

AFRICAN TRADE REPORT 2019



African Trade in a Digital World

African Export-Import Bank
Banque Africaine D'Import-Export

Transforming Africa's Trade

African Trade in a Digital World

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Foreword

The 2019 edition of the African Trade Report (ATR) titled **AFRICAN TRADE IN A DIGITAL WORLD** has been prepared at a time when digitalisation is permeating all aspects of organizational and business processes as well as our everyday lives, and driving changes within industries, organizations, and markets. The Report provides insights into the effects of digital transformation on export competitiveness and effective integration in production networks. Although digitalisation is already a source of efficiency gains in the trade arena—where it is increasing market access and changing the structure of trade finance and payment systems—its benefits in terms of economic development are wide-ranging. In addition to increasing efficiency and productivity at firm level, digitalisation can reduce the dependence on commodities by accelerating the diversification into new and more value-added products. Digital technology applications are increasingly removing barriers imposed by borders, making it possible for businesses to transact across borders seamlessly.

This report also undertakes a comprehensive review of policies and regulatory reforms that can ensure a successful transition towards digital transformation and propel countries to their full potential in the digital age. It stresses that some of the key challenges that have affected the growth of African trade—most notably a deficit of physical infrastructure and its inherent implications for supply-side constraints—will not suddenly disappear in the digital era. The report then argues for bold investment to bridge the digital divide that exists between Africa and the rest of the world. In addition to digital infrastructure, success in the digital era will depend on the capacity of African governments to strengthen their competitiveness and bolster their regulatory environments for the development of digital ecosystems. Furthermore, African governments must adopt and implement strong incentive measures for African businesses to increase their digital competitiveness and boost their level of innovation, to drive the process of digital transformation.

This report also provides a comprehensive analysis of the state of global and African trade in 2018. After the rebound in global growth witnessed in 2017, the volume of global merchandise trade decelerated in 2018, growing by 3 percent, down from 4.6 percent the year before. The deceleration was particularly significant in Europe and Asia, perhaps reflecting the spillover effects of the escalating trade tensions between the two leading global economies. In that increasingly challenging environment, Africa's total merchandise trade expanded by 7 percent in 2018, largely driven by a recovery in its oil-exporting countries and expanding Africa-South trade, especially intra-African trade.

While extra-African trade increased by more than 5 percent in 2018, the value of intra-African trade expanded by over 17 percent, to account for 16 percent of total African trade during the review period. This growth was largely driven by industrial products and manufactured goods, which continue to account for the lion's share of cross-border trade within the region. Industrial products and manufactured goods also exhibit the greatest intra-African export potential, as this report shows. These results have major implications for economic integration, especially at a time when the implementation of the African Continental Free Trade Area Agreement is set to shift the balance of potential trade relationships within the region.

Looking ahead, in the short term, Africa is expected to remain on a strong economic growth path, with expanding aggregate output and improving trade performance in 2019. The region will ride on strengthening Africa-South trade and expanding intra-African trade, which has been absorbing adverse global shocks. However, in the medium term, risks to global growth and trade point to a downward trend. Should the escalation of trade tensions lead to a full-blown trade war, then they could further contract global demand and delay investment decisions. To mitigate the potential adverse effects of these risks on African trade and growth, this report argues for a speedy transition towards the digital economy. This would both increase productivity and value addition across the different stages of production, and further expand Africa-South and intra-African trade, taking advantage of economies of scale offered by the African Continental Free Trade Area.

The Report has been prepared by the Afreximbank's Research and International Cooperation Department in collaboration with the United Nations Economic Commission for Africa (UNECA) the United Nations Conference on Trade and Development (UNCTAD). I hope all readers will find the contents as useful as I did.

Professor Benedict O. Oramah

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June 2019

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Chapter One



Introduction and Executive Summary

The African Export-Import Bank's 2019 African Trade Report examines developments in Africa and in other regions in 2018. The report is produced at a time of rising policy uncertainty and growing concerns about the outlook for growth in both developed and developing economies, occasioned in part by the escalation of trade tensions between the United States and China, the world's two largest economies, and by heightening global volatility in the face of tightening financial conditions.

Global output expanded by 3.6 percent in 2018, down from 3.8 percent the previous year, on the back of a moderation of growth drivers, especially in advanced economies and particularly in the US as the effect of fiscal stimuli waned. Notwithstanding the deceleration in global growth in 2018, output in Africa expanded by 3.4 percent, down from 3.6 percent in 2017. Though still below its potential, Africa once again ranked among the fastest-growing regions in the world, highlighting the continued resilience of its economies to negative shocks and global volatility. That resilience reflects several factors: the diversification of African trading partners in a context of expanding South-South trade, growing fixed investment, and strengthening public and private consumption that is spurred by softening inflation and expanding urban populations, and an increasingly favourable macroeconomic environment.

Despite the increasing resilience of the region to global headwinds, its relative contribution to global trade remains marginal. Africa accounted for only 2.6 percent of global trade in 2018, from 2.4 percent in 2017. At the same time, while intra-African trade has improved to around 16 percent in 2018, from 5.1 percent in 1980, it remains low compared to levels of intra-regional trade in other regions, including Europe and Asia. This in part reflects Africa's sources of growth, which remain largely dominated by primary commodities and natural resource extraction. These patterns of growth continue to stunt the continent's participation in the global trading system, which is largely dominated by industrial products and manufactured goods with increasing technological content.

It is against this backdrop that the title of the 2019 African Trade Report is ***African Trade in a Digital World***, a recognition of the implications of the ongoing process of digital transformation and the potential it holds for economic development and effective integration of African countries into the global economy. Through increased automation of existing business and organisational processes, digitalisation is revolutionising payment and delivery systems and expanding both market access and trade and investment opportunities. The report shows that in addition to increasing efficiency and productivity,

digitalisation could reduce the continued dependency of the region on primary commodities and natural resources, by accelerating its diversification into more value-added products that would expand both extra- and intra-African trade.

The report notes, however, that African governments must be mindful of the challenges that come with digitalisation. Increasingly, digitalisation is associated with servicification of the economy—the increase of purchases, production, sale and export of services—plus increasing re-shoring and limited offshoring, and changing knowledge flows. The ongoing digital transformation is also driving a radical structural transition, with new data, connectivity, automation and the digital customer interface challenging existing value chains. These developments are redefining the parameters of export-led growth development models, which have been the major drivers of global convergence in the past. In addition to closing the digital divide that exists between Africa and the rest of the world to improve their digital maturity, the report encourages African governments to strengthen their competitiveness and bolster their regulatory environments, to develop digital ecosystems that are required to take advantage of the opportunities associated with digitalisation.

The report also examines global and African economic and trade developments in 2018. After a boost to asset prices in the early part of the year, largely fuelled by US tax stimuli and improving investor sentiment, decelerating global growth—which also became less synchronised in 2018—weighed on financial markets in the latter part of the year. This resulted in a year-end rout in equity and credit markets, in the face of heightening global volatility. Reversals in capital flows from developing economies, in a context of rising US interest rates and increasingly attractive US assets, weakened local currencies in some emerging and developing markets.

Under these increasingly challenging global economic and financial conditions, the volume of global trade decelerated. Estimates from the World Trade Organization (WTO) show that the volume of global merchandise trade grew by 3 percent in 2018, down from 4.6 percent in 2017. The slow growth of world merchandise trade was largely driven by weak global demand, volatility in financial markets, and tightening monetary conditions. However, a sharper slowdown in the volume of trade recorded in developing economies was the main driver of deceleration. The pace of growth of merchandise exports in developing economies decelerated to 4.6 percent in 2018 compared with 5.3 percent in 2017, while merchandise imports grew at a rate of 4.8 percent, compared with 8.1 percent the previous year. Merchandise exports of developed economies grew by 3.5 percent, compared with 3.4 percent in 2017, while merchandise imports grew by 3.2 percent in 2018, compared with 3 percent prior.

Throughout the year, the global trade environment was dominated by escalating trade tensions between the United States and its major trading partners, most notably Canada, Mexico, and China, which together accounted for a combined 58.9 percent of the US trade deficit. The US government's imposition of unilateral tariffs to improve its external balances was met with retaliatory measures from its trading partners. Chinese products bore the brunt of the dispute, given that China alone accounted for about 45 percent of the US trade deficit with its major partners.

Commodity markets were generally weaker, but enjoyed bouts of strength, particularly in the first half of the year, due principally to the rally in oil markets as geopolitical tensions raised concerns over possible supply disruptions. The inertia in commodity markets, in a context of an increasingly challenging geopolitical environment, came on the heels of the end of the commodity



super cycle. This heightened both macroeconomic instability and shortages of liquidity in highly commodity-dependent economies across Africa, a region where oil-exporting countries alone account for 50 percent of gross domestic product (GDP) and 45 percent of exports.

In that challenging global trade and economic environment, Africa's total merchandise trade grew by 7 percent in 2018. Though down from the 12 percent growth rate achieved in 2017, the sustained expansion raised the value of Africa's total merchandise trade to more than US\$997.9

billion. Even though this figure is still 12 percent down from the peak of US\$1.14 trillion recorded in 2013, it is the highest value since the end of the commodity super cycle in 2014. This resilience in the growth of African trade reflects the continued diversification of its trading partners, a process that over time has been reducing Africa's exposure to business cycles associated with individual countries or regions.

While the European Union (EU) remained Africa's main trading partner in 2018, accounting for 29.8 percent of total trade,



African trade with the South has grown significantly over the last decade to become the largest component, accounting for more than 35 percent of total African trade in 2018, up from 33.6 percent in 2017. Under these changing trade patterns, China and India have further consolidated their positions as Africa's first and second single largest trading partners, respectively. These two countries together accounted for more than 21 percent of total African trade in 2018. In addition to growing Africa-South trade, the continued improvement in the prices of global commodities sustained Africa's increase in total merchandise trade. Africa's total merchandise exports grew by 13 percent, a better performance than import growth of about 2 percent. This narrowed the region's

trade deficit to US\$34.2 billion, down from US\$79.5 billion in 2017.

The sustained recovery in the growth of Africa's merchandise trade also reflects the improving performance of intra-African trade, which has been increasing steadily and further accelerated in 2018, growing by 17 percent to reach US\$159.1 billion. Expressed as a percentage of total African merchandise trade, this increase in intra-African trade set a new record of 16 percent, up from 15.5 percent in 2017. The growing share of intra-African trade is partly due to strengthening demand for manufactured goods produced by leading industrialised African economies, such as Egypt and South Africa. Developments in intra-African trade

also reflect the increasing role of technology and digitalisation. The growing rate of internet penetration and development of e-commerce platforms is expediting transactions at lower costs and giving rise to a new generation of transnational digital consumers across the region.

Looking ahead, growth in the volume of world merchandise trade is projected to decelerate further, to 2.6 percent in 2019, after a slower growth of 3 percent in 2018. The downward trend in the growth forecast assumes a further contraction of world trade in a context of escalating trade tensions, weakening investment in the face of disruptions of global value chains, and continued weak growth prospects within the Euro zone, which has the largest share of world trade. These developments are expected to affect global growth which is projected to slow to 3.3 percent in 2019, from 3.6 percent in 2018, but with growth in developing economies comparatively better at 4.4 percent, albeit down from 4.5 percent.

Consistent with previous years, China and India will continue to be the locomotives driving global growth, with both countries forecast to continue enjoying growth rates that are mostly above the world average in 2019. The uninterrupted strong performance of these key trading partners, plus growing intra-African trade that has been absorbing adverse global shocks, will sustain output expansion in Africa, where forecasts point to GDP growth accelerating to 3.9 percent in 2019.

However, in the medium and long terms, risks to global and African growth are significant and point to a downward trend. A further escalation of trade tensions and increasing policy uncertainty could further contract global demand and growth,

especially in Europe and China—Africa's key trading partners, which have been particularly affected by the policy shift towards a zero sum-game global trading environment. At the same time, a sharper deceleration in market sentiment could further accelerate capital outflows from developing market economies and trigger portfolio reallocations away from risk assets, and wider spreads compared with safe-haven securities.

The return to the WTO and multilateral system—which provides the framework for resolving trade disagreements cooperatively—is critical for mitigating these emerging risks to growth and trade at the global level. At the same time, sustaining the growth of both Africa-South trade and intra-African trade are key to keeping Africa on a path of increasing resilience and steady growth of trade and output. The implementation of the African Continental Free Trade Area Agreement (AfCFTA) should provide the opportunity to expand cross-border trade and thereby to narrow the large and persistent gap between potential numbers and actual numbers for intra-African trade.

This report is organised into eight chapters. After this introduction and executive summary, Chapter 2 covers thematic research about “Digital Transformation for Intra-Regional Trade and Industrialisation in Africa.” Chapter 3 reviews global and African economic and financial developments, while Chapter 4 discusses global and African trade and the trading environment. Chapter 5 reviews the dynamics in commodity markets, Chapter 6 discusses intra-African trade, and Chapter 7 reviews the potential implications of digital transformation for intra-African trade. The concluding Chapter 8 reviews the prospects for global and African economic and trade developments in the near term.

END

2

Chapter Two



Digital Transformation for Intra-Regional Trade and Industrialization in Africa

2.1 Introduction

Economic studies and empirical data highlight the substantial benefits that developing countries have reaped from integration into the world economy. Several of the economies of East Asia successfully pursued export-oriented industrialisation. The emphasis on trade liberalisation, particularly export orientation, in the past three decades has led to a phenomenal growth in world merchandise trade, which has consistently grown faster than output. However, Africa remains marginalised in the global trading system, with its share in world exports falling from about 6 per cent in 1980 to 2.3 per cent in 2018, and its share of world imports falling from about 4.6 per cent in 1980 to 2.5 per cent in 2018. Meanwhile, intra-regional trade has improved from 5.1 per cent in 1980 to around 16 per cent in 2018 but this remains low compared with levels of intra-regional trade in Europe (73 per cent) and Asia (52 per cent).

The marginalisation of Africa in global trade is the consequence of a number of factors, most notably the continued reliance on primary commodities and natural resources for export in a world where global trade is increasingly dominated by manufactured goods with technological content. During

the most recent episode of globalisation, the structure and patterns of African trade were further exacerbated by premature deindustrialisation, which led to a sharp decline in the contribution of manufacturing value-added to GDP across the region. Even though Africa's exports have in recent years witnessed a reorientation away from stagnating OECD markets toward emerging and fast-growing markets in the South, especially China and India, the composition of Africa's export basket has not changed significantly. Primary commodities and natural resources continue to account for a significant share of total African exports. Most countries in the region have a commodity export dependence of more than 80 per cent, whereas industrial products and manufactured goods account for the lion's share of African imports.

Even though addressing this dichotomy in African trade has been central to all national and continental development strategies, including the African Union's Agenda 2063, which prioritises industrialisation, manufacturing and value addition, effectively transforming African economies to move up global value chains (GVCs) remains a major development challenge. In a zero-sum game global trading environment, where the drivers of productivity growth

and economic transformation—most importantly technology and innovation—have been used as tools to enhance export competitiveness and boost market share, the widening technological gap between Africa and other regions of the world has become even more important, with the consequences felt in the dynamics of growth and the composition of African trade.

The Fourth Industrial Revolution (IR 4.0) taking place is transforming the traditional industrialisation path and could accelerate the process of technological diffusion for development convergence. At the heart of IR 4.0 is digitalisation, which draws on digital technology (DT) to fundamentally change existing business models and production processes. The digital economy is transforming value chains, skills development, production, and trade globally. Digitalisation therefore presents new and exciting opportunities for African countries to increase their efficiency, diversify into more value-added products, expand regional and global trade, lower the cost of production, change the dynamics of commodity dependence, and increase export competitiveness. Digitalisation can lower barriers to entry, help connect African traders, and offer payment and logistics solutions that increase the competitiveness of African trade. Digital trade can also serve as a tool to boost intra-African trade.

However, digitalisation presents challenges, including employment displacement, market concentration, and competition. At the same time, the digital divide between African countries and the rest of the world, most notably in terms of ‘access’ to and ‘use’ of DT, is a major constraint on the path to digitalisation-led economic transformation in Africa. African policymakers and businesses will therefore need to adapt to the new digital climate to ensure that digitalisation is able to support industrialisation and trade ambitions, especially during implementation of the African Continental Free Trade Area

(AfCFTA) Agreement. After a review of the potential benefits of digitalisation for economic transformation in Africa, this chapter outlines a set of policy reforms and investments required for Africa to leapfrog into the world of more developed and globally competitive economies.

2.2 Digital Transformation and Economic Transformation

Digital transformation has wide-ranging implications for economic development and provides opportunities to accelerate economic transformation in Africa. Historically, progress on the diversification of African sources of growth and trade have been constrained by several factors, including the technology deficit and the widening technological gap between Africa and the rest of the world, the colonial model of resource extraction and exports of raw material and primary commodities, deficits of economic infrastructure and technical skills, and the increasing technological content of global trade. As a result, and except in a few cases, countries have not been able to build vibrant regional value chains to integrate into GVCs.

Globally, digitalisation is increasing at a rapid pace, bringing with it a higher level of automation and inter-connectivity across the stages of production. As a result, new tools, technologies, and machines are being deployed. Software services are increasingly being used across a range of activities, including for product development and planning, smart machines in coordinating manufacturing, smart service robots collaborating with workers on assembly lines, smart transport systems for delivery, and new fintech applications for payments. This digitalisation of the value-chain creates new opportunities to achieve higher productivity, a more diversified and sophisticated production basket, increased market access, and global integration.

First, increasing the use of DT in production and logistics can contribute toward **increasing firm productivity**, which is likely to lead to an expansion in output, exports, and consequently employment. Several studies have highlighted the positive impact of DT on productivity and growth in developing countries (Banga and te Velde 2018), Booz and Company 2012, TDR 2017).

Second, DT can lead to **diversification of commodities and movement into more sophisticated products**. Recent evidence suggests that online trade of five Asian LDCs—Bangladesh, Cambodia, Laos, Myanmar, and Nepal—is more diversified and value-added in nature than offline trade (ITC 2018). Taking the case of India, Banga (2019) finds that increasing use of DT is significantly raising the average product sophistication level of Indian manufacturing firms participating in GVCs. Banga and te Velde (2018a) bring forward the case of Megh Industries, an automotive firm in Kenya that has invested heavily in modern technologies and moved from manufacturing of transport equipment and parts to full transport seating and van conversions, which is more sophisticated and value-added in nature.

Third, digitalisation can act as a **driver of export competitiveness and increasing integration in production networks**. Banga and te Velde (2018) provide the case study of New Wide garments in Kenya, which deployed CAD and CAM technologies, and as a result diversified into new product lines, met international standards, and expanded exports under the African Growth and Opportunity Act (AGOA) to the United States. Funkidz, a children's furniture manufacturing firm in Kenya, expanded into intra-regional trade (to Ugandan and Rwandan markets) through mass production of goods with exact specifications, achieved through investment in DT (ibid.). In line with this, Banga and Banga (2019) examine the case of Indian manufacturing firms in 2001-2015 and show that an increasing

share of digital assets in firm infrastructure significantly and positively impacts firm-level export intensity.

Fourth, DT in transactions and logistics hold immense potential for **generating efficiency gains and increasing market access**.

For instance, the use of software and 3D modelling can facilitate product development and customisation; e-commerce platforms, mobile money, and online banking can increase B2B and B2C e-commerce, and digital customs can facilitate exchange of goods. The use of market-related data for product design and development can further help firms enter new sectors. Firms that control these data and possess the required analytical capabilities can identify the heterogeneity of demand patterns both between and across developed and developing country markets, enabling them to customise their products accordingly (Mayer 2018).

Overall, these four pathways are likely to generate new jobs and opportunities in manufacturing and related services sectors. Some jobs may be lost due to automation, but new types of jobs will emerge. Banga and te Velde (2018b) highlight the case of the A-Z Factory in Tanzania, which deployed modern lasers that displaced workers involved in the cutting of garments. Through the productivity effect, the factory created more jobs in stitching, a higher-skill task. Rodrik (2018), however, argues that to realise large-scale employment gains, more focus needs to be given to domestic integration. In line with this, Banga and te Velde (2018) and Were (2016) point to information bottlenecks in Kenya and skills mismatches between the domestic manufacturing and technology sector as two key areas to facilitate domestic integration and increase spillovers. Research by P4P (2018) further highlights formalisation of work in the manufacturing sector as a key pathway through which value can be realised by developing countries. Electronic platforms can be used to link informal jobs

with the formal sector, leading to overall improvements in the conditions of work. This is likely to be particularly useful in African countries with a significant informal sector.

2.2.1 Digitalisation and Challenges to Manufacturing-led Development in Africa

While digitalisation presents new opportunities, a persistent digital divide threatens to erode the competitive advantage of developing countries. African countries are facing a two-pronged challenge in the digital era; not only is the level of digitalisation lower compared to more developed countries, but its impact is also lower. For instance, using data on access to digital services, affordability, speed, reliability and ease of use of these services along with skill level, Booz and Company (2012) find that a 10 per cent increase in a country's digitisation index leads to 0.75 per cent growth in its GDP per capita, but the impact is the lowest in African and South Asian countries. Similarly, Banga and te Velde (2018b) find evidence of internet penetration significantly boosting manufacturing labour productivity in developing countries, but the impact of doubling of internet penetration is found to be significantly lower in low-income countries compared to the rest of the world.

There are already growing concerns over premature de-industrialisation in African countries, with the share of manufacturing value-added in GDP declining by roughly 4 percentage points between 2000-2016 (Rodrik 2016). A number of factors contributed to this decline, including structural changes, changes in global demand, technological changes, and, more recently, digital progress.

Growing digitalisation in the global economy is likely to raise the bar of competitiveness. In this context, a persistent digital divide between developed and developing countries is likely to increase re-shoring

of manufacturing from developing to developed countries and limit future offshoring, adversely impacting trade and employment in developing economies (World Bank 2017). Banga and te Velde (2018b) highlight that the cost of robotics and 3D printers is declining at 5-6 per cent annually in developed countries such as the United States, while wages in developing countries are rising. In the case of furniture manufacturing—a low-skilled, labour-intensive tradable sector with relatively high robot intensity, a growing number of studies find that robot costs in the United States will become cheaper than Kenyan formal labour by 2033. This suggests that as technology advances, companies in the United States might find it more cost-efficient to re-shore production back to US factories (World Bank 2017, Banga and te Velde 2018b) (taking into account other costs that determine production location, including time to market and production costs).

Although there is no systematic evidence of large-scale re-shoring, some instances demonstrate that historically labour-intensive production has been re-shored to developed countries as a result of automation (ILO 2018, De Backer et al. 2018). This includes production of Phillips shavers in the Netherlands and Adidas shoes in Germany (Bloomberg 2012, Economist 2017). Adidas has also made considerable investment in 3D printing of athletic footwear and has established 'speed factories' in Ansbach, Germany, and Atlanta, United States, which has led to a loss of 1,000 jobs in Vietnam (Hallward and Nayyar 2017). Recently, using a Manufacturing Survey covering 2,120 firms from Austria, Germany, and Switzerland with at least 20 employees, Dachs et al. (2017) find a positive relationship between reshoring and an index of Industry 4.0 readiness. Conversely, focusing on robotics, De Backer et al. (2018) do not find any significant evidence of reshoring having taken place to date.

opportunity is likely to be longer for sectors which are digitalising at a slower pace than others, such as garments.

Overall, increasing digitalisation, re-shoring, and limited offshoring may have an adverse impact on both jobs and economic growth and development in developing countries. Developing countries have traditionally used manufacturing as a first step toward economic transformation and job creation. As a result of tradability of goods in the manufacturing sector, labour productivity in developing countries tends to converge to the global frontier, irrespective of initial endowments such as policies and national institutions—a concept referred to as ‘unconditional convergence’ (Rodrik 2012). However, growing digitalisation and servicification of the economy, increasing re-shoring, limited offshoring, and changing knowledge flows in the digital economy are likely to slow down global trade in manufacturing, as has been observed since 2011. Consequently, this can lead to a slow-down in technology diffusion and convergence, reducing opportunities for developing countries to catch up. Existing empirical evidence shows that convergence has indeed slowed down in the period 2002–2013 compared to 1991–2002 (Banga and Velde 2018a).

The existing literature clearly documents rising concerns over manufacturing-led development in African countries in the context of a rapidly expanding digital economy at the global level. A number of studies have therefore looked at services as a realistic alternative path to development in the digital era. Newfarmer et al. (2019) point to industries without ‘smokestacks’ as the new driver of economic growth; services such as transport, communications, and finance can promote productivity growth at least as much as manufacturing activities (e.g. Ghani and O’Connell 2014, IMF 2018a). Moreover, services liberalisation, combined with information technologies, can allow for online gig work to emerge as a new

export-led development strategy (Baldwin 2016). However, the gig economy comes with its own issues of ‘commodification of labour’ and exploitation of ‘online’ workers, particularly in developing countries (Graham 2016).

2.2.3 Digital Servicification of Manufacturing and Changing Knowledge Flows

While developing countries, including African countries, are formulating strategies to move into higher value-added manufacturing, value in the digital age is increasingly shifting towards intangibles, which refers to R&D, intellectual property, design, software, branding, use of data, and others (Haskel and Westlake 2018). In the context of a digital divide—both in terms of access and use of DT—African countries run the risk of being unable to leverage digitalisation to graduate out of low value-added manufacturing activities. For instance, focusing on East African firms involved in GVCs of tea, tourism, and BPO, Foster et al. (2018) find that internet connectivity has resulted in ‘thin integration’ in East African firms; barring those that have developed market niches, firms have only made small productivity gains without more substantial upgrading (ibid.).

Ultimately, to leverage the benefits from digitalisation, the role of absorptive capacity of African firms will emerge as key. In the digital economy, absorptive capacity can be understood as a whole systems infrastructure that is needed for firms to acquire and absorb technological knowledge in the digital age (Banga and Velde 2018a). This includes the ability to access and acquire foreign knowledge by importing capital goods, licensing, reverse engineering, and others; skill development; and improvements in the quality of basic infrastructure, digital infrastructure, and regulatory reforms. Mayer (2018) argues that in the digital age, the distribution of value-added between developed and



developing countries is less likely to be an issue of differences in wage rates than of the high profits of mainly Northern firms that reflect rents arising from intellectual property and/or barriers to entry. Legally enforced intellectual property on standards, technologies, and brands, combined with network externalities from coordinating information and communication across the value chain, tend to increase the value-added shares of non-production activities (Durand and Milberg 2018), which remain dominated by developed countries.

Changing patterns of technological diffusion in the digital economy are also impacting the nature of governance under which African firms operate in GVCs. On the one hand, increasing complexity in information and difficulty in codification of tacit knowledge can lead to a rise in relational GVCs in Africa, whereby suppliers are competent and enter into relationships based on mutual dependence (Gereffi et al. 2005). Such chains can facilitate supplier upgrading. On the other hand, if lead firms are able to use DT to codify certain types of information into

contracts and standards, then they are more likely to enter into market-based GVCs with African firms, in which reverse engineering and imitation will become more difficult for suppliers.

2.3 How Digital Transformation can change Commodity Dependence Dynamics

African economies remain heavily dependent on primary commodities and natural resources for growth and trade. Commodity trade represents a significant part of Africa's merchandise export value and contributes a large proportion of national GDP in many African countries. For numerous commodities Africa is a constellation of poorly organised frontier markets. It may be difficult, even for a seasoned trader, to know the value, historical prices of commodities, or associated services in illiquid and non-documented markets. Traders define fair value through price differentials with liquid and reference markets (Chicago Mercantile Exchange, New-York Mercantile Exchange,

etc.). Reporting agencies strive to set up price indexes for these frontier markets. But to that end, they need regular and reliable information from trustworthy data providers to guarantee non-manipulated indexes.

Well-established traders who have historical data and relevant methodologies endeavour to keep it confidential, making it difficult for new entrants to grasp market specificities and to be competitive. In contrast, local economic actors, producers, or buyers have an interest in communicating historical prices to encourage competition amongst their counterparties. Market platforms and exchanges play an important role in this context to facilitate price discovery, transparency, and then competition. The commodity industry is controlled by those who know how to obtain fair and relevant information. Data and information are diverse: quantitative and qualitative, on supply and demand dynamics, competitors' activities, pricing structures, existing contracts, and others.

In illiquid and immature markets, it is difficult to collect data and information.

Economic players with high-quality market insights and intelligence benefit from this asymmetric level of information. They can optimise operations to develop new strategies. Traders invest in tools and networks to collect data. They subscribe to analysis and data providers that are specialised and sometimes very technologically advanced, such as satellites or ground-based sensors. Some providers gather real-time market intelligence on waterborne vessels and pipeline flows, state of refineries, and storages. Others are specialised in seasonal climate risks and agricultural production forecasts. Trading capabilities that are traditionally based on human skills and networks are quickly and fundamentally changing. Regulations enforce greater transparency, while new technology-based service providers (for data and analysis) are entering the arena. They standardise access to information. These new dynamics could help to redistribute information for the benefit of new entrants or traditional producers and bring new benefits and opportunities for African commodity producers and traders (Figure 2.1).

Figure 2.1: New Opportunities for African Players created by Digitisation

	Traditional competitive advantage	Digitization: New Opportunities
Access to Information	<ul style="list-style-type: none"> - Access to proprietary data - Quick Access to price driving Data - Superior Price Discovery capability 	<ul style="list-style-type: none"> - Exponential Growth in data quality and speed access - Democratization of information
Control of Assets	Ownership of: <ul style="list-style-type: none"> - Production & storage assets - Transportation assets - Access to their related data 	<ul style="list-style-type: none"> - Assets and supply chain monitoring - Production forecasts - Expansion of Assets - Securitization - Access to financing
Trading Capabilities	<ul style="list-style-type: none"> - Deep Segment knowledge - Strong risk management capabilities - Robust decision making - Markets arbitrage capabilities 	<ul style="list-style-type: none"> - New market access - Increase of decision speed - Greater efficiency in operations - Access to risk management solutions

Sources: Sebastien (2019); BCG (2017).

2.3.1 Boosting Intra-African Commodity Exchange through Digitisation

Most commodity trade agreements in Africa are concluded through bilateral negotiations and private or confidential calls for tender processes. This heterogeneity in practices hinders access to market information and business opportunities for small or new actors. African commodity producers need efficient and reliable information on market conditions. In addition, they need better and improved access to finance to invest and develop their business. Likewise, buyers need appropriate information and access to products and markets in a timely and cost-efficient way. Different organised market platforms provide this market access by communicating bids or offers and information on the supply and demand situation. Digitisation and technology enable the development of more efficient and inclusive interactions in illiquid markets that suffer from poor legibility. Technology may participate in improving trust in African markets and may increase intra-African trade opportunities.

Some initiatives have been developed by international market information and report companies that are digitizing their activities and some others by members of the supply chain itself. For example, a major coffee trading company has developed a solution called Sustainable Management Services Integrity (SMSi). SMSi helps producers to identify inefficiencies, optimise production, and invest time and money in profitable activities. Agronomists and technicians can access real-time information, analyse inputs, provide assistance, and direct information to producers. It shows the ambition to promote an integrated and collaborative coffee value chain through Big Data.

Multi-services digitised platforms are also emerging. The aggregation of information and trade interests is complementary to other services that can be automatised and directly offered to market players. It

includes intelligence and analytics (weather, production demand, price forecasts, and physical logistics services such as transport and storage). Those initiatives can also act as comparator and network of agents managing collection points and checking services. For example, TruTrade Africa, an initiative based in Uganda, provides smallholder farmers with most of these services.

All services that commodity industry actors need may be offered in few solutions that are more or less secure and reliable but with direct impacts to: (i) improve liquidity and competition; (ii) improve know-how and small producers' power in negotiation; (iii) increase incomes through sustainable and efficient supply chains; (iv) increase trust between counterparties and, in this way, facilitate investment; and (v) create rural employment opportunities.

An **over-the-counter** (OTC) platform is the simplest way to facilitate price discovery and reconcile commodity trade interests. It enables buyers and sellers to send their interests to potential counterparties. It increases market transparency and integration of local producers into the formal market. Numerous initiatives have emerged to support OTC commodities markets. In 2007, KACE started a trading show on a Kenya radio channel ('Market on the Airwaves'). Buyers and sellers communicated their bids or offers on the air for a small fee. KACE's staff were in the villages to verify the veracity of bids and offers. Mobile networks have been used to make African agricultural markets more efficient. In Uganda, the private company Kudu proposes a system to reconcile buyers and sellers via SMS. They send a single text message, with the price, location, and other factors, to automatically locate the best match. Additionally, there are many other web-based solutions.

However, in practice, too little trade results from these matching services, as stakeholders remain exposed to significant

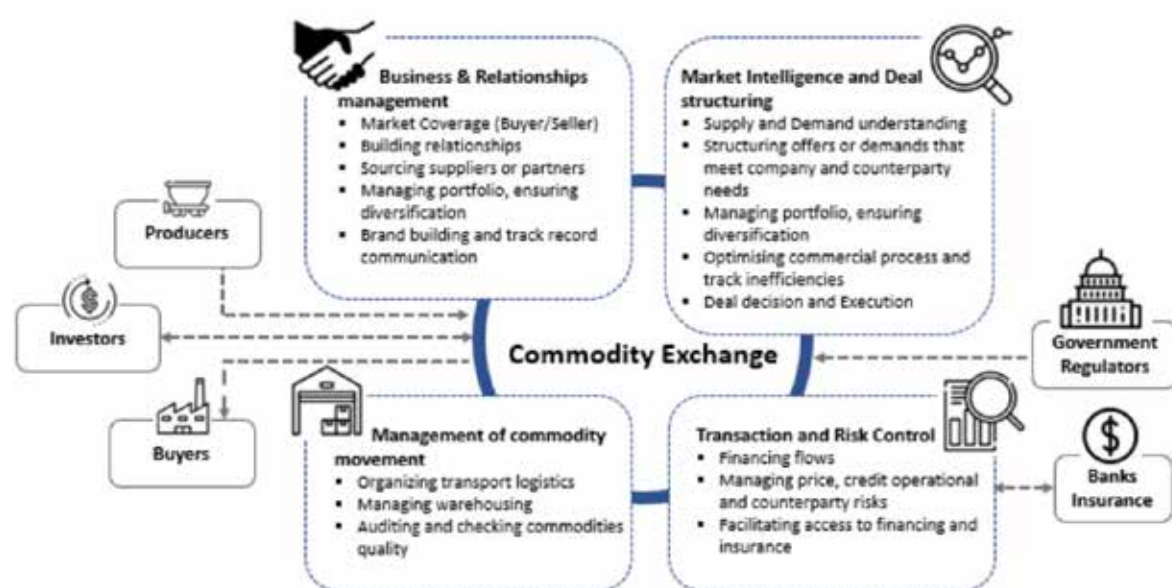


counterparty risks. This is the risk that one party in the transaction will default prior to the completion of the trade and/or will not make the current and future payments required of them by the contract. This lack of guarantee is particularly inhibiting the development of such solutions for cross-border commodity trades.

An exchange platform (Figure 2.2) offers greater transparency and regulatory

protections. It is an organised marketplace where buyers and sellers come together to trade contracts following rules set by the exchange. It provides a trading platform and is associated with a physical location. Contracts are standardised according to criteria of quality, quantity, delivery time, and location. Commodity exchanges provides transparent, disciplined marketplaces. They facilitate price discovery and risk management.

Figure 2.2: Commodity Exchanges



Source: Sebastien (2019).

Exchanges can result in job creation and enhanced cross-border economic integration by offering venues for the mitigation of key financial and trade risks. It is in the financial sector where inclusion and innovation has taken place and can unlock Africa's financial potential. A fully functioning derivatives and commodity exchange market will be pivotal in improving competitiveness, facilitating both domestic and international trade and integration of the continent to the global economy' (Ncube 2013). Positive impacts resulting from commodities exchanges include:

a) Better liquidity: Exchanges gather and concentrate market interests on standardised contracts. It increases liquidity and makes price formation more transparent. This virtuous dynamic can only be generated in a market that has reached critical size. A regional commodity exchange can be a solution to gather a greater number of local markets in one trading venue. This liquidity is essential to attract investments and to guarantee outlets.

b) Optimised operations and lower transaction costs: Exchanges reduce time and costs needed to identify market outlets, to physically inspect products quality, and to find counterparties. It improves the quality of information received by market agents and reduces human and operational risks.

c) Efficient price risk management: An exchange offers liquidity and price discovery services not only for spot markets (immediate delivery) but also for those far in maturity time. Futures ¹ contracts fix the price at which a trade will be made. This gives producers and buyers the ability to guarantee their outcome and fix their expenses. Likewise, options act as insurance contracts against market downturn. Governments also use derivatives markets to hedge import or exports price risks.²

d) Counterparty risk management: Exchanges have a mechanism to settle

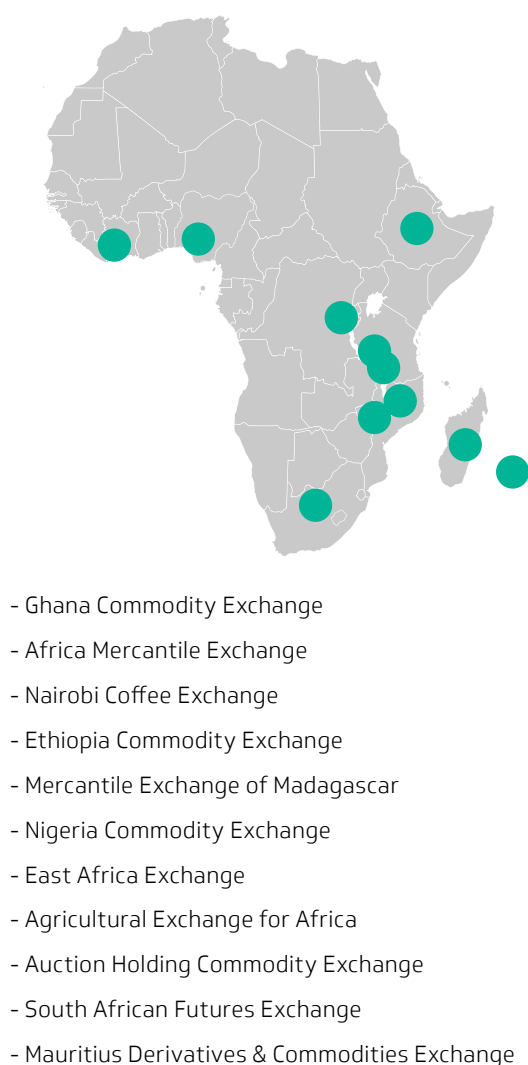
disputes and guarantee delivery. If there is a problem, it will either procure goods or provide financial compensation for the buyer. This is the role of the clearinghouse. It is a third party that interposes between the buyer and the seller once a deal has been agreed. It boosts the confidence of traders and investors, leading once again to a more liquid market. An efficient and mature pan-African exchange and clearinghouse could facilitate cross-border trades by mitigating risks and mistrust between traders and financial partners settled in different countries.

2.3.2 National Exchanges and the Need for Pan-African Exchanges

Several national commodity exchanges have been set up across the continent (Figure 2.3), confirming their positive impacts and other outcomes, including more transparent and efficient agricultural value chains; beneficial impacts on rural employment opportunities in resilient and well-structured organisations; improvements in physical warehousing infrastructures and grading systems; and better integrated national markets. For instance, the Ethiopian Commodities Exchange estimates that coffee producers have seen their revenue significantly improved. It estimates that their share of the free-on-board price has doubled from 30 to 60 per cent.

However, too many exchanges have failed to grow to fulfil the promise of volumes and liquidity when they have not faced breaches of compliance. These failures, however, do not discredit the idea of building a bridge between African markets for the benefit of every stakeholder; rather, they lend credence to the idea of establishing pan-African exchanges. The ambition to create an African commodity exchange was already mentioned in the Abuja Treaty of 1991. However, no significant initiative has emerged for many reasons: lack of infrastructure, trade barriers, asymmetrical expectations, conflicting local regulations

Figure 2.3: African Commodity Exchanges



Source: Sebastien (2019).

or different financial systems, and political stability. The support of governments remains a crucial issue for subregional and pan-African exchanges. Governments must allow an independent, centralised institution to operate in their countries even if the technology framework is elsewhere.

Available technologies now present veritable and secure opportunities for the benefits of a pan-African platform. Some of the largest international exchange groups are interested in accompanying the development of exchanges within the continent (e.g. Nasdaq with the East Africa Exchange). The presence

of a pan-African exchange could impose discipline in the commodity sector. It could also provide a new source of commodity finance by linking farmers, agro-processors, and traders directly to the capital market.

A pan-African exchange requires efficient interactions between banks and regulatory authorities as well as banking process harmonisation. The establishment of a pan-African exchange will strengthen regional banking systems with more interoperability and diffusion of risk-management policies. It will participate in developing new trade finance opportunities, keeping the associated value-added and revenues within the continent. The clearinghouse of a pan-African exchange must be licenced in the countries in which it operates. Communication between banks and clearers must have the same standards of security, trust, and efficiency. Smooth and fast cross-border payment flows are important for the success of a regional or pan-African exchange. For example, if a margin call is issued after the market closure or late in the evening, funds must be transferred and received early in the morning of the day after. Otherwise, the position of this trader will be blocked or even liquidated.

2.4 Reverse Engineering in the Digital Age: A Pathway for Acquiring Technological Knowledge and Moving into Higher Value-Added Activities

Firms in emerging markets follow a different technological trajectory from that seen in developed countries (Figueiredo 2001). Technological knowledge in developing economies may be acquired by initially searching for, operating, and mastering technology developed by others, rather than developing technology locally. The mode and ease of technology transfer will, however, crucially depend on the type of knowledge and the willingness of technology owners to transfer technology and knowledge. For



instance, when knowledge is more easily codified, technology transfer is more likely to take place through licensing agreements or direct transfer of technology from foreign firms to subsidiaries through blueprints. However, as the tacit nature of knowledge increases, transfer of technology requires technological learning through reverse engineering or transfer of people from abroad.

