

## 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.

# BRIEF

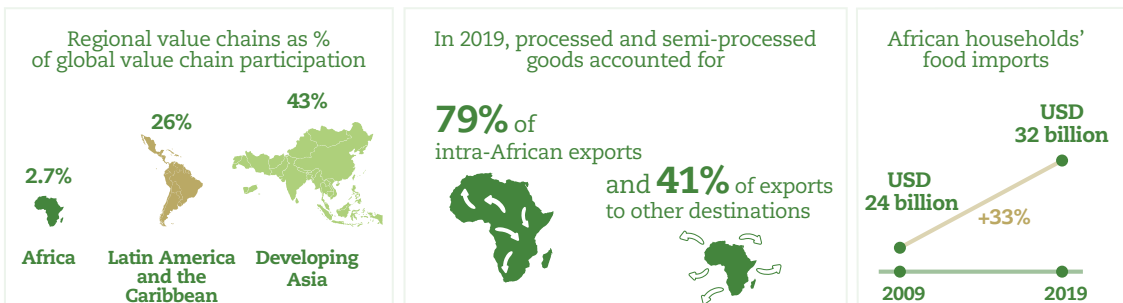
Strengthening local production through regional value chains is critical for Africa to rebound from the economic shocks of the COVID-19 pandemic. The African Continental Free Trade Area can develop regional value chains by tackling intra-African trade costs, barriers to investment and lack of competitiveness. 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

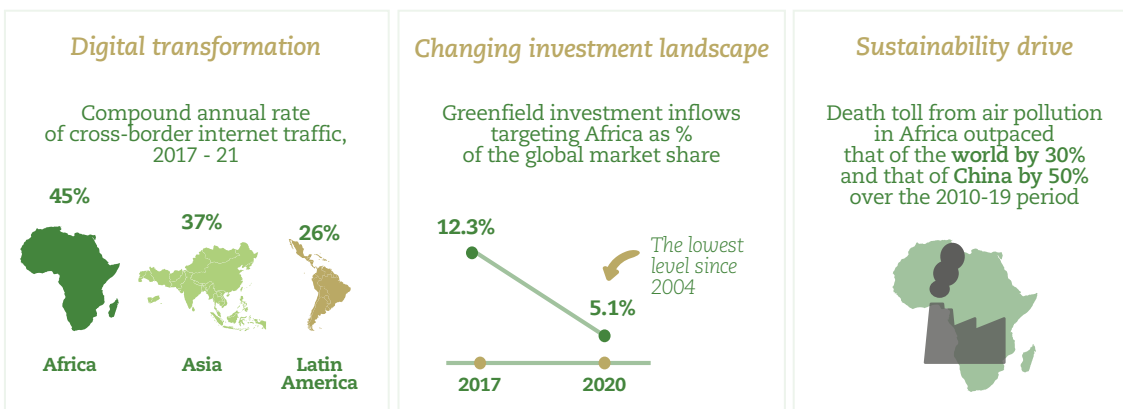
The AfCFTA offers opportunities to accelerate Africa's productive transformation and sustainable recovery from COVID-19



