth decomposition by expenditure	https://doi.org/10.1787/888934299289
Table 18	Public finances	https://doi.org/10.1787/888934299308
Table 19	Trade by manufacturing intensity	https://doi.org/10.1787/888934299327
Table 20	Export diversification	https://doi.org/10.1787/888934299346
Table 21	Global and regional trade	https://doi.org/10.1787/888934299365
Table 22	External financial inflows	https://doi.org/10.1787/888934299384
Table 23	Ecological sustainability	https://doi.org/10.1787/888934299403
Table 24	GVC backward participation by sector	https://doi.org/10.1787/888934299422
Table 25	GVC forward participation by sector	https://doi.org/10.1787/888934299441
Table 26	Origin and destination of added value	https://doi.org/10.1787/888934299460
Table 27	International trade costs	https://doi.org/10.1787/888934299479
Table 28	Corporate governance	https://doi.org/10.1787/888934299498
Download a table of country groupings here: https://doi.org/10.1787/888934299517 (see below).		
Download the data dictionary for the variables in these tables here: https://doi.org/10.1787/888934299536.		
Download all annex tables in a single Excel file here: https://doi.org/10.1787/888934299555.		

More extensive data, including time series for all variables back to 2000, are also available on line

The figures presented in these statistical tables, with the exception of Tables 2-4, represent the most recent years for which data are available. However, a complete dataset containing all these indicators for the years 2000-present in one Excel file can be downloaded from the following link: https://bit.ly/3g4I2tL. The same data in a compressed flat csv file can be downloaded from this link: https://bit.ly/3KLsQQd. Otherwise, the same indicators can be found online through the OECD's online statistical portal at https://stats.oecd.org/ and clicking on "Development", followed by "Africa's Development Dynamics" on the menu.

The online statistical annex includes interactive data analysis

In addition to allowing users to download all data listed above, the online statistical annex at the *Africa's Development Dynamics 2022* web page (https://oe.cd/AFDD-2022) features the interactive *Compare Your Country* data analysis tool. Users can use this tool to create visualisations of the full time series of certain key variables interactively, selecting which countries can be placed in comparison, the type of chart, and other parameters.

The data in the statistical annex are also available for key country groupings

The Statistical Annex reports statistics for nearly all world countries, and also aggregations of indicators over country groups developed for benchmarking and analysis. The table (https://doi.org/10.1787/888934299517) indicating the countries that belong to each group is among the files available in the statistical annex. The country groups featured in the analysis are the following:

- **The five regions of the African Union** (Central Africa, East Africa, North Africa, Southern Africa, and West Africa, as defined by the Abuja Treaty)
- **Africa and benchmark country groupings** (Africa, Asian countries excluding high-income countries, Latin America and Caribbean countries, and the World)
- **Resource-rich countries**

Countries that obtain a significant fraction of their GDP from underground natural-resource extraction are referred to as "resource-rich". These resource endowments can have major implications for economic, political, and social development. In this report, countries are identified as resource-rich based on whether, over the previous decade, the estimated contribution of the extraction of hydrocarbons, coal and minerals to economic output exceeds 10% of GDP in at least five years.

- **Income level**

The World Bank divides the countries of the world into four categories based on GNI per capita, using their Atlas Method:[1] low-income countries, lower middle-income countries, upper middle-income countries, and high-income countries.

- **Geographic access**

The report provides a breakdown between countries that are landlocked, countries that have a portion of coastline, and island nations. Gaining access to world trade can be complicated by a country's access to the ocean or lack thereof, while island nations have been shown to have different development patterns than other coastal nations. In addition to this three-way breakdown of countries, this report provides data on countries deemed "Landlocked Developing Countries (LLDC)" and "Small Island

Developing States (SIDS)" by the UN Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States (UN-OHRLLS).[2]

• Least developed countries[3]

The UN-OHRLLS classifies some countries as "Least Developed Countries (LDC)". This categorisation of countries was officially established in 1971, by the UN General Assembly, and represents countries that face low levels of socio-economic development. Countries are designated as LDC countries based on income criteria, the health and education of their populations, and their economic vulnerability.

• Fragile states[4]

The OECD studies fragility as a multi-dimensional concept of risks that could pose a critical challenge to the ability of countries to achieve their development aspirations, in particular the goals outlined by the UN's 2030 Agenda for Sustainable Development. Based on the results of this research, presented in the OECD *States of Fragility* report, countries are categorised as being "fragile" or "extremely fragile".

• Regional Economic Communities and other intergovernmental organisations

Partnerships of countries formed for the purposes of regional integration or co-operation that have economic or political significance and that are particularly relevant to an analysis of African economic performance are included here. This includes the 8 Regional Economic Communities (REC) recognised by the African Union, as well as other regional and international organisations, such as the Association of Southeast Asian Nations (ASEAN), Mercado Común del Sur (MERCOSUR), the European Union (EU) and the OECD that serve as benchmarks. Aggregate figures for PALOP (*Países Africanos de Língua Oficial Portuguesa*, or the Portuguese-speaking African countries) were included in response to a request from members of this country grouping.

Notes

1. Please see http://datahelpdesk.worldbank.org/knowledgebase/articles/378832-what-is-theworld-bank-atlas-method.
2. Please see www.un.org/ohrlls/.
3. Please see www.un.org/ohrlls/content/least-developed-countries.
4. Please see www.oecd.org/dac/conflict-fragility-resilience/listofstateoffragilityreports.htm.

Africa's Development Dynamics 2022

REGIONAL VALUE CHAINS FOR A SUSTAINABLE RECOVERY

Africa's Development Dynamics uses lessons from Central, East, North, Southern and West Africa to develop policy recommendations and share good practices. Drawing on the most recent statistics, the analysis of development dynamics aims to assist African leaders in reaching the targets of the African Union's Agenda 2063 at all levels: continental, regional, national and local.

The 2022 edition explores how developing regional value chains can help African countries rebound from the socio-economic shocks of the COVID-19 pandemic and accelerate productive transformation. It targets policy areas where private and public actors can support regional value chains when operationalising the African Continental Free Trade Area (AfCFTA). African firms can harness digital innovations to reduce production costs, and governments can design policies for skills development, public procurement and foreign investment to strengthen industrial linkages. Two continental chapters examine related African initiatives and global trends. Five chapters tailor policy recommendations to specific value chains in each region.

Africa's Development Dynamics feeds into a policy debate between governments, citizens, entrepreneurs and researchers. It proposes a new collaboration between countries and regions, focusing on mutual learning and the preservation of common goods. This report results from a partnership between the African Union Commission and the OECD Development Centre.

Consult this publication on line at *www.au.int/en/afdd2022* and *https://doi.org/10.1787/2e3b97fd-en*

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