Reverse engineering is a process through which one inspects or takes apart a finished product to discover how it works, often to create a new product using the discovered knowledge. Different objectives have driven reverse engineering, including creation of new production and varieties of existing products in the manufacturing sector, and creation of interoperability and compatibility with existing platforms in the services

sector. The process of reverse engineering new technologies for development has been used to expedite socioeconomic transformation in many countries, including South Korea, China, Brazil, India, and Iran. The economic effects of reverse engineering depend on a number of factors, including the purpose for which it is undertaken, the industrial context within which it occurs, how much it costs, how long it takes, whether licensing is a viable alternative, and how the reverse engineer uses information learnt in the reverse engineering process. South Korea's success in technology transfer, for instance, was largely attributed to its public R&D centres, which developed new technologies for the private sector through reverse engineering foreign technologies, especially when those foreign firms refused to licence advanced technologies to Korea (Kim 1991). While the contribution of



reverse engineering cannot be quantified, studies document widespread use of reverse engineering in electronics (Kim 1980), chemicals (Westphal et al. 1985), machinery (Kim and Kim 1985), computers (Kim et al. 1987), and pharmaceuticals (Kim et al. 1989). It is mostly done through the use of computer-aided programmes, which help in obtaining the part geometry, identifying its material, improving the design, tooling fabrication, manufacturing planning, and physical realisation.³

2.4.1 Reverse Engineering in the Digital Age

Implications of DT for reverse engineering can be understood using the case of two types of manufacturing: traditional

and digitalised. In the case of traditional manufacturing, developing country firms that invest in digitalised technologies may find it easier to reverse engineer products; CAD, CAM, and 3D scanners are becoming more affordable, and the expertise needed to design and manufacture reverse engineered products is becoming lower (Mayer 2018). Moreover, the use of machine learning and Big Data analytics for product manufacturing can identify correlations within data, which can help firms to de-codify tacit knowledge regarding product definition, detailed design, component design, and manufacture, traditionally gained through experience of transfer of people. Further, the use of 3D cutters and printers can facilitate the manufacture of products based on digital design with

precision. The technology of 3D scanning, in conjunction with laser scanners and coordinate measurement machines, is also increasingly being used for design development. It captures information about existing physical parts and recreates them digitally and accurately in a virtual environment.⁴

On the other hand, digitalised manufacturing, that is, manufacturing that is embedded with data and digital services (e.g. modern cars, smartphones, laptops, digital watches, pacemakers, etc.), may involve increasingly complex knowledge flows which can be highly tacit in nature (Andrews et al., 2016). Reverse engineering digitalised manufacturing is not only costlier but also more difficult. Consider the case of a phone versus a smart phone. Reverse engineering of phone manufacturing in the digital age is easier; supplier firms can obtain a solid model of the product, use 3D scanning, and export it to CAD/CAM systems; use CAD to define dimensions of the parts; use CAE components, such as structural analysis software, to make digital representations and analyse it; and finally use CAM to convert the representation into paths to cut the tools for parts manufacturing.

However, reverse engineering a smart phone is significantly more complex. In addition to hardware, reverse engineering in this case will involve “extracting software system information from source code.” Within a smart phone (or a digitalised product in general), there are a number of layers of software that work in unison to produce the result desired by the user. At the top of the software hierarchy are application programmes, or apps, visible to the consumer, describing the exact task the user wants to accomplish, such as SMS (Ignatin 1992). Beneath the applications is the operating system (e.g. Android), which coordinates the running of the applications. At the bottom of the pile is the object code, written in machine language—a series

of ‘ones’ and ‘zeros,’ with each group of these binary digits acting as an instruction and causing the phone to perform a very basic task. Usually programmes are first written in an easily understood, higher-level language, that is, the source code, which is then translated into object code to operate the computer. Reverse engineering requires translating the object code into source code, which can then be studied. This can be done through automated special translation programmes and is known as ‘decompilation’ or ‘disassembly’.

Overall, reverse engineering a smart phone will therefore require reverse engineering the hardware and the object code. This is recognised as being much more difficult, time-consuming, and resource-intensive (Samuelson and Scotchmer 2002).⁵

Moreover, African firms are currently lagging in the use of DT such as CAD, CAM, 3D scanners, and others, and they reap lower benefit from digitalisation due to a poorer system infrastructure, lack of relevant skills, poor digital infrastructure, unreliable power supply, poorer trade logistics, and other factors. Further, scaling reverse engineering to large software systems requires automated analysis (Landman 2017) which will need cloud-computing infrastructure and capabilities that many African countries lack. A persistent digital divide in access and use of these technologies across developed and developing countries thus threatens to exacerbate existing global inequalities.

The software programs embedded within digitalised manufacturing are also subject to copyright laws. The feasibility of reverse engineering of digitalised manufacturing will therefore crucially depend on country and industry-specific contexts i.e. laws and policies on source-code sharing with foreign companies, requirements for technology transfer, policies on data localisation and protection, policies on innovations and skills development, intellectual property rights (IPR), and others.

2.4.2 Policies in Support of Diversification of African Sources of Growth and Trade through Reverse Engineering in the Digital Age

To facilitate reverse engineering of digitalised manufacturing, policies on data, technology transfer, source-code sharing, and intellectual property are emerging as key issues. Addressing issues around privacy and security and data localisation can encourage developed countries to set up data centres locally, bringing in foreign investment, skill development, and technology and knowledge flows (Castro and McQuin 2015). On intellectual property, industrial design rights may cover appearance, but they usually do not extend to functionality and ease of use (WIPO 2017). Moreover, 3D equipment can scan a non-patented physical object and create a CAD file that will reproduce the object (Osborn 2016). The CAD file can subsequently be used as a starting point for creating objects that have new functionalities or other novel characteristics. Given that digitalisation may bring about entirely new products, as well as enable new functionalities and ways of use, it would appear that existing IPR protection leaves scope for active design-oriented innovation policy in developing countries (Mayer 2018). A well-designed AfCFTA Intellectual Property Protocol could encourage these types of innovations. Moving toward a digital world may also broaden the scope for developing-country firms to engage in cross-licensing arrangements with developed-country firms (ibid.).

Within the domestic economy, it is important to encourage and support domestic open-source code sharing that will allow innovating firms in developing countries to push forward their inventions into the market and to roll out cost savings more quickly. This can create a ripple effect for innovation and foster spillover effects in other domestic firms. The success of big Chinese digital players such as Baidu,

Alibaba, and Tencent (BAT) is based on open-source platform and market insights. While it is important for developing countries to attract foreign investment in information and communication technology/information technology (ICT/IT) services and R&D, it is also important to enable these foreign investments to result in positive technology and skill spillover to the host firm. An important enabler of China's growth in the digital economy has been requirements for technology transfer on international firms in exchange for market access, including in some cases transfer of source code as a condition to sell to the Chinese government or to gain relevant licences to trade in the country. A number of foreign companies are engaging with Chinese companies in terms of technology transfer.⁶ Not only can such requirements strengthen data security; they can also increase technology transfer from foreign to domestic firms and facilitate reverse engineering (Hobday 2005). For smaller economies that do not have enough market power to negotiate, regional strategies can be more useful. However, this will require harmonised policies on data protection, privacy, and stronger enforcement of intellectual property laws to be effective. The AfCFTA can provide a useful platform for this, especially if digital trade issues are included as part of Phase II of the AfCFTA negotiations.

Banga and te Velde (2018b) also emphasise the need to boost reverse engineering for 'glocalisation,' that is, adapting global designs to meet local challenges. The authors bring forward the case of Megh Industries, an automotive firm in Kenya which initially imported tools from Asia, but subsequently hired tool manufacturers from India to reverse engineer the imported components in order to lower the cost of production. The firm imported transport seating from Asia but engaged in glocalisation to cater to the domestic market with different terrains. The African continent is at a critical juncture; it is currently prioritising coherent strategies for



regional integration, industrialisation, and development (Luke and Sommer 2019). It is important for African countries to develop appropriate policies to take advantage of IR 4.0 and use the digital economy as a tool for economic transformation and job creation.

2.5 Addressing the Skills Gap for Effective Transition into the Digital Era

While DT present immense opportunities for development it also carries with it challenges. Key amongst these are its potential impact on labour markets and skills development. On the one hand, DT can increase firm efficiencies, enable diversification into new and more sophisticated product lines, increase export competitiveness, and expand trade, all of which can create new job opportunities in manufacturing sectors, as well as in services sectors related to operation, servicing, and maintenance of these technologies. Africa

is currently facing a critical challenge of unemployment. An estimated 18 million new and productive jobs will need to be created each year through to 2035 to simply keep up with demographic challenges of the youth influx into the labour market (IMF 2015). At the same time, technological changes in IR 4.0 are raising concerns about jobless growth in developing economies, including in Africa. In addition to the concerns over displacement of workers due to automation, poor job quality and lack of ‘decent work’ remain pressing issues in many developing economies, with over 1.5 billion people in vulnerable employment (ILO 2016).

To prepare the youth for productive employment and for changes in the labour market, African countries need to adapt to the changing landscape of skills. In an increasingly digitalised economy, employability will be determined by new skills for the future—mainly digital and soft skills. These can be developed through government policies on education and

skills development as well as private sector investment into targeted skills development. It is also important to note that the relationship between policies and digitalisation is two-way; while policies can boost skills for the digital economy, digitalisation can increase viability and efficiency of policy solutions, that is, through online portals for skills development, mass online courses, EdTech, and others.

2.5.1 The Changing Landscape of Labour Markets

DT can open new pathways for development, including through increases in productivity, firm efficiencies, diversification into new and more sophisticated product lines, rising export competitiveness, and increasing participation into global networks, all of which can create new job opportunities in manufacturing sectors, as well as in services sectors related to servicing and maintenance of these technologies.

However, DT also present employment challenges. For instance, several studies report a labour-substituting effect of DT and robotics, whereby DT are displacing labour and affecting overall employment negatively (Frey and Osborne 2013, Bowles 2014, Acemoglu and Restrepo 2017). Examining the impact of computerisation on employment, Frey and Osborne (2013) find that 47 per cent of the jobs in the United States are at risk. Using the same methodology, the World Bank (2016) finds that 57 per cent of jobs in the OECD, 69 per cent in India, 77 per cent in China, and 85 per cent in Ethiopia are at risk of being automated, while technological change can displace roughly 40–60 per cent of the labour force in the European Union, particularly affecting job markets in Romania, Portugal, Greece, and Bulgaria (Bowles 2014).

However, the underlying assumption in these studies that occupations as a whole can be automated away overestimate job

losses. There is great variability in the tasks within each occupation that is not accounted for (Autor and Handel 2013). Not all labour is equally easy to substitute with automation. Technological change has traditionally been skill-biased (Tinbergen 1974, 1975), and several empirical studies predict a rising skills premium due to automation (Acemoglu and Autor 2011, Autor et al. 2004, Goldin and Katz 2007, Katz and Autor 1999, Katz and Murphy 2013).

However, skill-biased technological change may not be necessary, and this is evident in the case of DT. Several studies focusing on developed countries have pointed to a hollowing-out of the middle classes as a result of DT. Labour markets are becoming polarised due to increasing demand of high-skilled and low-skilled workers relative to middle-skilled workers (Autor and Dorn 2013, Beaudry et al. 2016). The key explanation for this polarisation is routinisation—middle-skilled workers are engaged in occupations that consist of routine tasks which can be more easily automated. In contrast, non-routine tasks of designing, creating art, conducting research, managing and supervising teams, nursing, childcare, and cleaning have proven hard to automate. High-skilled workers perform non-routine tasks that can complement technology, such as research and development and professional services (Beaudry et al. 2016), while low-skilled workers perform non-routine manual tasks that are harder to automate.

Evidence of job polarisation in developing countries remains mixed, with some developing economies having experienced this trend, including Malaysia, Mauritius, Uganda, and India. India in particular has witnessed a proliferation of low-paid service jobs in activities which are, at least for now, difficult to automate (Turner 2018). However, other countries, such as Ethiopia and Ghana, do not seem to have polarised (WDR 2016).



Herrendorf et al. (2014) argue empirically that the sectoral composition of economic activity is key to understanding economic development. Compared to developed countries, developing economies have a larger agricultural sector, lower employment and value-added shares in industry and manufacturing, and a large informal services sector (Schlogl and Sumner 2018). If industrialisation begins to look increasingly unattractive in these countries due to reshoring of outsourced production in value chains or limited future offshoring, countries may look toward a more service-led development model, such as social, education, and healthcare sectors, as well as tourism and infrastructure construction (Banga and te Velde 2018a). These services sectors require inter-personal and communication skills and are less likely to

be automated (Banga and te Velde 2018). For developing economies such as Brazil, China, India, and Mexico, the sectors that are going to become or remain important in the future (as a result of growth or stability in employment) include services sectors of computer, mathematics and science, architecture and engineering, education and training, sales and related activities, and management (ibid.).

However, the problem with a services-led development model is that highly productive and tradeable services are skills-intensive, non-tradeable services (such as social care, personal services, etc.) are not (yet) highly value-adding and may not be sufficiently scalable. It is key to note that while the manufacturing sector overall is the most susceptible to automation, the rate of

automation will differ across industries, depending on technological and economic feasibility. In India, South Africa, and Mexico, for instance, more than 60 per cent of total robot deployment is concentrated just in the automotive sector (ibid.). Globally, the industries of paper and paper products, wood and wood products, basic metals, food, beverage and tobacco, and textiles and garments are less affected by global technological changes (Hallward-Driemeier and Nayyar 2017). African countries therefore have a window of opportunity in these sectors, which will still require a workforce with traditional industrial skills. However, the opportunity should also be used to start re-skilling labour for further advancements along the technology frontier.

Poorer skills development remains a key constraint in African countries in leveraging the digital economy to create more productive jobs. As per WEF's Human Capital Index, Africa, on average, currently captures only 55 per cent of its full human capital potential, compared to a global average of 65 per cent, ranging from 67 to 63 per cent in Mauritius, Ghana, and South Africa to only 49 to 44 per cent in Mali, Nigeria, and Chad. Non-routine cognitive tasks are becoming more important in the digital economy, with increasing demand for job-neutral digital skills such as data analysis and digital marketing, job-specific digital skills such as coding and app development, and soft skills, such as communication, critical thinking, and flexibility.

2.5.2. Pathways for Delivering Future-relevant Skills in African Countries

There are different issues at play in addressing the skills challenge in African countries. They include (i) digitally skilling the workforce, (ii) re-skilling workers who have lost jobs as a result of automation, and (iii) up-skilling workers so that they remain competitive in a fast-changing technological world. Different skill development models therefore need to be examined, including:

(i) embedding digital and soft skills in TVET training, both formal and non-formal TVET and (ii) enterprise-based training for training and re-training the workforce in firms. We explore these models below.

Adaptability and flexibility of the workforce are emerging as key skills to remain competitive in the digital economy, emphasising the need to ensure that young people have solid foundational skills: basic cognitive technical skills of reading and writing (Klinger et al. 2013, AfDB 2017, Banerji et al. 2010), and basic soft skills such as interpersonal and socio-emotional skills. These skills will remain essential for all workers in the future labour market (Cunningham and Villasenor 2014, Almund et al. 2011, WEF 2017, Moffitt et al. 2011). African employers also expect to have many thousands of job openings requiring basic and more advanced science, technology, engineering and mathematics (STEM) literacy, needing overall future readiness in this field (WEF 2017). Basic digital literacy is therefore increasingly being considered as a foundational skill for the digital economy, creating a need to incorporate digital literacy and basic ICT skills at the primary and lower-secondary level. Together, this set of foundational skills can boost entrepreneurship, enabling adaptation to new technologies (Krishnan and Patnam 2014), which is particularly important as countries undergo structural change. For example, evidence from rice farmers in Ghana suggests noncognitive skills support productivity and technical adoption as well as the returns to technology adoption (Ali et al. 2017).

Beyond primary education, technical and vocational education and training (TVET) at the upper-secondary and tertiary levels also needs to be re-oriented. Integrating STEM-focused TVET in upper-secondary and tertiary formal education can be useful for equipping students with intermediate to advanced digital skills, along with job-specific procedural knowledge (Banga and te Velde 2018b). For Africa, the greatest

long-term benefits of such jobs are likely to be found in the promotion of home-grown African digital creators, designers, and makers, not just digital deliverers (WEF 2017). Higher-order cognitive skills, which include unstructured problem solving, learning, and reasoning (World Bank 2016), are also increasingly in demand by firms as workplaces become more complex. These soft skills need to be mapped to core competencies and incorporated within higher education curricula.

Many countries have increased or are planning to increase investment in TVET as a response to the skill needs of the digital economy. In Ethiopia, for example, the government has made industrial skills development a priority and has expanded TVET, with particular emphasis on the training of mid-level technicians (Government of Ethiopia 2005). Overall, TVET enrolment has grown at an annual rate of around 30 per cent since the middle of the last decade (Krishnan and Shaorshadze 2013). Similarly, in recent years, a significant push has been given to TVET in Kenya as a strategy of skills development and increasing youth employability. Currently, there are roughly 1,962 technical and TVET institutions in Kenya, with a majority of them being public youth polytechnical institutes. Total enrolment in TVET institutions has increased by roughly 40 per cent from 2013 to 2016 (KES, 2018).

A number of nonformal channels also exist for providing skills training, including through TVET training led by NGOs, foreign multinational enterprises, trade unions, private organisations, public/private sector-led coding bootcamps and hubs, and others. Ministries other than those responsible for education and skill development are also providing nonformal TVET. A key advantage of such training programmes is that it can expand skills-training and development to not only adult learners but also marginalised sections of society such as out-of-school youth, women, disadvantaged youth, and

job seekers through community technology centres, public libraries, makerspace, and hubs. An excellent example of nonformal TVET delivering future-relevant skills is the Digital Ambassadors Programme (DAP), a joint initiative by the WEF's Internet for All, Digital Opportunity Trust, and Rwanda's Ministry of Youth and ICT, which is mounting a three-pronged push for boosting internet access, skills training and jobs in the country. DAP aims to employ 5,000 young Rwandan, with 50 per cent participation of young women and girls as digital skills trainers. These Young Digital Ambassadors will receive training in essential digital skills and soft skills, which they will then provide in the form of hands-on training throughout the country (WEF 2017).

A number of African firms are also actively engaging in providing in-house skills training to workers. Employers have always played a critical role in training the workforce through direct hiring, on-the-job training, and apprenticeship programs. Findings from Banga and te Velde (2018c) suggest that the larger manufacturing firms in Kenya, which are using DT, address the digital skills gap by providing in-house training on digital machinery, which is expected to be faster and productivity-enhancing. The authors shed light on the case of Megh Cushion industries, a Kenyan automotive firm that was quick to adapt to the changing skill needs of DT. When digital machinery was first imported, the firm hired engineers from abroad for installation and to train the workforce to repair and maintain the machinery. This was done by entering into import and annual maintenance contracts that involved after-sales support from English-speaking engineers who could offer training in the use of the machinery and feedback in the case of breakdown.

Another example is Panessar Interiors, a furniture manufacturing firm in Kenya which identifies skills shortages in creativity, fine arts, architecture, and dimensional drawing skills as key challenges to its operation.

To address these challenges, on-the-job training is provided by the firm's own Panesar Training Institute, which follows a curriculum focusing on training workers in industrial skills such as woodwork, joinery, and carpentry, as well as digital skills such as dual programming for CNC and CAD/CAM systems (ibid.). Overall, on-the-job training has been shown to have a positive impact on wages and promotion routes (Gronau 1988, Olsen and Sexton 1996, Wholey 1990).

2.5.3 Challenges and Policy Implications for Effective Skills Delivery

Despite continued efforts by African countries to boost TVET, unemployment remains high due to a number of factors constraining the effectiveness of TVET for skills development (World Bank Group 2015). Institutional deficiencies continue to hamper a shift toward competency-based curricula, and the quality and relevance of most TVET in the region remains low (ACET-MCF 2019). Unemployment rates for TVET graduates remain high due to the failure of the curricula to keep pace with changing technology and the consequent change in skills demanded by the private sector (Wolter and Ryan 2011). For instance, firms that are digitalising manufacturing in Kenya report a significant skills gap between what they require and what TVET graduates offer (Banga and te Velde 2018c).

TVET systems need urgent reform, having suffered from years of under-investment (Kingombe 2011, ILO 2017, Blom et al. 2017). They are often supply driven, lack a clear strategy with strong accountability and financing systems that are tied to performance measures (UNESCO 2015), do not effectively engage with the private sector, and lack ICT capacity within education (UIS 2015). There is also a shortage of qualified trainers (Betherman and Khan 2015); trainers do not have the industry and practical experience needed (Oketch and Lolwana 2017) and continuing professional development for TVET trainers

is not yet a structured part of TVET teacher training in most countries (Grijpstra 2015). Stronger achievement in cognitive outcomes will not only require a change in curricula and examination policies, but also the way teaching is being conducted. Teaching needs to be a lot more dynamic and flexible, with teachers being trained in relevant cognitive and non-cognitive skills (R4D 2016, World Bank 2018). There is also a problem of matching TVET graduates with industry; regardless of the increased internship of TVET students in the private sector, employers remain hesitant to employ interns because of the mismatch between their expectations and students' skills and different perceptions of TVET trainers and employers in industry (Yamada et al. 2018, Edukans Foundation 2009, Hailu 2012).

In the case of nonformal TVET, the involvement of a large number of actors, often overlapping in training and lacking in coordination, also presents a problem (Banga and te Velde 2019). Other challenges include poorer ICT infrastructure, such as poor access to electricity and computers, lack of qualified teachers for digital and soft skills training, poor linkages with a nationally accredited qualification system, lack of provisions for recognising prior learning, poor monitoring when linkages do exist, and in general, low coordination across key players (ibid.). There is also a lack of awareness amongst the youth regarding nonformal TVET programs.

Incorporating formal and nonformal TVET under a clear and flexible National Qualifications Framework, which reflects a country's socioeconomic and labour market needs and engages with the private sector, can be key in ensuring that students learn industry-relevant skills (Oketch and Lolwana 2017). Effective coordination of national frameworks at regional and subregional levels can also facilitate labour mobility and increase job prospects for youth (Banga and te Velde 2019). African countries should also establish a standard-setting body which can



provide skills certification that is recognised by employers and transferable across African countries and higher education institutions.

In the case of on-the-job training, it is key to note that while upskilling workers may be good for the economy as a whole, it may not be in the interest of each employer to invest in training, particularly in African countries, and sectors, with low labour retention rates. Developing industry-specific levy models sensitive to the type of training needed (i.e. digital and soft skills training) can therefore be a key tool in incentivising manufacturing firms and providing relevant digital skills training to their workforce. Government financial support should go where training would otherwise not occur or target firms that can create positive externalities. For

example, firms should be included that are more innovative, use DT, and are better linked into the domestic economy so that positive spillovers can occur. In Asian and African economies, employer-led training needs to be structured, with certification or formal apprenticeships.

Changes on the demand side are also crucial in increasing the use of technology and creating incentives for skills development in African firms. This requires creating a more competitive domestic market and facilitating innovation, R&D, and technological development. To achieve this, government policies on strengthening national innovation and knowledge systems, international co-operation, trade facilitation, increasing participation in global value chains, facilitating foreign direct investment,

regulatory reform, and building digital capacities in hardware and software can be key.

Within the domestic economy, innovation intermediaries form important linking mechanisms for increasing viability of technology, market expansions and skills diffusion in the economy (Banga and te Velde 2019). Some examples of these intermediate institutions include industry associations, R&D consortia, and technology hubs or parks. These intermediaries play the role of a bridge linking knowledge directly or indirectly, coordinating interests amongst actors, and promoting the transformation of scientific and technological achievements (Siegel et al. 2003). The success of iHub in Kenya and Kumasi Hive in Ghana as drivers of innovation and skills (Banga and te Velde 2018b) is well documented. In a digital economy, these intermediaries can also be portals that link jobs with people with the appropriate skill sets.

Policies should combine multiple policy tools to address the range of constraints faced, such as access to financing, skills, infrastructure, and the regulatory framework, to improve programme efficiency (AfDB 2017). For example, the Local Employment for Development in Africa (LEAD) programmes, set up by the Dutch Finance Ministry, provides young entrepreneurs, particularly women, in three countries in Africa with access to business and social skills training, mentoring, co-working spaces, incubators, and innovation labs. It also links them to interested investors and helps them to gain access to finance.

2.6 Infrastructure for Digital Transformation in Africa

To bridge the global and regional digital divide, African countries should digitalise sectors to reap maximum benefits. Policies targeting improvements in access and use

of hard digital infrastructure are important, but there is a significant digital divide in access to ICT services between developed and less developed countries. To leverage DT, policies targeting improvements and investment in soft digital infrastructure are also important. This will require developing a digital industrial policy that fits within the wider industrial policy of the country, so that all segments of society can gain. Hard digital infrastructure includes computers, servers, sensors, routers, and others, while soft digital infrastructure includes computer services (programming), software services (such as cloud computing), and data infrastructure (such as Aadhar in India). A digital economy is built on digital infrastructure and digital capabilities.

2.6.1 Building Digital Networks, Improving Access to Internet and ICT Technologies

ICT infrastructure forms the base of digital infrastructure, as it provides internet access to the population, while broadband infrastructure delivers large amounts of data at a much faster speed (UNCTAD 2018). In terms of improving access to ICT services, internet access and affordability are key. Despite significant disparity across countries, the low access to the internet in African economies can be explained in part by the high cost of accessing the internet. Internet tariffs are disproportionately higher in Africa even by developing country standards. Although mobile-broadband prices as a percentage of GNI per capita have halved between 2013 and 2016 worldwide, with steepest decline in developing countries, as of 2016, mobile broadband cost 14.1% of GNI per capita developing countries compared to the global average of 4.3.⁷

To make internet access more affordable, policies need to target public-access solutions, including free or subsidised access public/open areas such as educational institutions, local and community centres, public WiFi, and others. Closing the digital

urban-rural divide will require reduction in taxes on ICT services and equipment supplied to rural areas, providing incentives to network operators to expand coverage to marginal areas, and reducing import duties for local content suppliers. One country that has significantly improved its internet affordability is Botswana through rules enabling technology and service neutrality, without restricting operators from holding several types of licences, such as network and service licences.⁸ The government has also used its Universal Access Funds (USAF) to increase the number of public WiFi hotspots in hospitals, bus stops, and shopping malls in seven towns.

In the African context, granting a Unified Licence for Mobile Virtual Network Operators (MVNO) can be particularly useful (Banga and te Velde 2018b). Unlike mobile network operators (MNOs), MVNOs do not have their own infrastructure. Instead, they share infrastructure with established telecom providers who have excess network capacity. Each MVNO then sells services, such as data for internet, at its own price. As firms compete for market share, the cost of internet access can fall, which would be particularly useful in African countries, where the telecom market operates on a monopolistic basis. Significant improvement in internet costs and access can be realised in other African countries that grant licences for MVNOs. Kenya, for example, has already granted MVNO licences to three companies which offer mobile money and data services.⁹ However, all three MVNOs depend on the Indian telecom company Airtel's infrastructure, since none of the MNOs in Kenya meets the quality standards for service.

2.6.2 Building Software and Data Infrastructure

The second interrelated component of digital infrastructure is software and its use across a full range of economic activities, with increasing emphasis on access through

a cloud computing infrastructure. Cloud computing provides computing services remotely as a general utility to internet users, ranging from provision of storage to means for processing, networking, and servers to providing operating software and platforms for building custom applications. However, large cloud providers are mainly from developed countries (e.g. Google, Facebook). The rising global dependencies on cloud applications is equipping cloud service providers with the power to change the organisation of entire sectors, creating challenges for developing countries.

Updating laws on data flows, localisation, and privacy are also emerging as key issues in the digital economy. From the point of view of foreign digital firms, the freedom to freely locate data allows them to build a global network of data by cheaply and quickly expanding into new markets and realising economies of scale (Meltzer 2015). The decision to locate data centres can be based on a host of factors, including: (i) cost efficiencies in capital. Data centres are very capital intensive and require good internet infrastructure, reliable power supply and air conditioning for servers, (ii) geographic reasons. Firms involved in high-intensity cloud computing will prefer to locate close to the customer market to limit data and information delays, (iii) political factors. A stable political environment and low political risk is preferred, and (iv) legal framework of data protection, privacy, and enforcement of laws in host countries. Some studies have argued against data localisation due to the costs of enforcement (Bauer et al. 2014); it impedes new and growing businesses that are not able to absorb increasing information and data costs. Only firms that are already more productive will be able to bear the additional costs of data localisation.

However, Azmeh and Foster (2018) argue that the absence of localisation requirements can slow down convergence across developed and developing countries. Banga and te Velde (2018) show that



while the manufacturing sector continues to exhibit unconditional convergence, convergence has slowed down in African countries in the period 2002–2013 as compared to 1991–2002. One plausible reason for this is the rise in digitalisation in the recent years; production in the digital economy is more likely to be based on a data thread connecting different stages of production, suggesting that production is likely to be more concentrated in developed economies with advanced capital centres, skilled labour, and R&D facilities. Castro and McQuin (2015) hold that data localisation policies in developing countries will lead to developed countries setting up data centres locally, which can bring in foreign investment, skill development, improvements in tech capacity of countries through clustering, and development of a national internet industry that can encourage catching up. Some developing countries can further use data localisation as a bargaining tool in exchange for market access (Ezell et al. 2013).

Many countries, including China, Russia, Indonesia, Brazil, Panama, Nigeria, and South

Korea, have data localisation requirements such as local data storage, processing, and use of local technologies. In Africa, Nigeria is the only country which has already established a data localisation law, requiring local storage of consumer, government, and subscriptions data, as well as local processing of sales and ATM transactions data. In the case of Kenya, there has been significant investment by Google in the renewable energy sector, which can be seen as a first step toward opening data centres there. Sector-specific data policies can be developed if countries want data pertaining to critical information, such as in the defence, financial, health sectors, to be stored and processed locally, while sector-specific data can be exchanged with licenced entities that offer adequate data protection and privacy (as in the EU's GDPR) for market access. For localisation policies to attract foreign investment, it important to put in place policies that lower the cost of capital for foreign firms (e.g. subsidies on electricity rates, tax holidays), improve infrastructure (e.g. installation of air-conditioning, securing reliable power supply) and strengthen data security (e.g. strict cyber security laws).

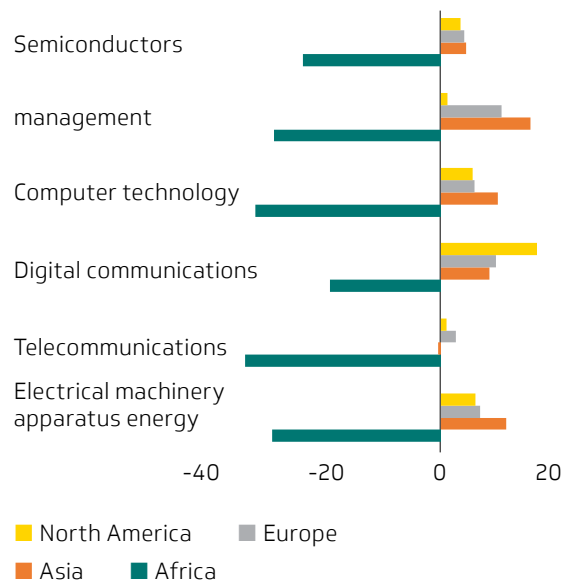
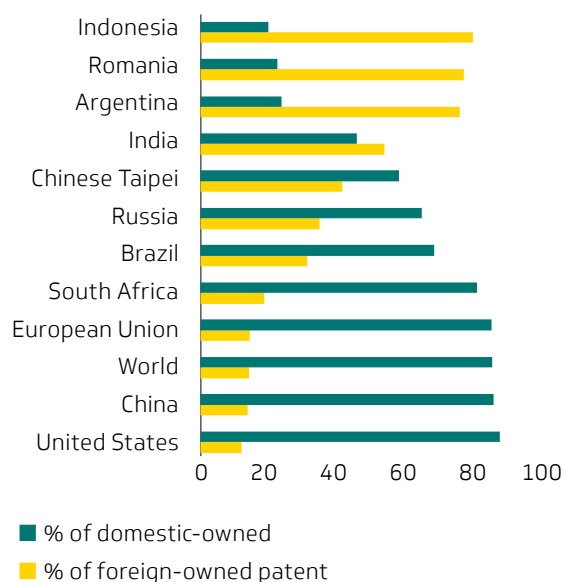
2.7 Regulatory Environment for digital transformation in Africa

The debate on IP has gained increased significance at the global level, largely because of the emergence of new ICT technologies and digitalization. The rapid advancement and application of new technologies across a range of sectors has revolutionized the application of knowledge and raised new questions on how that knowledge should be protected. On the one hand is the argument that strengthening of IP rights in developing countries can build digital trust in the international community, facilitating digital trade. Patent reforms in major economies have been found to increase manufacturing exports to the US by 20 percent. At present, developed economies of UK, US and Germany rank higher on IP protection compared to selected

African and Asian economies, and within African economies, South Africa and Rwanda fare better (WEF, 2018).

However, Figure 2.4 (a) reveals that a high percentage of innovations patented in developing countries are owned by foreign companies perhaps lending credence to the counter argument made by many developing countries that property rights extended to new technologies will increase the costs of accessing these technologies and consequently increase the technological divide between developed and developing countries. ICT patents by types of tech further reveals that while there was growth in patents granted the period 2010–2016 across all types of technology in North America, Europe and Asia, African economies saw a decline in growth across all technologies in Figure 2.4 (b).

Figure 2.4 (a): Foreign ownership of inventions granted **Figure 2.4 (b): Growth in ICT patents granted**



Sources: OECD -TIVA in 2014, WIPO statistics.
Note: 2010–2016, CAGR

Notwithstanding the potential benefits that a strengthened IP regime could bring, African countries need to carefully consider the nature, scope and extent

on IP regulations at both the national and multilateral level to ensure that they provide policy space to support their development aspirations and drive for

economic and digital transformation. For instance, some developing economies, such as China and India, have witnessed growth driven, in part, by reverse engineering in areas that were less patent-protected. India successfully established a local generic pharmaceutical industry in the absence of foreign patent protection.

Of importance as far as IP management is concerned, are policies related to technology transfer, compulsory licensing and indigenous knowledge. Given that digitalisation may bring about entirely new products, as well as enable new functionalities, African economies need to consider an IP regime that leaves scope for active design-oriented innovation policy because the majority of the “enabling technologies” are proprietary. This makes it difficult for developing countries to learn from and catch up with developed countries through adaptive and imitative innovations (Sikoyo, Nyukuri and Wakhungu (2006)). The AfCFTA provides a valuable opportunity for African countries to develop regional rules on IP that can support digital transformation and grow intraregional trade in accordance with the region’s development ambitions.

2.7.1 Policies to Support a Well-embedded Ecosystem for Innovation

Policies to encourage innovation, such as funding for R&D, direct or indirect subsidies, and tax credits and benefits, are crucial for increasing the digital competitiveness of African firms. It is important to put in place sector-specific innovation policies along with encouraging glocalisation through innovation. Financial support from the government needs to be extended to manufacturing and services startups and to ecosystem enablers such as technological and innovation hubs.

As of 2018, there were 442 active tech hubs in Africa, and a dozen new ones are to be launched in 2019. South Africa has 59, followed by Nigeria (55), Egypt (34),

and Kenya (30).¹⁰ Kenya’s iHub is one of the most established in Africa, having around 150 companies and more than 13,000 members. It is important to focus support on the development of hubs that can provide a manufacturing ecosystem in the form of technical support (internet and ICT services), manufacturing makerspace (equipment and shared spaces), skills development (training in hardware engineering, coding, digital fabrication, internet of things, and blockchains) and incubators (support for product formation, conceptualisation of ideas, business development, networking, and funding support). This is also crucial to ensure that such hubs are not operating in silos but are integrated with the rest of the manufacturing sector.

Effective public–private collaborations are needed to support such technological and innovative hubs. Private sector investment needs to be directed towards well-integrated hubs, with telecom providers offering subsidised internet and digital services to them. The government can offer tax exemptions and incentives for R&D with reduced patent costs, as well as simplified regulatory practices for establishing a business and for obtaining licences. Policies launched by the Indian government under Startup India, a flagship initiative under the wider Digital India programme, can provide useful insights into how startups, particularly digital startups, can be promoted. The Startup India initiative offers tax exemptions, exemptions from inspection requirements (such as labour environment), roughly 80 per cent reduction in patent costs, easier regulations for businesses and procedures for licences, easier exit (within 90 days), and funding support. State support to venture funds and incubators is also increasing. For example, state support in Hyderabad to T-Hub or the Telangana Hub in India is anchoring the entire Hyderabad startup ecosystem.

Historical evidence suggests that social change and technological change go hand

in hand (industrial revolution in the United Kingdom, transformation in Singapore, etc.). A more progressive society with effective state-business relations and a cohesive civil society is more likely to accept change and make it work. Digital transformation in manufacturing can be facilitated by putting in place policies that target increasing flexibility of institutions, ability to work effectively as an ecosystem, and clear division of responsibilities.

At the domestic level, better and more targeted dialogue is needed amongst the government, private sector players, and educational institutions to understand the challenges facing industrialisation and find innovative solutions to address them. Specifically, the manufacturing sector needs to be better integrated with the domestic technology sector in Africa so that companies can actively develop solutions for local challenges. There is a lack of efficient collaboration between the two in the case of Kenya, as a result of a general lack of awareness in the manufacturing sector of how advanced the local technology scene is (Were 2016). This is coupled with a stubborn perception that local tech firms are not as sophisticated as foreign firms and cannot develop effective solutions to local problems in manufacturing and lack of awareness in the tech community regarding the types of problems faced by Kenyan manufacturers.

Important lessons in improving regulatory practices can be drawn from Rwanda, which ranks first in both the ease of doing business and competitiveness in the EAC, and third on the African continent. Rwanda's investment promotion focuses on, among others, regulatory framework, registration of businesses, work permits, transfer of funds, and protection of investment by the government. Since 2006, government efforts have been directed toward privatisation of state-owned enterprises to reduce government's non-controlling share in private firms and to attract foreign direct investment, particularly in ICT services.¹¹ In

2016, the Rwandan government adopted the ICT Act, which applies to all electronic communications, the information society, the broadcasting sector, and the postal sector. Its aim is to create a comprehensive legal framework for regulating ICT activities. This act institutes an ICT regulatory authority which is responsible for implementing the country's international obligations in ICT as well as promoting fair competition in the sector. Competition and fiscal policies can be effective in protecting domestic ICT firms and platforms, restricting control of the market by foreign firms and increasing accountability of technology companies, fostering an environment in which digital manufacturing can grow in a more inclusive manner.

At the international level, African countries face even greater regulatory challenges. Contrary to many developed countries in both the earlier and current phases of digitalisation, most African countries lack policies regarding the control and use of data, increasing the risk of their data being controlled by whoever gathers and stores data and then has exclusive and unlimited rights to it (Bauer et al. 2016). Using the power of Big Data, e-commerce giants have emerged as critical intermediaries integrating across business lines and slowly taking over essential infrastructure over which competitors depend on. For example, Amazon increasingly controls the infrastructure of online commerce through its massive Amazon Marketplace, which it uses as a laboratory to sell and test sales of new goods. The Marketplace allows it to force independent merchants to use its site, to both sell goods as a retailer and host sales by other retailers and to gather massive amounts of data on other merchants, giving it a tremendous competitive advantage (Khan 2017).

Resulting increases in market concentration may sizably augment the financial power of a few leading firms and cause increased rent seeking, anticompetitive practices,

and attempts to block actual or potential competitors. As a result, certain established competition and antitrust policies may no longer be adequate to address e-commerce giants' threat to market competition. These policies are based on short-term interests of consumers, and they low consumer pricing as competition. But competition can no longer be measured primarily through pricing and output, since this runs the risk of ignoring the adverse effects of predatory pricing and how integration across business lines can be anti-competitive. One form of rent extraction is aggressive tax optimisation by locating a firm's tax base in low-tax jurisdictions (e.g. Beer, de Mooij, and Liu 2018). The digital economy may exacerbate tax base erosion because global firms can easily transfer their intangible assets (e.g. data, IP) across tax jurisdictions.

Increasingly, there are calls for tighter regulation of restricted business practices. Some of the measures considered to regulate large platforms include breaking up large firms responsible for market concentration; regulating digital platforms as public utilities with direct public provision of the digitised service; and strong monitoring and administration at the international level (UNCTAD 2018). Taxing these firms where their activities are based rather than where they declare their headquarters will help redistribute their rents and increase government revenues by taxing where value is created. Requirement on data localisation may be another solution to ensure that businesses with real interests but only virtual presence in each country can be made to pay taxes that reflect the revenues of the economic activities they undertake within the country (Mayer 2018). Removing data localisation practices may make it easier for firms to avoid paying local taxes, though this issue requires further investigation (Lemma 2017).

An instructive example is the the review of taxation in the digital economy by the Davis Committee in South Africa. The

Committee concluded the South African tax law provided opportunity for foreign e-commerce suppliers to avoid taxation and in so doing deny South Africa tax revenue and create unfair competition to resident suppliers who had to pay taxes (Davis Tax Committee 2014). In response to the recommendations made by the Davis Committee, South Africa amended its VAT Act in 2014 to better capture the digital economy and foreign and local digital suppliers. The amendments require foreign suppliers of e-commerce services such as music, electronic books, internet games, electronic betting, software, among others, to register as value-added tax (VAT) vendors and account for output tax provided their turnover in South Africa meets the threshold of ZAR 50,000 (ARIA, 2018).

The development of policies that support domestic e-commerce players are also important for African economies, which are at a relatively nascent stage in digitisation. For instance, it is important to protect and encourage the development of local or regional platforms and put in place policies that can help African suppliers to link with such platforms. Third-party platforms such as Amazon not only charge a hefty commission fee (up to 40 per cent on some products such as electronics) but also push their own products. Following China's example, policies on internet finance, provision of cloud services, and platforms selling local products should be encouraged.

2.7.2 Protecting Digital Labour against Commodification

It is key to note that DT are not only changing traditional work in manufacturing and other sectors; they are also increasingly altering the nature of work on online platforms. A number of digital labour platforms have come up, which include web-based platforms where work is outsourced through an open call to a geographically dispersed through crowd-work or through location-based applications through which



work is allocated to individuals in a specific geographical area. On the one hand, these digital platforms (such as Uber or Upwork) can reduce the cost of exchange within the informal economy, raising productivity and connecting the informal segments of the economy with the formal sector. This is particularly useful in African economies and some Asian economies, where the informal sector already comprises a large share of the economy (Pathways for Prosperity 2018). The future of work in Africa may therefore not be based on full-time formal jobs but rather through people performing multiple gigs with somewhat formal entities (CGD 2018). Digitalisation can create new opportunities in the gig economy in terms of shared-ride drivers, e-commerce logistics, e-commerce sellers, and digital translators. For instance, Nigeria based Jumia employs 3,000 people across Africa but has signed up 100,000 commission-based affiliates who help customers make orders through the platforms.

The demand for digital labour mainly comes from wealthy economies, with workers

across the globe competing (Graham 2016). This distributed supply and concentrated demand implies significant increases in competition and rising precarity of work, with online work often being re-outsourced to African economies under worse conditions (ibid.). The ILO's recent survey of 35,000 workers in 75 countries on five microtasks platforms reveals that crowd-workers are well educated but earn only US\$4.43 per hour of paid work, with workers in North America, Europe, and Central Asia earning more than workers in Africa and Asia Pacific, where earning varied between USD\$1.33 and US\$2.22 per hour. Moreover, most of the microtasks are simple and repetitive, not coinciding with the high level of education characteristic of crowd-workers or contributing to their skills development.