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

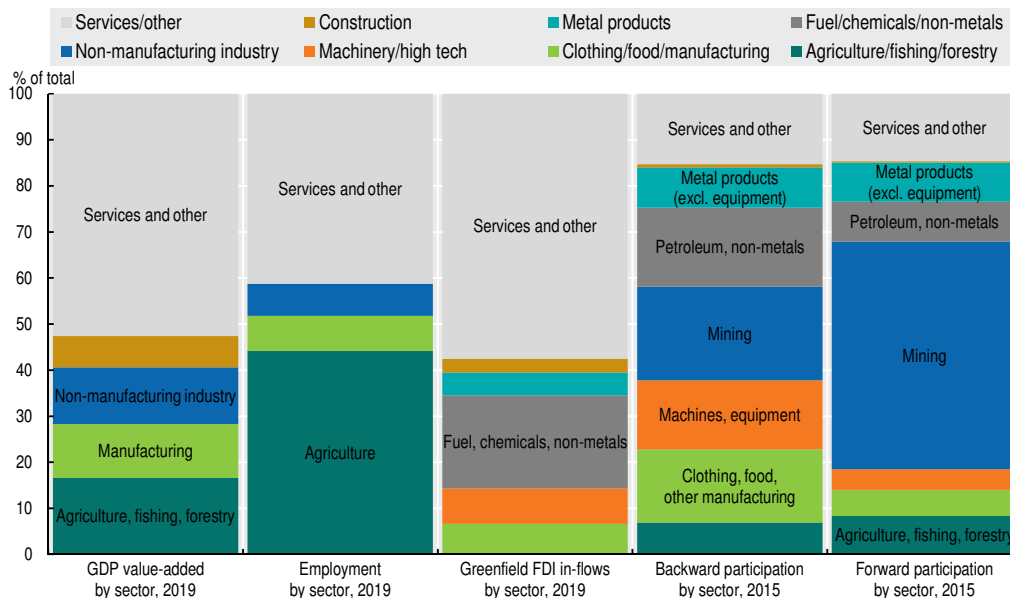


Policy makers must harness emerging global trends



## Africa continental profile

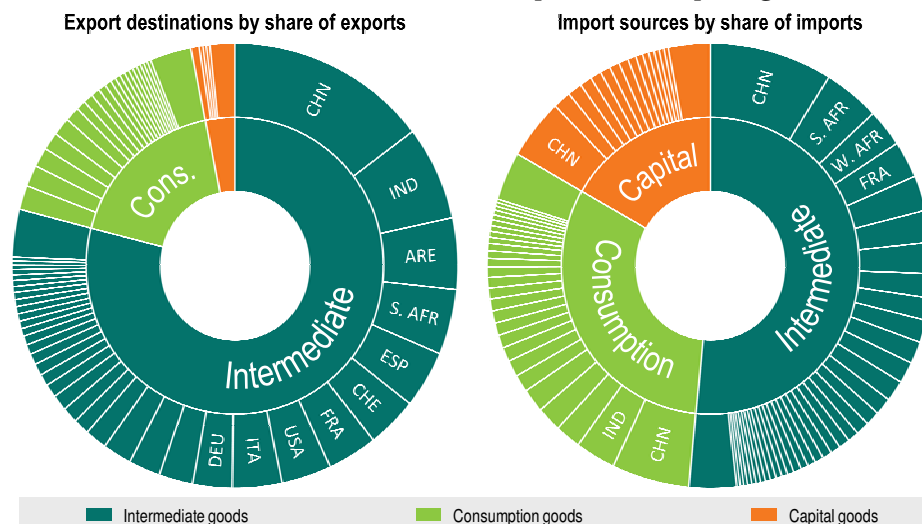
Figure 1.1. Economic and trade profiles of Africa, expressed as % of total



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](http://www.worldbank.org/en/publication/wdr2020/brief/world-development-report-2020-data); fDi Markets (2021), fDi Markets (database), [www.fdiintelligence.com/fdi-markets](http://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.

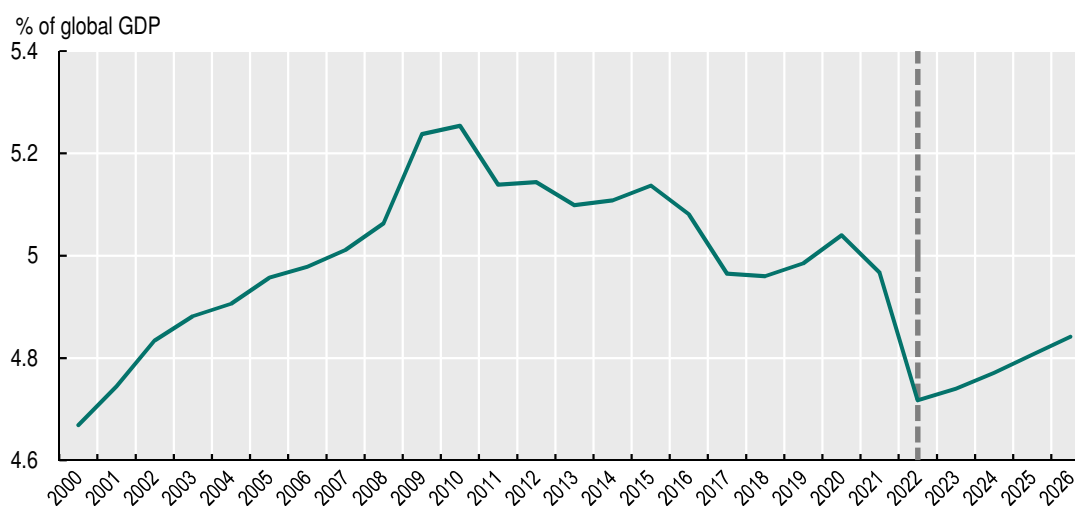
Source: Authors' calculations based on data from CEPII (2021), BACI (database), [www.cepii.fr/cepii/en/bdd\\_modele/presentation.asp?id=37](http://www.cepii.fr/cepii/en/bdd_modele/presentation.asp?id=37).

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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



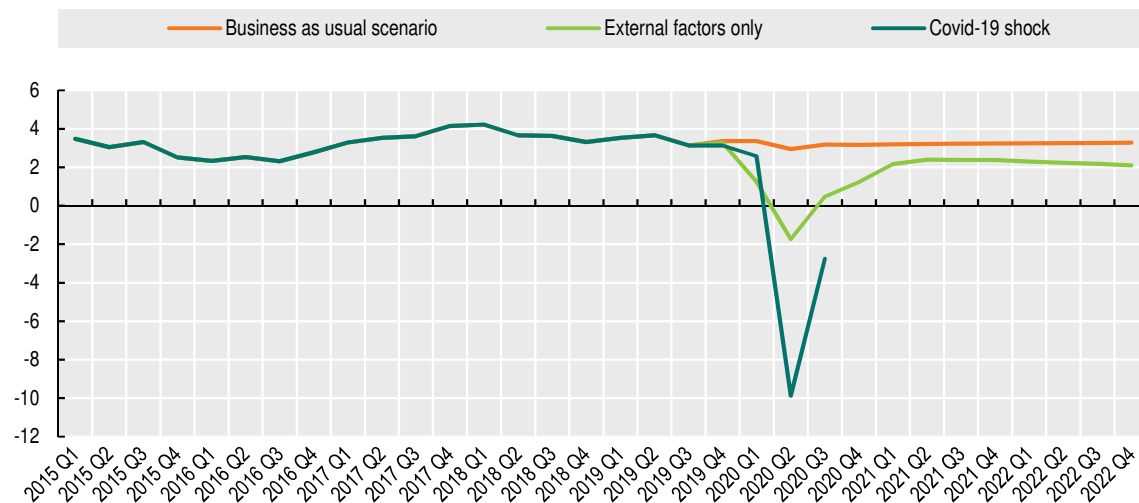
Source: Authors' calculations based on data from IMF (2021a), World Economic Outlook Database, October 2021 projections, <https://www.imf.org/en/Publications/WEO/weo-database/2021/October>.