Policies aimed at improving the livelihoods of digital labour therefore need to be put in place. As per ILO (2018), the main issue is to shape labour regulation to the new reality, keeping in mind both efficiencies and distributional aspects. In some



cases, dynamic labour markets through deregulation can benefit some workers, but others may face greater insecurity of employment and income. There is consensus that social protection of digital labour needs to be strengthened, along with increasing their bargaining power through the formation of trade and labour unions. Policies on social insurance schemes would also be useful.

2.8 Strengthening Policies to Improve Competitiveness in the Digital Age

While new and targeted policies are needed to build digital capabilities in African economies, traditional constraints to manufacturing continue to be obstacles for African economies in leveraging digital transformation. These include lack of access to credit, poor basic infrastructure, poor power supply, poorer trade logistics, and others. The policy framework in the digital

economy is dynamic; while DT in production and government policies can directly boost digital capabilities of African firms, DT on the transaction and logistics side can indirectly boost firm capabilities by increasing the viability and efficacy of policy solutions (ibid.). Examples of this include digitalisation of customs, which can facilitate trade, and online portals and educational courses, which can boost skills development.

2.8.1 Financing of Capital, Particularly Soft Capital

Even though the price of capital goods has fallen by 25 per cent between 1975 and 2012, it is still relatively high in developing economies, particularly African economies (Karabarounis and Neiman 2014). Even if the cost of capital and digitalisation falls in African countries, the cost of financing digitalisation will remain high due to poor access to financing in these countries, a consequence of market and co-ordination failures. For African countries to remain

competitive in the increasingly capital-intensive landscape of manufacturing, it is important to put policies in place that reduce the cost of capital. Such policies can include increasing access to finance for small and medium-sized enterprises (SMEs) through public credit guarantee schemes for financial institutions involved in SME financing, development of financial institutions' capacity to assess creditworthiness, improving financial and business development literacy, and supporting the use of mobile money for digital financing.

Contrary to tangible assets such as buildings, machines, and land, intangible assets, such as data, software, market analysis, organisational design, patents, copyrights and the like are more difficult to sell or value as collateral. This makes it cumbersome to finance investment in intangibles from traditional sources, such as bank loans and marketable bonds, and, in addition to private equity finance, it increases the role of retained profits as a source of financing for investment (UNCTAD 2018). As a result, supporting investment in intangibles may well imply policy measures designed to strengthen the profit-investment nexus, such as by changing financial reporting requirements or imposing restrictions on share buybacks and dividend payments when investment is low, or preferential fiscal treatment of reinvested profits, as well as by increasing the role of development banks (ibid.).

Securing loans for SMEs through development finance institutions lending to banks is gathering momentum in some African countries. For example, the Kenyan I&M Bank recently secured a US\$40 million loan from the Dutch Development Bank for onward lending to SMEs. This follows substantial loans taken by Kenyan banks from global funds, including the International Finance Corporation (which gave a US\$150 million seven-year loan to Co-operative Bank of Kenya for lending to small companies), the European Investment Bank, and the

African Development Bank, which lent Kenya Commercial Bank US\$100 million for onward lending to SMEs in October 2017). These lenders offer favourable terms of debt, such as lower interest rates and longer maturity. Through its trade finance intermediaries, the African Export-Import Bank has provided significant resources for onward lending to SMEs across the region. through its recently established Fund for Export Development, the African Export-Import Bank will also support digital innovation and transformation, including by direct equity participation.

Governments can also become investors of first resort regarding digital innovation by investing in corporate equity (Mazzucato 2017), including by acquiring stakes in the commercialisation of successful new technologies. Professionally managed public funds can be developed, which can take equity stakes in new technologies, financed through bond issues in financial markets, and which would share its profits with citizens in the form of a social innovation dividend (Rodrik 2015). In this way, the fruits of high productivity growth from technological change can spread more widely and fuel aggregate demand also for output from lower productivity sectors, thereby increasing employment and average productivity at the same time (UNCTAD 2018).

2.8.2 Improving Basic Infrastructure: Power Supply, Road Infrastructure, Transport, and Others

The higher cost of capital and lower digitalisation levels in developing countries is linked to failure of market-coordination in capital markets and lack of access to basic physical and digital infrastructure. A reliable power supply, for example, continues to be a key challenge for many African countries in leveraging DT. Compared to other regions, electricity in African countries is very costly, and access and reliability vary significantly. On average, it takes about 5.3 procedures to



apply for an electrical connection in Africa and roughly 153 days to get the connection, compared to 34 days in Indonesia and 28 days in Germany.¹² In terms of reliability, World Bank data show that in African countries there are a greater number of outages that also last longer.

Moreover, compared to developed economies and selected Asian economies, African countries feature at the bottom of the postal reliability index (E-wits indicators) and they also rank lower in logistics, tracking and tracing, and shipping, which explains why African economies lag behind in e-commerce. Furthermore, African countries have poorer logistics and customs clearance processes. For instance, in Uganda and Kenya, it takes roughly 10 days to clear exports, while in India it takes fewer than 6 days, and in Thailand fewer than 2 (Banga and te Velde 2018).

Lowering the cost of electricity and increasing the reliability of the power supply can be achieved through digitalisation of energy services. Across the world, utility firms are investing in smart meters which can (i) collect accurate and timely data on electricity usage and

outages and monitor electricity bills; (ii) integrate data across territories, which can improve productivity; (iii) forecast demand and keep track of consumer usage patterns, preventing outages and managing peak demand; and (iv) optimise unit pricing of electricity. Some efforts have already been made by Kenya Power for commercial users—6,000 smart meters have been installed on the premises of large power consumers. Deployment of smart meters is a key point of convergence for utilities and telecom providers, such as Liquid Telecom in Kenya, which can offer good networking capability for installation and effective use of smart meters.

Similarly, digitalisation of customs, electronic tracking and communication systems in industrial trucks, digital inventory and stock taking, digital excise stamps etc. can reduce non-tariff barriers to trade in African countries and strengthen regional trade. Recently, the government of Rwanda has announced plans to fully automate the clearance of exports and imports in an effort to boost revenue, reduce international trade costs through reductions in time taken to clear cargo, and increase the flow of taxable goods.

END

3

Chapter Three



The Operating Environment – Digital Transformation & the Global Financial Market

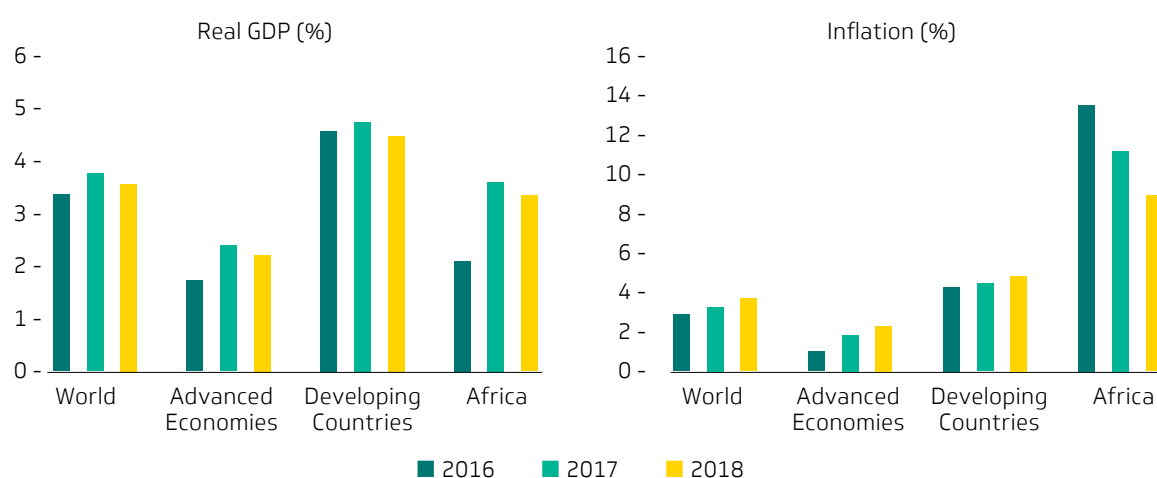
3.1 The Global Economic Environment

3.1.1 Output Development

The synchronised and broad-based global expansion witnessed in 2017 moderated in the second half of 2018, leading to downward revisions of growth estimates in both developed and developing economies. Global GDP expanded by 3.6 percent in

2018, down from 3.8 percent in 2017 (IMF WEO 2019). The synchronised deceleration of global growth reflected the stronger headwinds triggered by escalating trade wars, the contraction phase of financial cycles, and global volatility associated with tightening global financial conditions. However, the synchronised nature of global growth deceleration masks important variations across countries and regions (Table 3.1 and Figure 3.1).

Figure 3.1 Global Output and Inflation, 2016-2018



Sources: International Monetary Fund, World Economic Outlook Database

Table 3.1 Developments in Global Output, 2016-2018

	Exchange Rate (End of period)			Real GDP Growth (annual percent change)			Inflation Rate (annual percent change)			Interest Rate (3-month), % (end of period)		
	2016	2017	2018	2016	2017	2018	2016	2017	2018	2016	2017	2018
WORLD												
Developed Economies				3,37	3,79	3,60	2,80	3,20	3,60			
United States	1,00	1,00	1,00	1,70	2,40	2,20	0,80	1,80	2,10			
United Kingdom	1,23	1,35	1,28	1,60	2,20	2,90	1,30	2,10	2,40	0,64	1,15	2,81
France	1,05	1,20	1,15	1,80	1,80	1,40	0,70	2,70	2,50	0,49		0,91
Japan	116,80	112,90	109,70	1,20	2,20	1,50	0,30	1,20	2,10	-0,26	-0,33	-0,31
Italy	1,05	1,20	1,02	0,60	1,90	0,80	-0,10	0,50	1,00	0,07	0,06	0,07
Canada	1,34	1,26	1,36	1,10	1,60	0,90	-0,10	1,30	1,20	-0,26	-0,33	-0,31
Germany	1,05	1,20	1,15	1,10	3,00	1,80	1,40	1,60	2,20	0,82	1,06	1,75
				2,20	2,50	1,50	0,40	1,70	1,90	-0,26	-0,33	-0,31
Memorandum												
Euro Area	1,05	1,20	1,15	2,00	2,40	1,80	0,20	1,50	1,80	-0,26	-0,33	-0,31
DEVELOPING COUNTRIES												
Africa				4,60	4,80	4,50	4,20	4,30	4,80			
Developing Asia				2,10	3,60	3,40	13,60	11,16	8,93			
Latin America and the Caribbean				6,70	6,60	6,40	2,80	2,40	2,60			
Developing Europe				-0,60	1,20	1,00	5,60	6,00	6,20			
Commonwealth of Independent States				3,30	6,00	3,60	3,20	6,20	8,70			
				0,80	2,40	2,80	8,30	5,50	4,50			

Sources:
IMF Exchange Rate
IMF World Economic Outlook Database
Bloomberg

Growth in developed economies decelerated to 2.2 percent in 2018, from 2.4 percent in 2017. The disappointing performance across the euro area and the United Kingdom was a drag on growth. Growth within the euro area fell by 0.6 percentage points to 1.8 percent in 2018. This was largely because of difficulties in Italy, the third-largest economy within the euro area, where the fiscal and sovereign debt crisis, as well as challenges in the banking and financial sector, dampened growth and investment. Italy recorded a GDP growth rate of 0.9 percent in 2018, down from 1.6 percent in 2017. Sluggish growth in Germany, the largest economy in the euro area, was also a major drag on the region's performance. GDP growth expanded by 1.5 percent in 2018, down from 2.5 percent in 2017, on account of softening private consumption and weaker industrial production following the introduction of revised auto emission standards.

The uncertainty surrounding the ongoing Brexit negotiations continued to dampen growth in the United Kingdom, where output expansion decelerated to 1.4 percent in 2018, from 1.8 percent in 2017. The US economy, however, maintained robust growth, notably in the second quarter, as private sector activity was buoyed by fiscal stimulus. Output in the United States expanded by 2.9 percent in 2018, compared with 2.2 percent in 2017.

Decelerating global growth also impacted developing economies. GDP growth in developing economies expanded by 4.5 percent in 2018, down from 4.8 percent in 2017. Developing Asia was the fastest-growing region globally, achieving an average growth rate of 6.4 percent in 2018, which was slightly down from 6.6 percent in 2017. The sustained growth performance achieved by the region is largely attributed to continued strong growth in India and China. India's GDP expanded by 7.1 percent in 2018, largely on account of increasing diversification of sources of growth and trade in a context of expanding South-

South trade. In China, output expanded by 6.6 percent in 2018, down from 6.8 percent in 2017. Despite the marginal deceleration, largely on account of credit tightening and rising trade tensions with the United States, robust private consumption and investment supported persistent growth.

Higher oil prices lifted growth among fuel-exporting economies, especially in Africa and the Middle East. In the Gulf Cooperation Council countries, which have become Africa's key trading partners, GDP growth averaged 2 percent in 2018, up from 0.2 percent in 2017. Growth recovery in Latin America and the Caribbean continued, though at a more subdued pace than anticipated. Tighter financial conditions and drought suppressed growth in Argentina, and political uncertainty disrupted economic activity and undermined growth prospects in Brazil. During 2018, output expanded by 1.0 percent in Latin America and the Caribbean, down from 1.2 percent in 2017.

3.1.2 Price Developments

Global consumer price inflation increased to 3.6 percent in 2018, up from 3.2 percent in 2017, anchored on longer-term inflation expectations (Table 3.1 and Figure 3.1). The global inflation picture masks heterogeneity across regional groupings and countries at different stages of the business cycle. Inflation in advanced economies increased at an estimated 2.1 percent in 2018, up from 1.8 percent in 2017. In the United States, headline consumer price inflation increased by 2.4 percent in 2018, up from 2.1 percent in 2017, driven by increases in final consumption partly fuelled by fiscal stimulus.

In the United Kingdom, inflation declined to an estimated 2.5 percent in 2018, down from 2.7 percent in 2017. Headline inflation in the euro area reached an estimated 1.8 percent in 2018, up from 1.5 percent in 2017, but still below the European Central Bank's institutional target of 2 percent.

Table 3.2 Africa: Real GDP Growth, 2016-2018 (percent)

Country Name	2016	2017	2018
Algeria	3,20	1,40	2,06
Angola	-2,58	-0,15	-1,70
Benin	3,97	5,83	6,55
Botswana	4,30	2,91	4,59
Burkina Faso	5,95	6,32	6,03
Burundi	-1,04	0,00	0,15
Cameroon	4,65	3,55	4,05
Cape Verde	4,71	4,01	4,73
Central African Republic	4,53	4,33	4,34
Chad	-6,43	-3,14	3,09
Comoros	2,16	2,71	2,76
Congo, Dem. Rep. of	2,40	3,43	3,95
Congo, Rep. of	-2,83	-3,11	0,81
Côte d'Ivoire	7,97	7,70	7,41
Djibouti	6,50	6,70	6,70
Egypt	4,35	4,18	5,31
Equatorial Guinea	-8,82	-4,71	-5,73
Eritrea	1,85	5,01	4,19
Eswatini	3,22	1,87	0,21
Ethiopia	8,00	10,15	7,71
Gabon	2,09	0,50	1,22
Gambia	0,41	4,56	6,60
Ghana	3,45	8,14	5,64
Guinea	10,46	9,87	5,79
Guinea-Bissau	6,26	5,92	3,80
Kenya	5,87	4,87	5,96
Lesotho	3,06	-1,56	1,47
Liberia	-1,63	2,47	1,24
Libya	-7,39	64,01	17,88
Madagascar	4,18	4,31	5,20
Malawi	2,27	4,00	3,17
Mali	5,77	5,40	4,90
Mauritania	1,84	3,01	3,01
Mauritius	3,84	3,81	3,76
Morocco	1,13	4,09	3,06
Mozambique	3,76	3,74	3,30
Namibia	0,64	-0,95	-0,09
Niger	4,93	4,90	5,17
Nigeria	-1,62	0,81	1,94
Rwanda	5,97	6,15	8,58
São Tomé and Príncipe	4,18	3,88	3,00
Senegal	6,23	7,21	6,16
Seychelles	4,50	5,29	3,60
Sierra Leone	6,35	3,77	3,73
Somalia	4,85	2,30	3,10
South Africa	0,40	1,42	0,79
South Sudan	-16,74	-5,50	-1,19
Sudan	2,94	1,66	-2,13
Tanzania	6,87	6,78	6,59
Togo	5,56	4,40	4,75
Tunisia	1,11	1,96	2,48
Uganda	2,32	4,98	6,18
Zambia	3,76	3,40	3,48
Zimbabwe	0,74	4,70	3,45

Source: International Monetary Fund, World Economic Outlook database.

In Japan, headline inflation increased to 1.0 percent in 2018, up from 0.5 percent in 2017, driven mainly by rising global energy prices. However, the rate of inflation remained below the Bank of Japan's target and has provided the rationale for continued implementation of monetary easing policy under the quantitative easing programme. Inflation in developing economies increased to an estimated 4.8 percent in 2018, up from 4.3 percent in 2017.

3.2 THE AFRICAN ECONOMIC ENVIRONMENT

3.2.1 Output Development

Notwithstanding the decelerating global growth in a challenging global economic environment of zero-sum-game trade policies, African economies expanded by 3.4 percent in 2018, compared with 3.6 percent in 2017. The expansion was broad-based, with more than 90 percent of African countries enjoying growth accelerations in 2018.

Though still below its potential, Africa emerged among the fastest-growing regions in the world, highlighting the continued resilience of its economies to negative shocks and global volatility. The strengthening economic performance reflects increasing investment and public and private consumption spurred by softening inflation and expanding urban populations, and an increasingly favourable domestic environment of strengthening economic recovery, both in large and hard-hit natural-resource-dependent economies. Additionally, the commitment to macroeconomic stability, which has become the anchor of economic growth within the region, is increasingly mainstreamed in policymaking. A growing number of countries are undertaking difficult economic reforms to improve the business environment, raise fiscal buffers, and boost private investment (Fofack 2019).

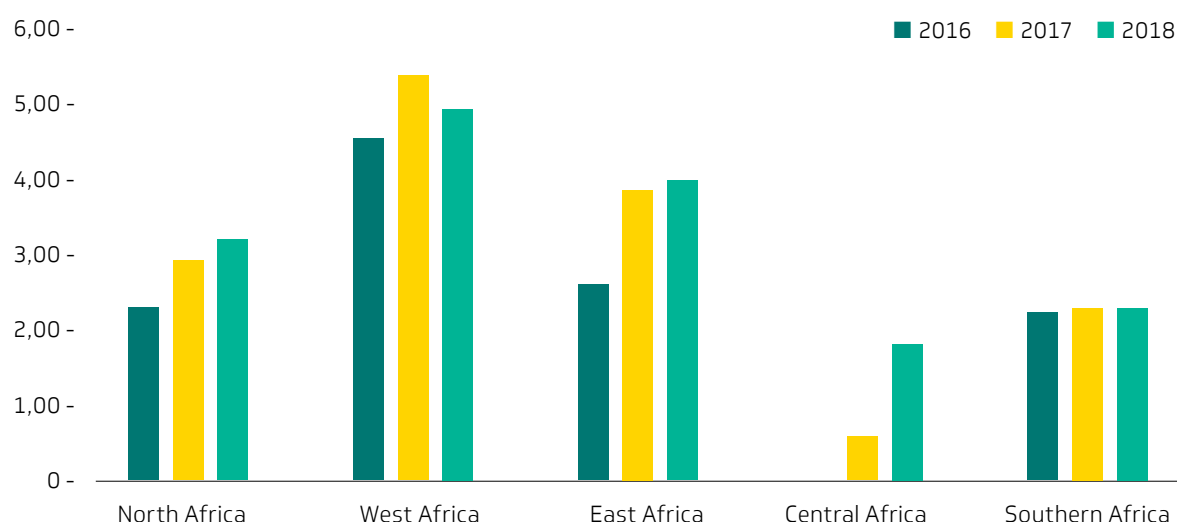
Furthermore, the resilience of African economies on a rather volatile global growth trajectory is a reflection of increasing diversification of trading partners in a changing global economic and trade landscape, where South-South trade has become a key driver of global trade and growth. The deepening trade ties between China and Africa enabled the latter to sustain robust economic growth in the aftermath of the 2008–09 global financial crisis, when numerous European countries, which for decades had been Africa's main trading partners, were going through a protracted cycle of deflation—the consequences of lingering fiscal and sovereign debt crises (Fofack 2019).

3.2.1.1 Regional Variations

Economic growth varied widely across countries and across the continent's five subregions (Figure 3.2). West Africa was the fastest-growing subregion within the continent. The recovery in Nigeria, the largest economy in the subregion and one of the largest in the continent, lifted overall economic expansion, with the subregion achieving a GDP growth rate of 4.96 percent in 2018 compared with 5.42 percent in 2017. The expansion reflected the broad-based nature of economic expansion across the subregion, where growth was driven by both resource- and non-resource-intensive economies. The subregion has some of the fastest-growing economies in the world, including Ghana, Côte d'Ivoire, and Senegal, all of which achieved an average economic growth rate above 7 percent in 2018. These countries were among the strongest drivers of economic growth within the subregion and across the continent (Fofack 2019).

East Africa was the second fastest-growing subregion in the continent, with estimated growth of 4.01 percent in 2018, up from 3.93 percent in 2017. Growth in the subregion was broad based, with many countries, including Djibouti, Ethiopia, Kenya, Rwanda, Tanzania, and Uganda, growing at

Figure 3.2 Output by Subregion 2016–2018 (percent)



Source: International Monetary Fund, World Economic Outlook Database

5 percent or more. Across the subregion, infrastructure investment and construction remain the key drivers of growth. At the same time, continued expansion of services, including information and communications technology, has been key to the economic fortunes of several countries in the subregion. Expanding manufacturing output in Kenya, Tanzania, and Rwanda has been another growth enhancer, boosting trade and accelerating the process of export diversification. However, in some countries, notably Burundi and Sudan, growth remained weak due to political uncertainty, while in South Sudan, ongoing socio-political conflicts undermined growth prospects.

North Africa was the third fastest-growing subregion within the continent, with estimated growth of 3.18 percent in 2018, up from 2.93 percent in 2017. Egypt's economy, the largest in the subregion and one of the most diversified across the whole continent, provided a major boost, with output expanding by 5.31 percent (Fofack 2019). Though much lower, economic growth in other countries, most notably Morocco and Tunisia, positively contributed to overall growth in the subregion. In Morocco,

agricultural production and extractive industries drove GDP growth to 3.06 percent in 2018, while Tunisia achieved a growth rate of 2.48 percent, up from 1.96 percent in 2017.

Southern Africa was the fourth fastest-growing subregion within the continent. Though still largely below potential, GDP growth accelerated to 2.34 percent in 2018, marginally up from 2.32 percent in 2017. The weak growth performance achieved by the subregion is largely due to weak growth in South Africa. South Africa, the largest economy in the subregion and the most sophisticated economy across the continent, slipped into a recession in the second half of 2018, with growth estimated at 0.79 percent in 2018, down from 1.42 percent in 2017. While challenges faced by other countries in the subregion—most notably Angola and Namibia—dented growth prospects in the subregion, the strong growth performance in Madagascar, Mauritius, and Botswana set the subregion on an accelerated growth trajectory during 2018.

Central Africa remained the lagging subregion within the continent.

Table 3.3 Africa: Inflation, 2016–2018 (percent)

Country Name	2016	2017	2018
Algeria	6,40	5,59	4,27
Angola	30,69	29,84	19,63
Benin	-0,81	0,14	1,04
Botswana	2,81	3,30	3,24
Burkina Faso	-0,19	0,35	2,00
Burundi	5,53	16,64	1,24
Cameroon	0,87	0,64	0,94
Cape Verde	-1,41	0,78	1,30
Central African Republic	4,60	4,10	3,00
Chad	-1,12	-0,94	2,48
Comoros	1,80	1,00	2,00
Congo, Dem. Rep. of	18,20	41,50	29,30
Congo, Rep. of	3,19	0,45	1,15
Côte d'Ivoire	0,72	0,83	0,28
Djibouti	0,38	0,76	-0,14
Egypt	10,20	23,54	20,86
Equatorial Guinea	1,40	0,75	1,35
Eritrea	9,00	9,00	9,00
Eswatini	7,85	6,22	4,83
Ethiopia	6,63	10,69	13,82
Gabon	2,09	2,65	4,77
Gambia	7,23	8,05	6,52
Ghana	17,46	12,37	9,84
Guinea	8,17	8,91	9,70
Guinea-Bissau	1,50	1,06	1,40
Kenya	6,32	7,99	4,69
Lesotho	6,21	4,52	5,20
Liberia	8,84	12,44	23,43
Libya	25,88	28,53	23,09
Madagascar	6,66	8,28	7,29
Malawi	21,73	11,54	9,22
Mali	-1,80	1,76	1,73
Mauritania	1,47	2,27	3,05
Mauritius	1,00	3,68	3,23
Morocco	1,65	0,75	1,91
Mozambique	19,85	15,11	3,91
Namibia	6,73	6,15	4,29
Niger	0,18	2,39	3,01
Nigeria	15,70	16,50	12,09
Rwanda	5,72	4,84	1,36
São Tomé and Príncipe	5,43	5,69	7,86
Senegal	0,84	1,32	0,47
Seychelles	-1,01	2,86	3,70
Sierra Leone	10,88	18,22	16,87
Somalia			
South Africa	6,34	5,27	4,62
South Sudan	379,85	187,87	83,49
Sudan	17,75	32,35	63,29
Tanzania	5,17	5,32	3,51
Togo	0,86	-0,75	0,73
Tunisia	3,63	5,31	7,31
Uganda	5,46	5,63	2,63
Zambia	17,87	6,58	7,04
Zimbabwe	-1,56	0,91	10,61

Source: International Monetary Fund, World Economic Outlook database.

Nevertheless, the majority of Central African countries are net oil exporters, and the improving commodity terms of trade set the subregion on an accelerated growth trajectory, with the subregion posting an economic growth rate of 1.84 percent in 2018, up from 0.59 percent in 2017. The slow recovery in oil prices in 2018 provided a boost to a number of countries, including Chad, Republic of Congo, Equatorial Guinea, and Gabon, where oil exports account for more than 80 percent of foreign exchange earnings. However, in addition to vulnerabilities to adverse commodity terms-of-trade shocks, a few countries within the subregion, most notably Chad and Cameroon, have been mired in conflict and insecurity, which could derail the process of economic recovery.

3.2.2 Price Developments

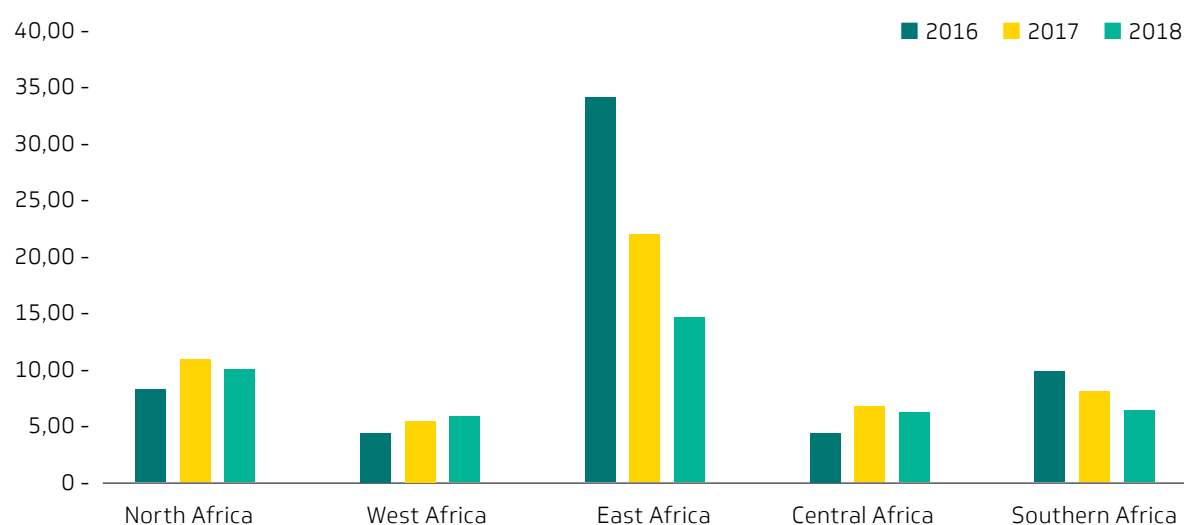
Across Africa, average inflation declined from 11.2 percent in 2017 to 8.9 percent in 2018 (Table 3.3 and Figure 3.4). However, the decelerating rate of inflation across the region masks important variations across countries. Double-digit inflation rates were recorded in several countries, both large and small, and especially in conflict-affected countries. In particular, among the large

economies, Angola recorded an inflation rate of 19.63 percent in 2018, while Sudan recorded 63.29 percent. Rates approaching hyper-inflation were seen in conflict-affected countries, such as South Sudan, where inflation reached 83.49 percent in 2018.

Inflationary pressures decelerated in North Africa, where average rates of inflation decreased to 10.01 percent in 2018 from 11 percent in 2017. These developments reflect the improving inflationary outlook in a number of large economies, most notably Egypt, where the rate of inflation fell to 20.86 percent in 2018, down from 23.54 percent in 2017.

Likewise, inflationary pressures eased in Southern Africa, falling from 7.88 percent in 2017 to 6.5 percent in 2018. Price levels within the subregion were influenced by a general price reduction in Angola (from 29.84 percent to 19.63 percent) and Mozambique (15.1 percent to 3.9 percent). In contrast, the average rate of inflation in West Africa increased to 6.03 percent in 2018, marginally up from about 5.63 percent in 2017, driven mainly by inflationary pressures from Ghana (9.84 percent) and Nigeria (12.1 percent).

Figure 3.3 Inflation by Subregion 2016–2018 (percent)



Source: International Monetary Fund, World Economic Outlook Database

The average rate of inflation in East Africa fell to an estimated 14.7 percent in 2018, compared with 22.1 percent in 2017, driven by easing inflationary pressures in countries of the East African Community, namely Burundi, Kenya, Rwanda, Tanzania, and Uganda. In Kenya, inflation declined from 8 percent in 2017 to 4.69 percent in 2018. Inflationary pressures, however, remained high in Sudan, where food and non-food prices have been on the rise, prompting public protests, and in South-Sudan, given ongoing political conflict. The average rate of inflation in Central Africa eased to an estimated 6.36 percent in 2018, down from 6.86 percent in 2017. Inflation in the subregion is largely driven by inflationary pressures in the Democratic Republic of Congo, where despite the rate of inflation decreasing from 41.5 percent in 2017 to 29.3 percent in 2018, inflation rates remain high, largely above the regional average.

3.3 International Financial Markets and Financing Conditions

Although global financial conditions remained largely accommodative on the path of normalisation of monetary policy, which saw four interest rate hikes in the United States during 2018, sustaining financial market performance proved more challenging—especially after the year-end rout in equity and credit markets. After a boost to asset prices during the early part of 2018, largely fuelled by the US tax stimulus and improving investor sentiment, decelerating global growth—which also became less synchronised in 2018—weighed on financial markets in the latter part of the year. Reversals in capital flows from developing economies in a context of rising US interest rates and increasingly attractive US assets weakened local currencies in some emerging and developing markets. In addition, concerns arising from uncertainty regarding the United Kingdom’s exit from the European Union persisted, while ongoing geopolitical tensions in some parts of the

world intensified, heightening uncertainty and global volatility and taking a toll on equity prices. Overall, financial markets struggled, with most major stock indices ending the year down.

Despite the four rate hikes by the US Federal Reserve in 2018, which set the federal funds target rate at 2.25–2.5 percent, central bank policy remained largely accommodative during the review period. The European Central Bank maintained its main refinancing rate at 0 percent, although it did taper its monthly bond purchases during the year and ended them at the end of 2018. The Bank of Japan remained on an expansionary path in the face of anaemic growth and increasing price stickiness, with the value of government securities on its balance sheet increasing by 6 percent in 2018. China also remained in a stimulus mode, lowering short-term interest rates and cutting bank reserve requirements four times in 2018 on the back of growing concerns about growth prospects. Likewise, after raising its policy rate by 25 basis points to 0.75 percent in August 2018—the second rate hike in 10 years—the Bank of England joined the global retreat from interest rate increases on account of growth deceleration and uncertainty associated with escalating trade wars and the exit from the European Union.

Stock market momentum, initially triggered by robust global growth and corporate earnings-enhancing tax cuts in the United States, faded in the latter part of 2018. Escalating trade tensions, growing concerns over rising interest rates, and persistent geopolitical tensions increased market volatility, with the overall global bond and equity universe shrinking by a cumulative US\$5 trillion in 2018—the biggest contraction of capital markets since the 2008–09 global financial crisis.

Rising bond yields and uncertainty over growth and corporate profits triggered a sharp drop in global stock markets, with most major stock indices ending the year



down. The FTSE-All World stock market index lost 5 percent, more than US\$3.6 trillion of market capitalisation—the biggest dollar loss since 2011 in nominal terms. In the United States, the S&P 500 ended the year 6.2 percent down, while the Dow Jones Industrial Average ended 5.6 percent down.

After a stellar 2017, which saw the Nikkei 225 index reaching levels last seen in 1992, the Japanese stock market was among the worst performers of the developed countries, with the index falling 14.6 percent in 2018. London's benchmark FTSE 100 index tumbled by 12.5 percent during 2018—its biggest annual decline since 2008. European stocks also came under pressure, with the Euro Stoxx 50 index and Germany's Dax index declining by 14.4 percent and 19.1 percent, respectively.

In developing economies, the challenging global economic and financial environment of synchronised growthy deceleration, rising interest rate in the United States, trade tensions, and weak commodity prices affected the performance of capital markets. Developing market economies connected to global capital markets were particularly affected. The MSCI's Emerging

Market Index, which tracks 24 emerging market countries, ended the year 14.57 percent lower. China's Shanghai Composite Index lost more than 28 percent of its value in 2018, as trade tensions with the United States took hold. The worst stock market performers in US dollar-denominated terms in 2018 were some of the leading emerging markets. Argentina's stock market index closed more than 50 percent lower in 2018, while Turkey's stock market index fell by more than 43 percent. In Africa, South Africa's JSE All Share index ended the year 13 percent down, while Egypt's EGX 30 index and Nigeria's NSE All Share index ended the year 15.7 percent and 21 percent down, respectively.

Political events also remained a central theme in global currency markets as major financial centres reacted to rising protectionism in the United States, uncertainty over Brexit, and ongoing geopolitical tensions. With strong growth and US interest rates on a rising trend, the US dollar strengthened against most major currencies in 2018. The dollar index, which represents a basket of currencies dominated by the euro, increased 4.2 percent in 2018. With weaker growth and Brexit uncertainty

persisting, the pound sterling ended the year 7.23 percent down against the US dollar. The euro lost ground as well, ending the year 5.5 percent lower against the US dollar, while the Chinese yuan and the South African rand lost 5.9 percent and 16.1 percent, respectively, against the US dollar.

Among major currencies, the Japanese yen ended 2018 as the biggest winner against the dollar—up 3.76 percent—as investors sought safety amid global uncertainties. While US interest rates remained on a rising trajectory and the dollar strengthened against most major currencies, the positive correlation with the US dollar is likely to be affected by a number of other factors. These include most notably the fiscal incidence of the US tax bill, the trade balance, interest on external debt, and recent developments in the US yield curve and credit spreads.

Despite four interest rate hikes by the Federal Reserve in 2018, financing conditions remained largely accommodative, as policymakers continued efforts to stoke growth and steer inflation towards prescribed targets. In the United States, sustained rate hikes in a context of strengthening growth and full employment contributed to persistent upward pressure on yields. The 3.0 percent threshold for yields on 10-year bonds was breached in September before retreating to end the year at 2.7 percent, up from 2.41 percent at the end of 2017. In the UK bond market, yields on the 10-year gilt also ended the year marginally higher at 1.27 percent, up from 1.19 percent in 2017, on the back of the Bank of England's rate hikes.

In other parts of Europe, the slowdown in economic growth and increasing uncertainty led to mixed results for bond yields. In Germany, 10-year bond yields fell from 0.43 percent to 0.24 percent, even as the European Central Bank announced the end of monetary stimulus. In France, bond yields

remained relatively flat, while Italy saw yields on its 10-year bonds rise from 2.01 percent to 2.74 percent, largely as a result of the outcome of the country's elections and the promise to boost spending and cut taxes.

In China, financing conditions remained broadly stable, with an easing in monetary policy. Tighter liquidity resulting from earlier regulatory efforts to contain and reduce threats to the financial system led to pockets of stress in corporate bond markets and prompted Chinese authorities to ease monetary policy to mitigate the risk of growth deceleration and a hard landing. The central bank injected liquidity via cuts to the required reserve ratio and short-term interest rates.

Notwithstanding the changing environment of global retreat from interest rate increases, financing conditions in Africa remained tight in a context of liquidity challenges, occasioned by the lingering effects of the end of the commodity super-cycle, the withdrawal of a large number of international financial institutions from African markets in response to an increasingly stringent regulatory environment and the implementation of sanctions, and the reversal of capital flows on the back of rate hikes by the US Federal Reserve. These risks of capital flow reversals and shortage of liquidity are compounded by escalating trade wars, which could further heighten macroeconomic management challenges and undermine growth through trade channels. While the diversification of African trade partners in a context of rising South-South trade is mitigating the exposure to global volatility, accelerating the process of economic diversification to boost intra-African trade and deepen economic integration will be essential to address downside risks, which over the years have been highly correlated with commodity cycles.

END

4

Chapter Four



Trade & Trading Environment

4.1 Global Trade

Recent estimates from the World Trade Organization (WTO) show that the volume of global merchandise trade grew by 3 percent in 2018, down from 4.6 percent in 2017. This deceleration was a major reversal in the growth trajectory of world trade, which picked up in 2017 after a period of stagnation that began in 2011. Trade in current US dollar terms was estimated at about US\$38.91 trillion in 2018, lower than expected largely due to a letup in world import demand, which slackened in both developed and developing countries (WTO 2019) (See Figure 4.1). In the midst of a challenging global trade and economic environment, dominated by an escalating trade war between the world's two largest economies, the decrease was particularly important in Asia and Europe.

North America saw an increase in the volume of merchandise trade in 2018 compared with 2017, with merchandise imports growing by 4.3 percent, compared with 4 percent in 2017, and merchandise exports growing by 5 percent, compared with 4.2 percent. This growth is largely attributable to a strengthening US economy, which was a major driver of imports from the rest of the world, especially China. Despite the escalating trade war between the two largest economies, merchandise imports increased to US\$2.13 trillion in 2018, up from US\$1.84 trillion in 2017, and merchandise exports reached US\$2.48 trillion, up from US\$2.3 trillion in 2017.

Asia remained the fastest-growing region globally, despite the slowdown in growth in the volume of merchandise trade. The region's merchandise exports expanded by 3.8 percent in 2018, down from 6.8 percent in 2017, while imports grew by 5 percent, down from 8.3 percent in 2017. The growth was supported by China, whose exports grew by 9.7 percent in 2018, up from 6.72 percent in 2017, and whose imports grew by 16.8 percent, up from 15.3 percent.

In South and Central America, trade growth slowed in 2018. Merchandise imports grew by 3.6 percent, compared with 4 percent in 2017, while merchandise exports expanded by 2.8 percent, compared with 3.3 percent. Overall, the deceleration in the region was largely due to weak growth in Argentina, the second-largest economy, which recorded a sharp decline in merchandise trade growth, to 1.06 percent in 2018, from 10.37 percent in 2017.

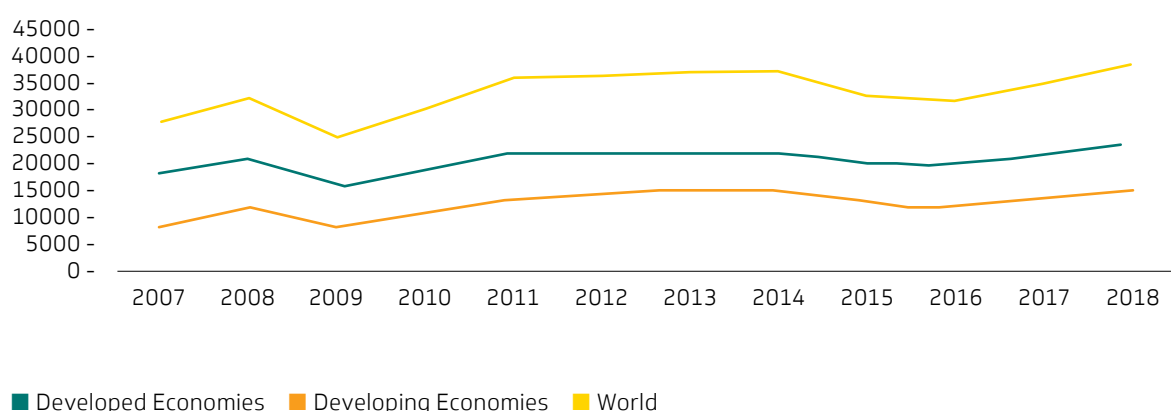
In Europe, despite the acceleration of merchandise imports, which grew by 3.1 percent in 2018 compared with 2.5 percent in 2017, trade slackened in 2018, with merchandise exports growing by 2.9 percent, compared with 3.5 percent. The overall regional performance of the European Union (EU) remained strong, though, with total merchandise trade growing by 9.89 percent in 2018, down very slightly from 10.13 percent in 2017. The slight deceleration was largely due to weak growth and production bottlenecks in the automotive industry.



Globally, the slow growth of merchandise trade was largely driven by decelerating worldwide output and weak global demand, heightening trade tensions, volatility in financial markets, and tightening monetary conditions. Growth deceleration in China and other major developing economies—notably Mexico and Russia—also undermined global trade, especially as developing countries continued to drive the expansion.

Developing economies' merchandise exports slowed by 4.6 percent in 2018, compared with 5.3 percent in 2017, and merchandise imports decelerated to 4.8 percent, compared with 8.1 percent. Meanwhile, developed economies' merchandise exports remained relatively flat, growing at 3.5 percent in 2018, compared with 3.4 percent in 2017, while merchandise imports grew by 3.2 percent, compared with 3 percent.

Figure 4.1 Trends in Global Trade (US\$ billions)



Source: International Monetary Fund, Direction of Trade Statistics Database, 2019.

4.2 Global Trade Environment

The global environment in 2018 was dominated by heightened trade tensions that escalated to a trade war, with dampening effects on global trade and investment, and disruption of supply chains. The trade tensions, which started in the early days of the Trump Administration, intensified to a trade war between the United States and its major trading partners—including most notably Canada, Mexico, and China—which together accounted for 58.9 percent of the combined US trade deficit in 2018. These developments arose as a result of the implementation of the so called “America First” policies, which included unilateral tariffs to improve the United States’ external balances. These policies were met with retaliatory tariffs from trading partners, leading to heightened protectionist measures, with the focus shifting to Chinese products—given that China alone accounted for about 45 percent of the US trade deficit with its major partners in 2018.

In January, the United States imposed a tariff on solar panel imports, most of which are manufactured in China. In July, the United States specifically targeted China by imposing 25 percent tariffs on US\$34 billion of imported Chinese goods. A tariff on an additional US\$16 billion of Chinese imports was added in August, and a further tariff on US\$200 billion of Chinese goods went into effect the following month. China retaliated by imposing tariffs on several US imported products, including a 25 percent tariff on 128 US products in April, another 25 percent tariff on US\$16 billion of US imports in July, and an additional 10 percent tariff on US\$60 billion of US products in September (Press release of USTR and MOFCOM, ITC Markets Analysis Tool 2018).

Negotiations between the United States, Mexico, and Canada, which began in 2017 to review the North American Free Trade Agreement (NAFTA), materialised with

a major agreement that significantly upgraded the trade pact. The United States-Mexico-Canada Agreement (USMCA) replaced NAFTA. The United States’ push for this revision stemmed from its decision to reduce its trade deficit with major partners, in this case by taking advantage of the free trade arrangements to ensure that more car and truck parts would be made in North America, and thereby to increase job opportunities in the US auto industry.

As such, the main provision of the new agreement stipulates that to qualify for zero tariffs, all cars or trucks must have 75 percent of their components manufactured in Canada, Mexico, or the United States—as opposed to the 62.5 percent previously required. The agreement further requires that the largest portion of the work on the vehicle must be done by workers earning at least \$16 an hour (about three times what Mexican autoworkers earn), and that starting in 2020, at least 30 percent of the work on the vehicle must be done by workers earning \$16 an hour—and that portion will gradually rise to 40 percent by 2023. While experts recognised that these arrangements will help workers in the United States and Canada, they also warned that the higher cost of cars in the USMCA area will encourage automakers to outsource production to Asia and elsewhere, where costs are lower. It is worth noting that the new agreement will take effect in 2020 because of long legislative procedures in the member countries.

At the end of 2018, WTO membership remained unchanged at 164 members covering 98 percent of global trade. Despite the challenging multilateral environment of trade tensions and disputes, countries continued to maintain their membership in the organisation. Twenty-two countries, including Algeria, Equatorial Guinea, Ethiopia, São Tome and Príncipe, South Sudan, and Sudan, were negotiating their accession to the WTO (WTO 2019). Eritrea

remained the only African country that was still not a member or observer and was not negotiating for membership.

WTO members continued efforts to enhance the organisation's trade facilitation agenda, consisting of the Trade Facilitation Agreement, which entered into force in February 2017. As of November 2018, 139 countries had ratified a protocol of acceptance of the agreement and submitted their instrument of acceptance to the WTO. A work plan for the implementation of the agreement has been determined. The agreement's main objectives include expediting the movement, releasing, and clearance of goods, including goods in transit. Effective implementation of this agreement is expected to reduce trade costs globally by an average of 14 percent.

The WTO continued to play a key role in resolving trade disputes among its member countries, using the dispute settlement mechanism. In 2018, WTO members filed 39 requests for consultations—the first step in the dispute settlement procedure—compared with 17 the previous year, indicating heightening trade tensions. The United States filed seven disputes, followed by China with five, and Republic of Korea and Ukraine with three each.

The year also saw continued negotiations for regional and preferential trade agreements among countries and between countries, including the Regional Comprehensive Economic Partnership (RCEP), comprising the 10 member states of the Association of Southeast Asian Nations (ASEAN) and their six free-trade agreement partners, namely Australia, China, India, Japan, South Korea, and New Zealand. During the second RCEP summit, in November 2018 in Singapore, the heads of state and government of member countries reaffirmed their commitment made to achieve a modern, comprehensive, high quality, and mutually beneficial

economic partnership agreement that will establish an open trade and investment environment in the region, with the goal of expanding regional trade and investment and contributing to global economic growth and development. Significant progress has been achieved: negotiations on most chapters have concluded and member states are resolved to advance to the final stage of all negotiations and wrap up in 2019. It is worth noting that a successful RCEP will make it the world's largest trading bloc, accounting for more than 3.4 billion people, with a total gross domestic product (GDP) estimated at around US\$50 trillion.

African countries continued to make progress towards the establishment of the African Continental Free Trade Area (AfCFTA), reaching 52 signatories of the agreement to establish the new free trade area. The initiative was launched in March 2018 to bring together 55 countries with a total population of 1.2 billion and a GDP exceeding US\$2.5 trillion. While only nine countries had ratified the AfCFTA by the end of 2018, the process of ratification was expected to accelerate in 2019. A minimum of 22 ratifications is required to formally establish the trade area. In addition to facilitating access to Africa's large and growing markets, the AfCFTA will provide opportunities for its members to engage in dynamic intra-African trade and thereby draw on economies of scale to accelerate the process of diversification and structural transformation of their economies. The new trade area is also expected to enhance the competitiveness of African industries and enterprises, through efficient allocation of resources and development of regional value chains. Moreover, the growth opportunities offered by the AfCFTA could increase the flow of both portfolio investment and foreign direct investment, and accelerate the transition of African economies from a basis in commodities and natural resources, to a basis in industry and manufacturing.

Box 4.1: China–US Trade War: Potential Implications for Africa

Over the past few decades, the rise of the South as a major player in the global trade and economic environment has led to widening trade deficits and macroeconomic imbalances in advanced economies. These imbalances have been particularly pronounced in the United States which, in 2018, registered its largest trade deficit over the past two decades, with a cumulative value exceeding US\$7.3 trillion. Canada, China, and Mexico combined accounted for the lion's share (58.9 percent) of that deficit, with China alone accounting for 45 percent.

In 2018, in an attempt to improve US external balances, the Trump administration—in line with its “America First” policies—invoked a trade war by imposing unilateral trade tariffs aimed at countries that have accumulated large trade surpluses vis-à-vis the United States, most notably China. More specifically, in January, the United States imposed an import tariff on solar panels (most of which are manufactured in China), followed by a 25 percent import tariff on US\$34 billion worth of Chinese goods and tariffs on an additional US\$16 billion worth of Chinese imports in August. In September, a further tariff on US\$200 billion of Chinese goods went into effect. These tariffs were met with retaliation: China imposed tariffs on several imports from the United States, including a 25 percent tariff on US\$3 billion worth of 128 US imports in April, a 25 percent tariff on US\$33 billion of US imports in July, and a 5–10 percent tariff on US\$53 billion worth of US products in September 2018.

The escalating trade war between China and the United States has been singled out as having been the main downside risk to global growth in 2018 and is generally viewed as having been largely responsible for the synchronized global growth deceleration in the second half of 2018. Strong growth forecasts, supported by broad-based economic expansion earlier in the year, were followed by downward revisions, with global output expanding by 3.7 percent, down from 3.9 percent in earlier forecasts. African economies, as well, experienced a phase of growth deceleration in 2018 as a consequence of the slowdown in Europe and China (Africa's two main trading partners), which together account for over 40 percent of total African trade.

Africa's exposure to China's growth deceleration is seen as the most important downside risk to growth within the region. China has become Africa's single largest trading partner, accounting for over 14 percent of total African trade in 2018, up from 2.8 percent in 2000 (Figure B4.1.1). China has also become a major source of foreign direct investment, financing the development and modernization of economic and physical infrastructure needed for sustainable growth and structural transformation of African economies. Between 2000 and 2017, China's foreign direct investment in Africa rose from US\$70 million to US\$40 billion, making China the fourth-largest investor in Africa and the largest in terms of foreign direct investment flows.

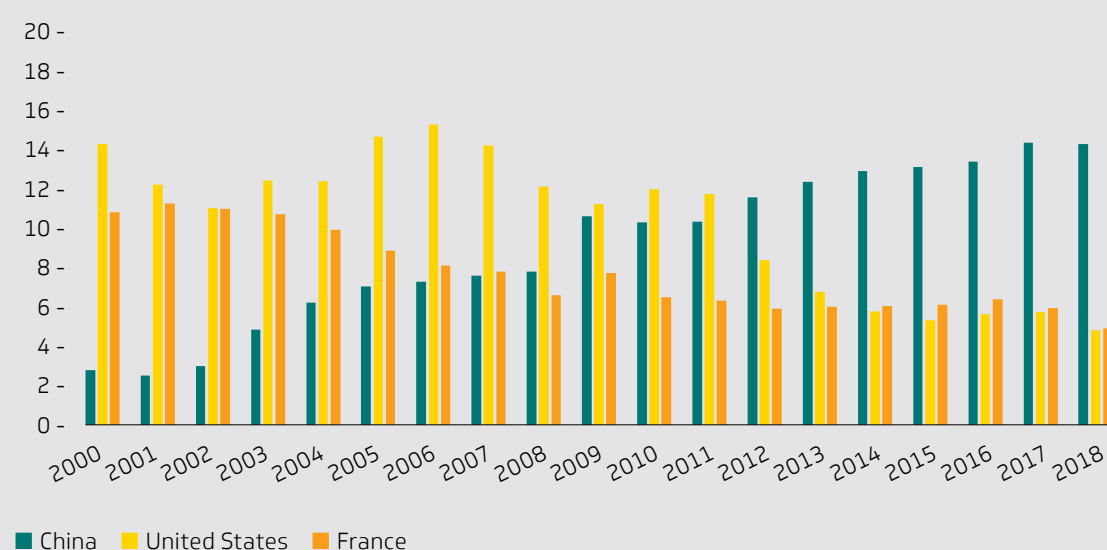
Given the deepening trade and investment ties between China and

Africa, a sustained growth deceleration in China, triggered by a prolonged trade war, could undermine Africa's growth prospects, especially through trade and investment channels. The robust and long-term economic growth rates achieved by African countries during the commodity super-cycle were largely supported by China's substantial imports of African primary commodities and natural resources. At the peak of the cycle, China alone accounted for over 11 percent of imports of African commodities. Africa's rising exposure to China is such that a 1 percentage point decline in China's domestic investment growth is associated with an average of 0.6 percentage point decline in Africa's export growth—and negative spillover effects are even larger for resource-rich countries.

The trade war between China and the United States brings with it significant short-term economic and social costs and could derail the current growth

momentum and, if sustained, could tilt risks in the medium and long term to the upside. At the same time, China is going through a cycle of economic rebalancing, which involves moving up the global value chain and outsourcing labour-intensive manufacturing industries. To that end, China is making concerted efforts to increase its imports of semi-processed and other value-added goods from Africa and many Chinese corporations could relocate to Africa to take advantage of cheaper labour and preferential access to the US market under the Africa Growth and Opportunity Act (AGOA). The relocation of these corporations to Africa would enable them to take advantage of economies of scale associated with the African Continental Free Trade Area, which could accelerate the transfer of technology and the process of structural transformation of African economies and boost the continent's manufacturing output and trade.

Figure B4.1 Share of Africa's Total Trade (percent)



Sources: International Monetary Fund, Direction of Trade Statistics, 2019.
Afreximbank Research, 2019

4.3 African External Reserves and Exchange Rate Developments

Improving commodity prices and the resulting pick up in export receipts boosted the stock of reserves of African countries. In a region where oil accounts for more than 45 percent of export receipts, the sustained recovery in oil prices—averaging higher than US\$70 per barrel during the fourth quarter of 2018—and increases in the volume of production in oil-exporting countries were the major driving forces behind the gradual but steady improvement in the region's reserve position. Further support for reserves came from the increasingly stable socio-political environment in several countries. This was particularly the case in heavily tourist-dependent economies, where a drastic reduction in the level of security-induced shocks led to a rebound in tourism. Another positive factor was an increase in migrant remittances to the region. Accordingly, Africa's total reserve holdings, which increased by 6.53 percent to US\$424.26 billion in 2017, accelerated to a 9.73 percent increase in 2018, to US\$465.54 billion (Table 4.1). Oil-exporting countries benefited even more from the recovery in oil prices and increased production, which raised the level of foreign exchange reserves by 19.47 percent in Algeria, 288.89 percent in Chad, 37.47 percent in Gabon, 10.96 percent in Libya, and 11.21 percent in Nigeria.

In other large economies, the stock of Egypt's foreign reserves increased by 14.23 percent to US\$41.01 billion (6.44 months of import cover) from US\$35.89 billion (4.96 months of import cover) in 2017. A similar trend was observed in Kenya, where the stock of foreign reserves increased by 16.1 percent to US\$8.53 billion (5.75 months of import cover), from US\$7.35 billion (5.3 months of import cover). In a context of a generalised improvement in the external balance of the region, average import coverage rose to 9.67 months in 2018 from 9.10 months in 2017, and remained well

above the IMF's recommended external reserves threshold of three months of imports.

The improvement in export revenues sustained the performance of many African currencies. Accordingly, the currencies of many countries appreciated against the US Dollar (Table 4.2). The best-performing currencies were generally those whose countries were members of monetary unions—including the CFA Franc, the common currency of 15 countries (mainly former French colonies in Central and West Africa) that is pegged to the euro. The CFA Franc appreciated by about 4.45 percent against the US dollar in 2018.

Other African currencies that appreciated against the US dollar included those of Rwanda (18.09 percent), Mozambique (5.47 percent), Kenya (2.04 percent), and the Democratic Republic of Congo (1.22 percent). Among the worst-performing African currencies was the Sudanese pound, which depreciated by 371.24 percent because of a widening trade deficit and heightening political tensions. The Angolan kwanza depreciated by 48.44 percent as the country continued to deal with the protracted effects of the end of the commodity super cycle, which led to the sharp deterioration of its external balances and widening fiscal and current account deficits. The Liberian dollar depreciated by 27.95 percent, due to pressure on its domestic currency from limited inflows of foreign reserves.

4.4 Africa's Trade

Despite the challenging global environment dominated by escalated trade disputes, Africa's total merchandise trade grew for the second consecutive year, by 7.04 percent to US\$997.94 billion, although the increase was less than the 12.09 percent achieved in 2017 (Figure 4.2 and Table 4.3). A steady expansion of the global economy and continued improvement in the prices

Table 4.1 Reserve Position of African Countries, 2016–2018
(in US\$ billions unless otherwise indicated)

	Total Reserves (excluding gold)					Growth Rate (percent)†				Months of Import Cover by Reserves				
	2014*	2015*	2016	2017	2018	2015*	2016	2017	2018	2014*	2015*	2016	2017	2018
Algeria	179,62	144,68	114,39	97,60	116,60	-19,45	-20,94	-14,68	19,47	36,94	32,43	29,38	26,18	31,13
Angola**	28,13	23,79	23,74	17,21	16,50	-15,43	-0,20	-27,51	-4,13	11,99	14,35	25,60	17,21	17,30
Botswana**	0,76	0,67	0,27	0,70	1,01	-11,84	-59,70	158,89	44,49	2,50	1,04	1,23	3,07	4,21
Burkina Faso	8,32	7,55	7,19	7,49	7,18	-9,25	-4,78	4,19	-4,14	16,21	16,87	14,00	16,73	17,08
Burundi	0,64	0,93	1,00	1,65	1,58	44,03	7,58	65,58	-4,17	2,72	3,89	3,57	5,01	2,04
Cameroon**	0,32	0,14	0,09	0,10	0,07	-57,28	-30,30	2,23	-24,22	5,39	2,41	1,81	1,59	4,67
Cape Verde**	3,20	3,50	2,23	3,20	3,43	9,37	-36,41	43,64	7,29	4,84	5,78	39,74	7,38	10,13
Central Africa Republic**	0,51	0,49	0,57	0,63	0,75	-3,92	16,89	9,26	19,85	7,18	6,66	1,40	9,46	9,78
Chad**	0,26	0,21	0,21	0,24	0,34	-19,23	1,43	12,21	42,26	6,38	3,09	6,37	7,39	41,44
Comoros**	1,08	0,37	0,01	0,01	0,04	-65,71	-97,83	12,50	288,89	8,89	4,55	0,15	0,19	0,23
Congo Dem. Rep. of	0,17	0,20	0,16	0,18	0,19	17,65	-20,63	12,50	6,38	7,57	8,73	10,66	10,84	10,92
Congo Republic**	1,56	1,22	0,71	0,70	1,16	-21,90	-41,78	-1,84	67,48	2,53	1,94	1,65	0,60	0,92
Côte d'Ivoire	4,93	2,22	0,82	0,49	0,42	-58,55	-94,85	-25,81	-34,78	12,89	7,32	0,59	0,59	0,31
Djibouti**	0,40	0,34	4,94	5,18	6,13	-15,00	1351,47	4,98	18,32	0,43	0,34	7,07	7,01	8,61
Egypt**	0,39	0,36	0,41	0,50	0,44	-7,69	13,17	23,36	-12,46	1,10	0,83	3,17	3,85	4,20
Equatorial Guinea**	12,00	13,23	23,20	35,89	41,01	10,25	75,39	54,66	14,28	2,11	2,23	4,91	7,24	6,37
Eritrea**	2,91	1,21	0,06	0,05	0,03	-58,55	-94,85	-25,81	-34,78	12,89	7,32	0,59	0,59	0,31
Eswatini	0,21	0,20	0,21	0,23	0,23	-4,76	4,10	9,65	0,74	2,21	2,09	5,89	6,01	6,75
Ethiopia**	0,69	0,55	0,56	0,54	0,51	-20,29	2,60	-4,66	-5,20	4,93	4,93	1,92	1,67	1,50
Gabon**	2,76	3,73	3,03	3,01	3,70	35,14	-18,74	-0,59	22,80	1,98	2,42	1,82	1,86	2,44
Gambia**	2,48	1,87	0,80	0,98	1,35	-24,60	-57,01	22,14	37,47	7,10	5,67	4,00	4,99	4,61
Ghana**	0,16	0,10	0,09	0,11	0,18	-37,50	-12,36	25,52	63,64	1,54	1,12	2,73	2,77	3,10
Guinea, The	5,50	5,89	6,16	7,56	6,90	7,09	4,62	22,61	-8,67	3,73	3,95	6,49	7,10	4,84
Guinea, Bissau	0,29	0,25	0,37	0,39	0,72	-13,79	49,09	4,63	84,62	0,51	0,43	2,00	1,79	2,90
Kenya**	0,19	0,18	0,35	0,36	0,54	-5,26	93,89	2,01	51,69	4,85	6,52	16,45	15,26	16,31
Lesotho**	7,91	7,55	7,60	7,35	8,53	-4,55	0,66	-3,29	16,05	5,25	4,15	6,38	5,29	5,75
Liberia**	1,07	0,90	0,93	0,66	0,84	-15,89	2,80	-28,99	27,85	6,94	5,57	9,20	4,32	9,16
Libya**	0,50	0,52	0,53	0,44	0,40	4,00	1,73	-17,01	-8,88	0,47	0,65	0,60	8,18	7,85
Madagascar	89,09	73,67	66,05	74,71	82,90	-17,31	-10,34	13,11	10,96	53,97	62,06	121,14	156,03	130,94
Malawi**	0,78	0,83	1,18	1,60	1,65	6,41	42,53	35,25	3,12	2,46	2,57	4,75	5,21	6,41
Mali	0,60	0,69	0,63	0,78	0,76	15,00	-9,42	24,80	-2,56	4,17	5,04	3,61	3,81	6,21
Mauritania**	0,12	0,11	0,40	0,63	0,73	-8,33	259,09	58,99	16,24	0,33	0,31	1,23	1,73	2,02
Mauritius	0,62	0,54	0,84	0,78	0,76	-12,90	54,68	-6,14	-3,06	1,77	1,88	4,61	2,67	4,31
Morocco	3,61	3,96	4,97	5,98	5,40	9,70	25,43	20,48	-9,76	8,03	10,02	12,81	13,67	14,61
Mozambique	19,67	22,25	25,11	27,12	24,46	13,12	12,84	8,00	-9,79	5,18	6,83	7,23	7,30	5,86
Namibia**	3,00	2,41	2,08	3,36	3,13	-19,67	-13,69	61,59	-6,87	2,89	2,57	4,55	6,80	6,98
Niger	1,18	1,69	1,83	2,43	2,19	43,22	8,50	32,52	-9,88	1,65	2,37	3,27	4,34	3,42
Nigeria	0,96	0,79	1,19	1,25	1,52	-17,71	50,13	5,31	21,70	5,57	5,08	7,63	8,03	8,56
Rwanda**	36,67	30,61	25,84	38,77	43,11	-16,53	-15,57	50,00	11,21	6,25	6,30	9,78	12,92	12,50
São Tomé and Príncipe**	1,07	1,03	1,10	1,01	1,02	-3,74	7,17	-8,68	1,19	8,43	7,80	7,38	6,79	8,76
Senegal	0,63	0,73	0,06	0,06	0,06	15,87	-91,34	-0,95	-4,15	61,60	81,36	5,41	5,11	5,41
Seychelles	0,19	0,15	1,55	1,91	2,94	-21,05	936,00	22,78	54,09	0,38	0,34	3,40	3,79	5,33
Sierra Leone**	0,47	0,54	0,01	0,53	0,53	14,89	-97,59	3953,85	0,57	4,42	4,59	0,09	4,69	12,00
Somalia	0,60	0,62	0,50	0,48	0,49	3,33	-19,80	-3,87	2,51	5,19	5,57	6,20	5,33	6,20
South Africa**	44,23	41,62	47,23	50,72	56,23	-5,90	13,48	7,39	10,86	4,85	5,07	7,13	6,91	6,64
South Sudan	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sudan**	0,42	0,23	0,07	0,51	-	-45,24	-70,37	640,91	-100,00	-	-	3,55	-	0,00
Tanzania**	0,18	0,17	0,20	0,20	0,12	-5,56	17,06	-0,50	-39,39	0,23	0,18	0,42	0,26	0,31
Togo	4,39	4,01	4,33	5,30	5,53	-8,66	7,88	22,52	4,34	3,38	3,51	6,56	11,12	13,01
Tunisia	0,53	0,77	0,72	0,97	0,74	44,26	-5,87	33,98	-22,98	0,81	0,89	5,04	7,09	2,04
Uganda**	7,24	7,33	5,94	5,59	5,19	1,24	-18,96	-5,89	-7,16	3,32	3,87	3,76	3,22	4,05
Zambia	3,32	2,91	3,03	3,65	3,43	-12,35	4,26	20,30	-6,03	8,59	7,51	7,54	7,73	7,84
Zimbabwe**	3,08	2,97	2,35	2,08	1,59	-3,57	-20,78	-11,59	-23,56	3,81	4,21	3,74	2,87	2,06
Total	0,36	0,42	0,41	0,44	0,27	16,67	-3,16	7,93	-38,50	0,88	1,01	1,11	1,12	1,31
Average	489,96	423,88	398,24	424,26	465,54	-13,49	-9,29	6,53	9,73	378,13	386,10			
Average												8,56	9,10	9,67

Growth rates are Afreximbank staff calculations.

*Revised **Estimates for 2018 are based on latest available data. —Not available

Sources: International Monetary Fund, International Financial Statistics database; and The Economist Intelligence Unit, Country Reports



of global commodities, including those exported by Africa and monitored by the Bank, have been the main drivers behind the growth of total merchandise trade enjoyed by the region during the year. The growth in trade was also supported by strengthening investment in digital technology, which is gradually increasing Internet penetration and the development of e-commerce platforms, including Jumia, Takealot, Kilimall, Konga and Bidorbuy, which are expediting transactions at lower costs while giving rise to a new generation of digital consumers in the region.

While the recovery of crude oil prices sustained the expansion in Africa's trade during the review period, the performance in net-oil-importing countries shows that the recovery was broad-based. Oil exporters saw their share of African exports increase by 1.2 percent to US\$146.17 billion, from US\$144.56 billion in 2017. The expansion of African trade was supported significantly

by recovery in the prices of several non-energy commodities. The total exports of net-oil-importers increased by 18.9 percent to US\$336.49 billion, from US\$283.04 billion in 2017.

The stronger performance achieved by net-oil-importing countries enabled the region to achieve an average growth rate of 13 percent. However, it still compared unfavourably against the performance of 20.7 percent achieved in 2017.

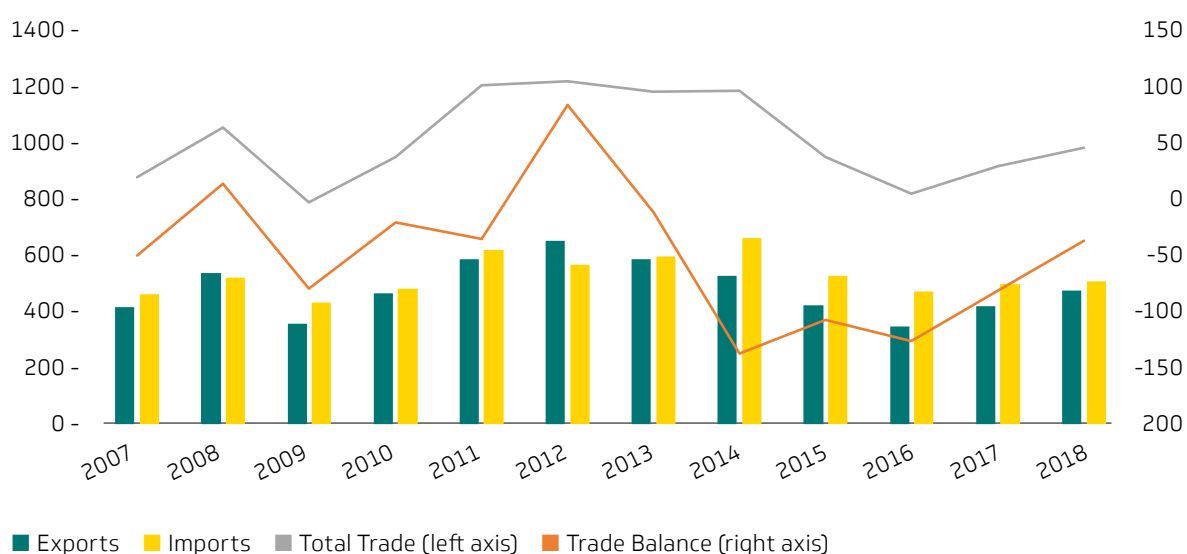
Africa's total merchandise imports grew for the second consecutive year, by 2.01 percent to US\$516.09 billion, though down from the 5.74 percent in 2017. Increasing energy intensity and consumption in a growing number of countries played a key role in the dynamics of African trade. Several oil exporters saw their imports rise by a combined 8.1 percent to US\$115.6 billion, from US\$106.92 billion in 2017, led by strong import growth from Gabon (48 percent),

Table 4. 2 Africa: Exchange Rate Developments, 2016-2018
(in US\$ billions unless otherwise indicated)

	2016	2017	2018	Percentage change between	
	(1)	(2)	(3)	(2) & (1)	(3) & (2)
Algeria - dinar	110,17	114,72	116,60	4,13	1,64
Angola - kwanza	165,08	170,30	252,80	3,16	48,44
Benin - franc	623,38	580,00	554,20	-6,96	-4,45
Botswana - pula	10,68	10,35	10,20	-3,07	-1,45
Burkina Faso - franc	623,38	580,00	554,20	-6,96	-4,45
Burundi - franc	1 675,05	1 767,00	1 783,00	5,49	0,91
Cameroon - franc	623,38	580,00	554,20	-6,96	-4,45
Cape Verde - escudos	104,88	97,80	93,20	-6,75	-4,70
Central African Republic - franc	623,38	547,00	554,20	-12,25	1,32
Chad - franc	623,38	580,00	554,20	-6,96	-4,45
Comoros - franc	467,54	436,60	415,60	-6,62	-4,81
Congo, Dem. Rep. of - Congo franc	1 076,00	1 646,00	1 626,00	52,97	-1,22
Congo, Rep. of - franc	623,38	580,00	554,20	-6,96	-4,45
Côte d'Ivoire - franc	623,38	580,00	554,20	-6,96	-4,45
Djibouti - franc	177,60	177,72	177,70	0,07	-0,01
Egypt - pound	18,13	17,77	17,82	-2,00	0,28
Equatorial Guinea - franc	623,38	580,00	554,20	-6,96	-4,45
Eritrea - nakfa	15,28	15,38	15,38	0,65	0,00
Eswatini - lilangeni	13,74	12,38	13,24	-9,88	6,95
Ethiopia - birr	22,70	23,95	27,55	5,51	15,03
Gabon - franc	623,38	580,00	554,20	-6,96	-4,45
Gambia - dalasi	42,15	46,61	48,23	10,58	3,48
Ghana - cedi	4,28	4,35	4,58	1,74	5,29
Guinea - Guinea franc	9 368,00	9 088,00	9 010,00	-2,99	-0,86
Guinea-Bissau - franc	623,38	580,00	554,20	-6,96	-4,45
Kenya - shilling	102,22	103,41	101,30	1,16	-2,04
Lesotho - loti	13,74	12,38	13,24	-9,88	6,95
Liberia - Liberia dollar	91,00	112,70	144,20	23,85	27,95
Libya - dinar	1,44	1,39	1,36	-3,32	-2,16
Madagascar - ariary	3 340,00	3 116,00	3 304,00	-6,71	6,03
Malawi - kwacha	715,76	738,90	732,30	3,23	-0,89
Mali - franc	623,38	580,00	554,20	-6,96	-4,45
Mauritania - ouguiyas	35,20	35,80	35,70	1,70	-0,28
Mauritius - rupee	35,85	33,48	33,89	-6,61	1,22
Morocco - dirham	10,11	9,30	9,39	-8,06	0,97
Mozambique - meticals	71,23	63,60	60,12	-10,71	-5,47
Namibia - namibia dollar	13,74	12,38	13,24	-9,88	6,95
Niger - franc	623,38	580,00	554,20	-6,96	-4,45
Nigeria - naira	304,20	305,50	305,60	0,43	0,03
Rwanda - franc	811,65	831,53	681,09	2,45	-18,09
São Tomé and Príncipe - dobra	22,10	21,70	20,70	-1,81	-4,61
Senegal - franc	623,38	547,00	554,20	-12,25	-4,45
Seychelles - rupee	13,36	13,65	13,89	2,19	1,76
Sierra Leone - leone	5 465,00	7 384,00	7 924,00	35,11	7,31
Somalia - shilling	24 005,00	23 605,00	n/a	-1,67	n/a
South Africa - rand	13,74	12,38	13,24	-9,88	6,95
South Sudan - pound	6,48	6,85	n/a	5,72	n/a
Sudan - pound	6,48	6,85	32,28	5,72	371,24
Tanzania - shilling	2 174,00	2 229,00	2 264,00	2,53	1,57
Togo - franc	623,38	580,00	554,20	-6,96	-4,45
Tunisia - dinar	2,30	2,48	2,65	7,81	6,85
Uganda - shilling	3 602,00	3 640,00	3 722,00	1,05	2,25
Zambia - kwacha	9,96	9,53	10,46	-4,30	9,76
Zimbabwe - US dollar*	1,00	1,00	1,00	0,00	0,00

*The US dollar has been used as the official currency since 2009.
Sources: Bloomberg; and XE website (www.xe.com).

Figure 4.2 Trends in Africa's Merchandise Trade (US\$ billions), 2016-2018



Sources: IMF Direction of Trade Statistics (DOTS), 2019; Afreximbank Research.

Libya (32.2 percent), Equatorial Guinea (24 percent) and Nigeria (14.9 percent). The moderate growth of imports achieved by the region reduced its trade deficit, which narrowed to US\$34.24 billion, down from US\$79.52 billion in 2017 (Figure 4.2 and Table 4.3).

The recovery in commodity prices was largely supported by strengthening economic growth in the United States and still-robust growth in the group of developing Asian countries led by India, which drove global demand for commodities. While China remains Africa's single largest trading partner, India's imports of commodities from the region expanded by 16.5 percent, though down from the 24.3 percent in 2017. It is also worth noting that supply bottlenecks created by bad weather conditions—especially severe droughts followed by floods that destroyed crops and hindered production in parts of South and Central America and Africa—undermined agriculture output. At the same time, protracted security concerns and refugee movements across parts of Africa, Central America, and Eastern Europe disrupted economic activity and therefore increased

commodity prices and lifted exports. Furthermore, the cooperation between OPEC member countries—alongside renewed US sanctions against Iran and the socio-political tensions that erupted in Venezuela—helped sustain oil prices at around US\$70 per barrel. Also contributing to the growth of Africa's exports were the robust prices of many commodities monitored by the Bank, including barley, cocoa bean, cotton, maize, wheat, copper, lead, aluminium, and zinc.

Nonetheless, Africa's merchandise exports confronted several ongoing challenges. The most critical were high costs, poor quality of infrastructure and logistics, low yields, low processing capacity—and the still overwhelming dominance of primary commodities and natural resources in Africa's exports, despite the increasing emphasis on economic transformation and diversification of sources of growth. Over the years, these patterns of trade have exposed African economies to recurrent adverse terms of trade shocks and remained the major constraints to enhancing the integration of the region into the global economy, which is dominated

Table 4.3 Africa Merchandise Trade, 2016-2018 (US\$ billions)

Country Name	Merchandise Exports (US\$ Billion)			Growth Rate (%)			Share of Merchandise Exports (%)			Merchandise Imports (US\$ Billion)			Growth Rate (%)			Share of Merchandise Imports (%)			Total Merchandise Trade (US\$ Billion)			Growth Rate (%)			Share of Total Merchandise Trade (%)			Trade Balance Value (Exports - Imports)				
	2016	2017	2018	2017	2018	2016	2016	2017	2018	2016	2017	2018	2017	2018	2016	2016	2017	2018	2016	2017	2018	2017	2018	2016	2016	2017	2018	2017	2018	2016	2017	2018
Algeria	29.31	34.37	41.09	17.28	19.54	8.30	8.06	8.53	46.72	44.73	44.95	-4.26	0.49	9.77	8.84	8.71	76.03	79.11	86.04	4.04	8.77	9.14	8.49	8.62	-17.41	-10.36	-3.86					
Angola	23.87	30.52	36.55	27.86	19.77	6.76	7.16	7.59	11.05	12.00	11.45	8.60	-4.65	2.31	2.37	2.22	34.92	42.52	48.00	21.76	12.88	4.20	4.56	4.81	12.81	18.51	25.10					
Benin	0.44	0.57	2.69	28.86	372.97	0.12	0.13	0.56	2.63	2.73	1.13	3.87	-58.48	0.55	0.54	0.22	3.07	3.30	3.83	7.46	15.89	0.37	0.35	0.38	-2.19	-2.16	1.56					
Botswana	7.33	5.91	5.61	-19.38	-5.18	2.08	1.39	1.16	6.16	3.37	5.04	-12.84	-6.11	1.29	1.06	0.98	13.50	11.28	10.65	-10.39	-5.62	1.62	1.21	1.07	1.17	0.54	0.56					
Burkina Faso	6.87	17.20	2.75	150.26	-84.03	1.95	4.03	0.57	3.23	3.95	2.76	22.50	-30.29	0.67	0.78	0.53	10.10	21.15	5.50	103.44	-73.99	1.21	2.27	0.55	3.65	13.25	-0.01					
Burundi	0.13	0.15	0.80	16.77	426.98	0.04	0.04	0.17	0.63	0.73	0.19	15.97	-74.17	0.13	0.14	0.04	0.75	0.88	0.98	16.11	12.26	0.09	0.09	0.10	-0.50	-0.57	0.61					
Cameroon	2.16	3.27	5.68	51.29	73.98	0.61	0.77	1.18	4.91	5.20	4.06	5.85	-21.84	1.03	1.03	0.79	7.07	8.66	9.74	19.73	15.13	0.85	0.91	0.98	-2.75	-1.93	1.62					
Cape Verde	0.22	0.08	0.89	-63.62	994.40	0.06	0.02	0.19	0.67	0.79	0.11	18.07	-86.06	0.14	0.16	0.02	0.90	0.88	1.00	-2.37	14.64	0.11	0.09	0.10	-0.45	-0.71	0.78					
Central African Republic	0.12	0.07	0.53	-40.52	636.29	0.03	0.02	0.11	0.40	0.39	0.10	-3.40	-74.62	0.08	0.08	0.02	0.52	0.46	0.63	-12.05	37.30	0.06	0.05	0.06	-0.28	-0.32	0.44					
Chad	1.57	1.22	0.82	-22.17	-33.37	0.44	0.29	0.17	0.64	0.57	1.80	-10.24	214.47	0.13	0.11	0.35	2.21	1.80	2.62	-18.73	45.71	0.27	0.19	0.26	0.93	0.65	-0.99					
Comoros	0.02	0.02	0.26	12.06	1300.71	0.00	0.00	0.05	0.19	0.20	0.02	3.26	-88.53	0.04	0.04	0.00	0.21	0.22	0.28	3.96	29.18	0.02	0.02	0.03	-0.18	-0.18	0.23					
Congo, Dem. Rep.	6.06	8.92	35.20	47.18	70.31	1.72	2.09	3.15	14.39	13.91	15.17	-3.36	9.11	3.01	2.75	2.94	20.45	22.83	30.37	11.62	33.03	2.66	2.45	3.04	-8.33	-4.98	0.02					
Congo, Rep.	5.62	7.40	3.73	31.72	-49.68	1.59	1.74	0.77	8.25	4.55	3.73	-44.80	-18.20	1.72	0.90	0.72	13.87	11.96	7.45	-13.79	-37.69	1.67	1.28	0.75	-2.63	2.85	0.00					
Cote d'Ivoire	10.06	11.79	7.83	17.22	-33.58	2.85	2.77	1.63	8.33	8.87	7.84	6.39	-11.59	1.74	1.75	1.52	18.39	20.66	15.67	12.31	-24.14	2.21	2.22	1.57	1.73	2.93	-0.01					
Djibouti	0.31	0.35	1.62	11.33	365.02	0.09	0.08	0.04	0.34	1.45	1.57	0.38	8.21	-75.63	0.30	0.31	0.07	1.76	1.91	2.00	8.76	4.59	0.21	0.21	0.20	-1.13	-1.22	1.24				
Egypt, Arab Rep.	20.02	23.30	27.58	16.36	18.41	5.67	5.46	5.72	56.71	59.47	77.26	4.87	29.92	11.85	11.75	14.97	76.73	82.76	104.85	7.87	26.68	9.23	8.88	10.51	-36.68	-36.17	-49.68					
Equatorial Guinea	4.74	5.06	1.16	6.57	-77.15	1.34	1.19	0.24	1.27	0.93	1.16	-26.10	24.00	0.26	0.18	0.22	6.01	5.99	2.31	-0.31	-61.36	0.72	0.64	0.23	3.48	4.12	0.00					
Eritrea	0.29	0.26	0.36	-9.01	38.40	0.08	0.06	0.08	0.45	0.46	0.41	2.33	-10.29	0.09	0.09	0.08	0.73	0.72	0.77	-2.12	7.49	0.09	0.08	0.08	-0.16	-0.19	-0.05					
Eswatini, Kingdom of	2.23	2.46	2.43	10.31	-1.22	0.63	0.58	0.50	3.64	3.86		6.04	-100.00	0.76	0.76	0.00	5.87	6.32	2.43	7.67	-61.55	0.71	0.68	0.24	-1.41	-1.40	2.43					
Ethiopia	4.02	4.33	4.11	7.55	-5.01	1.14	1.02	0.85	20.22	19.49	18.17	-3.64	-6.77	4.23	3.85	3.52	24.25	23.82	22.28	-1.78	-6.45	2.92	2.55	2.23	-16.20	-15.16	-14.06					
Gabon	3.53	4.04	3.51	14.62	-13.19	1.00	0.95	0.73	2.40	2.36	3.51	-1.50	48.89	0.50	0.47	0.68	5.92	6.40	7.02	8.10	9.69	0.71	0.69	0.70	1.13	1.68	0.00					
Gambia, The	0.10	0.09	0.50	-8.61	474.33	0.03	0.02	0.10	0.38	0.48	0.07	23.83	-84.44	0.08	0.09	0.01	0.48	0.56	0.58	17.35	2.55	0.06	0.06	0.06	-0.29	-0.39	0.43					
Ghana	10.62	14.36	12.97	35.29	-9.71	3.01	3.37	2.69	11.39	12.78	17.12	12.16	33.98	2.38	2.53	3.32	22.01	27.14	30.09	27.32	10.86	2.65	2.91	3.01	-0.78	1.59	-4.15					
Guinea	2.83	4.47	6.11	57.95	36.69	0.80	1.05	1.27	2.24	2.61	2.98	16.52	14.18	0.47	0.52	0.58	5.07	5.08	9.09	39.64	28.39	0.61	0.76	0.91	0.59	1.86	3.13					
Guinea-Bissau	0.37	0.30	0.24	-18.06	-20.31	0.10	0.07	0.05	0.24	0.28	0.24	15.39	-14.78	0.05	0.06	0.05	0.45	0.68	0.48	-4.71	-17.64	0.07	0.06	0.05	0.12	0.02	0.00					
Kenya	5.69	5.75	7.86	0.89	36.88	1.61	1.35	1.63	14.10	16.68	17.81	18.30	6.78	2.95	3.30	3.45	19.80	22.43	25.68	13.29	14.49	2.38	2.41	2.57	-8.41	-10.94	-9.95					
Lesotho	0.87	1.03	1.99	18.08	93.73	0.25	0.24	0.41	1.59	1.82	1.10	14.73	-39.65	0.33	0.36	0.21	2.46	2.85	3.09	13.92	8.47	0.30	0.31	0.31	-0.72	-0.79	0.89					
Liberia	1.29	1.65	1.16	28.08	-29.71	0.36	0.39	0.24	0.61	0.64	0.61	5.36	-5.01	0.13	0.13	0.12	1.90	2.29	1.77	20.77	-22.78	0.23	0.25	0.18	0.68	1.01	0.55					
Libya	6.11	12.93	7.58	111.64	-41.40	1.73	3.03	1.57	6.50	5.75	7.60	-11.63	32.21	1.36	1.14	1.47	12.61	18.68	15.17	48.08	-18.75	1.52	2.00	1.52	-0.39	7.18	-0.02					
Madagascar	2.30	2.91	3.36	26.58	15.58	0.65	0.68	0.70	2.99	3.69	3.09	23.24	-16.19	0.63	0.73	0.60	5.29	6.60	6.45	24.69	-2.18	0.64	0.71	0.65	-0.69	-0.78	0.27					
Malawi	1.05	1.15	2.52	10.01	119.40	0.30	0.27	0.52	2.13	2.46	1.11	15.45	-55.00	0.45	0.49	0.21	3.18	3.61	3.63	13.66	0.57	0.38	0.39	0.36	-1.08	-1.31	1.42					
Mali	2.85	1.91	4.36	-32.94	128.66	0.81	0.45	0.91	3.85	4.35	4.34	12.75	-0.22	0.81	0.86	0.84	6.70	6.25	8.70	5.66	39.11	0.81	0.67	0.87	-1.01	-2.44	0.03					
Mauritania	1.63	1.99	3.98	22.67	99.63	0.46	0.47	0.83	2.18	3.52	2.11	61.94	-40.00	0.45	0.70	0.41	3.80	5.52	6.10	45.14	10.48	0.46	0.59	0.61	-0.55	-1.55	1.87					
Morocco	22.83	24.59	26.53	7.71	7.91	6.46	5.77	5.51	41.69	44.57	50.11	6.91	12.43	8.71	8.81	9.71	64.51	69.15	76.64	7.19	10.82	7.76	7.42	7.68	-18.86	-19.98	-23.58					
Mozambique	3.42	4.81	7.09	40.69	47.59	0.97	1.13	1.47	5.51	5.93	5.38	7.69	-9.26	1.15	1.17	1.04	8.92	10.73	12.47	20.33	16.18	1.07	1.15	1.25	-2.09	-1.12	1.71					
Namibia	5.12	5.18	8.42	1.16	62.52	1.45	1.22	1.75	6.73	6.72	7.68	-0.12	14.27	1.41	1.33	1.49	11.85	11.90	16.10	0.43	35.28	1.43	1.28	1.61	-1.61	-1.54	0.74					
Niger	0.93	0.94	1.79	1.70	89.88	0.26	0.22	0.37	1.86	1.87	0.55	0.11	-70.58	0.39	0.37	0.11	2.79	2.81	2.34	0.64	-16.73	0.34	0.30	0.23	-0.94	-0.92	1.24					
Nigeria	40.39	49.02	51.75	21.35	5.57	11.43	11.50	10.74	31.83	36.02	41.37	13.16	34.87	6.65	7.12	8.02	72.22	85.04	93.12	17.74	9.51	8.68	9.12	9.33	8.57	13.00	10.38					
Rwanda	0.42	0.66	2.75	57.67	315.76	0.12	0.15	0.57	1.80	1.78	1.03	-0.72	-42.31	0.38	0.35	0.20	2.21	2.44	3.77	10.33	54.54	0.27	0.26	0.38	-1.38	-1.12	1.72					
Sao Tome and Principe	0.00	0.01	0.68	510.09	605.76	0.00	0.00	0.14	0.14	0.15	0.01	4.92	-91.71	0.03	0.03	0.00	0.14	0.16	0.70	11.39	339.79	0.02	0.02	0.07	-0.14	-0.14	0.67					
Senegal	2.68	2.48	6.43	-7.48	159.38	0.76	0.58	1.33	3.48	6.03	2.73	10.12	-54.82	1.15	1.19	0.53	8.16	8.51	9.16	4.34	7.54	0.98	0.91	0.92	-2.80	-3.56	3.70					
Seychelles	0.49	0.60	1.67	22.32																												

by manufactured goods and industrial products.