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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).

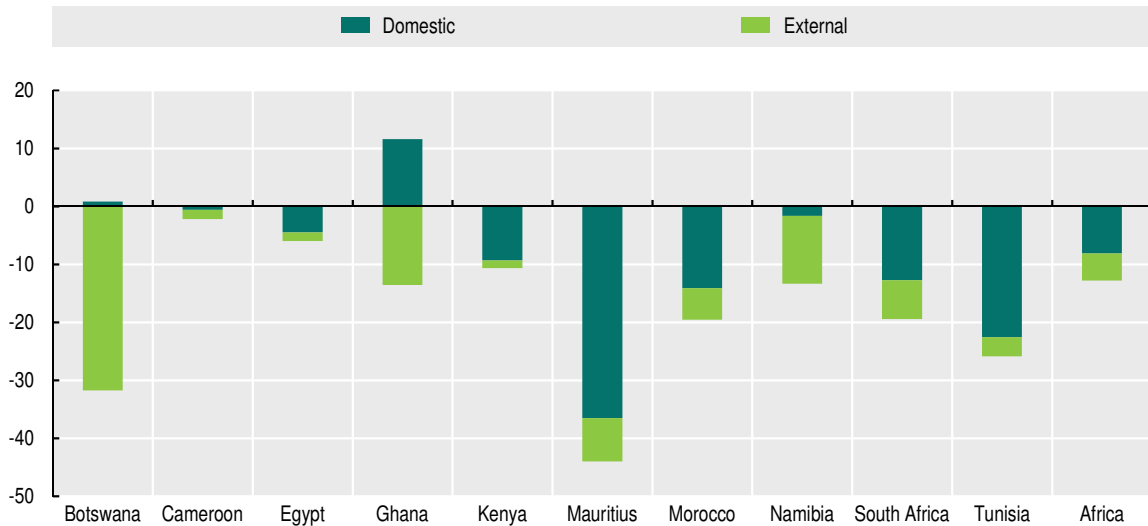
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**A global recovery will boost Africa's growth if domestic policies remove constraints on local production.** The recovery in China, Europe and the United States (US) can help Africa's growth reach 2.25% by 2022, according to our forecast for ten African 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.