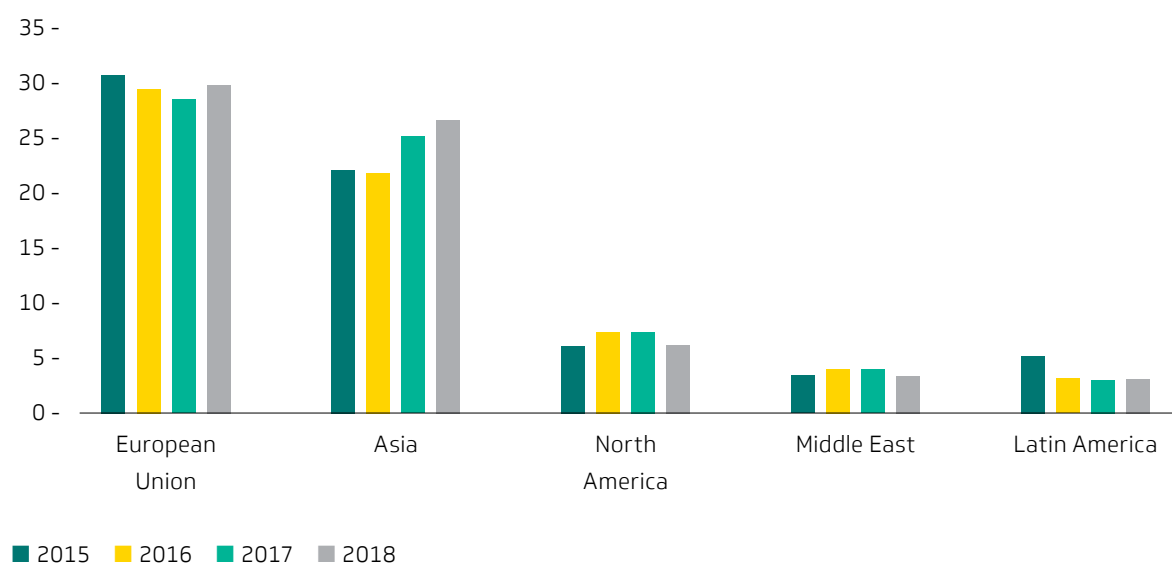
The group of net-oil-importers achieved some modest gains, with the value of their imports growing by a combined 0.4 percent to US\$400.52 billion, from US\$398.98 billion in 2017. These developments derived from continued improvement in revenues from non-oil commodities, because most of these countries are gradually adjusting to the recovery in oil prices.

Despite continued efforts by African countries to improve the region's share of global trade, it has remained at less than 3 percent for the last few decades. Even though Africa's total merchandise trade expanded in the last two years, its share of global trade stagnated at around 2.6 percent in 2018. This weak performance underscores the need for the region to step up efforts to diversify its sources of growth and trade, especially in a world where manufactured products dominate global trade. Another requirement is to build the necessary capacity to ensure the effective formulation and implementation of trade-related reforms, including

measures that address trade-facilitating logistics and infrastructure, the trade finance gap, and strengthened regional integration. The latter item is especially critical during the implementation of the AfCFTA, to develop regional value chains and accelerate Africa's integration into the global economy.

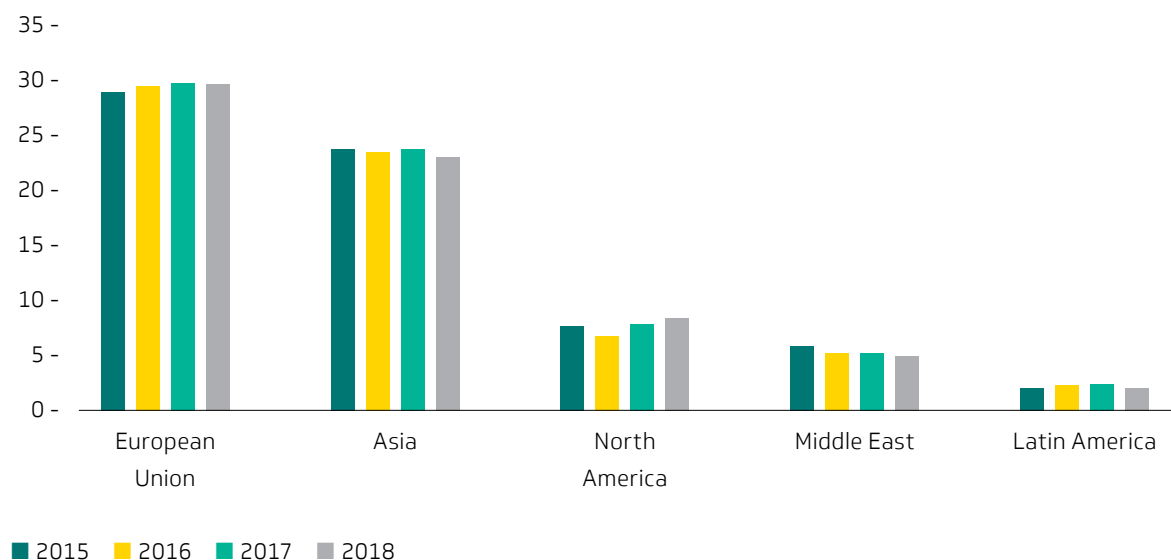
Regarding export destinations, Europe—particularly the EU, which has been Africa's leading trading partner because of historical and colonial ties—remained the largest destination, accounting for more than 29.76 percent of total exports from Africa. However, aggregate exports mask important drivers of African trade within the EU. France, Germany, Italy, Netherlands, Spain, and United Kingdom accounted for more than 84.9 percent of total African exports to the EU. Consistent with previous years, France continued to be the leading destination within the EU. It is noteworthy that Europe's share of African exports in 2018 was far lower than its 45 percent share in the late 1990s, in part reflecting the diversification of Africa's trading partners under rising South-South trade (Figure 4.3).

Figure 4.3. Regional Distribution of Africa's Merchandise Exports (percent)



Source: International Monetary Fund, Direction of Trade Statistics Database, 2019.

Figure 4.4. Regional Distribution of Africa's Merchandise Imports (percent)



Source: International Monetary Fund, Direction of Trade Statistics Database, 2019.

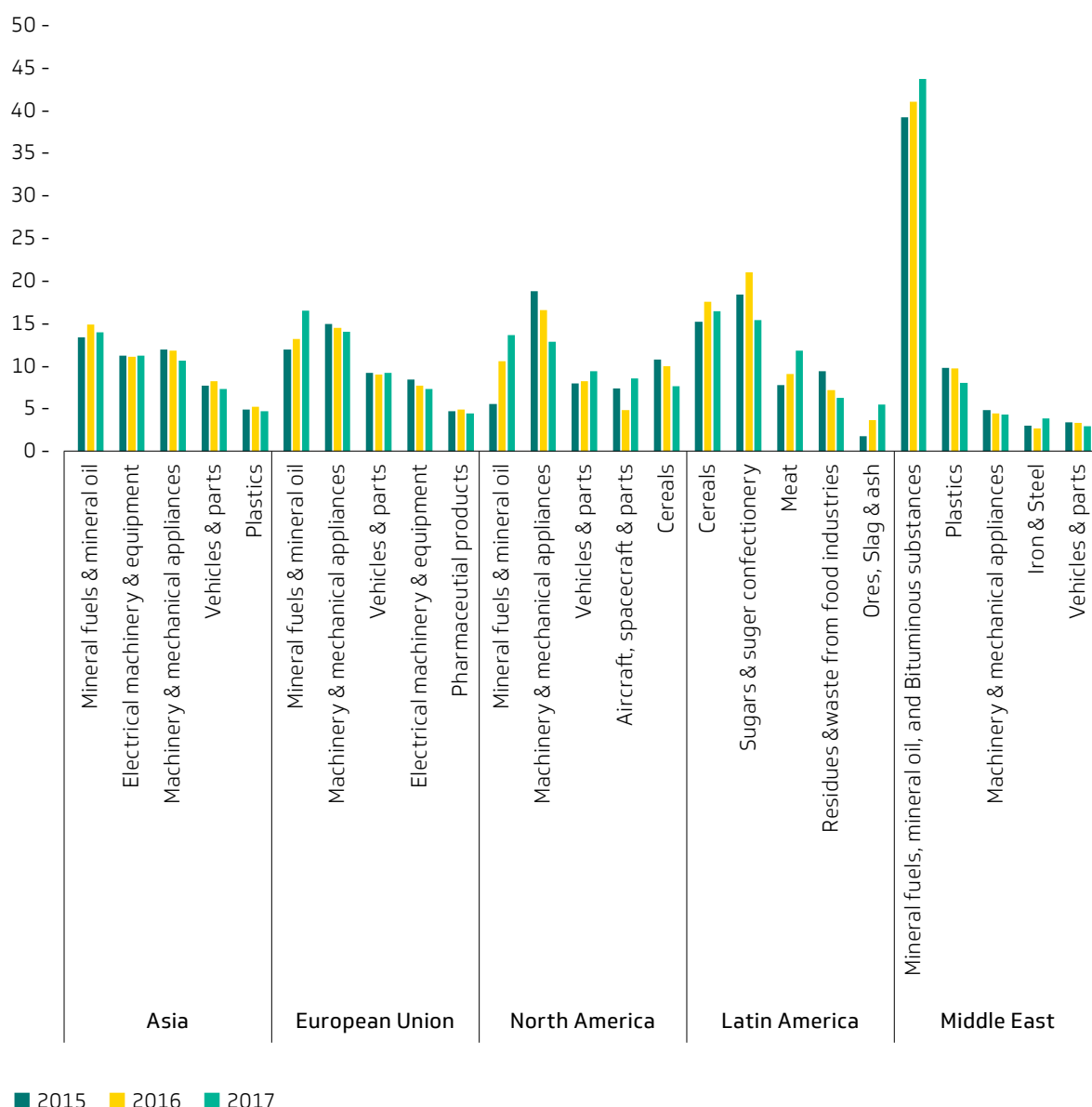
Regarding sources of imports, the EU remained the largest market for imports into Africa, accounting for 29.77 percent, down slightly from 29.93 percent in 2017 (Figure 4.4). While Africa's exports to the EU have been falling, imports from the EU rose over the last three years. This resulted in a significant trade deficit of US\$18.903 billion in 2018, although lower than US\$26.97 billion in 2017. Africa's imports from the EU are dominated by mining equipment, machinery and mechanical appliances, vehicles, electronics, bituminous substances, and products with medium to high technological context, which formed a combined share of 44.6 percent of exports in 2018 (Figure 4.5).

The rise of South-South trade is changing the pattern of African trade. Since the late 1990s and early 2000s, Africa-South trade has been increasing steadily, at the expense of Africa-EU trade. The main driver has been growing trade ties between Africa and Asia, led by China and India. Africa's total merchandise exports to Asia increased by 43.9 percent to reach US\$117.52 billion in 2018, from US\$81.67 billion in 2015

(Figure 4.3 and Figure 4.6). China's share of Africa's exports grew steadily for the third consecutive year, to 14.2 percent in 2018, from 13.19 percent in 2017 and 10.61 percent in 2016, further consolidating its position as Africa's single largest trading partner. However, imports from China have decelerated, resulting in a trade deficit of US\$11.65 billion in 2018, down from US\$18.7 billion in 2017.

India's share of Africa's exports has also seen a steady increase in the last three years, to 9.2 percent in 2018, from 8.98 percent in 2017 and 8.24 percent in 2016. India has become Africa's second largest trading partner, overtaking the United States since 2013. Africa's exports to India have been growing faster than its imports, enabling the region to enjoy a surplus that reached US\$17.87 billion in 2018, from US\$12.55 billion in 2017 and US\$6.94 billion in 2016. The combined share of China and India in Africa's exports has expanded steadily in the last three years, to 23.32 percent in 2018, from 22.17 percent in 2017 and 18.8 percent in 2016. Raw materials and primary commodities—especially energy,

Figure 4.5. Africa's Sources of imports by Region and Product Group (percent)



Sources: International Monetary Fund, Direction of Trade Statistics Database, 2019; International Trade Centre, Trade Map, 2019.

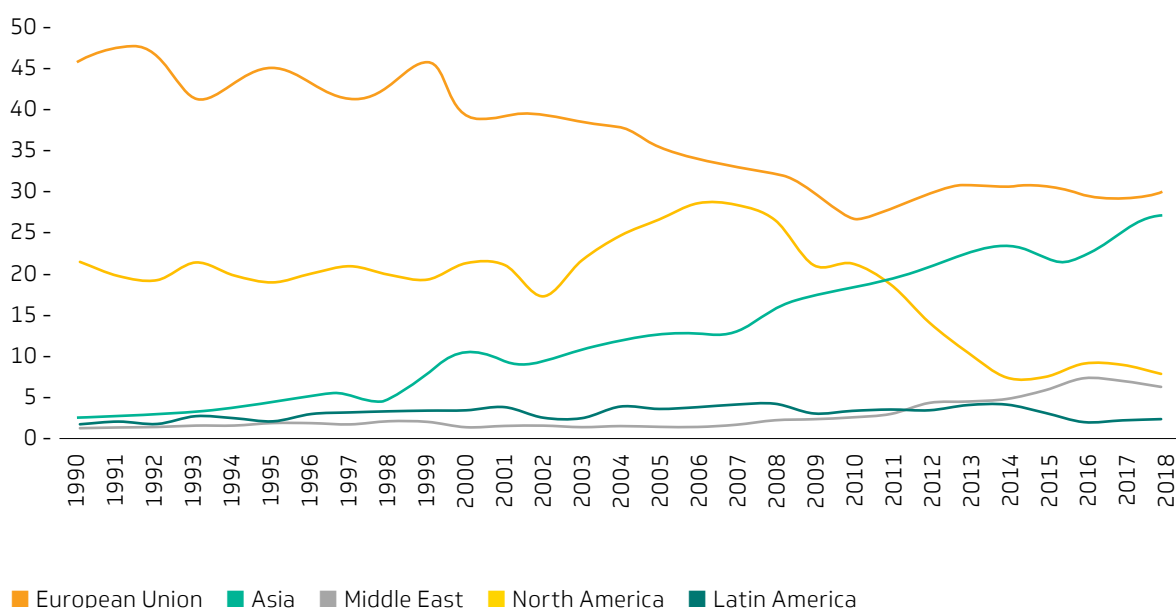
metals and minerals, and agriculture raw materials—continued to dominate Africa's exports to these countries, and more generally to Asia.

Increasing South-South trade is also shifting the patterns of imports. The global South has been strengthening its position as a critical source of imports for Africa. This growth is driven by Asia, whose share as a source of Africa's imports grew by 23.14 percent in 2018, consistent with an increase

of 23.91 percent in 2017 (Figure 4.4).

Africa's imports from Asia are dominated by mineral fuels, electrical machinery and equipment, machinery and mechanical appliances, and vehicles and parts, with a combined share averaging around 35.3 percent of total imports between 2016 and 2018 (Figure 4.5). Asia's growing share in Africa's imports is a result of the low cost of Asian inputs and technologies, plus Asia's continued investment in, and increasing trade finance flows to, Africa. The rapid

Figure 4.6 Africa's Export Destinations (percent)



Source: International Monetary Fund, Direction of Trade Statistics Database, 2019.

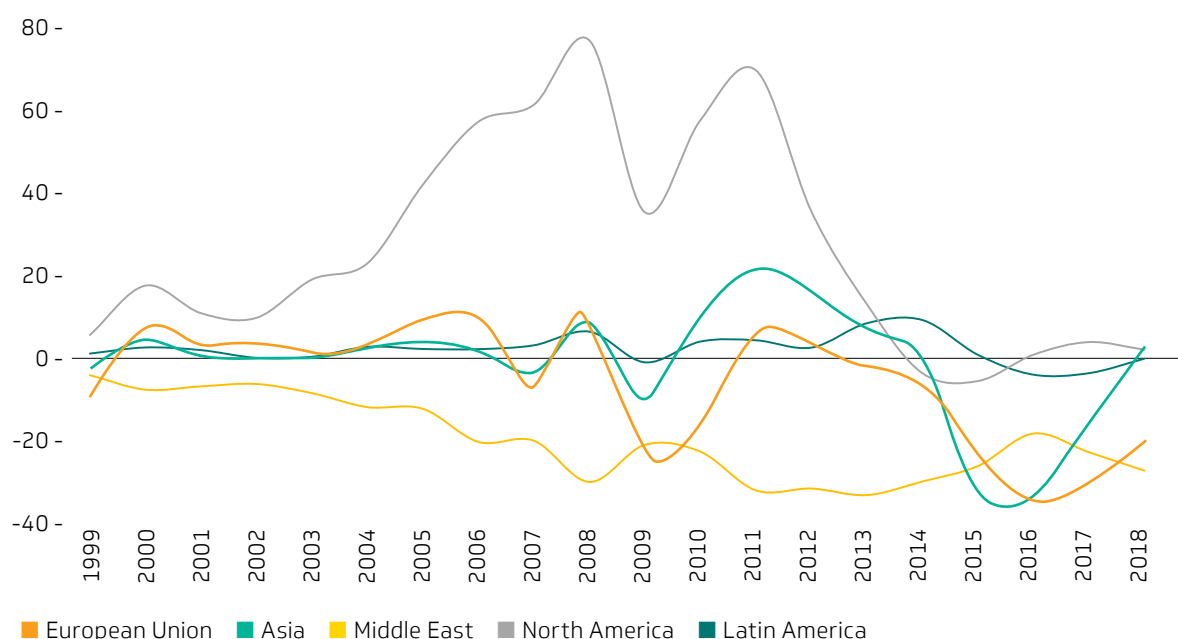
pace in the growth of Africa's exports to Asia relative to imports enabled Africa to enjoy a trade surplus with Asia estimated at US\$3.03 billion in 2018, from a deficit of about US\$13.1 billion in 2017 (Figure 4.7).

North America remained the third largest destination for Africa's exports, after the EU and Asia, accounting for 6.48 percent in 2018, down from 7.44 percent and 7.65 percent in 2017 and 2016 respectively (Figures 4.3 and 4.6). The steady deceleration in the United States' share of Africa's exports is a combination of several factors, including increasing Africa-South trade and a drastic reduction in U.S. imports of oil from Africa after the rise of shale oil production on U.S. coasts. North America's position as a source of imports for Africa also has been weakening. Its share in Africa's total imports decreased further to 5.12 percent in 2018, from 5.3 percent in 2017 and 5.46 percent in 2016. Refined petroleum used to be a major source of African imports from North America, and the continued deceleration is largely the consequence of expanding refinery capacity within

the continent. Increasingly, Africa's main imports from North America are machinery and mechanical appliances, aircraft and spacecraft and other transport-related equipment, as well as vehicles. After a trade deficit of US\$4.74 billion in 2015, Africa recorded a surplus in each of the last three years with North America, with the surplus estimated at US\$2.5 billion in 2018 (Figures 4.5 and 4.7).

The share of the Middle East as a destination for Africa's exports decreased to 3.36 percent in 2018, from 4.3 percent in 2017. Trade relationships between Africa and the Middle East, especially with the Gulf Cooperation Council (GCC), have grown steadily in the last decade. The recent deceleration in exports is largely the result of lingering socio-political difficulties involving many countries in the Middle East, along with oil prices that remained lower than the pre-crisis level. Africa's merchandise exports to the Middle East are dominated by products related to petroleum gases, coal, petroleum oil (not crude), gold, and diamonds. As for imports, the Middle

Figure 4.7. Africa's Trade Balance, by Region (US\$ billions)



Source: International Monetary Fund, Direction of Trade Statistics Database, 2019.

East continued to improve its position as the third largest source of Africa's imports, with its share expanding to 8.51 percent in 2018, from 8.07 percent in 2017. That region remained an important source of products related to mineral fuels, bituminous substances, and plastics. Africa's imports from the Middle East continued to outpace its exports to that region, resulting in a large trade deficit that expanded to more than US\$ 25.44 billion in 2018, from a deficit of about US\$21.2 billion in 2017 (Figure 4.7).

Over the last three years, the share of Africa's exports to Latin America has remained low, although it rose by 2.49 percent in 2018, compared with 2.35 percent in 2017. This performance is largely the

result of persistent economic challenges in Latin America. The difficulties were particularly pronounced in two countries. Brazil continued to adjust following three years of recession, along with a protracted political stalemate that has been slowing the economic recovery process. Argentina struggled to achieve economic stability after its currency lost more than half of its value against the US dollar. While Latin America has accounted for the smallest share of Africa's imports, it remains an important source of sugar, cereals and meat for Africa. Africa reaped a trade surplus with the region estimated at about US\$426.8 billion in 2018, from two consecutive years of deficits of US\$2.922 billion and US\$3.28 billion in 2017 and 2016, respectively (Figure 4.7).

END

5

Chapter Five



Dynamics in Commodity Markets

Commodities play an important role in Africa's economic development. Dynamics in commodity markets can have a disproportionate impact on the region's output, by virtue of the composition of Africa's trade. While efforts to de-commoditise the region's exports and valorise its manufacturing base are taking root, the degree of commodity dependence in the region remains substantial, with the overwhelming majority of countries depending on minerals, ore, metals, and energy exports for reserves. Recent data show that except for a handful of countries like South Africa, Egypt, Morocco, and Mauritius, most countries in the region have a commodity export dependence of more than 80 percent (UNCTAD 2019). As a result of this dependency, the dynamics of African trade and growth have been highly correlated with movements in commodity markets.

Commodity markets were generally weaker in 2018, with prices, as measured by the Bloomberg Commodity (BCOM) Index, ending the year over 13 percent lower compared with their close in 2017 (Figure 5.1). Still, commodities enjoyed bouts of strength, particularly in H1-2018, due principally to the rally in oil markets. Geopolitical tensions raised concerns over possible supply disruptions, causing the BCOM Index to peak at 91.5 in May 2018, 5 percent above its level at the start of the year.

Figure 5.1. The Bloomberg Commodity Index



Sources: Bloomberg, Afreximbank Research.

Outside these price-supportive events, the backdrop for commodity markets in 2018 was sluggish as high inventories, combined with weaker demand—within the context of rising trade tensions and higher interest rates—led to a severe decline in the BCOM index. The index closed the year at its lowest point since January 2016.

The inertia in commodity markets, in a context of an increasingly challenging geopolitical environment, came on the heels of the end of the commodity super-cycle, which heightened macroeconomic instability

and shortages of liquidity. The recurrence of adverse commodity terms of trade has been the bane of African economies. Ongoing efforts by Afreximbank and African governments to expand processing capacities for greater value addition aim to mitigate exposure to global volatility and sustain economic growth. This is increasingly visible in natural resource-rich countries such as the Democratic Republic of Congo, which are strengthening provisions for processing commodities domestically to integrate global value chains and accelerate the process of structural transformation.

In **agricultural** commodity markets, prices rallied in the first half of the year but slumped in the second, causing the BCOM agriculture sub-index to close the year over 12 percent lower in December 2018 compared with December 2017.

Gains in the first half of the year were led by **cocoa** prices, which rose by 61 percent from US\$1,809/tonne on December 22, 2017, to a high of US\$2,914/tonne on May 1, 2018, in New York. The impressive gains were driven primarily by concerns of a potential shortfall in output in the 2017/2018 season, with estimates for a deficit of up to 200,000 tonnes.

Cocoa prices were also lifted as speculators bought back market contracts they had sold during the 2016/2017 season when a large surplus characterised a sluggish market. The rally in the market also reflected concerns over the quality of beans delivered to the London exchange, with the London market flooded with low quality beans which participants were reluctant to take. These developments created an arbitrage opportunity for other African supplies to deliver to New York. The upside for cocoa prices during the year was limited by strong arrivals in the West African Cocoa Belt coupled with fading concerns over the weather and output. The market for cocoa was supported throughout 2018 by increasing grinding capacity (see Table 5.1).

Developments in the cocoa market over the past two seasons, including price volatility, export defaults and the profitability of processing underscore the importance of the Bank's African Cocoa Initiative (AFRICOIN). The initiative allows producing countries in Africa to move from a model based mainly on exporting raw cocoa beans, with little value retained, to one where cocoa beans are processed in Africa before being exported. The initiative has

Table 5.1. Cocoa Supply and Demand, 2015/2016 – 2018/2019 (thousands of tonnes)

Region and Country	2015/2016	2016/2017	2017/2018a	2018/2019b	Share of World Output, 2017/2018 (%)
Africa					
Côte d'Ivoire	1,796	2,020	1,964	2,150	42
Ghana	740	969	905	900	19
Nigeria	195	245	255	245	6
Cameroon	232	246	250	250	5
Others	111	142	130	134	3
America	777	760	819	815	18
Asia and Oceania	400	357	326	306	7
Total Production	4,251	4,739	4,649	4,799	100
Total Grindings	4,152	4,397	4,594	4,712	

a. Estimated. b. Forecast.

Sources: International Cocoa Organization; Afreximbank Research.

been effectively supporting the cocoa industry in countries such as Côte d'Ivoire, Ghana, and Nigeria. By increasing local processing, AFRICOIN could mitigate risks associated with global volatility and sustain growth in a sector that is critical for growth and poverty alleviation in a number of the Bank's member countries where cocoa production is the main source of income in rural areas.

The trend in **coffee** prices was overwhelmingly bearish during the year, as favourable weather in the top producing countries, Brazil and Vietnam, raised the prospect of ample global supplies. **Arabica** coffee prices ended the year 20 percent lower compared to their values at year-end 2017, while **Robusta** coffee declined 12 percent over the same period. According to the International Coffee Organization, the supply glut may continue to put downward pressure on prices over the short term.

Uganda, Africa's top coffee exporter, enjoyed favourable rainfall, which created better growing conditions for the 2018/2019 harvest, with expectations for a bumper crop of up to 5.1 million 60 kg bags. However, excess supply from other coffee-producing countries exerted downward pressure on prices. Accordingly, Uganda undertook initiatives, including a first ever coffee online auction, in a bid to promote the quality of its beans and boost the volume of its coffee trade.

Uganda plans to quadruple output by 2025. It is also implementing measures to raise the volume of domestically consumed coffee from the current 245,000 bags a year to around 3 million bags (or 15 percent of output) over the same period. This is expected to make the country's coffee sector more resilient to external price shocks, in the same way as Ethiopia's—Africa's largest coffee producer, which consumes around half of its annual output.

Table 5.2. Coffee Supply and Demand, 2015/2016 – 2018/2019 (thousands of 60kg bags)

Region	2015/2016	2016/2017	2017/2018 ^a	2018/2019 ^b	Share of World Output, 2017/2018 (%)
Africa	15,792	16,965	16,467	17,365	10
America ^c	49,400	56,100	51,000	63,400	32
Asia ^d	28,930	26,700	29,300	30,400	18
Others	58,817	62,049	62,115	63,328	39
Total Production	152,939	161,814	158,882	174,493	100
Total Consumption	152,728	154,294	160,274	163,589	

a. Estimated. b. Forecast.

c. Brazil only. d. Vietnam only.

Sources: International Coffee Organization; US Department of Agriculture; Afreximbank Research.

Tea prices slumped in 2018, with prices compiled at the Mombassa auction (the largest in the world), ending the year around 15 percent lower compared with prices at the end of the previous year. In contrast to 2017, when prices were boosted by poor weather and weak production in major black

tea-producing countries—the largest of which is Kenya—more benign and favourable weather conditions helped to lift production in 2018 and consequently suppress prices. Information from Kenya's Tea Development Agency highlighted the beneficial impact of reliable rainfall experienced in tea-growing



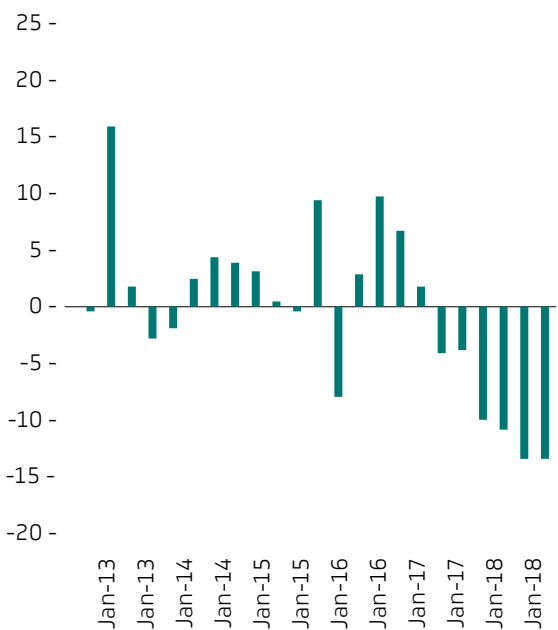
areas. The favourable weather conditions and increasing application of fertilisers are improving the quality and the quantities of green leaf (KTDA 2019).

Prices were also adversely affected by the slowdown in demand from Iran—one of the largest tea-consuming nations in the world—due to economic sanctions imposed by the United States. In response to some of the challenges in the industry, some African countries, such as Kenya, are focusing on innovation, research, and development to increase revenues along the value chain in the sector, partly through developing new tea varieties that grow more abundantly and can withstand poor weather conditions. African tea producers can take advantage of worldwide health consciousness and an increasing awareness of the potential health benefits of tea relative to sugary drinks. In Japan, more recent data show a sharp increase in the consumption of healthier beverages, such as ready-to-drink teas.

Rubber prices dropped to their lowest levels since 2015 to close 2018 nearly 16 percent below prices at the start of the year. The market was lifted somewhat in November 2018 partly reflecting a rebound in natural rubber demand in the first ten months of the year and optimism on US-China trade talks.

The dynamics of rubber prices were also linked in large part to oil prices from which synthetic rubber—an alternative to natural rubber—is made, as well as weakening global growth, which dented demand for the commodity. This was the case in China, where a slowdown in car sales in the second half of 2018 (Figure 5.2) and tyre demand in the world’s largest auto market were associated with rising rubber stockpiles.

Figure 5.2. China Passenger Car Sales, percent y/y



Sources: Bloomberg, Afreximbank Research.

Globally, the world's producers, especially of natural rubber in Asia and Africa, are struggling with prices that have fallen more than 50 percent in the past eight years as supply surges after a bout of replanting. This has triggered action by top producers including Thailand, Indonesia, and Malaysia to consider a number of initiatives, including limiting exports, felling rubber trees, and promoting more domestic consumption of rubber. For instance, under the "One Village, One Kilometre" initiative, Thailand plans to encourage over 75,000 small villages across the country to replace gravel roads with rubber ones, thereby using up to 25 percent of its 4.5 million tonne annual output.

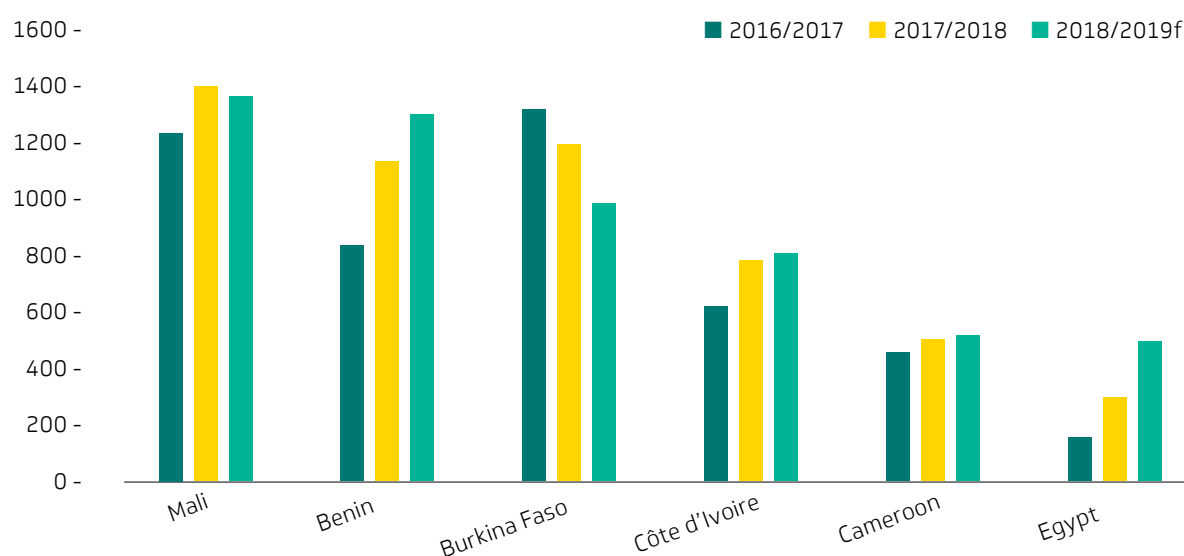
Cotton prices soared in the first half of the year to their highest since 2014, rising as much as 20 percent before shedding all those gains to end the year at around US cents 70/lb, 10 percent lower compared with price levels at the start of the year. The rally in cotton prices was caused mainly by abnormally dry weather in the US state of Texas and western China, which threatened to slash cotton yields in two of the largest producers at a time of rising global demand.

However, fears of a big deficit in cotton supplies proved to be short-lived. Subsequent strong harvests in the northern hemisphere and fears of a dent in demand for US cotton from both Turkey and China, which together account for around 25 percent of US cotton exports, undermined the market.

The decline in China's demand for US cotton was occasioned by the US-China trade war, which triggered a slowdown in US cotton export sales and increased the risk of higher-than-expected cotton inventories in the United States, the world's top exporter. While conciliatory remarks by both China and the United States at the end of 2018 helped ease US export bottlenecks, it was not enough to erode the inventory overhang.

Elsewhere, signs of increasing mill demand in Asia and relatively firm prices have incentivized African producers, although countries like Burkina Faso, the world's sixth largest exporter, are losing market share due to comparatively lower productivity. Meanwhile, others, like Côte d'Ivoire, are boosting cotton processing as output increases.

Figure 5.3. Top Five African Cotton Producers (thousands of 480lb bales)



Sources: US Department of Agriculture; Afreximbank Research.

Table 5.3. Cotton Supply and Demand, 2015/2016–2018/2019 (thousands of 480 LB Bales)

Region	2015/2016	2016/2017	2017/2018 ^a	2018/2019 ^b	Share of World Output, 2017/2018 (%)
Africa	6,020	7,084	7,664	7,931	6
America	26,311	25,913	32,784	33,327	26
East Asia ^c	22,000	22,750	27,500	27,750	22
South Asia	33,111	34,912	37,410	34,905	30
Others	8,714	16,004	18,404	15,016	15
Total Production	96,156	106,663	123,762	118,929	100
Total Consumption	113,501	116,387	123,233	123,537	

a. Estimated. b. Forecast. c. China only.

Sources: US Department of Agriculture; Afreximbank Research.

Sugar prices fell to their lowest level in a decade, trading below US cents 10/lb for the first time since June 2008, before a late rally in October 2018 raised the market to close the year at around US cents 11.70/lb. The dramatic drop in prices, which accelerated throughout most of 2018, was due to abundant physical supply and good inventories at destinations and competition from major producers including Brazil, India, and Thailand. According to data from the US Department of Agriculture (USDA), world sugar supply rose by 11.5 percent in the 2017/18 season, boosting end-season stocks by over 20 percent compared with a decline of around 4 percent in the previous season (USDA 2019).

However, the increase in sugar output was less pronounced in Africa, where USDA data showed total output falling by 22,000 tonnes due to unfavourable weather patterns. In Mauritius, the Chamber of Agriculture reduced its forecast for sugar output in 2018 to 320,000 tonnes from an earlier estimate of 350,000 tonnes as the weather proved inconducive to the accumulation of saccharose.

The moderate increase in prices at the end of 2018 was partly a result of firmer crude oil prices, raising the spectre of cane ethanol in countries like Brazil. Sugar prices also

benefited from news that India—the second largest sugar exporter—was considering the creation of a 3 million tonne sugar buffer, at a time when Brazil was trimming its forecasts for sugar output.

Soybeans was one of the commodities that bore the brunt of the US-China trade war, becoming a “poster child” for the trade dispute. Soybeans ended the year at US cents 882/lb, around 9 percent lower compared with prices at the start of the year but with the market falling as low as 23.5 percent compared with its peak during the year. At the start of the year, soybean prices were lifted by concerns over the weather, particularly in South America, which typically accounts for over half of global output—as fears for a La Niña weather phenomenon grew, raising the risk of drought in countries such as Argentina.

However, as the trade war between the United States and China intensified, China, the largest importer in the world, started reducing its imports from the United States, leaving sizeable amounts of soybean inventories in the United States and exerting downward pressure on prices.

However, the market regained some momentum in October on a combination of dry temperatures in Brazil’s Parana and Mato



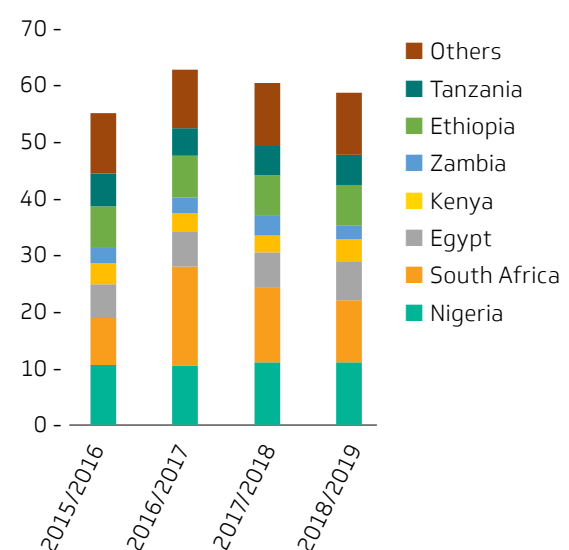
Grosso do Sul states, which reduced yields by up to 10 percent, and the resumption of US soybean sales to China.

Maize prices ended 2018 at US cents 375/ bushel, up around 6 percent compared with prices at the start of the year and the first annual gain in six years. Demand and supply fundamentals in the maize market were generally bullish, with USDA data showing a 4 percent year-on-year decline in global output—due in part to dry weather in parts of Brazil and Argentina—and a 10 percent increase in trade because of strong demand for US corn. China’s active participation in the market (through the growth of its corn imports by 202 percent to 940,000 tonnes) also supported prices.

In contrast to the squeeze on global production, African maize output expanded by over 6 percent (USDA 2019). And while the continent accounts for a relatively small share of global corn output, higher production created opportunities for African producers to expand global trade in corn. In this regard, South Africa, Africa’s top corn producer took advantage of a bumper 2016/2017 harvest and the surge in EU corn imports to supply countries such as Spain

and Italy, with exports benefitting from a typically weak domestic prices. Meanwhile in Zambia, restrictions on corn exports were put in place amid concern that its Food Reserve Agency may not be able to meet purchase targets as farmers sold their crops to private buyers offering prices higher than the official benchmark.

Figure 5.4. Selected African Maize Producers (millions of tonnes)



Source: US Department of Agriculture; Afreximbank Research.

Box 5.1: Cocoa: Market Diversification is Key to Building a More Viable Sector in Africa

Global demand for cocoa and cocoa-based products is of great strategic importance to African cocoa growers, given the continent's unique position as the world's top producer of cocoa. Between 2008 and 2018, global cocoa output grew 2.9 percent per year, from 3.6 million tonnes to 4.65 million tonnes. Ninety percent of that increase came from African growers, whose share of global production grew from 70 percent to 75 percent over the same period.

Driven by the expectation that new demand for cocoa products, particularly in Asia, would drive long-term demand, African cocoa producing countries, Côte d'Ivoire and Ghana chief among them, have over the past decade undertaken a buildout of cocoa processing facilities. Historically, most cocoa was processed in "grinding" facilities in Germany and the Netherlands. Initially, that expectation seemed warranted. In Asia, particularly China, Indonesia, and Malaysia, demand for cocoa has grown an average of 4.7 percent annually. Côte d'Ivoire and Ghana have been the main beneficiaries of the increased demand. Their exports of cocoa beans to Malaysia and Indonesia is estimated at US\$500 million in 2018.