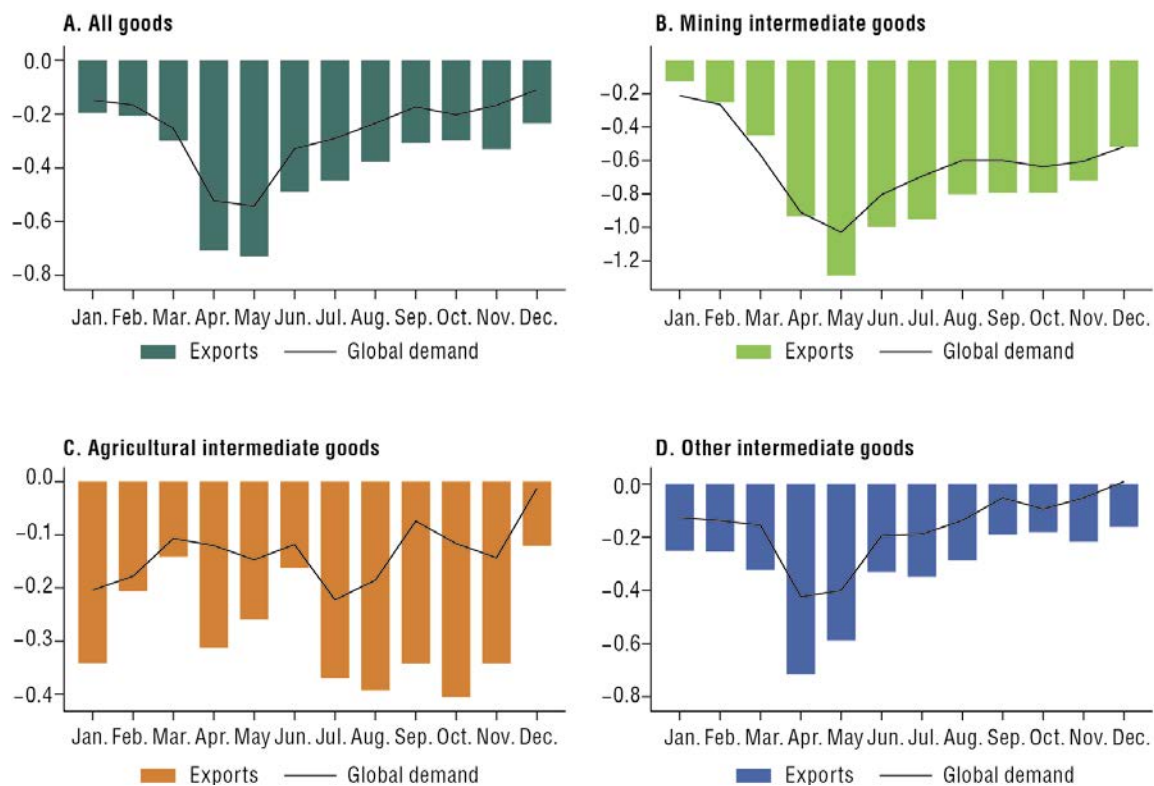
**African exports have been lagging behind the recovery in global demand.** Bilateral trade data on 49 African countries suggest that global demand for their products suffered a large decline in the second quarter of 2020 (Figure 1.6, Panel A). While global demand rebounded in the latter half of 2020, 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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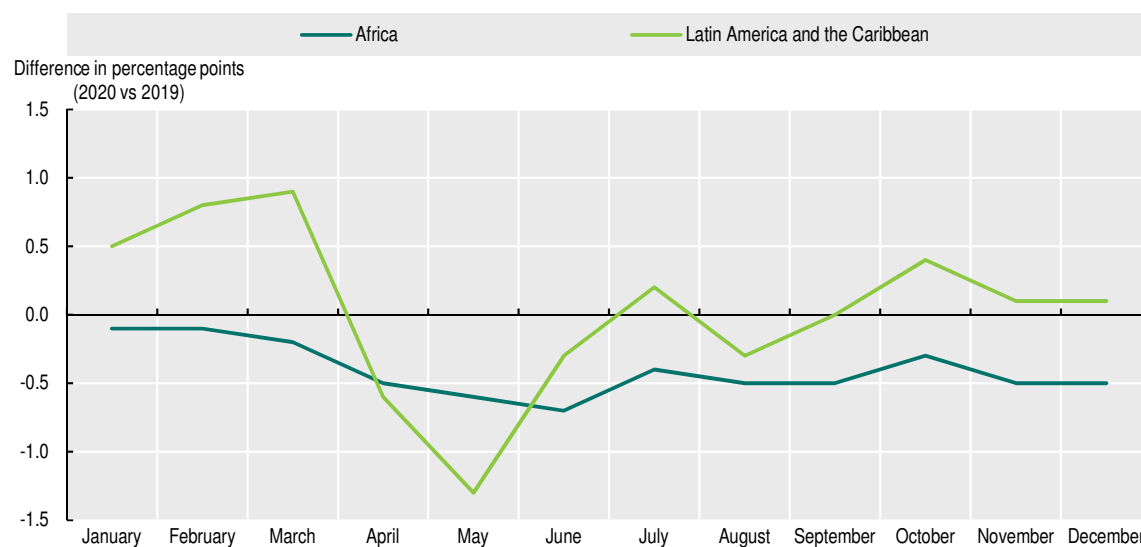
Figure 1.6. Export growth versus global demand growth for Africa, 2019-20



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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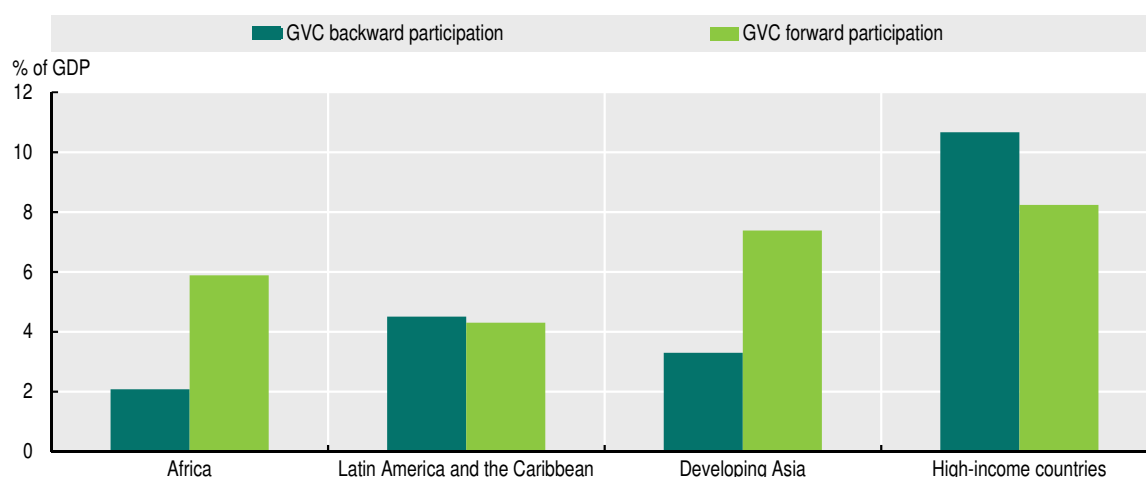
**Lifting local production constraints will be critical to accelerate Africa's economic recovery, reduce poverty and create jobs.** Analysis for this report, based on World Bank's *Enterprise Surveys* collected during the first month of the COVID-19 outbreak, suggests that African exporters were more 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/>.