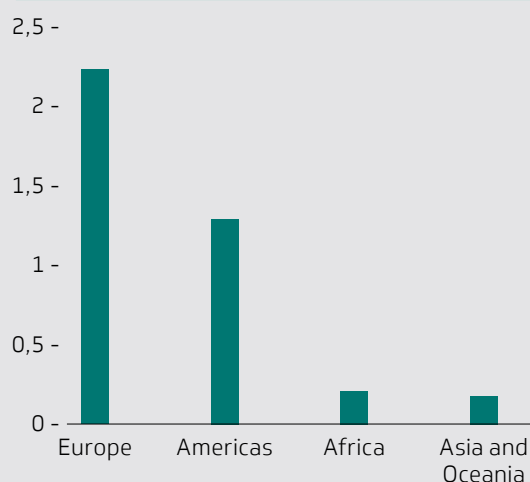
But industry reports indicate the early promise of a surge in demand in Asia for cocoa products, especially chocolate, has not met expectations. According to data compiled by the International Cocoa Organization (ICCO), China's current per-capita cocoa consumption is just 70 grams, significantly under projected consumption of 80 to 90 grams forecast a decade ago, and much lower when

compared with per-capita consumption in the EU and the United States.

Globally, apparent domestic cocoa consumption—calculated as cocoa grindings plus net imports—has grown by 1.8 percent per year. In the United States and Europe, by far the top consumer regions for cocoa products, demand has nearly plateaued, growing an average of just 0.5 percent per year. Historically, the key driver of the cocoa market has been strong demand from end-user industries, particularly the chocolate confectionary sector, which sells the majority of its cocoa-based products to developed economies. The ICCO estimates per-capita consumption of chocolate in the United States and Europe at 3-5 kilograms. In the United States, that makes up more than 60 percent of all confectionary demand. Among European countries, Switzerland, Norway, Estonia, and Belgium are the leading markets for cocoa products, with an average cocoa consumption of around 6 kg per capita. Brazil is the only major cocoa producer with per-capita demand for cocoa above 1 kg. There, below-average output since the 2015/2016 cocoa growing season has created opportunities for African producers and exporters.

While the global market for cocoa and chocolate, currently valued at around US\$45.6 billion, is projected to reach US\$67.2 billion by the end of 2025, the dearth of Asian demand for cocoa products, combined with plateauing demand in the United States and Europe, is a wake-up call that more diversification in the cocoa sector is needed to sustain

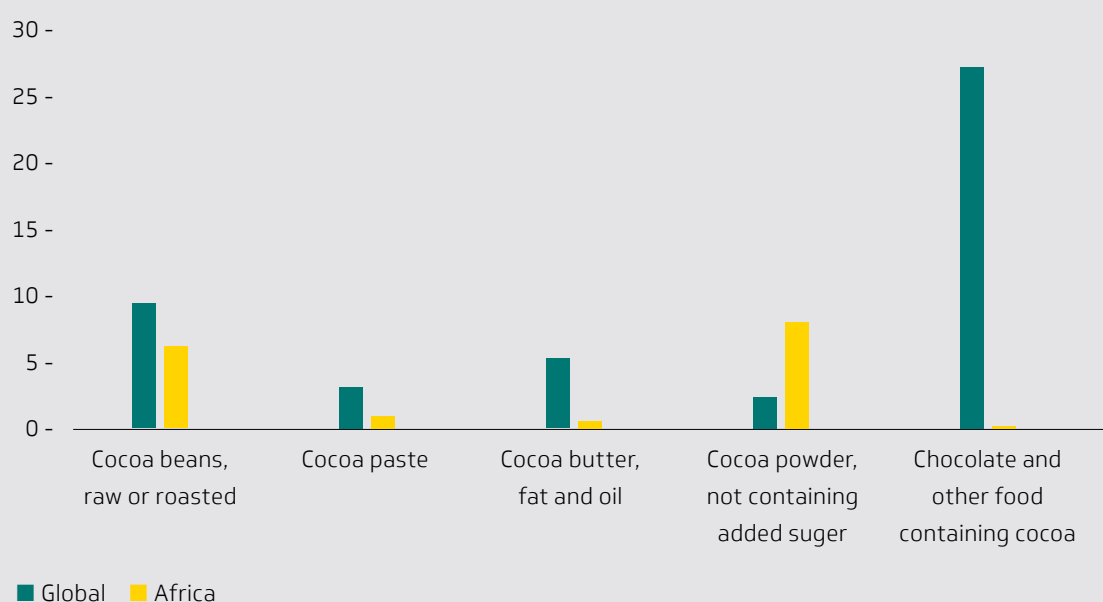
Figure B5.1 Apparent Cocoa Consumption (kilograms per head)



Sources: ICCO Quarterly Bulletin of Cocoa Statistics Year 2016/17; Afreximbank Research.

demand. Despite the expansion of processing capacity under Afreximbank's AFRICOIN initiative, Africa captures less than 20 percent of global value chain revenues from the cocoa and cocoa-based products markets. Diversification can be achieved by promoting the use of cocoa-based byproducts in cosmetics, pharmaceuticals, and feed. Those byproducts currently make up 19 percent of the global cocoa value chain. One means to this end is to expand the production of cocoa butter and its byproducts, which are already manufactured in Africa. Not only would such an expansion grow output at the farm level, but it also would support global demand, mitigating volatility in cocoa prices associated with a deterioration in commodity terms of trade.

Figure B5.2 Africa's Share of the Chocolate Industry (US\$ billions)



Sources: ITC; Afreximbank Research.

Despite bouts of volatility, **wheat** prices firmed through 2018 to close the year at US cents 503/bushel, 18 percent above its level at the start of the year. Concerns about dry weather were the biggest driver of wheat prices as dry conditions affected large swathes of wheat-growing not corn-growing regions including North America, Europe, and Asia, for crops to be marketed in the 2018/2019 season.

The potential impact on global yields lifted the wheat market to a three-year high, coupled with uncertainty over whether exporters of last resort like Ukraine would limit wheat exports. Extreme heat and dryness also slashed estimates for wheat production in the EU and Russia, with the impact being that EU output fell to a record low while Russia experienced its first fall in wheat production in six years.

The consequence of tightening global output meant that for the most part importers in Africa such as Egypt, also one of the largest in the world, fell behind in their purchases for the year as prices for wheat contracts also rose. This weather-induced rally in wheat was a reminder to many wheat-importing countries to consider ways of mitigating commodity price volatility. Countries like Egypt continued to explore financial market instruments to hedge against fluctuations in prices for commodities, considering its immense import requirement of 12.5 million metric tonnes of wheat in the 2018/2019 season (USDA 2019).

Cashew prices came under sustained pressure after an initial surge in the first half of 2018, on account of market surplus, with many cashew-producing countries like Vietnam, Côte d'Ivoire, Nigeria, Benin, Mozambique, and Ghana expecting higher output. Some developments which characterized the African cashew market included the impetus from policymakers to improve farmgate prices as a way of improving farmer incomes but also initiatives to improve local processing in the sector. In

that regard, Côte d'Ivoire, the world's largest grower, set its cashew farmgate price for 2018 at XOF 500/kilo (US cents 90/kilo) up from XOF 440/kilo (US cents 65/kilo) in 2017 and imposed a 10 percent export tax on the free-on-board price.

Meanwhile in Tanzania, the state-owned Tanzania Agriculture Development Bank bought around 60 percent of the cashew harvest at a premium to help farmers recoup costs and to support local processing. However, with low capacity constraining domestic processing, Tanzania ended the year looking to offload around 150,000 tonnes of cashew nuts to minimize the impact of surplus inventories on its balance of payments.

Palm oil prices ended the year 18 percent lower compared with prices at the end of December 2017 as surplus stocks in Indonesia and Malaysia—who produce around 85 percent of global output—weighed heavily on the world market. The annual decline in prices in 2018 was the fifth since 2010 due to a surge in production from Indonesia. The surplus supplies of soybean, which is a feedstock for soyoil (an alternative edible oil), also weighed down on palm oil markets. Reports also indicated that European demand for palm oil has been dampened by allegations that expanding palm plantations are endangering animals in Asia, which is creating negative sentiment among some buyers. Nevertheless, the market recorded some marginal gains at the end of the year on optimism that India—the biggest palm oil importer—would cut import duties on the edible oil in line with a bilateral accord with Malaysia, helping to spur demand, as well as tight supplies at Chinese ports.

Meanwhile, Africa continues to be a net palm oil importer, buying around 6.3 million tonnes in the 2017/2018 season as output remains flat on account of limited acreage and low yields. Within the continent, Nigeria, Kenya, and South Africa are among the top importers. Growing edible oil consumption

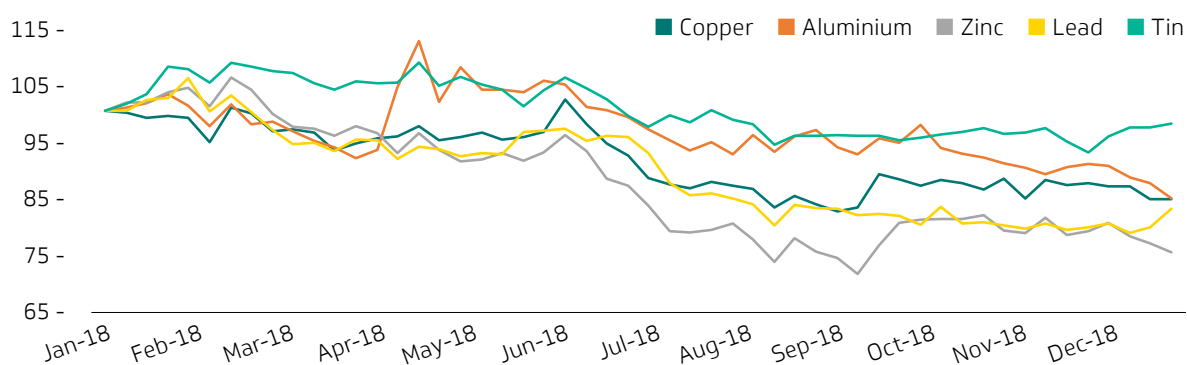


compared with sluggish output has prompted non-traditional producers in Africa like Uganda to prioritise domestic production.

Metal prices followed a similar trend in 2018, with prices falling sharply in the second half of the year after a mild rally in the earlier part. Signs of improving growth in China, Europe, and the United States at the start of the year fueled momentum in the industrial metals sector with some metal

prices posting strong gains. However, this sentiment was short-lived as weaker global output data, particularly from China, and burgeoning stockpiles weighed on prices. The BCOM industrial index closed the year around 22 percent lower compared with its level in December 2017. Meanwhile, the **precious metals** market was largely impacted by changes in investor demand in the context of global political uncertainty and the prospect of a pause in Federal Reserve tightening.

Figure 5.5. Base Metal Prices in 2018, Index, Jan 2018=100



Sources: Bloomberg; Afreximbank Research.



Copper prices were elevated in the first half of the year but plummeted in the second half to end nearly 22 percent lower compared with prices at the end of 2017. Copper prices were supported in 2018 by tightening supply following the closure of a major smelter in India coupled with an increase in short-term demand. Additionally, long-term prospects are very positive, with an expected increase in copper demand from the electric vehicle industry.

In the short term, growth deceleration from China, and, more generally, a global slowdown undermined the demand for copper. This was in addition to a “risk-off” mood in emerging markets amid fears of contagion to other developing markets from the crisis in Turkey. Copper was heavily impacted by these external market developments as it is widely watched as an indicator of global economic health given its use in several strategic sectors of the economy, including construction (31 percent); electricity (24 percent) and transport (11 percent).

Zambia, Africa’s second largest copper producer, increased production around

862,000 tonnes in 2018 from around 800,000 tonnes in 2017. Data from the Zambia Chamber of Mines attributed the increase in output to an improvement in productivity at some of the major mines and the impact of new equipment on the volume of ore being hoisted.

It was a year of two halves in the **aluminium** market, with prices rallying to their highest level since 2011 in the first half of the year before giving up their gains to end the year over 21 percent lower compared with prices at the start. The initial surge in aluminium prices largely reflected US sanctions on United Company Rusal (Rusal), the world’s second- largest aluminium producer. The sanctions sent shock waves across the aluminium value chain with end users scrambling to secure supplies as downstream producers like Rio Tinto were compelled to reduce output and declare force majeure on some aluminium contracts—due to their dependency on Rusal to convert bauxite into alumina. At the same time, a strict clampdown on illegal smelters in top producer China contributed to tightening capacity and supply in the first half of 2018.

The sharp decline in prices in the second half of the year was linked to an intensification of the trade war between the United States and China and its impact on growth and base metal demand, at a time when producers like China, and indeed India and Guinea, were ramping up output. Further, the imminent lifting of sanctions imposed on Rusal dampened market sentiment, with the metal ending the year more than 30 percent below its highs reached in April 2018.

The **tin** market ended 2018 around 4 percent below its level at the start of the year with the trajectory in prices following the same pattern as other base metals including copper, zinc, and lead. Prices initially rose in first quarter of the year on a downturn in production in China, the largest consumer, and falling exports from Myanmar. But despite short bullish spells in June and July, prices were pushed lower by an increase in supply from Indonesia, the world's largest exporter, and softer growth dynamics in China in part due to the trade war with the United States and which took a toll on Chinese manufacturing growth and weighed on demand. Meanwhile in Africa, plans to revive the Uis tin mine in Namibia got underway during the year. The mine still reportedly holds the potential to re-establish its status as one of the largest in the world once in full-scale operation.

Macroeconomic concerns and investor sentiment overrode what was a fundamentally tight market for **zinc**. Despite an initial rally in the first quarter of the year, zinc prices ended the year nearly 30 percent below levels at the start of the year as the trade war between the United States and China undermined global base metal demand. The slowdown in demand juxtaposed with a moderate increase in mine output in Europe as well as higher production in Bolivia, Brazil, Cuba, Eritrea, Kazakhstan, South Africa, Turkey, and even the United States.

Despite declining output in Canada, China, India and Mexico, overall world production

increased by 2 percent compared to 2017, compounding the decline in prices. Smelters in China also reportedly shunned purchases due to similar clampdowns by authorities on smelters that were not environmentally compliant. Data compiled by the International Lead and Zinc Study Group show that the global market for refined zinc metal recorded a deficit of 384,000 tonnes in 2018, and inventories held in LME, Shanghai Futures Exchange, and Chinese State Reserve Bureau (SRB) warehouses decreased but not enough to support higher zinc prices during the year.

During 2018 the **lead** market followed a similar trajectory to zinc, ending the year nearly 25 percent lower compared with its start, despite a net drawdown in inventories globally. The metal was affected by poor market sentiment and the effect of a stronger US dollar amidst thin market liquidity.

Gold prices went through three distinct phases in 2018: (i) a resilient market in Q1-2018; (ii) a sharply bearish deceleration in Q2-2018 and Q3-2018; and (iii) a strong recovery in Q4-2018, although the recovery was not enough to lift the market above price levels at the start of the year. Consequently, gold prices closed 2018 at US\$1,277/ounce around 3 percent lower compared with their start but an improvement from the low of US\$1,174 recorded in August.

The gold market remained on the backfoot in Q3-2018 as rising US interest rates and a stronger dollar shifted investment flows out of gold and high transaction costs prompted investor to overlook bullion, rotating instead into US Treasuries on account of higher yields. Weakness in gold prices had an adverse impact on African producers like South Africa—Africa's largest producer. However, the market ended the year on a more positive note as investor demand strengthened in Q4-2018 in a context of heightening global political uncertainty.

Table 5.4. Gold Supply and Demand, 2015–2018 (thousands of tonnes)

Region	2015	2016	2017	2018	Share of mining output, 2018 (%)
Mine Production	3,289	3,397	3,442	3,503	
Africa					
South Africa	167	166	140	129.8	4
Ghana	95	96	102	130.5	4
Other Africa	297	305	310	346	10
East Asia ^a	450	464	426	404	12
Others	2,280	2,366	2,464	2,493	71
Recycled and Net Hedging	1,134	1,315	1,132	1,156	
Total Supply	4,358	4,599	4,439	4,439	100
Total Demand	4,336	4,461	4,199	4,396	

a. China only.

Sources: World Gold Council; Bloomberg; Afreximbank Research estimates.

Silver prices ended the year 8 percent lower compared with prices at the start. This is despite a dip in global silver mine production for the third consecutive year and a spike in global silver demand to a three-year high, surpassing more than one billion ounces, an increase of 4 percent from 2017. However, despite strong demand and falling supply, silver prices struggled, averaging \$15.71 an ounce, a drop of nearly 8 percent from 2017. Industry reports indicated that silver's fundamentals were disconnected with the price because of surplus liquid above ground stocks of more than 2.5 billion ounces following nine years of continuous growth. This meant that silver inventory represented a two-and-a-half-year supply. Silver also suffered from weak industrial demand, primarily from the solar sector, associated with a slowdown in global economic growth.

Platinum prices fell for most of 2018, ending the year around 14 percent lower compared with prices at the start. The decline in prices took root in February and the market never recovered despite some positive momentum building in the latter stages of the year. Platinum prices suffered from the lack of demand for diesel-powered cars in

Europe and China given its use primarily in catalytic converters in diesel vehicles. Moreover, geopolitical concerns, a steady US dollar, and a dip in jewellery demand helped push prices lower. This was despite a tight supply environment in Africa which accounts for over 70 percent of global supply. Top producer South Africa is looking at ways of resolving long-standing problems, including wage-related labour strikes and sub-optimal infrastructure including energy, which are adversely impacting productivity in the sector.

In **energy** markets, the unprecedented cooperation among oil producers—Organization of Petroleum Exporting Countries and its allies—to reduce supplies in the market, coupled with supply disruptions was supportive of prices in the early part of the year. However, output improvements in Libya, the suspension of strike action by Nigerian oil workers, and continuing strong output from US shale producers created downward pressures on prices. As such, oil prices plummeted in the fourth quarter of the year, with Brent oil ending the year 24 percent lower compared with prices at the end of December 2017.

Table 5.5. Platinum Supply and Demand, 2015–2019 (thousands of ounces)

Country	2015	2016	2017	2018	2019f	Share of Refined Output, 2018 (%)
Refined Production	6,150	6,035	6,125	6,085	6,460	
South Africa	4,465	4,255	4,380	4,410	4,725	72
Zimbabwe	405	490	480	470	470	8
North America	385	395	365	360	410	6
Russia	715	715	720	675	675	11
Other	180	180	180	170	180	3
Recycling	1,710	1,855	1,890	1,960	1,960	
Total Supply	7,905	7,920	8,045	8,010	8,420	
Total Demand	8,290	8,320	7,760	7,365	7,740	

Sources: World Platinum Investment Council; Afreximbank Research.

The decline in oil prices was also attributable to expectations for weaker global demand with both OPEC and the International Energy Agency lowering their 2019 forecasts for oil demand on account of the trade war between the United States and China as well as tighter monetary policy and the synchronized growth deceleration in some advanced and developing market economies. In addition, the United States' decision to grant waivers to eight countries to continue

importing oil from Iran helped to ease supply constraints, as did forecasts for higher non-OPEC supply, particularly from US shale. Elsewhere in Africa, higher output, evidenced by an increase in the number of oil and gas rigs, further compounded concerns of oversupply in the global market.

Despite the importance of commodities for the continent, an overview of the dynamics in Africa's commodity markets indicates that

Table 5.6. Crude Oil Supply and Demand, 2015–2018 (thousands of barrels per day)

Region	2015	2016	2017	2018	Share of World Output, 2017 (%)
Africa					
Nigeria	2,204	1,903	1,988	2,059	2
Angola	1,772	1,756	1,674	1,656	2
Other Africa	4,154	4,028	4,410	4,914	5
North America ^a	12,750	12,366	13,057	17,885	18
Europe	3,538	3,566	3,519	4,234	4
Middle East	30,023	31,849	31,597	31,202	31
CIS	13,966	14,162	14,288	14,620	15
Others	23,140	22,393	22,116	24,114	24
Total Production	91,547	92,023	92,649	100,684	
Total Consumption	94,843	96,488	98,186	99,800	

a. United States only.

Sources: BP statistical review; Afreximbank Research; U.S. Energy Information Administration.



the region is still largely a price taker for its commodities of export interest, partly due to weaker bargaining power including the absence of international exchanges but also due to limited processing capacities and prospects for value addition. At the same time, Africa's commodities sector has been hampered by low productivity, part of which is linked to sub-optimal production systems, particularly within the agricultural complex. The advent and promotion of digital technologies could help in reducing inefficiencies in the African commodity market, for instance by reducing the degree of information asymmetry to raise prices and ultimately income of rural farmers while improving the balance of payments of commodity exporters. The case of Uganda's first ever coffee online auction, which showcased the quality of its coffee in exchange for better prices, could be

replicated across other commodity exporters with great effect.

Greater digitalization through smartphones, tablets, drones, satellites, and e-commerce platforms can help farmers boost productivity and plan more effectively while facilitating greater access to national and regional markets. This phenomenon will become more important with the implementation of the AfCFTA which, among others, will reduce transaction costs for Africa's commodity traders and accelerate the process of commodity-based industrialization as more investors take advantage of economies of scale and increased competitiveness. The promotion of digitalization holds great promise for Africa's commodities sector, although this is likely to manifest more acutely in the long term.

END

6

Chapter Six



Intra-African Trade

The promotion of intra-African trade, which includes the flow of goods and services between African countries as well as between Continental Africans and the diaspora, is a cornerstone of the Bank's mandate. It is firmly embedded in the Bank's Fifth Strategic Plan, Impact 2021-Africa Transformed, and informed by the role that expanded regional trade flows have played in the process of economic development and structural transformation (IMF 2015, 2018). Theoretically, it has been demonstrated that intra-regional trade and inherent economies of scale provide the basis for investment in regional infrastructural development, which in turn facilitate integration and promote industrialisation, thereby driving output expansion. At the same time, deepening intra-regional trade yields additional economic benefits, including reducing exposure to demand cycles.

Greater vertical specialisation that exploits differences in comparative advantage by building a production network and targeting foreign markets accelerate the growth of intra-regional trade. At the same time, intra-regional trade creates an opportunity for small-sized enterprises to develop expertise and experience to enhance their transition and integration into more competitive global markets. The expansion of cross-border trade in Asia and Europe played a major role in the development of regional value chains in these regions. (Fofack 2019; ITC 2019).

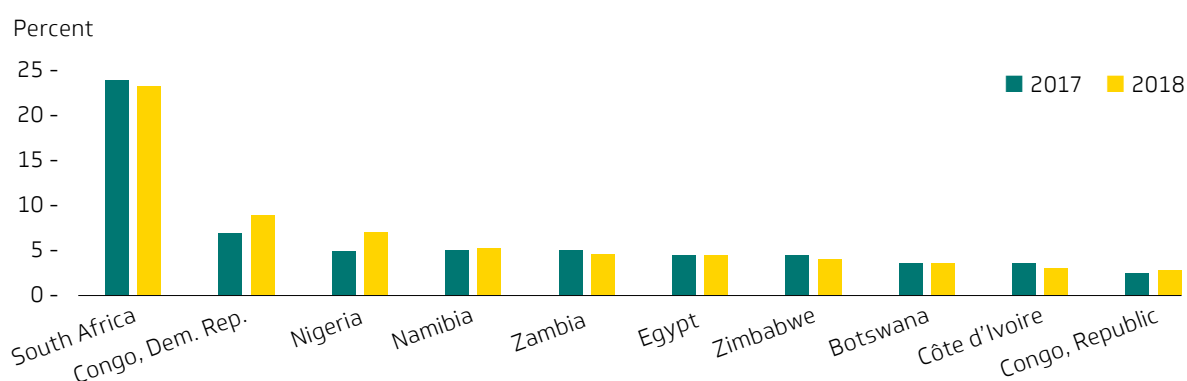
The scope of intra-African trade remains relatively low, even by developing country standards, accounting for about 16 percent of total African trade versus 59 percent in Asia, where intra-regional trade has grown significantly. The adoption of the African

Continental Free Trade Area Agreement (AfCFTA), which becomes effective this year, could be a game changer. The AfCFTA envisions the elimination of tariffs on most goods and liberalization of trade of key services. It also addresses non-tariff barriers that hamper intra-regional trade and is setting the stage for a continental single market with free movement of labour and capital. Its potential for growth and intra-African trade is significant. Preliminary estimates suggest that it will greatly expand industrial production and trade, with cross-border trade growing by more than 52 percent in the Agreement's first two decades.

6.1 Intra-African Trade Champions

The value of intra-African trade posted strong growth in 2018, rising by 17 percent to US\$159.1 billion. This represents 16.1 percent of total African trade, up from 15.5 percent in 2017. The growing share of intra-African trade in total African trade is partly due to an increase in prices of commodity exports traded within the region but also to consistent and resilient demand for manufactured goods from leading industrialised economies such as South Africa and Egypt. In the midst of an overall increase in intra-African trade, important variations persist across countries. However, South Africa maintained its position as the largest intra-African trade economy, with total intra-African trade value of US\$36.5 billion, up from US\$31.9 billion in 2017 and accounting for 23 percent of total intra-African trade, marginally down from 24 percent in 2017.

Figure 6.1: Top Ten Contributors to Intra-African Trade, 2018 vs 2017



Sources: IMF Direction of Trade Statistics (Database), Afreximbank Research.

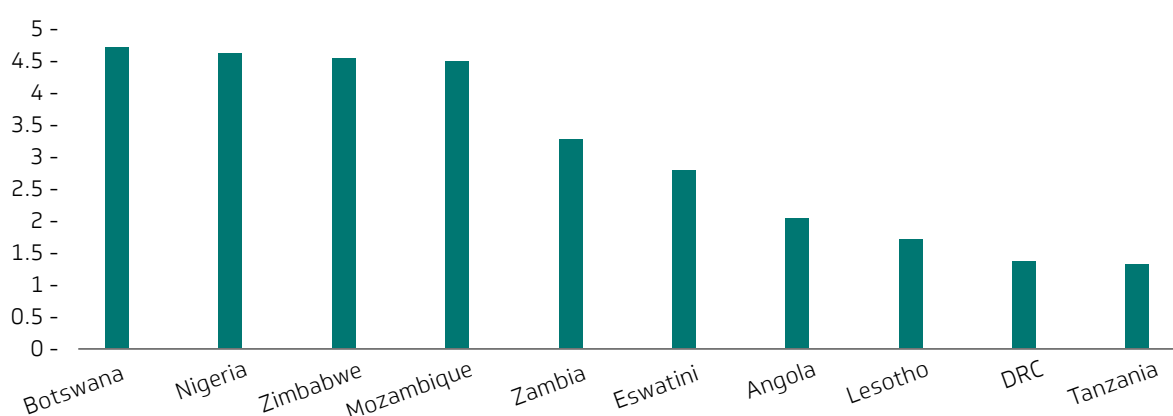
Africa remained the second largest regional market for South Africa and destination for its exports behind Asia. South African exports to Asia grew by 2 percent during the year against 5 percent for Africa. And although imports of African origin to South Africa do not compare in size with South African imports from Europe and Asia, South Africa substantially increased its imports from the region by 36 percent in 2018.

At the same time, the profile of South African trade with the rest of Africa is increasingly diverse, in part reflecting the complexity of its economy as the most

industrialised. It is exporting fuel and fuel products, precious stones, vehicles, and machinery to its largest bilateral regional trade partners, such as Botswana, Namibia, and plastic products to other trade partners, such as Nigeria.

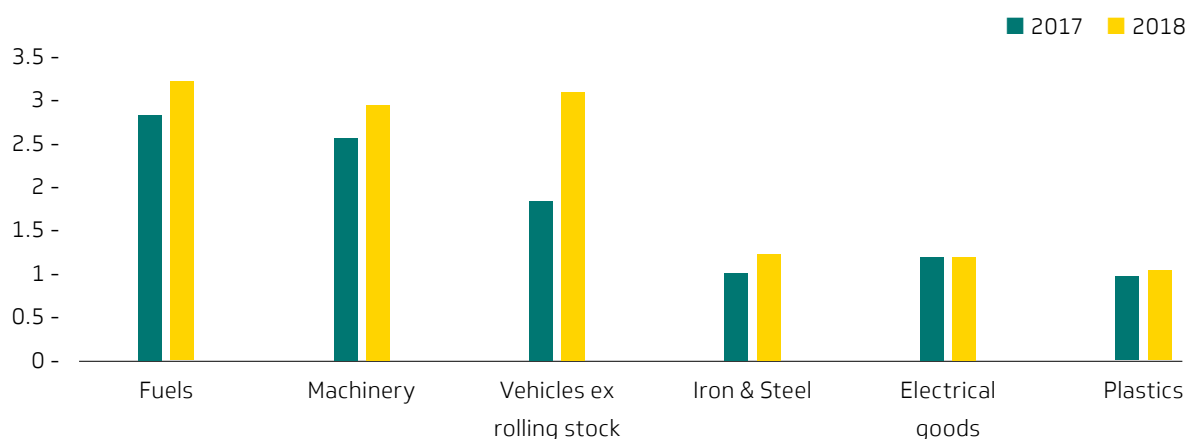
However, while Africa-South African trade is expanding, it is still largely dominated by trade with countries that are members of the Southern African Development Community (SADC). These countries accounted for more than 78 percent of African-South African trade in 2018, down from 83 percent in 2017. Three countries (Botswana, Zimbabwe, and

Figure 6.2: South Africa's Top 10 Regional Trade Partners (US\$ billions)



Source: South African Revenue Service, Afreximbank Research.

Figure 6.3: Top South African Exports to Africa, 2018 vs 2017 (US\$ billions)



Sources: South African Revenue Service, Afreximbank Research.

Mozambique) accounted for more than 30 percent of total trade between South Africa and the rest of the Continent. Diversification of South Africa's trading partners within the region is also taking hold. Trade between Nigeria and South Africa doubled in 2018 and now accounts for 12 percent of total South African trade, up from 6 percent in 2017. Trade with Democratic Republic of Congo (DRC) and Tanzania, which are among South Africa's top ten trading partners within the region, is also on the rise.

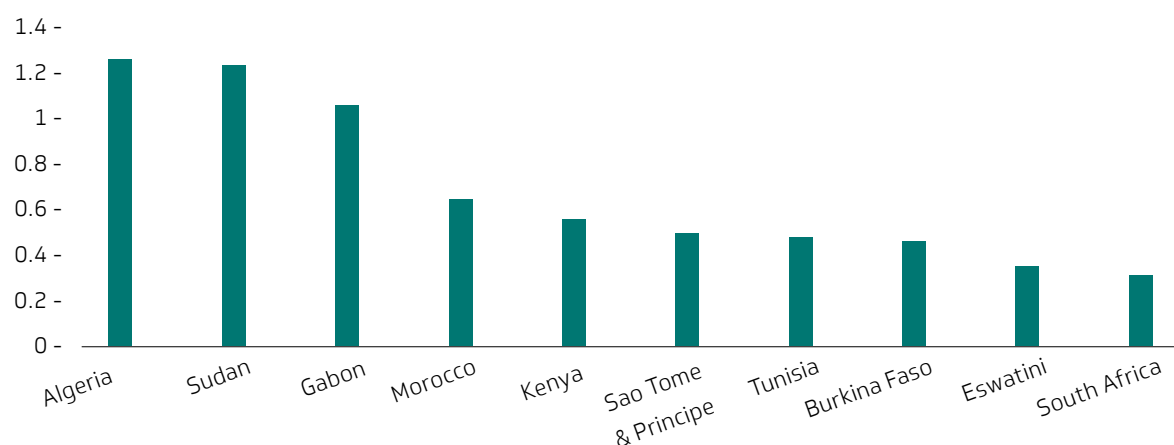
Trade between the DRC and the rest of the continent rose to US\$14.3 billion in 2018, from US\$9.6 billion in 2017, confirming its status as a major contributor to intra-regional trade within the Central African region and the second largest intra-African trade economy on the continent. Zambia and South Africa account for around 70 percent of total African trade with the DRC with both being the key African destinations for DRC's exports, which mainly comprise copper ores and base metals.

The inflows of copper from the DRC into Zambia heavily boosted the latter's standing in intra-African trade. Coupled with rising imports of vehicles, fertiliser and machinery from South Africa, Zambia's share of intra-

African trade increased significantly in 2018. Meanwhile, South Africa is also the top supplier of machinery and mechanical appliances to the DRC and an important supplier of pharmaceutical products. However, the market for pharmaceutical products, which provides an opportunity to boost both economic growth and intra-African trade, is still dominated by imports supplied from Europe and Asia. Efforts by Afreximbank to promote intra-African trade in the provision of world-class health services and access to pharmaceutical products should boost cross-border trade in medical services and pharmaceutical products in the medium and long term.

In West Africa, Nigeria grew its trade with the continent to US\$10.8 billion, up from US\$6.9 billion in 2017. Trade with Nigeria accounted for 6.8 percent of total intra-African trade, up from 5.1 percent in 2017. South Africa, Togo, and Côte d'Ivoire, traditionally the top three destinations of Nigerian exports to the rest of the continent, rely on Nigeria for fuel imports. Although the aggregate value of Nigeria's imports from Africa is lower compared with its exports, there is thriving informal cross-border trade in light manufactured products and agricultural commodities within the ECOWAS

Figure 6.4: Egypt's Top Ten Trading Partners in Africa (US\$ billions)



Source: IMF Direction of Trade Statistics (Database), Afreximbank Research

region and with neighbouring countries in central Africa, especially along their lengthy border with Cameroon.

In North Africa, Egypt's trade with the rest of the continent was 17 percent higher during 2018, reaching an estimated US\$7 billion and occupying sixth position among the largest intra-African trade countries. That notwithstanding, Egyptian authorities are looking to further boost trade with the rest of the continent, drawing on the strength of its industrial and manufacturing base in a region where industrial production accounts for the lion's share of cross-border trade.

The bilateral trade relationship is between Egypt and Kenya is growing, with Egyptian exports to Kenya increasing by 18 percent during 2018. Egypt has also indicated its commitment to help build capacity among other African countries as they seek to upgrade and promote the development of higher-productivity sectors, including manufacturing and high-end services. Egyptian trade is also likely to benefit from the lifting of a ban on agricultural exports to Sudan. Sudan is Egypt's second largest trading partner in Africa after Algeria. Prior to the ban, it was the destination of

more than 20 percent of total export of agricultural products by Egypt.

Other significant contributors to intra-African trade include Namibia, Côte d'Ivoire, Zimbabwe, and Botswana, which jointly accounted for around 15.7 percent of total intra-African trade in 2018, down from 16.5 percent in 2017. Excluding Côte d'Ivoire, South Africa remains the lynchpin for intra-African trade among these countries, facilitated by its membership in the SADC. The profile of trade between South Africa, Namibia, and Botswana is heavily biased in favour of manufactured exports from South Africa, including machinery, vehicles, aircraft and vessels, and prepared foodstuffs. By contrast, around 65 percent of Namibia's exports to South Africa consist of precious minerals and live animals, while 60 percent of exports from Botswana to South Africa are precious minerals and machinery. Meanwhile more than 35 percent of Zimbabwe's exports to South Africa consist of prepared foodstuffs. Côte d'Ivoire's imports from the rest of the region are mostly crude oil from Nigeria. It is refined and exported to regional trading partners like Mali and Burkina Faso, which are also Côte d'Ivoire's top trading partners on the continent.

6.2 Intra-African Trade Potential

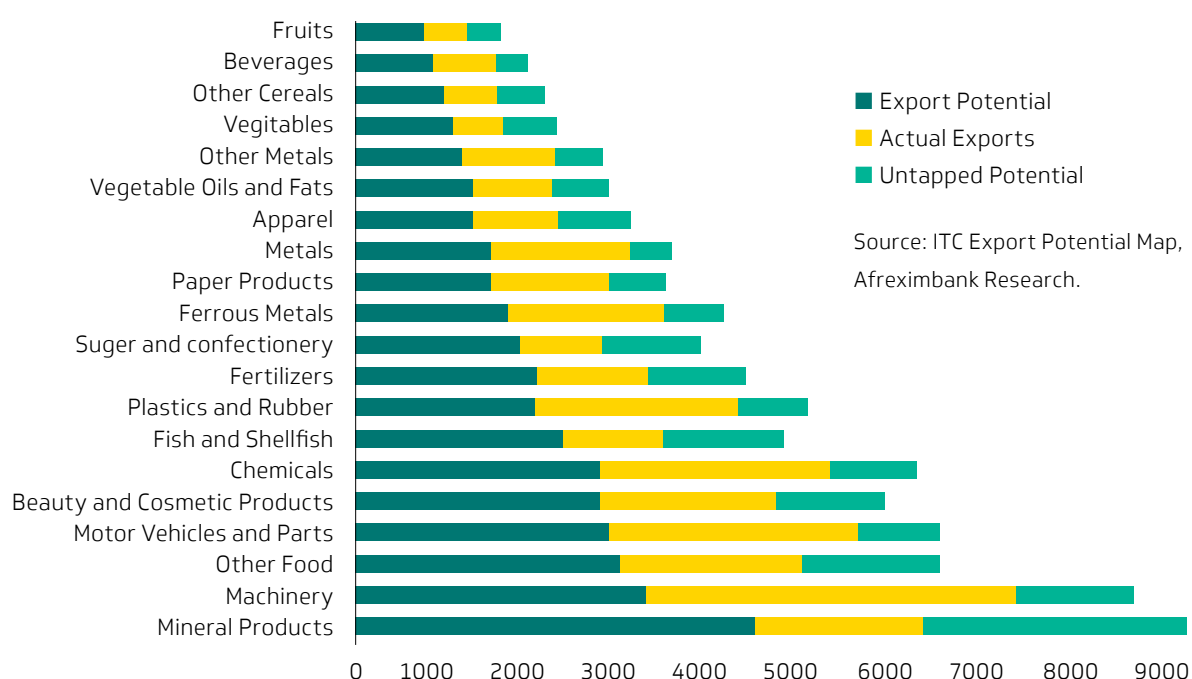
A 2017 study on intra-African market access finds that there are 2,862 potential one-way trade relationships across Africa. Of these, 830, or 29 percent, are governed by at least one active free-trade relationship (Stuart 2017). Consequently, the balance of potential trade relationships (71 percent) are governed by general trade protocols, or most-favoured nation (MFN) rates. The implementation of the AfCFTA by all African Union (AU) Member States will mark a significant shift in the balance of potential trade relationships governed by a free-trade relationship to the entire region. The ambition of trading 90 percent of tariff lines duty free under the AfCFTA creates immense opportunities for these potential trade relationships to materialise and drive intra-African trade as well as economic transformation.

Utilising an export potential assessment methodology developed by the International Trade Centre (ITC), this section assesses intra-African trade with regard to products where the greatest export potential exists. It is based on a decomposition of a sub-

region's potential exports of a product to a given target market into three factors: supply, demand, and easiness to trade. The export potential indicator (EPI) identifies products in which specific subregions have already proven to be internationally competitive and which have good prospects of export success in other African markets (Decreux and Spies 2016).

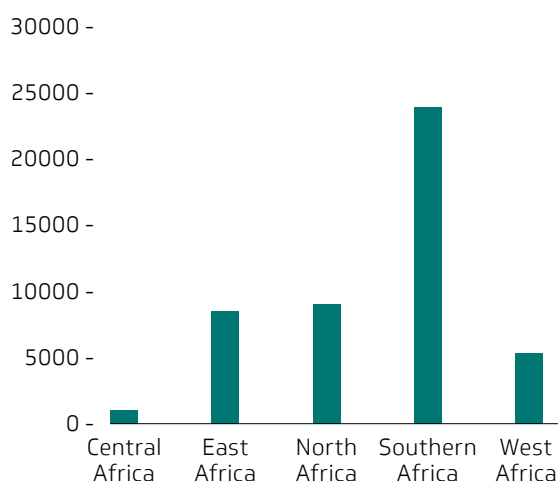
Based on the export potential assessment, taking into account proven ability to export and products that have good prospects for intra-African trade, the export potential for intra-African trade is estimated to exceed US\$48 billion and could significantly raise the current level of intra-African trade to around US\$210 billion, hypothetically accounting for more than 20 percent of total African trade, *ceteris paribus*. The ten products with the greatest export potential are mineral products, machinery, food products, motor vehicles and parts, beauty and cosmetic products, chemicals, fish and shellfish, plastics and rubber, fertilisers, and sugars and confectionery, which collectively account for over 50 percent of the total intra-African export potential (figure 6.6).

Figure 6.6: Products with greatest Intra-African Export Potential (US\$ millions)



An examination of 40 products with the greatest intra-African export potential based on each subregion's proven ability to be internationally competitive and which have good prospects for export success reveals that the subregions with the greatest export potential are Southern Africa, with export potential in excess of US\$24 billion, followed by North Africa and East Africa, with export potential of US\$9.4 billion and US\$8.6 billion, respectively. West Africa holds export potential of around US\$5.4 billion, while export potential in Central Africa is in excess of US\$1 billion (figure 6.7). The greater export potential enjoyed by Southern Africa and North Africa largely reflects the complexity and sophisticated nature of the South African and Egyptian economies in a region where industrial products and manufactured goods account for the lion's share of cross-border trade.

Figure 6.7: Intra-African export Potential by Subregion (US\$ millions)



Sources: ITC Export Potential Map, ITC Trade Map, Afreximbank Research.

6.2.1 Southern Africa's Export Potential

Southern Africa's export potential to the rest of Africa is estimated at approximately US\$23.9 billion. The products with the greatest export potential are primarily

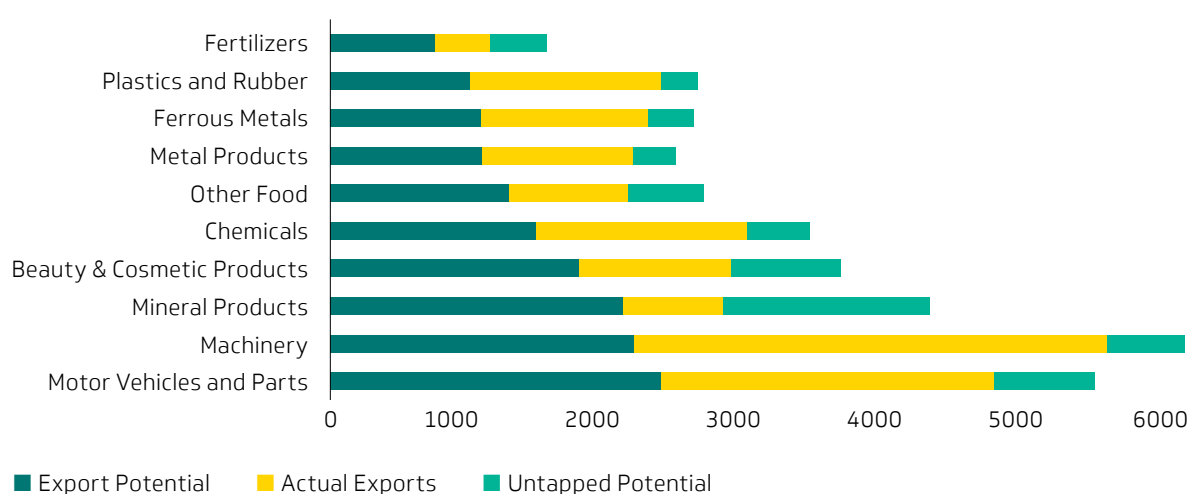
industrial products and include motor vehicles and parts, machinery, mineral products, beauty and cosmetic products, and chemical products, which collectively account for around 42 percent of the region's total export potential (Figure 6.8). The sophisticated nature of products with export potential reflects the dominance of the South African economy, with South African export potential accounting for more than 82 percent of the subregion's total export potential.