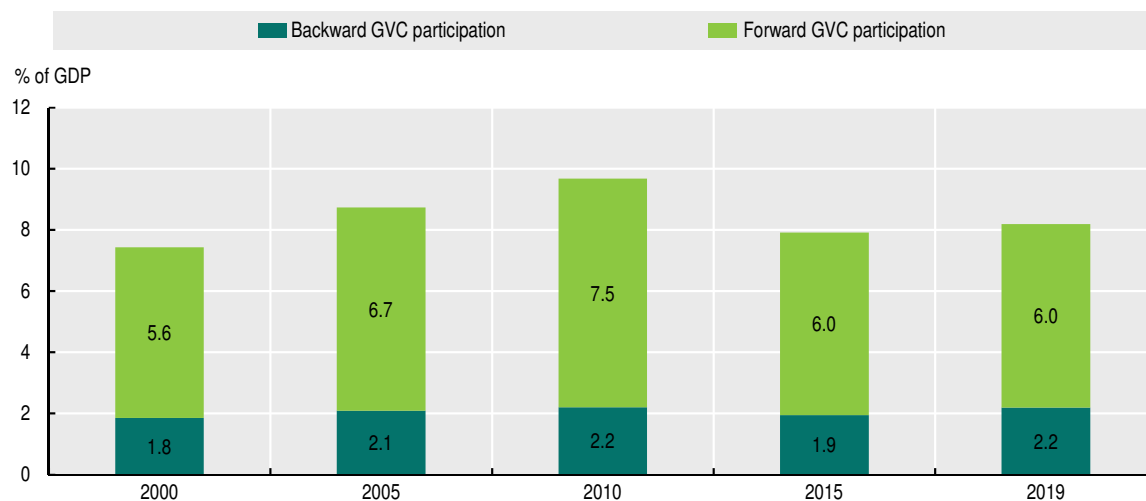
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Africa's GVC participation patterns have remained unchanged over the last two decades. Africa's limited backward linkages have remained at 2% on average since the early 2000s, while forward linkages have stayed around 6.3% (Figure 1.9). This stagnation 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<sup>1</sup> – 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.

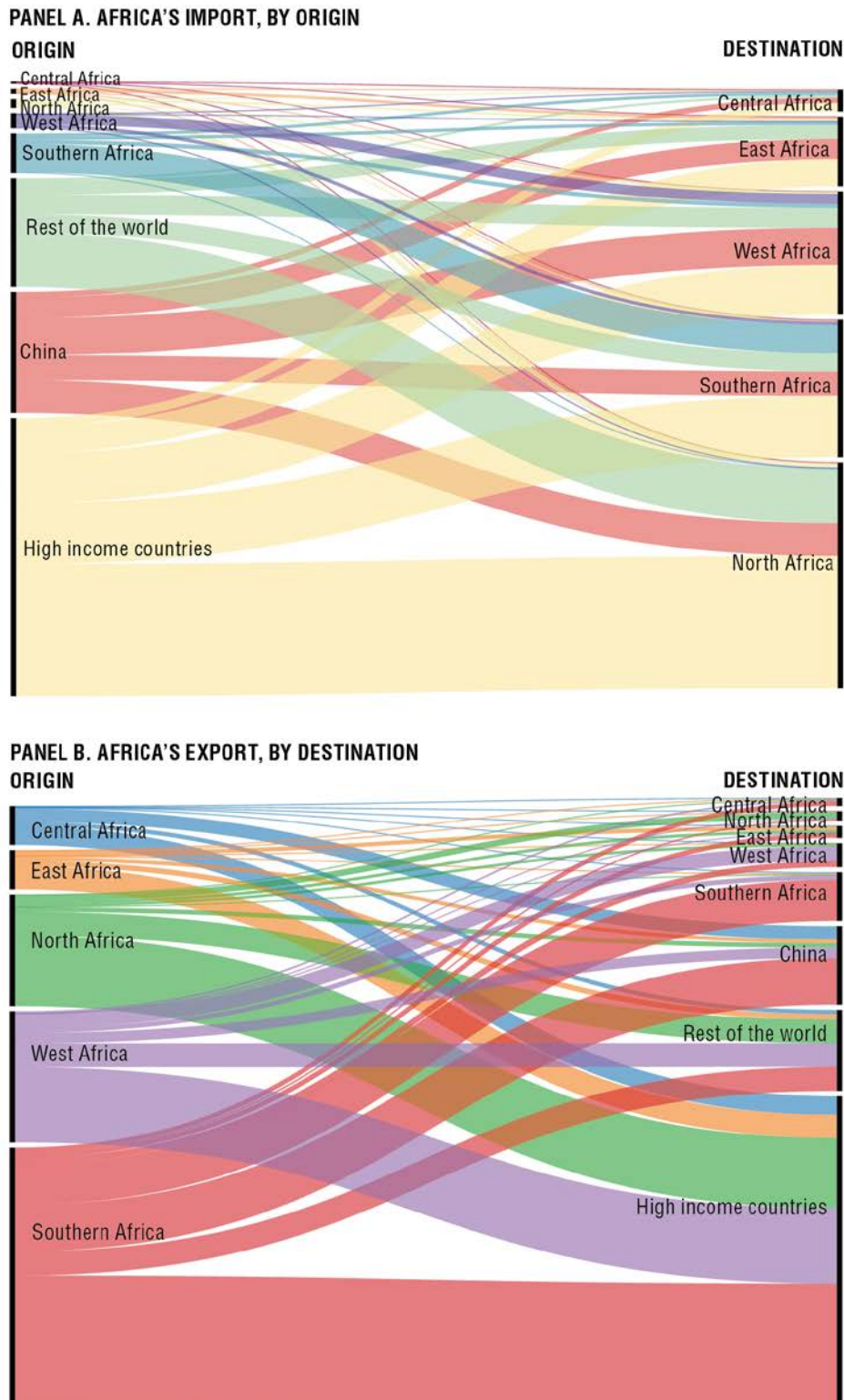
Source: Authors' calculations based on data from Casella et al. (2019), UNCTAD-Eora Global Value Chain Database, <https://worldmrio.com/unctadgvc/>.

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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

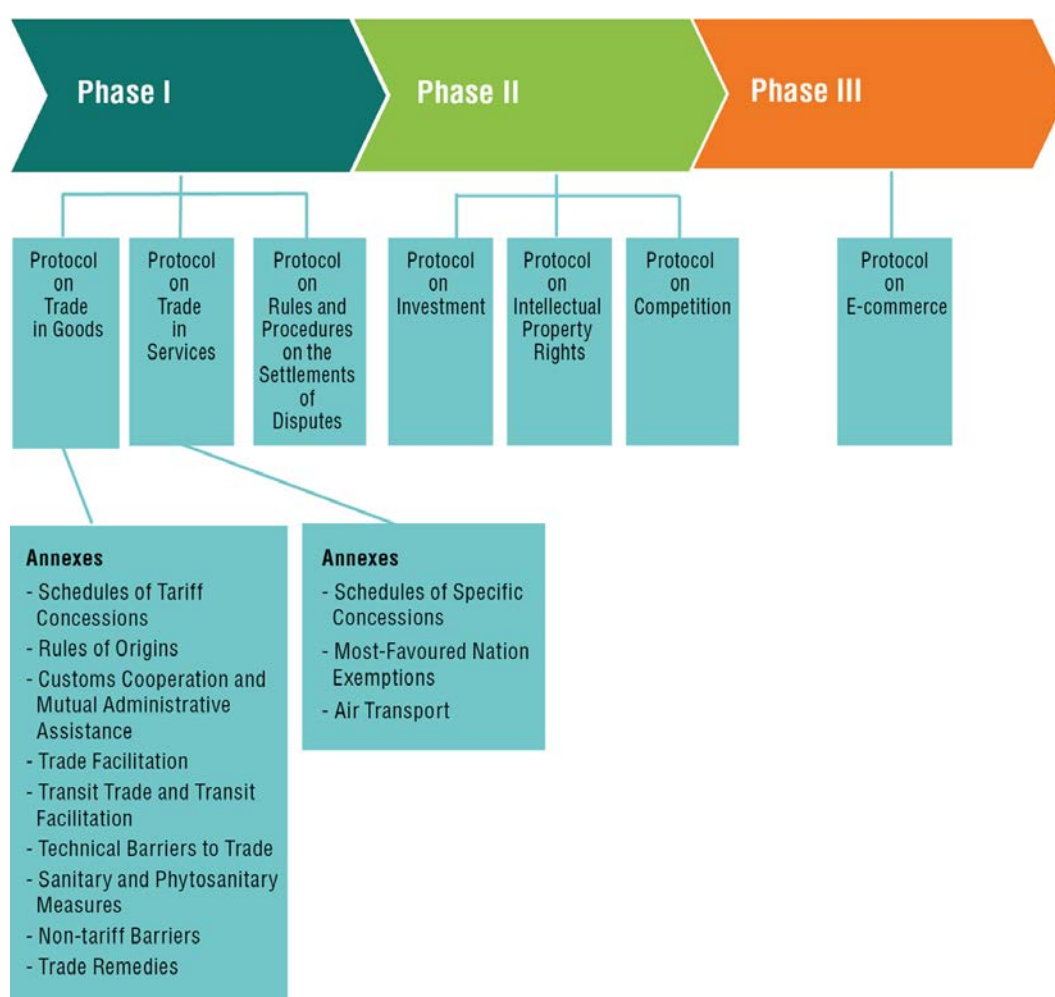
### The AfCFTA is triggering a new momentum to develop regional value chains

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”.

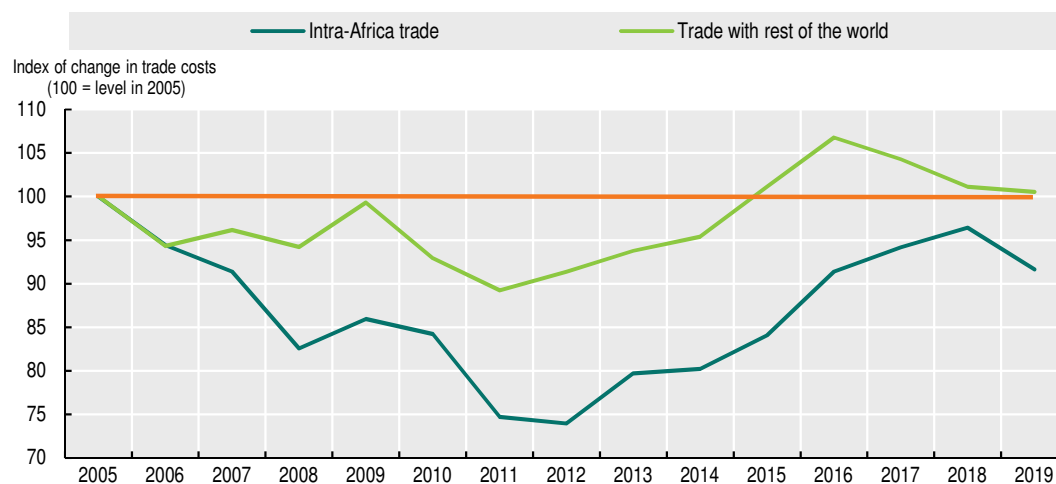
**Much of the global South outside Africa has now made good progress in re-prioritising trade with their neighbours, raising the intra-continental share of trade to 50% or more.** For example, as a share of its total merchandise exports, India's exports to Asia climbed from just above 20% in 1949 to 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](http://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 intermediaries 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.