The region presenting the greatest potential for Southern African exports is the Southern African region itself, estimated at US\$10.6 billion (Figure 6.9), which reflects the level of economic integration within the SADC. The products with the greatest export potential to Southern Africa are motor vehicles, beauty products and cosmetics, and machinery. East Africa presents the second highest potential for Southern African exports, estimated at US\$9.5 billion. The products with greatest export potential are mineral products, motor vehicles and parts, and machinery. West Africa is the third region with the greatest export potential for Southern Africa, estimated at US\$1.98 billion, followed by Central Africa, with potential estimated at US\$1.8 billion. North Africa is the region with the lowest export potential for Southern Africa, estimated at US\$250 million.

6.2.2 North Africa's Export Potential

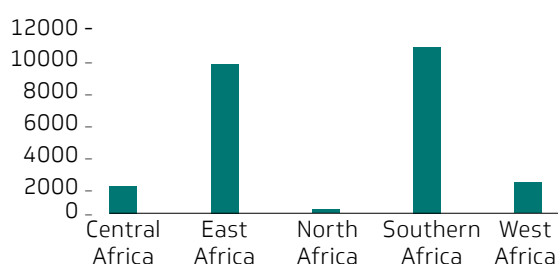
North Africa's export potential to the rest of Africa is significant, estimated at US\$9.13 billion, and with a few exceptions the products with the greatest export potential are very similar to those identified in Southern Africa. These include fertilisers; machinery; food products, sugar and confectionary; and chemicals, which collectively account for around 38 percent of the region's total export potential (figure 6.10). Much like Southern Africa, the sophisticated nature of products with export potential reflects the dominance of

Figure 6.8: Southern Africa's Export Potential—Leading Products (US\$ millions)



Sources: ITC Export Potential map, ITC Trade Map, Afreximbank Research.

Figure 6.9: Southern Africa's Export Potential by Subregion (US\$ millions)

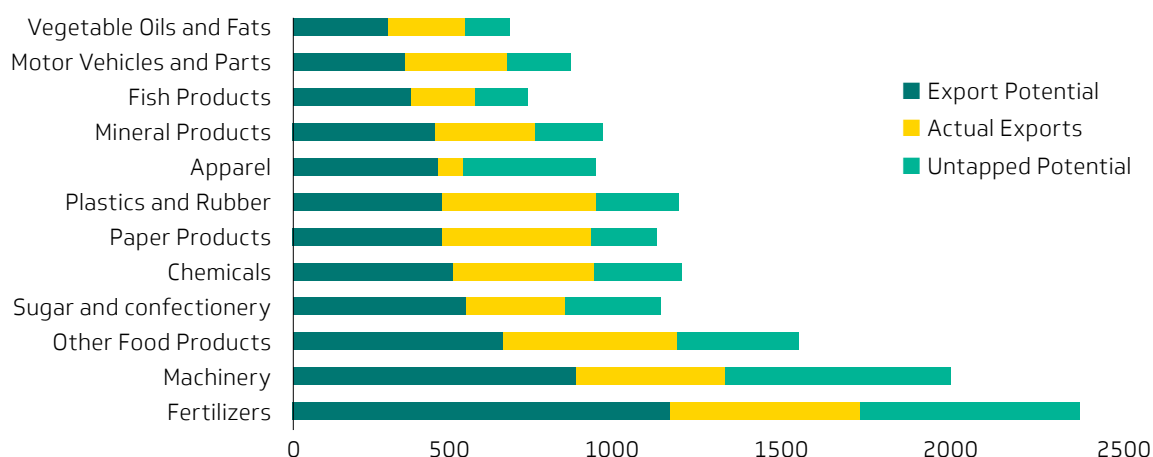


Sources: ITC Export Potential map, ITC Trade Map, Afreximbank Research.

the Egyptian economy, with Egyptian export potential accounting for around 50 percent of the subregion's total export potential.

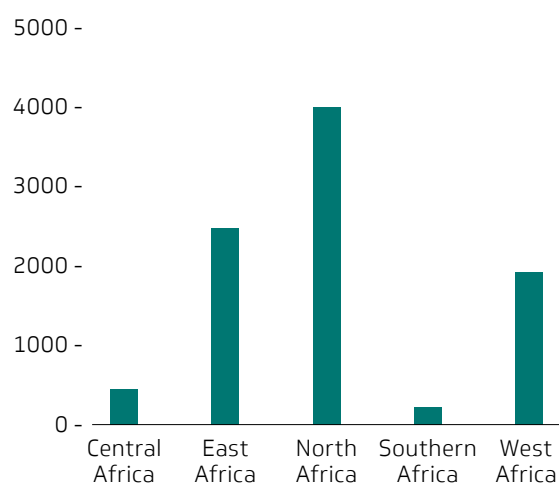
The region presenting the greatest export potential for North Africa is the North African region itself, estimated at US\$4 billion (figure 6.11). The products with greatest export potential to North Africa are machinery, chemicals, food products, and mineral products. North Africa's two neighbouring regions of East and West present the second and third highest potential for North African exports,

Figure 6.10: North Africa's Export Potential—Leading Products (US\$ millions)



Sources: ITC Export Potential map, ITC Trade Map, Afreximbank Research.

Figure 6.11: North Africa's Export Potential by Subregion (US\$ millions)



Sources: ITC Export Potential map, ITC Trade Map, Afreximbank Research.

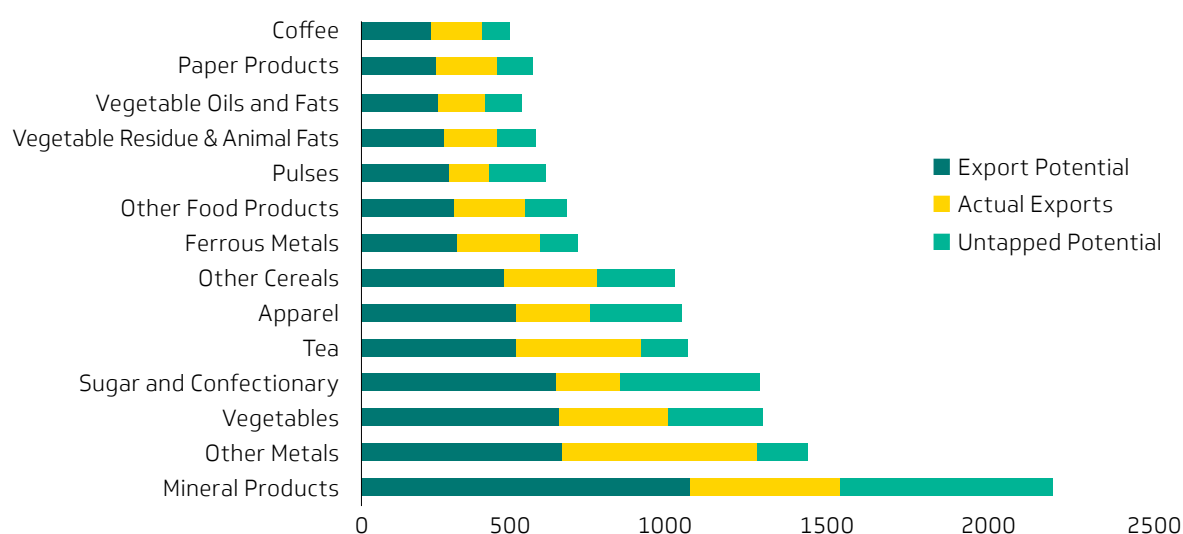
estimated at US\$2.5 billion and US\$1.9 billion, respectively. The products with greatest export potential to East Africa are fertilisers, sugars and confectionery, and other food products, and those to West

Africa are fertilisers, fish products, and sugars and confectionery. North Africa's export potential to Central and Southern Africa is significantly lower, estimated at US\$444 million and US\$ 254 million, respectively.

6.2.3 East Africa's Export Potential

East Africa's export potential to the rest of Africa is estimated at US\$8.6 billion, about 18 percent of total intra-African export potential. The products with the greatest export potential include mineral products, metals, vegetables, sugar and confectionery, tea, and apparel, which collectively account for around 44 percent of the region's total export potential (figure 6.12). While the products with the greatest export potential are similar across regions, one product that stands out in East Africa is tea. Kenya, Uganda, Malawi, and Rwanda are leading producers of tea in the world with a sizeable share, almost 75 percent, exported outside of Africa. This analysis suggests that the growing African market could be the next frontier for growth opportunities in this sector.

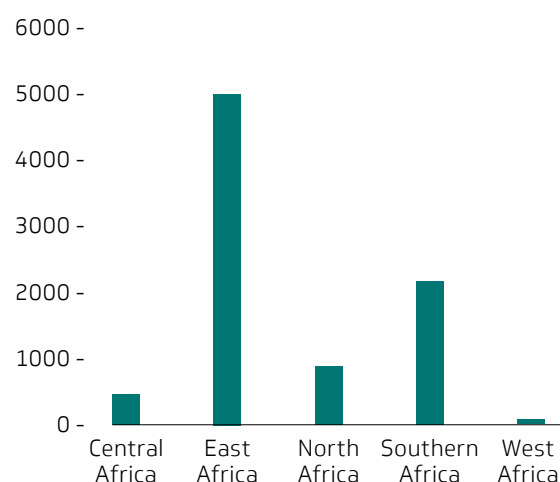
Figure 6.12: East Africa's Export Potential-Leading Products (US\$ millions)



Sources: ITC Export Potential map, ITC Trade Map, Afreximbank Research.

Consistent with the export potential in other subregions, the region presenting the greatest export potential for East African exports is the East African region itself, estimated at US\$5.03 billion (figure 6.13), accounting for around 58.5 percent of total East Africa export potential. The products with greatest export potential are vegetables, sugar and confectionery, cereals, mineral products, food products, ferrous metals, and paper products. Southern Africa is the region presenting the second highest potential for East African exports, estimated at US\$2.2 billion. The products with greatest export potential are minerals, apparel, metals, sugars and confectionery, and miscellaneous manufacturing products. North Africa ranks as the region with the third greatest export potential for East Africa, estimated at US\$880 million, followed by Central Africa, with potential estimated at US\$505 million. West Africa is the region with the lowest export potential, estimated at US\$95 million.

Figure 6.13: East Africa's Export Potential by Subregion (US\$ millions)



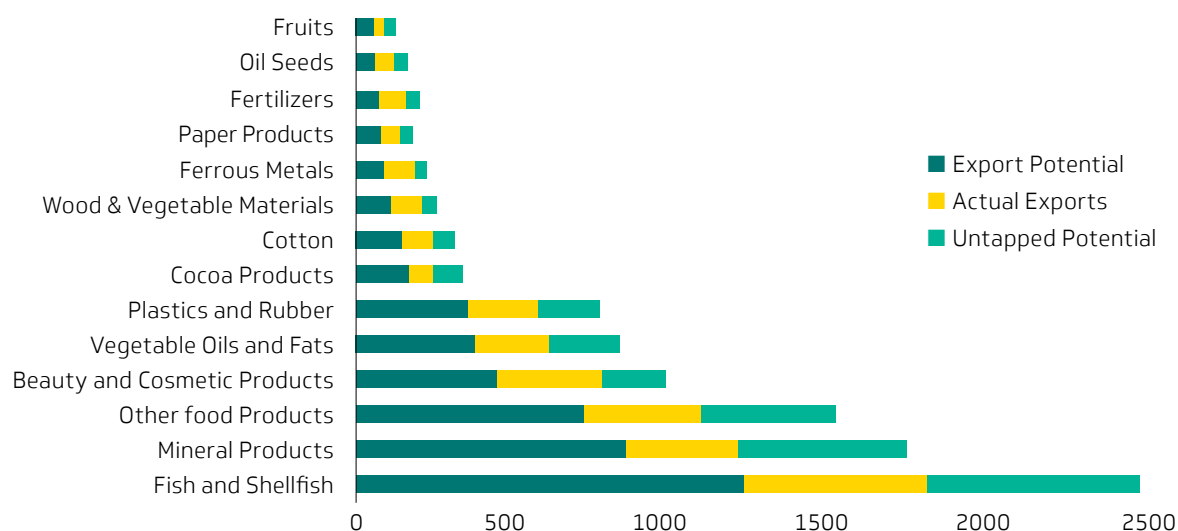
Sources: ITC Export Potential map, ITC Trade Map, Afreximbank Research.

6.2.4 West Africa's Export Potential

West Africa's export potential to the rest of Africa is estimated at US\$5.4 billion, about 11.3 percent of total intra-African export

potential. The products with the greatest export potential include fish and shellfish, mineral products, food products, metals, beauty and cosmetic products, vegetable oils and fats, plastics and rubber, cocoa products, and cotton, which collectively account for around 79 percent of the region's total export potential.

Figure 6.14: West Africa's Export Potential-Leading Products (US\$ millions)



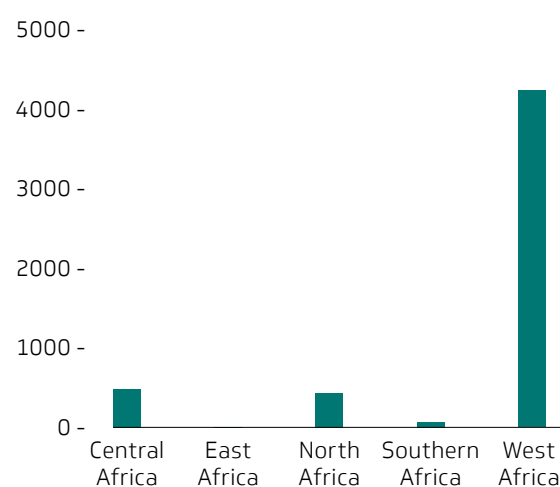
Sources: ITC Export Potential Map, ITC Trade Map, Afreximbank Research.

The region presenting the greatest export potential for West African exports is the West African region itself, estimated at US\$4.3 billion (figure 6.15), accounting for around 80 percent of West Africa's export potential to the rest of Africa. The products with greatest export potential within West Africa are vegetables, sugar and confectionery, cereals, mineral products, fish and shellfish, food products, beauty products and cosmetics, vegetable oils and fats, and plastics and rubber. Central Africa is the region presenting the second highest potential for West African exports, estimated at US\$513 million. The products with greatest export potential are largely similar to those with export potential to West Africa, including fish and shellfish, food products, plastics and rubber, minerals, and vegetable oils and fats. North Africa ranks as the region with the third greatest export potential for West Africa, estimated at US\$440 million, followed by Southern Africa, with at US\$88.5 million. East Africa is the region with the lowest export potential for West Africa, estimated at US\$53 million.

6.2.5 Central Africa's Export Potential

Central Africa's export potential to the rest of Africa is estimated at US\$1 billion, in part

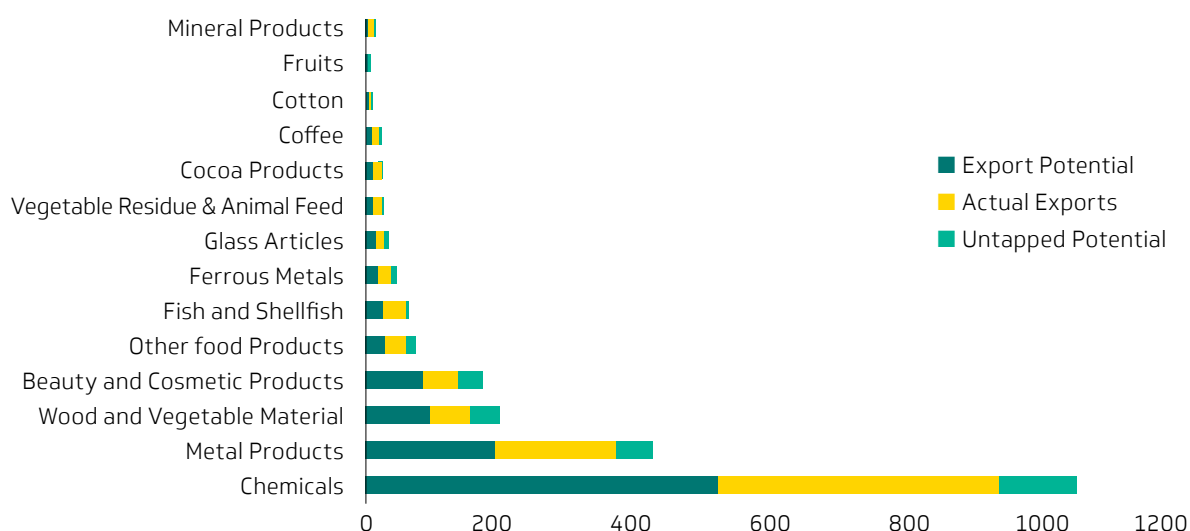
Figure 6.15: West Africa's Export Potential by Subregion (US\$ millions)



Sources: ITC Export Potential map, ITC Trade Map, Afreximbank Research.

reflecting and confirming the historically poor performance of the subregion in intra-African trade. While countries across Africa tend to trade less with each other than with the rest of the world, the extroverted nature of trade has been most prevalent within Central Africa than other subregions. The products with the greatest export potential include chemicals, metal products, wood and vegetable materials, beauty products,

Figure 6.16: Central Africa's Export Potential-Leading Products (US\$ millions)

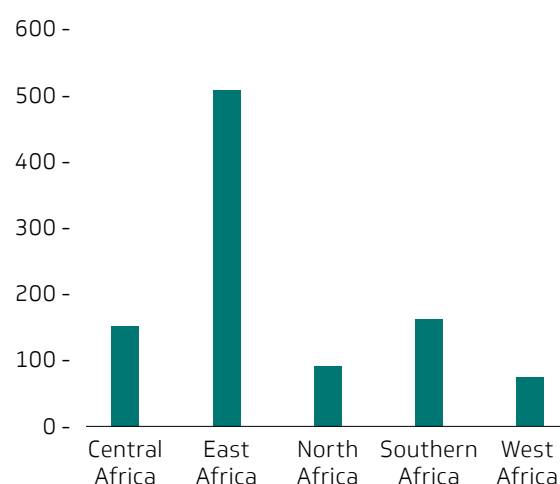


Sources: ITC Export Potential Map, ITC Trade Map, Afreximbank Research.

food products, fish and shellfish, and ferrous metals, which collectively account for around 92 percent of the region's total export potential.

In contrast to other subregions where the greatest export potential resides within the subregion, the subregion presenting the greatest export potential for Central African exports is East Africa, estimated at US\$511 billion (figure 6.17). The products with greatest export potential to East Africa are chemicals, metal products, wood and vegetable materials, paper products, crops, vegetable residue and animal feed, and cotton. Southern Africa has the second highest potential for Central African exports, estimated at US\$164 million. The products with greatest export potential are metal products, wood and vegetable materials, precious metals, and fish and shellfish. Central Africa ranks as the region with the third greatest potential for Central Africa exports, estimated at US\$156 million, followed by North Africa, with potential estimated at US\$94 million. West Africa is the region with the lowest export potential, estimated at US\$76 million.

Figure 6.17: Central Africa's Export Potential by Subregion (US\$ millions)



Sources: ITC Export Potential map, ITC Trade Map, Afreximbank Research.

6.3 Developments in Intra-African Trade

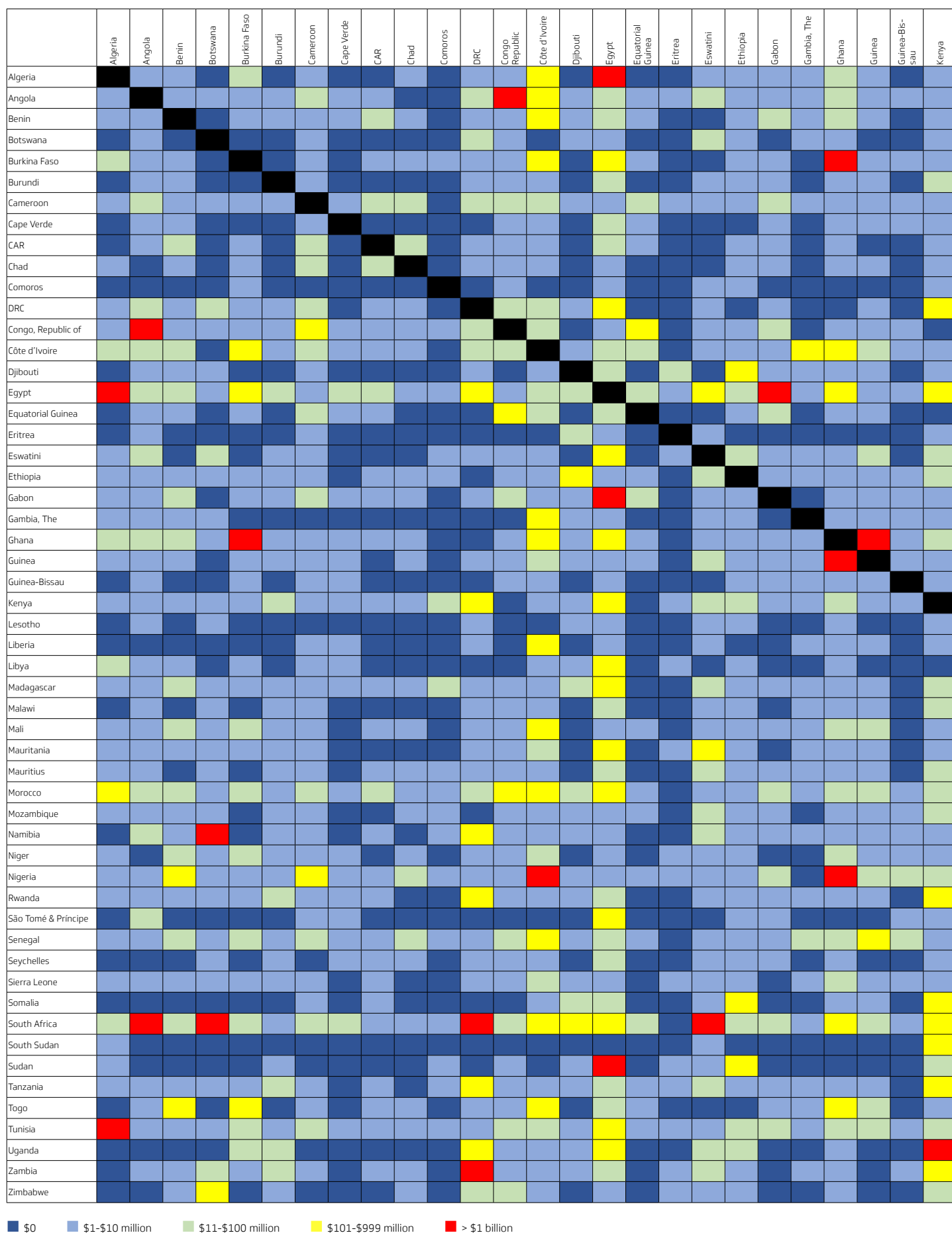
One of the key developments in intra-African trade in 2018 was the signing of the Agreement formally establishing the African Continental Free Trade Area (AfCFTA) in March 2018. The AfCFTA brings together 55 African countries with a combined population of more than 1.2 billion people and a combined gross domestic product of more than US\$2.5 trillion. It is one of the world's largest free trade areas and a single continental market for goods and services, with free movement of business, persons, and capital. The AfCFTA is an important step toward rationalising Africa's regional trade arrangements to deepen economic integration and draw on economies of scale to accelerate the structural transformation of African economies.

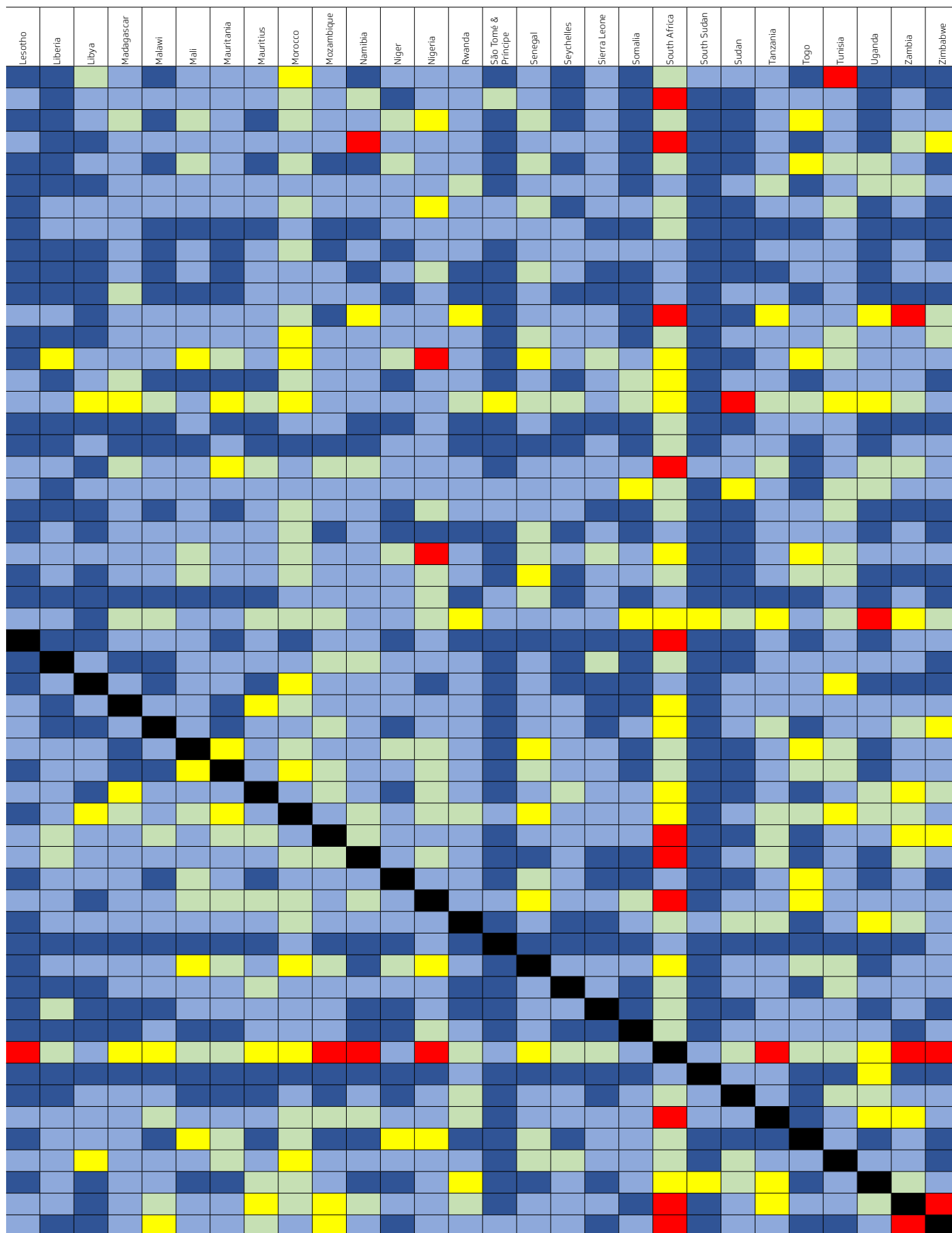
The Agreement offers tremendous opportunities for the development of regional value chains and could boost intra-African trade, which is expected to more than double within the first decade of its implementation. At the end of 2018, 44 out of the 55 AU Member States had signed the consolidated text of the AfCFTA Agreement while 15 states had ratified the Agreement. The AfCFTA has since been ratified by 22 countries, the minimum threshold required for the Agreement to become operational. Preliminary estimates and simulations suggest that the AfCFTA could significantly expand industrial production and intra-African trade. Research conducted by the Afreximbank shows that as intra-African trade comprises a higher skill and technology content compared to extra-African trade, which suggests that the AfCFTA could accelerate diversification of sources of growth and trade (Afreximbank 2018). Empirical evidence shows that intra-African trade in industrial products could increase by US\$60 billion annually if implementation of the AfCFTA is accompanied by robust trade-facilitation measures.

Afreximbank supported the official signing ceremony of the AfCFTA, sponsoring several strategic events organised by the AU during the historic gathering of African Heads of State in Kigali. The Bank is also supporting the implementation of the Agreement. In particular, it jointly organised the first-ever Intra-African Trade Fair (IATF) in December 2018. The Trade Fair introduced African buyers to African sellers, shared trade, investment, and market information, and facilitated the signing of trade deals. The Trade Fair, which will become a biennial event, will contribute to the Bank's objective to increase intra-African trade from US\$156 billion in 2018 to US\$250 billion during the implementation of Plan V, and by so doing, ensure that the intra-

African trade share of Africa's total trade reaches 22 percent by 2021. The 2nd edition of the Intra-African Trade Fair will be hosted in Kigali, Rwanda. The Bank is also working closely with the AU Commission to support implementation of the AfCFTA through a number of other strategic initiatives, including the development of an intra-African Trade Payments and Settlement Platform, which will facilitate the clearing and settlement of intra-African trade transactions in African currencies, and establishment of a Pan-African Private Sector Trade and Investment Committee, as an advocacy platform to enhance African private sector participation in trade negotiations and investment policy formulation.

Figure 6.18: Intra-African Trade Heatmap





7

Chapter Seven



Potential Implications of Digital Transformation for Intra-African Trade

7.1 Introduction and Rationale

The conjunction of increasing technological changes and the quest for efficiency and cost-effectiveness in the production and delivery of goods and services has brought technology and development even closer in a new world of digitalisation. Under that strengthening co-dependency between technology and development, digital technologies are integrating all aspects of organisations and business processes. They are also dramatically altering the traditional pathway to industrialisation and could accelerate the process of structural transformation to shift the patterns of growth and trade in low-income countries (Luke and Sommer 2018). They are also revolutionising payment and delivery systems and expanding market access, as well as trade and investment opportunities at national and global levels.

Preliminary estimates show that digital transformation is already a major driver of growth, contributing to over 5 percent of GDP in 2017. Its impact has also been significantly positive in the trade arena, where estimates show that digitalisation boosted global trade to the tune of about 3 percent in 2017 (World Bank 2016, UNCTAD 2018). The globalisation of online platforms and the speed of information flows are virtually flattening the world, connecting

buyers and suppliers located in different countries and continents in real time. They are enabling the flow of large amounts of data, which have become major assets in the business and political arenas.

Digitalisation is enabling large multinational companies to draw on the growing number of online platforms to tap into the rising African middle class and expand their growth opportunities. While in Africa the impact of digitalisation has primarily been felt in financial inclusion as well as cost reduction and increased efficiency in the financial industry, the benefits in the real sector are increasingly visible, especially in trade in services. The boom in the entertainment industry is driving the growth of digitally enabled transactions. This chapter examines the state of digital transformation and trade in Africa and reviews the role that the ongoing process of digital transformation could play in lifting key constraints to boost cross-border trade in the digital era.

7.2 The State of Digital Transformation and Trade

While digitalisation involves the use of digital technologies including information and communication technology (ICT) platforms for enhanced connectivity and flow of goods and services, digital

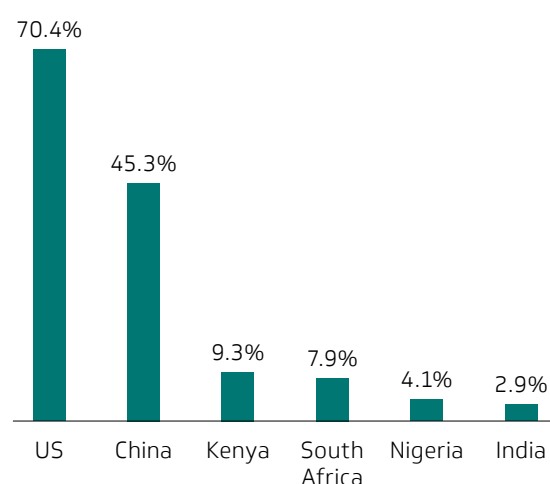
trade does not lend itself to a generally recognised single definition, although there is growing consensus that it embodies digitally enabled transactions in trade in goods and services that can be digitally or physically delivered (Lopez-Gonzalez and Jouanjean 2017). Digital trade covers digitally delivered software, e-books, data, and database services, while digitally enabled but physically delivered goods and services include online purchase of goods and services or a hotel booking through a matching service. It involves business-to-business (B2B) transactions, including within global value chains, as well as transactions between consumers or businesses through online platforms.

Digitalisation is already a powerful force in the global arena. It is increasing trade in goods and services across all sectors and allowing countries to draw greater benefits from their trade agreements. Counterfactual estimates of the impact of digitalisation on trade are positive and significant. A 10 per cent increase in bilateral digital connectivity raises goods traded by nearly 2 percent and trade in services by over 3 percent (OECD 2019). E-commerce, which has posted phenomenal growth over the last few years, has become a major driver of global trade. Official statistics related to leading e-commerce markets, including business-to-business, and business-to-consumers e-commerce, suggests that global e-commerce exceeded US\$2 trillion in 2017 (<https://www.digitalcommerce360.com/article/global-ecommerce-sales/>). Recent estimates are even higher, with global e-commerce reaching US\$2.86 trillion in 2018, up by about 18 percent. More than highlighting the robust and sustained rates of growth of e-commerce, this may well reflect the irreversibility of the process of increasing digitalisation of trade.

However, the ongoing globalisation of digital transformation has not been uniform. Leading economies with both diversified manufacturing bases and high quality of

digital and physical infrastructures are leading and reaping the benefits of digital transformation. In the e-commerce space, China has become the world's largest B2C e-commerce market (US\$617 billion), followed by the United States (US\$612 billion) (UNCTAD 2018). However, the United States reported the largest B2B market, worth more than US\$6 trillion, well ahead of Japan (US\$2.4 trillion). Except for China, no developing country was among the top 10 e-commerce markets in 2018. Figure 7.1 highlights the contrast between leading African digital economies and the two global leaders of digital trading (China and the United States).

Figure 7.1. : Have you bought something online in the last year?



Source: Digital Commerce 360 Database

Despite the remarkable growth of digital trade and the positive outlook, digitally traded goods and services are still largely carried out within national geographic boundaries, according to the limited information and data available. In 2015, cross-border business-to-consumer (B2C) e-commerce amounted to US\$189 billion, with some 380 million customers making purchases on overseas websites (UNCTAD, 2018). This represented just about 1.4 per cent of total merchandise imports and was equivalent to about 7 per cent of domestic business-to-consumer e-commerce.

Whether in the B2B sales or B2B markets, the digital economy, just like the physical one is largely dominated by advanced and leading emerging and developing market economies. In these countries, producers of goods and services are drawing on digitalisation to reach new markets, track global supply chains, analyze big data to grow their market shares and create new

products and services. The preeminence of leading economies, and alignment between the digital and physical trade mainly reflects the composition of digitally traded goods which are largely sophisticated manufactures, and digitally deliverable services (OECD, 2018). Figure 7.2 highlights the impact of digitalisation on trade in goods and services.

Figure 7.2. Impact of Digitalisation on Trade in Goods and Services



Note: This figure shows the percentage increase in exports because of a 10 per cent increase in bilateral digital connectivity derived from a gravity model.

Source: Lopez-Gonzalez and Ferencz (2018).

But for the successful corporations and countries on the digital transformation path, investment in digital technologies and infrastructure is equally important. These entities are expanding digital technologies and infrastructure to achieve greater connectivity across the globe. They are investing heavily in data and digital services, which are increasingly an integral part of the new economy (World Bank, 2016; OECD, 2019). They are also leading innovation in critical frontier areas, including artificial intelligence, cloud computing, digitally integrated machines, and big data, which are expected to fundamentally change the structure of the global economy and expand the boundaries of digital trade. In the digital era, the internet has emerged not only as an international trade enabler, but also as a platform for new digitally originated services facilitating the technological shifts that are transforming business.

7.3 The State of Digital Transformation in Africa

Although the state of digital trade in Africa is expected to mirror global trends whereby e-commerce is primarily carried out within national geographic boundaries, recent developments have been very encouraging. Digital trade is on the rise in Africa, where the number of online shoppers has consistently grown by more than 18 per cent yearly since 2014, higher than the global average. In countries with sophisticated production structures and higher internet penetration, the rate of growth of e-commerce has been even higher. In 2017, e-commerce grew by more than 25 per cent in South Africa and by more than 27 per cent in Kenya, exceeding initial forecasts.

According to a 2017 KPMG Report, Africans performed a per-person average of 11 online transactions per year. Although this figure may sound very low compared to world averages, the region was on par with similar Eastern European developing

economies, and ahead of Latin America. The United Nations Conference on Trade and Development (UNCTAD)'s latest B2C e-commerce index ranks 151 countries globally, including 44 African nations, by measuring readiness for online shopping. Mauritius, which has achieved the highest rate of financial inclusion in the region (90 per cent) was the highest ranked African country on the index. Nigeria was the second highest ranked country and the continent's largest e-commerce market by number of shoppers and revenues, while South Africa ranked third.

Products traded digitally varies across countries and corporations. Nigeria's Jumia has over 4 million customers in 14 African countries. Jumia digital trade covers electricals and electronics, fashion, furniture, arts and crafts, health and beauty and jewelry, among others. Other large digital trade platforms in Africa are Kenya's Kilimall, which also sells in Nigeria and Uganda, and Takealot from South Africa, which offers storage services, while Tonaton and Trade Africa Online are both in Ghana. Cheki has a presence in Kenya, Nigeria, Tanzania, Ghana, and Uganda. Trade Africa Online specializes only on fashion products originating from Africa. These e-commerce platforms provide additional opportunities to boost intra-African trade, which is already expanding in the services and entertainment industry, where content development by Nollywood/ Ghallywood have been major drivers of growth.

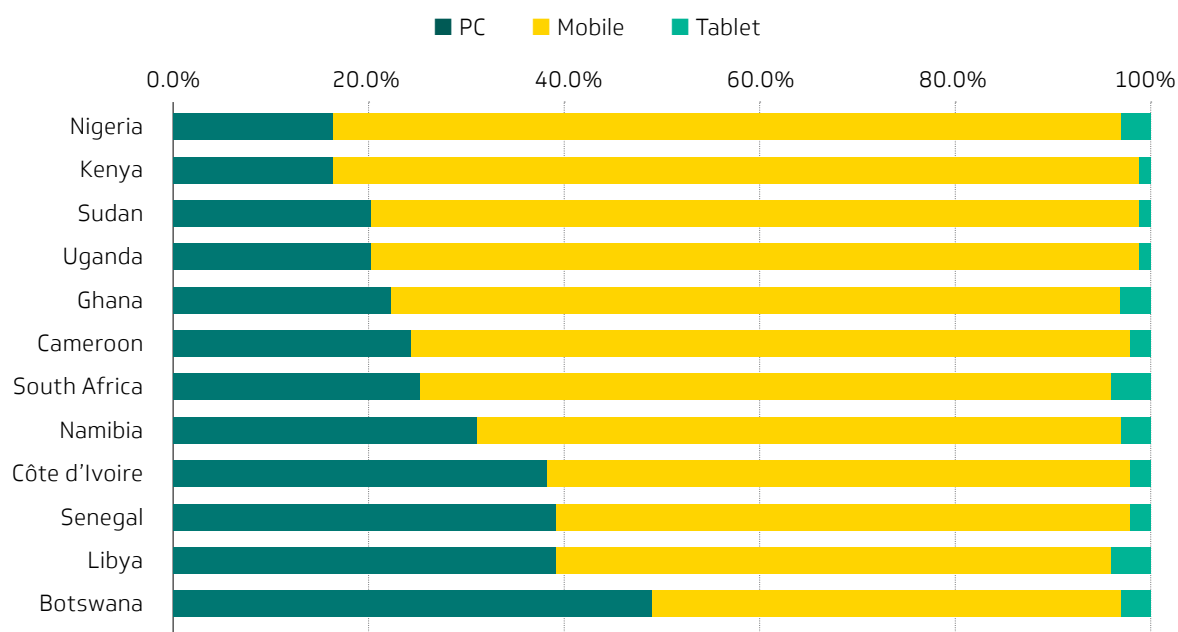
The rise of digital trade across the region reflects the increasing use of mobile and smart phones, which accounts for over 60 percent of combined traffic in leading countries such as Nigeria and Kenya (Figure 7.3). Countries with the highest rate of mobile phone subscriptions are leading the growth of digital trade. These include South Africa, Nigeria, Senegal, Ghana, Kenya, Tanzania, and Uganda. The growth of digital trade is also the consequence of innovations, which have seen the emergence of



platforms for enhanced economic activities, including in the areas of money transfers, e-commerce, savings and investment, and health services delivery. Such platforms

include M-Pesa, M-Shwari, M-Akiba in Kenya, M-Pawa in Tanzania, Mokash in Rwanda and Uganda, and BIMA for mobile health delivery and insurance services in Ghana.

Figure 7.3. : Distribution of web traffic in selected African countries as of January 2018, by device



Source: Statista Database



Furthermore, Aledin Nano and Jamii Africa, two innovative companies, are taking traditional financial products and leveraging technology to distribute micro-lending and micro-insurance services to low-income people, raising financial inclusion to support trade in the process. Major online platforms, such as Kilimall, Cheki, and Trade Africa Online, are leading the innovation and promotion of digital trade in Africa.

7.4 Potential for Digital Trade in Africa

Despite the growth observed over the last few years, digital trade remains very low in Africa even by developing country standards. Estimated at US\$5.7 billion in 2017, the continent's consumer e-commerce market is less than 0.5 percent of its combined GDP, compared to a global average of 4 per cent (Kazeem, 2018). The relatively low level of cross-border trade in the digital sphere is at odds with performance in other regions, including other region of the developing world where digitalisation has been a major boost to intra-regional trade.

The internet is playing a growing role in the service revolution in Latin America, fueling the region's cross-border trade in financial, logistics, and education services (Suominen 2017). For instance, eBay's data shows that in Chile, 100 per cent of online sellers export, selling to an average of 28 markets—as opposed to the 18 percent of Chilean offline companies that export, and which export typically to two markets. Likewise, Mercado Libre, the largest online marketplace, has been a major force in the growth of cross-border trade (World Bank 2016). It has operations in 15 countries, where it is connecting buyers and sellers within and across countries in Latin America and providing online payment services for the regular businesses that do not have bank accounts.¹ As of 2016, Mercado Libre had 174.2 million users across Latin America.