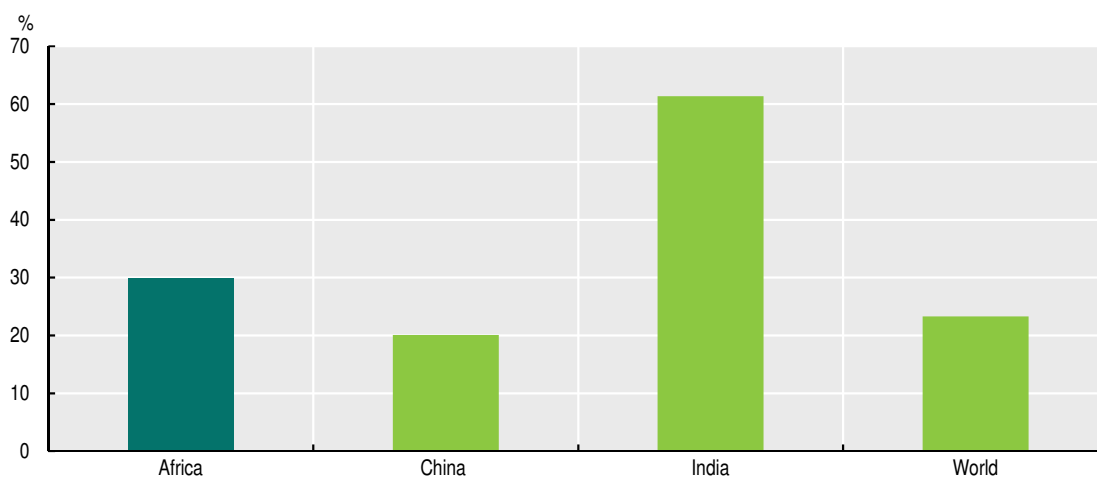
**The AfCFTA allows an opportunity for governments to pursue progressive upgrading of cross-border trade.** First, governments can reduce the costs of formalising cross-border trade by providing guidance on trade procedures, establishing one-stop shops to reduce the administrative workload, facilitating 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<sub>2</sub> emission by 0.3% and non-CO<sub>2</sub> 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<sub>2</sub> 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<sup>2</sup> 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](http://www.healthdata.org/gbd/2019).  
StatLink  <https://doi.org/10.1787/888934297921>

## 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.

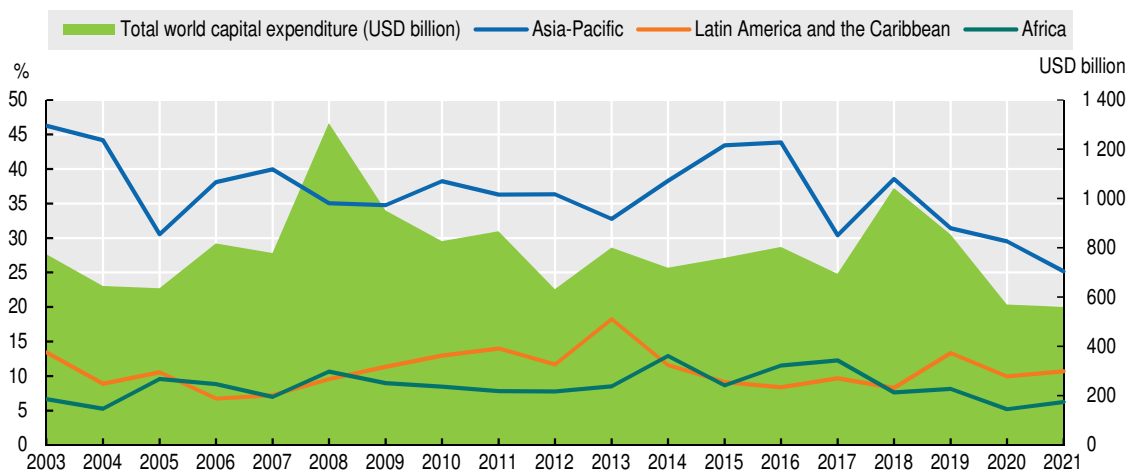
Source: Authors' compilation.

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

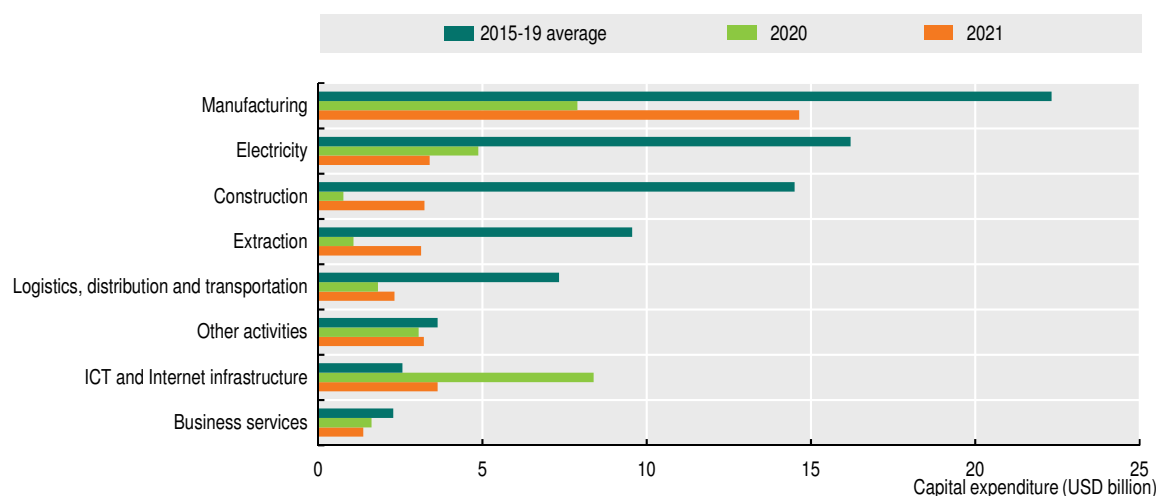


Source: Authors' calculations based on FDI Markets (2021), FDI Markets (database), [www.fdimarkets.com](http://www.fdimarkets.com).  
StatLink <https://doi.org/10.1787/888934297940>

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](http://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).<sup>3</sup> 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	
<b>Continental</b>	• 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).
<b>Cameroon</b>	• 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.
<b>Egypt</b>	• 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.
<b>Ghana</b>	• 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.
<b>Kenya</b>	• 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).
<b>South Africa</b>	• 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 (Habiyaemye 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.

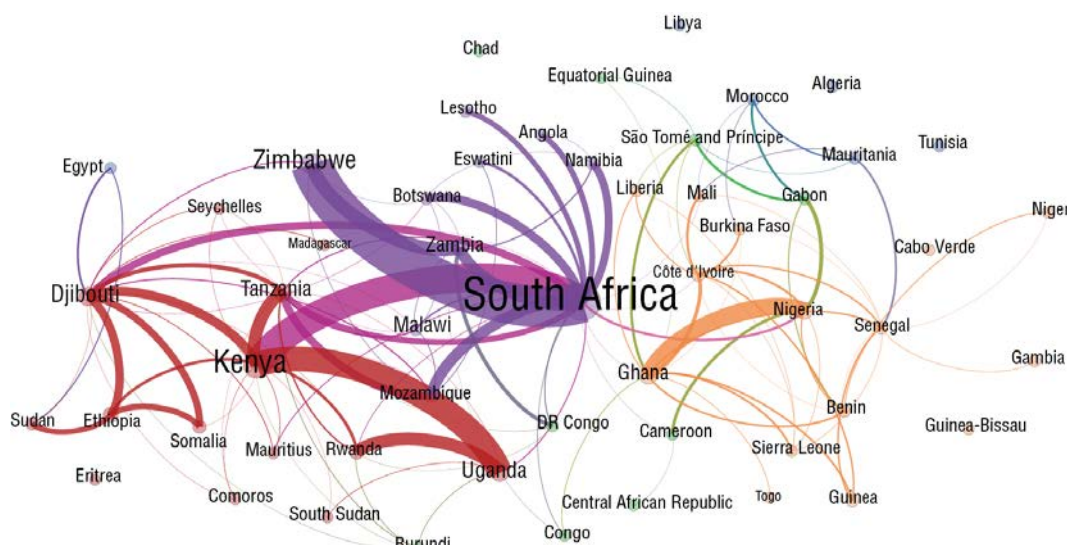
Adoption of new technologies can make trade-related institutions more efficient and facilitate the implementation of the AfCFTA. Blockchain-enabled solutions can serve in applying rules of origin by generating, storing and sharing information, which allows for real-time and low-cost verification of a 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](http://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	
<b>Continental</b>	• 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.
<b>Egypt</b>	• Issued a USD 750-million green bond to finance USD 1.95 billion in green public investment projects.
<b>Ethiopia</b>	• Planned a USD 3.6 million four-year project on nature-based solutions for water resources infrastructure and community resilience (IISD, 2020a).
<b>Mauritius</b>	• 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).
<b>Nigeria</b>	• 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.
<b>Senegal</b>	• 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”.<sup>4</sup> 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:  $0.25 \times \log(1+r/100)$  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](http://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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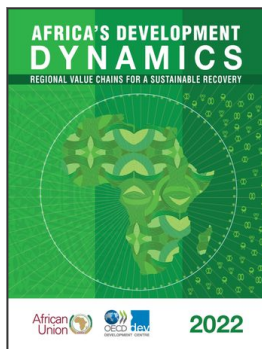
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