The growth of cross-border digital trade has been even more significant within

1 These countries include Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Mexico, Ecuador, Guatemala, Honduras, Peru, Panama, Uruguay, and Venezuela.

the European Union single market. Digital trade is increasingly the main vector of transactions, and the statistics have been phenomenal, especially since the adoption of the EU Single Digital Market. More than 1 million EU businesses are already selling goods and services via online platforms, and more than 50 per cent of small and medium enterprises (SMEs) selling through online marketplaces sell across borders. By 2017, the European B2C e-commerce turnover was forecast to reach Euro 602 billion, at a growth rate of nearly 14 percent.

Cross-border digital trade could achieve similar growth rates in Africa, especially at a time when the entry into force of the African Continental Free Trade Area Agreement (AfCFTA), is expected to unify the fragmented markets to create a market of 1.2 billion consumers, and provide tremendous opportunities for intra-African trade. Already a growing number of African web-based platforms and portals promoting cross-border digital trade within the region have emerged in recent years.

These include Trade Africa Online, which is using cutting-edge electronic applications to facilitate the exchange of goods and services between African manufacturers, merchants, and consumers; and Jumia, a pan-African e-commerce platform which successfully went public on the New York Stock Exchange this year. By the end of 2018, Jumia had operations in 14 African countries, where it is connecting sellers with consumers and ensuring shipment and delivery of goods from sellers to consumers through its logistics services.² It also provides payment services to facilitate transactions among participants active on its platforms in selected markets. It has partnered with more than 81,000 local African companies and individuals across the region.

² These countries include Algeria, Cameroon, Egypt, Morocco, Ivory Coast, Ghana, Kenya, Nigeria, South Africa, Tanzania, Tunisia, and Uganda.

Unlike the first generation of online African platforms, such as Mall for Africa, which have connected African consumers to offshore e-commerce sites (including Gap, Macy's, and Best Buy, among others) the second generation of African online platforms is effectively promoting economic growth within the region. It is facilitating the expansion of intra-African trade by connecting sellers and buyers of locally produced goods and services within the continent. Jumia recently announced that it will begin linking African consumers with offshore online malls under its newly launched Jumia Global platform. In a move that will bring Jumia into direct competition with the likes of Mall for Africa, the new entity will enable African importers to buy goods from western e-commerce sites.

Western online platforms, which together with Chinese platforms are dominating digital trade, primarily source digitally traded goods locally. Thus, the growth and expansion of their global market share is generally at the expense of producers in the developing world. Africa has been the prime victim of their global expansion. In this context, it is not surprising that with the support of corporations in the real sector, the largest technology companies that are global leaders in digital trade have launched a global campaign to rewrite the rules of the global economy to consolidate their business model.

These companies are pushing for a free online digital market with a global digital single market which will enable them to gain access to markets globally and in the process achieve global dominance. They are extracting and controlling personal and business data around the world; they are locking in deregulation and evading future regulations. These companies are also taking advantage of the mobility and intangibility of digital goods and services to avoid taxes. They are creating an uneven playing field that is hurting competitors who are running traditional business and complying with traditional tax models.



However, in addition to sharpening competition from global giant technology companies in advanced and leading emerging economies, the relatively low level of digital trade in Africa is also the result of several constraining factors. These include the poor quality of digital infrastructure, which has kept Africa at the bottom of the global digital divide. Africa continues to exhibit a very low rate of internet penetration—about 36 per cent in 2019, against a world average of 56 percent (MMG 2019). The deficit of physical infrastructure also poses a major logistical constraint for delivery of digitally traded goods delivered physically.

Another major challenge is supply side constraints, exacerbated by the deficit of industrialisation and continued reliance on primary commodities and natural resources in new development models where manufactured goods with increasing technological content account for the lion's share of digital trade. Liquidity risks in a region where cross-border trade is largely

carried out in foreign currency are another major constraint to digital trade in Africa. Several institutions and governments are carrying out initiatives to alleviate these constraints at the national, continental, and global level.

7.5 Overcoming Constraints to Cross-border Trade in the Digital Era

The vibrancy of e-commerce on the continent has been more pronounced at the national level than across borders. One limiting factor is the absence of transnational clearing houses and settlements in the context of fragmented payment and settlement systems, limited access to hard currency, and the lack of convertibility of most currencies across the continent. Digitalisation and innovation in digital technologies and payments are providing new options for supporting cross-border trade. One emerging innovative

initiative is Afreximbank's Pan-African Payment and Settlement Platform, which provides digital payment infrastructure to mitigate this challenge by facilitating trade payments and settlements in national currencies to foster intra-African digital trade.

The information gap and the associated high cost of accessing relevant information have been additional constraints to trade in the physical arena and will also be a challenge for digital trade. Indeed, the persistent lack of information and knowledge about trade opportunities in Africa is a major obstacle to African trade and most importantly intra-African trade. The Bank's Intra-African Trade Fair, together with the Trade Information Portal, a continent-wide trade information portal in partnership with other stakeholders such as the African Union, will facilitate the process of finding new business and trading partners and supporting business transactions between buyers and sellers on the continent and beyond.

Supply-side issues have been major constraints to expanding intra-African trade in the physical trade space and will continue to be a challenge in the digital trade space. Thus, there is an urgent need to diversify the sources of growth to drive intra-African trade, currently dominated by industrial products and manufactured goods. This has been carefully articulated in the Bank's Industrialisation and Export Development Pillar of its Plan V. To realize this, the Bank is contributing to the establishment of industrial parks across the continent. At the continental level, the AfCFTA, which is being implemented alongside its sister initiative, the Boosting Intra-African Trade action plan, provides the framework for addressing challenges to intra-African trade and industrialisation and should further accelerate the transformation of African economies (Luke and Sommer 2018).

For goods purchased digitally and delivered physically, infrastructure will remain

a constraint to the growth of digital trade within the region. The cost of the infrastructure deficit for digital trade could be particularly large in Africa, where the shortage and poor quality of both physical and digital infrastructure are still the norm in most countries. Through NEPAD at the continental level and national strategies, development finance institutions are supporting and funding infrastructure projects across the region.

Leading stakeholders such as the government of China, through its policy lending institutions, the World Bank, the African Development Bank, and the African Export-Import Bank, is financing trade-enabling infrastructure (ICA 2018). Despite these efforts, infrastructure financing gaps remain significant across the region, in excess of between US\$68-108 billion annually, for the development of physical infrastructure alone. This points to still more major challenges in the short and medium term.

At the global level, initiatives are being undertaken to promote digital trade. The World Trade Organisation (WTO), together with 70 countries issued a Joint Statement on Electronic Commerce to "initiate exploratory work toward future WTO negotiations on trade-related aspects of electronic commerce" at the Eleventh Ministerial Conference of the WTO in December 2017. UNCTAD has "e-Trade for All" initiative with some African countries actively involved. The "e-Trade for All" is a platform through which policymakers can deepen their understanding of the opportunities, challenges, and solutions relating to leveraging digital trade for development. Countries such as Côte d'Ivoire have used resources of the International Trade Centre to develop e-strategies. Doing so could help optimize the gains of digital trade, rather than being seen as a threat to African industrialisation.

The OECD's new Digital Services Trade Restrictiveness Index (DSTRI) is a new

tool that identifies, catalogues, and quantifies cross-cutting barriers that affect services traded digitally. It consists of two components, the regulatory database and indices, which bring together comparable information from 44 countries. The DSTRI shows a diverse and complex global regulatory environment affecting trade in digitally enabled services. The index aims to accurately capture the flow of data related

to digital trade for policy and dialogue purposes. The African Union's Digital Transformation for Africa: leaping into the African Century strategy-highlights the importance of digitalisation for inclusive growth and economic transformation in Africa. Digital transformation is among the top priorities of the African Union's long-term development strategy articulated under Agenda 2063.

Box 7.1: Blockchain Technologies and Trade

Technological progress and innovations have been the main drivers of economic transformation and trade since the first industrial revolution. In recent years, the process of digitalization made possible by advances in information and communication technology (ICT) has pushed the boundaries of innovation in financial industry payment systems. A digital currency is no longer far-fetched, especially with the emergence of blockchain technology, which offers a secure and efficient method of exchanging and validating information.

A blockchain is a secure, decentralized, and distributed record, or "ledger," of information that is stored in a permanent and unalterable way across a network of participating computers that no single party can control. Authentication of transactions is done through cryptographic and mathematical consensus protocols. Participants with no particular trust in one another can collaborate without having to rely on a trusted third party. This technology is designed to guarantee systematic transparency and traceability of transactions and information. It offers a wide range of business applications, with the potential for changing the trajectory of business costs and competition.

In the trade finance and insurance industries, the application of blockchain technology has enabled easier and faster processing of documentation and, at the same time, facilitated less costly cross-border payments. The adoption of this new technology is already a source of large efficiency gains. The first trade finance transaction undertaken using blockchain was completed in record time—less than 24 hours, in contrast to the typical period of 5 to 10 days for a conventional, paper-based process (Bain & Company 2018). The innovative blockchain-based know-your-customer (KYC) solutions have made the KYC process less cumbersome by enabling the collection of data from multiple providers and authorities to automate veracity controls and store them in a single, encrypted database. By lowering trade costs, increasing transparency, and automating verification and operations, blockchain technology is also optimizing supply chains.

Blockchain technologies are changing the nature of production and trade in a growing number of countries and regions across Africa. In Kenya, the technologies are being used to improve market efficiency in the agricultural sector, through better linkages between

farmers, vendors, and markets. In Uganda, they are used to connect millions of households to solar power. Governance systems for land ownership in Ghana and Rwanda are being improved, thanks to the deployment of blockchain technologies. In the Democratic Republic of Congo (DRC), blockchain is increasingly used as a monitoring tool. For instance, automotive giant Ford Motor Company and its partners are using blockchain to trace the supply of metals from the DRC, to improve transparency and ethical behavior in the mining industry.

The impact of blockchain technologies has been particularly significant in the financial industry, and specifically with the rise of digital currencies, also known as cryptocurrencies. There are now more than 1,000 cryptocurrencies, with a combined market capitalization of US\$400 billion. These digital currencies provide an electronic payment system—paperless transactions secured with

cryptography. In a continent where shortage of liquidity has been a major constraint to trade, blockchain technologies that reduce transaction costs and offer a secure and efficient method of exchange and validation of information could have tremendous implications for trade and investment.

Although Bitcoin has proven that a digital currency is possible, reaping the full benefits associated with blockchain technologies in the digital era across Africa will require significant investment to close the continent's physical and digital infrastructure gap. Furthermore, issues around the scalability and standardization of blockchain technologies across a vast array of industries remain to be resolved. Moreover, the regulatory approach within the region and globally may be a defining factor in whether the technology ultimately promotes, rather than stymies, extra- and intra-African trade.

7.6 Summary and Outlook

Despite the remarkable growth recorded in Africa in recent years, digital trade remains dimly low across the region. It is a mirror image of physical trade, which has been constrained by the patterns of growth and the lack of physical infrastructure. However, the transformational and growth potential of digital trade across the region are significant and already visible in the services industry where online digital platforms are connecting sellers to buyers of digitally delivered products from the entertainment industry. The success and growth achieved in that industry in the short run and the more impressive growth rate of digital trade recorded in other regions of the developing

world confronted with similar infrastructure challenges augurs well for other digitally traded products and more generally for digital trade across the region.

The emergence of online African digital platforms is creating a level playing field and a more competitive digital trading environment. It will eventually reduce the risk of global mega technology companies crowding out African small producers from the digital and ultimately physical trading space. While these developments are important and reflect the capacity of African technology companies to innovate, a continental and more holistic approach is needed to support the growth of digital trade across the region. More technological



and resource-endowed regions are opting for a regional approach to raise their competitiveness in the global digital trading sphere.

For instance, the ASEAN region has achieved much success in cooperating on digital trade facilitation, the infrastructure gap, access to payment solutions, and online security

through a coordinating committee on e-commerce. Similarly, the EU has prioritized the creation of a Digital Single Market to harmonize policies for a more effective digital marketplace. The AfCFTA establishing the single African market is opportune and could provide the basis for an African Single Digital Market to reap the full benefit of the ongoing digital transformation at a global level.

END

8

Chapter Eight



Prospects

The broad-based and synchronised global expansion of early 2018 was dampened in the second half of the year, reflecting several negative factors: escalating trade wars, contraction of financial cycles, and growth volatility in major economies, especially in Europe, Asia, and Latin America. Economic activity in China receded, partly as a result of increasing trade tensions with the United States, in addition to regulatory tightening to curb shadow banking and mitigate systemic risks in the financial industry. Slow economic growth in the Euro zone, largely a result of weakened consumer and business confidence, was another major drag on expansion of global growth. In Germany, the introduction of new emission standards affected output in the automotive industry; Italy witnessed a decline in investment as a result of widening sovereign spreads and softening external demand, especially from emerging Asia. In Japan, economic activity was adversely affected by natural disasters, while increasing trade tensions weighed on business confidence, thereby worsening market sentiment and growth in one of the most highly export-dependent economies.

These developments in both vulnerable developing markets and advanced economies contributed to weakening global demand and growth. Recently, conditions have eased somewhat, with the US Federal Reserve returning to a more gradual approach of tightening financial conditions in the face of heightening volatility in equity markets and rising global risk. However, at the end of 2018, global growth remained weak and future growth forecasts had undergone a series of downward revisions.

Against this backdrop, and looking forward, global growth is projected to slow from 3.6 percent in 2018 to 3.3 percent in 2019. The projected global rate of expansion anticipates a levelling off in the first half of 2019, then a pickup in the second half of 2019, driven by several factors: ongoing buildup of policy stimulus in China, improvements in global financial market sentiment, growth acceleration within the Euro area, and a gradual stabilisation of conditions in stressed economies, such as Argentina, Brazil, and Turkey.

In line with global trends, growth in developing economies is expected to marginally decelerate at 4.4 percent in 2019, from 4.5 percent in 2018. The outlook for Asia generally remains favourable, with developing Asia stabilising at around 6.3 percent growth in 2019, and largely supported by India, where growth is forecast to accelerate to 7.3 percent in 2019, from 7.1 percent in 2018. China's growth is projected to decelerate to 6.3 percent in 2019, from 6.6 percent in 2018. For other regions with developing countries, including Latin America, the Middle East, and some parts of Africa, short- to- medium-term prospects are subdued because of persistent unfavourable conditions, including structural bottlenecks, weakening demand from advanced economies, debt management challenges, lackluster commodity prices, pockets of conflicts, and tighter financial conditions.

African countries, as a group, continue to show resilience in the context of decelerating global growth, escalating

trade tensions, weakening consumer and business confidence, subdued commodity prices, and tightening financial conditions. Growth across the region is projected to strengthen further to 3.9 percent in 2019, from 3.4 percent in 2018. The optimistic forecast is anchored on an expansion in economic activity, underpinned by a pickup in growth momentum in the region's larger economies—including strong growth in Egypt and recovery in South Africa and Nigeria—and anticipated robust economic growth in non-resource-intensive economies, along with increasing infrastructure investment, including transnational infrastructure for cross-border trade.

The forecast for global trade projects a further deceleration in growth of the volume of world merchandise trade to 2.6 percent in 2019, after a slower growth of 3 percent in 2018, down from 4.6 percent in 2017. The downward trend forecast assumes further contraction of world trade in a context of escalating trade tensions, weakening investment in the face of disruptions of global value chains, tighter monetary policy and credit conditions—especially in developed economies—and still-weak growth prospect within the Euro zone, which has the largest share of world trade.

Intra-African trade is projected to improve on the back of unrelenting efforts by African governments, with the private sector's support, to promote industrialisation, increase processing capacity, and create more value-added products, to reduce Africa's overdependence on commodities and natural resources. Continued efforts to increase cross-border trade through

partnerships, policy harmonisation, and initiatives geared towards accelerating the financing of logistics and infrastructure development will continue to act as catalysts and sustain the growth of intra-African trade. The gradual-but-steady investments in digital technologies, which have the capacity to deepen economic integration, are also expected to improve cross-border trade across the continent. The most important factor will be to ensure a successful implementation of the AfCFTA, which has the potential to significantly boost trade and investment, especially as investors take advantage of economies of scale that will accelerate the structural transformation of African economies and mitigate the perennial risk of their exposure to global volatility and commodity cycles.

While the implementation of the AfCFTA and the expansion of African trade will reduce the region's exposure to volatility and adverse shocks in the medium and long terms, its trade and growth forecasts still face downside risks in the short term. In particular, uncertainty associated with Brexit negotiations and escalating trade tensions between the world's two largest economies are major risks to global growth and trade in the short term. Should these risks persist and result in sharp growth deceleration in Europe and China—which together account for more than 54 percent of total African trade and 18.6 percent of world trade—the consequences could be significant for both global and African economies. Over the last few years, China has become Africa's single-largest trading partner, and is increasingly a major source of investment for infrastructure financing within the region.

END

Endnotes

- 1 A futures contract is a legal agreement to buy or sell a commodity or asset at a predetermined price at a specified time in the future. Futures contracts are standardised for quality and quantity to facilitate trading on an exchange.
- 2 Options: financial derivatives giving the right to buy or sell at a fixed price through a single premium payment.
- 3 Courts have also treated reverse engineering as an important factor in maintaining balance in intellectual property law, which allows innovators up to 20 years of exclusive rights to make, use, and sell an invention, but demands in exchange the disclosure of significant details about the invention (*Samuelson and Scotchmer 2002*). If the innovation can be reverse engineered, then the innovator may choose to patent the invention and attain exclusive rights to use for a limited period of time, that is, it gains lead time. During this time the innovator can establish its hold on the market and a loyal customer base. Costliness may prevent reverse engineering entirely, especially if the innovator licences others as a strategy for preventing unlicensed entry.
- 4 <http://www.advice-manufacturing.com/3D-Scanning-Reverse-Engineering.html>
- 5 Reverse engineering digitalised products is usually not an efficient way to develop competing but nonidentical programs; it is used more as means of achieving compatibility with different systems
- 6 For instance, IBM has shared certain intellectual property and parts of source code to China. Microsoft has opened a subsidiary in China called the Microsoft Open Tech Shanghai which participates in existing open source and open standard efforts as well as collaborates with the community to encourage open source develops in China. Intel has entered into a strategic research and development alliance with China's Huawei technologies that focuses on servers, data storage, and data centres and cloud technologies. Oracle is discussing partnership with a number of Chinese companies on data centres to support cloud services in China.
- 7 <https://www.itu.int/en/ITU-D/Statistics/Documents/facts/ICTFactsFigures2017.pdf>
- 8 <http://1e8q3q16vyc81g8l3h3md6q5f5e.wpengine.netdna-cdn.com/wp-content/uploads/2017/02/A4AI-2017-Affordability-Report.pdf>
- 9 <https://kenyanwallstreet.com/equitel-kenyas-first-most-successful-mvno/>
- 10 <https://www.gsma.com/mobilefordevelopment/programme/ecosystem-accelerator/africa-a-look-at-the-442-active-tech-hubs-of-the-continent/>
- 11 US Department of State - 2017 Investment Climate Statements
- 12 World Bank Ease of Doing Business.

References

- Accenture. 2017. *Banking on Blockchain—A Value Analysis for Investment Banks*. New York.
- Acemoglu, D., and D. Autor. 2011. “Skills, Tasks and Technologies: Implications for Employment and Earnings.” *Handbook of Labor Economics* 4B: 1043-1171. Elsevier.
- Acemoglu, Daron, and Pascual Restrepo. 2017. *Robots and Jobs: Evidence from US Labor Market*. NBER Working Paper No. 23285. Cambridge, MA: NBER (National Bureau of Economic Research). <https://ssrn.com/abstract=2941263>.
- ACET (African Centre for Economic Transformation). 2019. *Implications for Secondary Education and TVET systems*. Ghana: ACET.
- Aedo, C., J. Hentschel, J. Luque, and M. Moreno. 2013. *From occupations to embedded skills: a cross-country comparison*. Washington, DC: The World Bank.
- African Development Bank. 2013. *Guidebook on African Commodity and Derivatives Exchanges*. Tunis, Tunisia: African Development Bank.
- African Development Bank, Asian Development Bank, European Bank for Reconstruction and Development, and Inter-American Development Bank. 2018. *The Future of Work: Regional Perspectives*. <https://publications.iadb.org/handle/11319/8840>. Accessed 12 September, 2018.
- African Export-Import Bank. 2018. *The African Trade Report 2018*. Cairo, Egypt: African Export-Import Bank.
- AGEFI-UNITEc. 2018. *Commodities—the Dawn of a New Era*. Special Edition March 2018. Geneva: AGEFI.
- Ahmed, Masood. 2010. “More than 18 million Jobs Needed!” *IMFBlog, October 31*. <https://blogs.imf.org/2010/10/31/more-than-18-million-jobs-needed/>
- Almond, D., J. Currie, O. Ashenfelter, and D. Card. 2011. “Human Capital Development Before Age 5.” *Handbook of Labor Economics*, 1315-1486. Elsevier.
- Arntz, M., T. Gregory, and U. Zierahn. 2016. *The risk of automation for jobs in OECD countries: A comparative analysis*. OECD Social, Employment, and Migration Working Paper 189, 0–1. Paris: Organisation for Economic Co-operation and Development (OECD).
- Asian Development Bank. 2018. *Asian Development Outlook: How Technology Affects Jobs*. Manila: Asian Development Bank.
- A.T. Kearney. 2015. *Africa’s Agricultural Transformation Opportunity*. A.T. Kearney

———. 2017. *3D Printing: Disrupting the \$12 Trillion Manufacturing Sector*. A.T. Kearney

Autor, D.H., L.F. Katz, and M. Kearney. 2006. "Measuring and interpreting trends in economic inequality." *AEA Papers and Proceedings* 96 (2): 189-194.

Autor, D.H., and D. Dorn. 2013. "The growth of low-skill service jobs and the polarization of the US labor market." *American Economic Review* 103 (5): 1553–1597.

Autor, D.H., and M.J. Handel. 2013. "Putting tasks to the test: Human capital, job tasks, and wages." *Journal of Labor Economics* 31 (1): S59-S96.

Autor, D.H., F. Levy, and R.J. Murnane. 2003. "The skill content of recent technological change: An empirical exploration." *Quarterly Journal of Economics* 118 (4): 1279–1333.

Balchin, Neil, Stephen Gelb, Jane Kennan, Hope Martin, Dirk Willem te Velde, and Carolin Williams. 2016. *Developing Export-Based Manufacturing in Sub-Saharan Africa*. London: Overseas Development Institute (ODI).

Banga, K., and D.W. te Velde. 2018a. *Digitalisation and the Future of Manufacturing in Africa*. Supporting Economic Transformation (SET) report. London: ODI.

———. 2018b. *How to grow manufacturing and create jobs in the digital economy: 10 policy priorities for Kenya*. Supporting Economic Transformation (SET) report. London: ODI.

Basic. 2018. *Café: la success story qui cache la crise: Etude sur la durabilité de la filière du café*. Basic.

Bauer, M., H. Lee-Makiyama, E. Van der Marel, and B. Verschelde, 2014. *The costs of data localisation: Friendly fire on economic recovery*. ECIPE Occasional Paper. Brussels: European Centre for International Political Economy (ECIPE).

Beaudry, P., D.A. Green, and B.M. Sand. 2016. "The great reversal in the demand for skill and cognitive tasks." *Journal of Labor Economics* 34 (S1) (Part 2, January 2016): 199-247.

Beer, S., R. de Mooij, and L. Liu. 2018. *International Corporate Tax Avoidance: A Review of the Channels, Magnitudes, and Blind Spots*. IMF Working Paper 18/168. Washington: DC: International Monetary Fund (IMF).

Belt, A., and E. Bourdier. 2017. *Capturing Commodity Trading's \$70 Billion Prize. How Digitalization Is Changing Commodity Trading*. Helsinki: Boston Consulting Group.

Berg, Andrew, Edward F. Buffie, and Luis-Felipe Zanna. 2018. *Should We Fear the Robot Revolution? (The Correct Answer is Yes)*. IMF Working Paper 18/16. Washington, DC: IMF.

Betherman, Gordon and Themrise Khan. 2015. *Youth Employment in sub-Saharan Africa: Taking stock of the evidence and knowledge gaps*. International Development Research Centre and The MasterCard Foundation.

Booz and Company. 2012. *The Global Information Technology Report 2012: Living in a Hyperconnected World*.

Bowles, J. 2014. *The computerisation of European jobs*. Brussels: Bruegel.

Buchan, D., and C. Errington. 2018. *Commodities demystified: A guide to trading and the global supply chain*. Trafigura Group.

Cunningham, W., and P. Villaseñor. 2014. *Employer voices, employer demands, and implications for public skills development policy*. Washington, DC: The World Bank.

Dachs, B., S. Kinkel, and A. Jäger. 2017. *Bringing it all back home? Backshoring of manufacturing activities and the diffusion of Industry 4.0*. In Proceedings of the 24th International Annual EurOMA Conference, Edinburgh, Scotland, 3–5 July 2017.

De Backer, K., and D. Flaig. 2017. *The future of global value chains*. OECD working paper series. OECD.

De Backer, K., T. DeStefano, C. Menon, and J.R. Suh. 2018. *Industrial robotics and the global organisation of production*. OECD working paper series. OECD.

De Marchi, V., E. Giuliani, and R. Rabellotti. 2018. “Do global value chains offer developing countries learning and innovation opportunities?” *The European Journal of Development Research* (December):1-19. doi: 10.1057/s41287-017-0126-z.

Decreux, Y., and J. Spies. 2016. *Export Potential Assessments: A methodology to identify export opportunities for developing countries*. http://exportpotential.intracen.org/media/1089/epa-methodology_141216.pdf.

Deloitte. 2015. *Reducing Food Loss Along African Agricultural Value Chains*. Johannesburg: Deloitte.

Dercon, Stefan, and Benno Ndulu. 2018. *Charting Pathways for Inclusive Growth: From Paralysis to Preparation*. Pathways for Prosperity report. Oxford: Blavatnik School of Government, University of Oxford.

Durand, C., and W. Milberg. 2018. *Intellectual Monopoly in Global Value Chains*. Working Paper 07/2018, Department of Economics. New York: The New School for Social Research.

Economist. 2017. “3D Printers Will Change Manufacturing.” *The Economist*, June 29. <https://www.economist.com/leaders/2017/06/29/3d-printers-will-change-manufacturing>.

Ezell, S., J., R. Atkinson, and M. Wein. 2013. *Localization Barriers to Trade: Threat to the Global Innovation Economy*. Washington, DC: Information Technology & Innovation Foundation.

- FAO (Food and Agriculture Organization of the United Nations). 2018. *Revisiting Prebisch–Singer: what long-term trends in commodity prices tell us about the future of CDDCs*. Background paper to the UNCTAD (United Nations Conference on Trade and Development)–FAO Commodities and Development Report 2017: Commodity markets, economic growth and development. Rome: FAO.
- Figueiredo, P.N. 2001. *Technological learning and competitive performance*. Edward Elgar Publishing.
- Fofack, H. 2019. *Africa's Growth Prospects for 2019*. Cairo: African Export-Import Bank.
- Foster, C., M. Graham, L. Mann, T. Waema, and N. Friederici. 2018. "Digital control in value chains: Challenges of connectivity for East African firms." *Economic Geography* 94 (1): 68–86.
- Franke, A., A. Perkins, R. Rechsteiner, and G. Sharp. 2019. *Commodity trading goes back to the future*. Zurich: Oliver Wyman.
- Frey, C. B., and M. Osborne. 2013. *The future of employment—how susceptible are jobs to computerisation?* Oxford: Oxford University Press.
- Ganesh, Sen, Thomas Olsen, Joshua Kroeker, and Venkatraman P. 2018. *Rebooting a Digital Solution to Trade Finance. Blockchain points the way to a comprehensive digital approach in the paper-based documentary trade business*. Bain & Co.
- Ganne, E. 2018. *Can Blockchain revolutionize international trade?* Geneva: World Trade Organization.
- Gelb, A., and A. Diofasi. 2019. "Biometric elections in poor countries: wasteful or a worthwhile investment?" *Review of Policy Research* 36 (3): 318–340.
- Gereffi, G., J. Humphrey, and T. Sturgeon. 2005. "The governance of global value chains." *Review of International Political Economy* 12 (1): 78–104.
- Ghani, E., and S.D. O'Connell. 2014. *Can service be a growth escalator in low-income countries?* Washington, DC: The World Bank.
- Goldin, C., and L.F. Katz. 2007. *Long-Run Changes in the Wage Structure: Narrowing, Widening, Polarizing*. Brookings Papers on Economic Activity, No. 2. Washington, DC: The Brookings Institution, <https://www.brookings.edu/bpea-articles/long-run-changes-in-the-wage-structure-narrowing-widening-polarizing/> (Accessed on June 6, 2019)
- Goos, M., and A. Manning. 2007. Lousy and Lovely Jobs: The Rising Polarization of Work in Britain. *The Review of Economics and Statistics* 89 (1): 118–133.
- Goos, M., A. Manning, and A. Salomons. 2014. "Explaining job polarization: Routine-biased technological change and offshoring." *American Economic Review* 104 (8): 2509–26.
- Graham, Mark. 2016. "Let's make platform capitalism more accountable." *New Internationalist*, December 13. <https://newint.org/blog/2016/12/13/making-platform-capitalism-more-accountable>.

- Grilli, E., and M.C. Yang. 1988. "Primary commodity prices, manufactured goods prices, and the terms of trade of developing countries: What the long run shows." *The World Bank Economic Review* 2 (1): 1–47.
- Gronau, R. 1988. "Sex-Related Wage Differentials and Women's Interrupted Labor Careers—the Chicken or the Egg." *Journal of Labor Economics*, 6 (3): 277–301.
- Hallward-Driemeier, M., and G. Nayyar. 2017. *Trouble in the Making? The Future of Manufacturing-led Development*. Washington, DC: The World Bank.
- Haskel, J., and S. Westlake. 2018. *Capitalism without Capital: The Rise of the Intangible Economy*. Princeton, NJ: Princeton University Press.
- Hernandez, M.A., Shahidur Rashid, Solomon Lemma, and Tadesse Kuma. 2017. "Market Institutions and Price Relationships: The Case of Coffee in the Ethiopian Commodity Exchange." *American Journal of Agricultural Economics* 99 (3): 683–704. <https://doi.org/10.1093/ajae/aaw101>.
- Herrendorf, B., R. Rogerson, and Á. Valentinyi. 2014. "Growth and Structural Transformation." *Handbook of Economic Growth* 2: 855–941.
- Hobday, M. 2005. "Firm-level Innovation Models: Perspectives on Research in Developed and Developing Countries." *Technology Analysis & Strategic Management* 17 (2): 121–146.
- Hortaçsu, A., F. Martínez-Jerez, and J. Douglas. 2009. The Geography of Trade in Online Transactions: Evidence from eBay and MercadoLibre. *American Economic Journal: Microeconomics* 1(1): 53–74.
- ICA (Infrastructure Consortium for Africa). 2018. Infrastructure Financing Trends in Africa—2018." ICA Report 2018, Abidjan, Ivory Coast: The African Development Bank Group.
- IFR (International Federation of Robotics). International Federation of Robotics database. (Accessed on June 7, 2019.) <https://ifr.org/>.
- Ignatin, G. R. 1992. Let the Hackers Hack: Allowing the Reverse. Engineering of Copyrighted Computer Programs to Achieve Compatibility. *University of Pennsylvania Law Review* 140 (5): 1999–2050.
- ILO (International Labour Organization). 2016. *World Employment and Social Outlook for Youth 2016*. <https://www.ilo.org/global/research/global-reports/weso/2016/lang--ja/index.htm>.
- Internet World Stats Database, 2019 - www.internetworldstats.com/stats1.htm (accessed on June 6, 2019)
- Ismail, Z. 2018. *Lessons Learned from Youth Employment Programmes in Developing Countries*. K4D Helpdesk Report. Birmingham, UK: University of Birmingham. <https://opendocs.ids.ac.uk/opendocs/handle/123456789/13601> (Accessed on June 4, 2019)
- ITU (International Telecommunication Union). ICT Statistics. (Accessed on June 2, 2019.) <https://www.itu.int/en/ITU-D/Statistics/Pages/stat>

Kati, S., 2017, Accelerating Digital Trade in Latin America and the Caribbean. IDB Working Paper Series No. IDB-WP-790. The Inter-American Development Bank.

Kazeem, Y. 2018, E-commerce is thriving in Africa despite hurdles to the “last mile”, see <https://qz.com/africa/1492628/africa-e-commerce-libya-tops-online-shopping/>

Karabarbounis, L., and Neiman, B. 2014. *Capital Depreciation and Labor Shares Around the World: Measurement and Implications*. NBER Working Paper No. 20606. Cambridge, MA: NBER.

Khan, L. M. 2016. “Amazon’s Antitrust Paradox.” *Yale Law Journal* 126 (3): 710. <https://digitalcommons.law.yale.edu/ylj/vol126/iss3/3>.

Kim, L. 1980. “Stages of development of industrial technology in a developing country: A model.” *Research Policy* 9 (3): 254-277. [https://doi.org/10.1016/0048-7333\(80\)90003-7](https://doi.org/10.1016/0048-7333(80)90003-7).

———. 1999. Building technological capability for industrialization: analytical frameworks and Korea’s experience. *Industrial and Corporate Change* 8 (1): 111-136. <https://doi.org/10.1093/icc/8.1.111>

Kingombe, C. 2011. *Achieving pro-poor growth through investment in rural feeder roads: the role of impact evaluation*. ODI Background Note. London: ODI.

Krishnan, P., and I. Shaorshadze. 2013. *Technical and Vocational Education and Training in Ethiopia*. International Growth Centre Working Paper. London: London School of Economics and Political Science.

Landman, D. “Reverse engineering source code: Empirical studies of limitations and opportunities.” PhD diss., University of Amsterdam, 2017. <https://hdl.handle.net/11245.1/d7139e2b-7581-4ef8-af89-0a1df03d492e>

Leliveld, A., and P. Knorringa. 2018. “Frugal Innovation and Development Research.” *The European Journal of Development Research* 30 (1): 1–16.

Lemma, A. 2017. *E-Commerce: The Implications of Current WTO Negotiations for Economic Transformation in Developing Countries*. London: ODI.

Lopez-Gonzalez, J., and M-A. Jouanjean 2017, “Digital Trade”, Developing a framework for analysis, OECD Trade Policy Papers 205

Luke, D. and L. Sommer, 2018, How to ensure Africa’s bold free trade area propels industrialization, see <https://africanarguments.org/2018/04/10/how-to-ensure-africa-bold-free-trade-area-propels-industrialisation-afcfta/>

Mayer, J. 2018. *Digitalization and industrialization: friends or foes?* UNCTAD Research Paper No. 25. Geneva: UNCTAD.

Mazzucato, M. 2017. *Mission-Oriented Innovation Policy: Challenges and Opportunities*. Institute for Innovation and Public Purpose Working Paper 2017-01. London: University College London. <https://www.ucl.ac.uk/bartlett/public-purpose/sites/public-purpose/files/moip-challenges-and-opportunities-working-paper-2017-1.pdf>.

Meltzer, J. P. 2015. "The Internet, Cross-Border Data Flows and International Trade." *Asia & the Pacific Policy Studies* 2 (1): 90-102.

Newfarmer, R., J. Page, and F. Tarp., eds. 2019. *Industries without Smokestacks: Industrialization in Africa Reconsidered*. Oxford: Oxford University Press.

Ng'weno, Amolo, and David Porteous. 2018. *Let's Be Real: The Informal Sector and the Gig Economy are the Future, and the Present, of Work in Africa*. Center for Global Development.

Ndung'u, N., 2018. "New frontiers in Africa's digital potential", in *Harnessing Africa's Digital Potential- New Tolls for a New Age*, Brookings Institution

Nkurunziza, J. 2019. *Commodity dependence and economic development*. Presentations to Diplomats, 30 April 2019. Geneva: UNCTAD.

Noordhuis, Maaïke. 2012. "China No Match for Dutch Plants as Philips Shavers Come Home." Bloomberg, January 19. <https://www.bloomberg.com/news/articles/2012-01-19/china-no-match-for-dutch-plants-as-philips-shavers-come-home-1->.

OECD. 2016. *OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas*. Third Edition. Paris: OECD Publishing.

———. Trade in Value-Added (TiVA) Database. (Accessed June 6, 2019). <https://www.oecd.org/sti/ind/measuring-trade-in-value-added.htm#access>

Oketch, M., and P. Lolwana. 2017. "Introduction Keynotes (Vocational Education and Training in Sub-Saharan Africa)." In *Vocational Education and Training in Sub-Saharan Africa: Current Situation and Development*, edited by F. Eicker, G. Haseloff, and B. Lennartz, 11-38. Bielefeld: W. Bertelsmann Verlag. <https://doi.org/10.3278/6004570w011>

Olsen, R. N., and E. A. Sexton. 1996. "Gender differences in the returns to and the acquisition of on-the-job training." *Industrial Relations: A Journal of Economy and Society* 35 (1): 59-77.

Oomes, N. and B. Tieben. 2016. *Market Concentration and Price Formation in the Global Cocoa Value Chain*. Final Report Commissioned by the Ministry of Foreign Affairs, The Netherlands. Amsterdam: SEO Amsterdam Economics.

Rodrik, D. 2012. "Unconditional Convergence in Manufacturing." *The Quarterly Journal of Economics* 128 (1): 165-204. <https://doi.org/10.1093/qje/qjs047>

———. 2015. "From Welfare State to Innovation State." *Project Syndicate*, January 14. <https://www.project-syndicate.org/commentary/labor-saving-technology-by-dani-rodrik-2015-01?barrier=accesspaylog>.

———. 2016. "Premature Deindustrialization." *Journal of Economic Growth* 21 (1): 1-33.

———. 2018. *New Technologies, Global Value Chains, and Developing Economies*. NBER Working Paper No. 25164. Cambridge, MA: NBER.

Roine, J. and D. Waldenström. 2014. *Long-Run Trends in the Distribution of Income and Wealth*. Discussion Paper No. 8157. Bonn: Institute for the Study of Labor. <http://ftp.iza.org/dp8157.pdf>

Sabbagh, K., R. Friedrich, B. El-Darwiche, M. Singh, S. Ganediwalla, 2012, Maximizing the Impact of Digitization In *The Global Information Technology Report*,

Samuelson, P., and S. Scotchmer. 2001. "The Law and Economics of Reverse Engineering." *Yale Law Journal* 111: 1575.

Schlogl, Lukas and Andy Sumner. 2018. *The Rise of the Robot Reserve Army: Automation and the Future of Economic Development, Work, and Wages in Developing Countries*. Working Paper No. 487. Center for Global Development.

Sebastian, Paul. Forthcoming. *Technological Change, Commodities and Future Pricing "How Digital Transformation can change commodity dependence Dynamics*. Cairo: African Export-Import Bank.

Siegel, D. S., D. A. Waldman, L. E. Atwater, and A. N. Link. 2003. "Commercial knowledge transfers from universities to firms: improving the effectiveness of university–industry collaboration." *The Journal of High Technology Management Research* 14 (1): 111–133.

Songwe, V. 2016. *Developing Regional Commodity Exchanges in Africa*. Frontier Issues Brief. Washington, DC: The Brookings Institution.

Stokes, P. 2017. *Electronic Sanitary and Phytosanitary Certificates in the Context of Paperless Trade*. Background paper for Standards and Trade Development Facility seminar, 28 June 2016. http://www.standardsfacility.org/sites/default/files/SPS_Ecert_Backgroundpaper.pdf

Stuart, J. 2017. *Intra-Africa Market Access*. South Africa: Trade Law Centre.

Terazono, E. 2018. Commodity trading enters the age of digitisation. *The Financial Times*, July 9. <https://www.ft.com/content/8cc7f5d4-59ca-11e8-b8b2-d6ceb45fa9d0>.

Tinbergen, J. 1974. "Substitution of graduate by other labour." *Kyklos* 27 (2): 217–226.

———. 1975. *Income Differences. Recent Research*. Amsterdam: North-Holland Publishing Company.

Turner, A. 2018. *Capitalism in the age of robots: Work, income and wealth in the 21st -century*. Available at www.ineteconomics.org/research/research-papers/capitalism-in-the-age-of-robots-work-income-and-wealth-in-the-21st-century. Accessed on 28 August, 2018.

UNCTAD. 2017a. *State of Commodity Dependence 2016*. New York and Geneva: United Nations.

———. 2017b. *Trade and Development Report 2017: Beyond Austerity: Towards a Global New Deal*. New York and Geneva: United Nations.

———. 2018. *Trade and Development Report 2018: Power, Platforms and The Free Trade Delusion*. New York and Geneva: United Nations.

UNESCO (United Nations Educational, Scientific and Cultural Organization). 2017. *Accountability in education: Meeting Our Commitments*. Global Education Monitoring Report 2017/8. Paris: UNESCO.

United Nations and FAO. 2017. *Commodities and Development Report 2017. Commodity Markets, Economic Growth and Development*. New York and Geneva: United Nations and FAO.

Washington Research Council. 2013. *Economic Impact of Data Centers on Central Washington*. Seattle: Washington Research Council. <http://researchcouncil.org/wp-content/uploads/datacenterssept2013.pdf>

Were, A. 2016. *Manufacturing in Kenya: Features, Challenges and Opportunities: A scoping exercise*. Supporting Economic Transformation Programme. London: ODI.

Wholey, D. R. 1990. "The effects of formal and informal training on tenure and mobility in manufacturing firms." *Sociological Quarterly* 31 (1): 37-57.

Wolter, S. C., and P. Ryan. 2011. "Apprenticeship." In *Handbook of the Economics of Education*, Vol. 3, 521-576. Elsevier.

World Bank. 2016a. "Trading Across Borders: Technology gains in trade facilitation." In *Doing Business 2017: Equal Opportunity for All*. Washington, DC: World Bank.

———. 2016b. *World Development Report 2016: Digital Dividends*. Washington, DC: World Bank.

World Economic Forum. 2016. *The Future of Jobs Report*. Cologny-Geneva: World Economic Forum.

———. 2018. *Trade Tech—A New Age for Trade and Supply Chain Finance*. White Paper in collaboration with Bain & Company. Cologny-Geneva: World Economic Forum.

Xu, J., S. Gelb, J. Li, and Z. Zhao. 2017. *Adjusting to rising costs in Chinese light manufacturing: what opportunities for developing countries?* London: ODI.

Yamada, S., C. S. Otchia, and K. Taniguchi. 2018. "Explaining differing perceptions of employees' skill needs: the case of garment workers in Ethiopia." *International Journal of Training and Development* 22 (1): 51-68.

Zeschky, M. B., S. Winterhalter, and O. Gassmann. 2014. "From cost to frugal and reverse innovation: Mapping the field and implications for global competitiveness." *Research-Technology Management* 57(4): 20-27.



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