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Regional Economic Outlook

Sub-Saharan Africa

Capital Flows and The Future of Work

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Abbreviations

CEMAC	Economic and Monetary Community of Central Africa
ELA	emergency liquidity assistance
EMs	emerging markets
EMEs	emerging market economies
FDI	foreign direct investment
GDP	gross domestic product
GPS	global positioning system
ICRG	*International Country Risk Guide*
MDGs	Millennium Development Goals
MFIs	microfinance institutions
MSMEs	medium-sized enterprises
NPLs	nonperforming loans
ODA	official development aid
PFM	public financial management
REO	*Regional Economic Outlook* (IMF)
SDGs	Sustainable Development Goals
SOEs	state-owned enterprises
SSA	Sub-Saharan Africa
TFP	total factor productivity
UN	United Nations
UNHCR	United Nations High Commissioner for Refugees
UNOCHA	United Nations Office for the Coordination of Humanitarian Affairs
US	United States
VAR	vector autoregression
VAT	value-added tax
VIX	CBOE Volatility Index
WAEMU	West African Economic and Monetary Union
WEO	*World Economic Outlook* (IMF)

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The following conventions are used in this publication:

- In tables, a blank cell indicates "not applicable," ellipsis points (. . .) indicate "not available," and 0 or 0.0 indicates "zero" or "negligible." Minor discrepancies between sums of constituent figures and totals are due to rounding.
- An en dash (–) between years or months (for example, 2009–10 or January–June) indicates the years or months covered, including the beginning and ending years or months; a slash or virgule (/) between years or months (for example, 2005/06) indicates a fiscal or financial year, as does the abbreviation FY (for example, FY2006).
- "Billion" means a thousand million; "trillion" means a thousand billion.
- "Basis points" refer to hundredths of 1 percentage point (for example, 25 basis points are equivalent to ¼ of 1 percentage point).

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Executive Summary

RECOVERY AND RISING RISKS

The macroeconomic outlook for sub-Saharan Africa continues to strengthen. Growth is expected to increase from 2.7 percent in 2017 to 3.1 percent in 2018, reflecting domestic policy adjustments and a supportive external environment, including continued steady growth in the global economy, higher commodity prices, and accommodative external financing conditions. Inflation is abating; and fiscal imbalances are being contained in many countries. Over the medium term, and on current policies, growth is expected to accelerate to about 4 percent, too low to create the number of jobs needed to absorb anticipated new entrants into labor markets.

However, there are concerns on the quality of the fiscal adjustment, and underlying vulnerabilities have yet to be decisively addressed.

- More progress on domestic revenue mobilization is needed to ensure debt sustainability and create fiscal space for much needed investment and development spending. The fiscal adjustment thus far largely reflects the oil price rebound for oil exporters coupled with sharp cuts in capital spending in several countries. With few exceptions, there has been relatively little progress in strengthening domestic revenue mobilization; many countries have delayed adjusting domestic fuel prices in response to the recent oil price increase, resulting in the re-emergence of energy subsidies; domestic arrears remain large, contributing to a buildup in nonperforming loans (NPLs); and, beyond the central government, state-owned enterprises (SOEs) are becoming a major fiscal risk in some countries.

- Financial sector vulnerabilities remain elevated with high NPLs weighing on banks' balance sheets and constraining credit to the private sector.

- On the external side, financial inflows were strong in the first half of 2018 with record issuances of Eurobonds but the recent turbulence in emerging markets has led to some increase in spreads. Reserve buffers have though, generally not been rebuilt and, in half of the countries in the region, remain below levels considered adequate.

The outlook is surrounded by significant downside risks. The global economy is entering a period of unusually elevated policy uncertainty; growth is already slowing in most advanced economies and could slow more sharply in the event trade tensions escalate; while spikes in commodity prices and populist pressures in the run-up to elections in several countries could derail consolidation efforts.

Shielding the recovery and creating enough jobs for the region to harness fully its demographic dividend would require strong, sustainable, and inclusive growth. Achieving this in turn would require policies to strengthen resilience and facilitate the reallocation of labor and capital into more productive sectors to lift incomes faster. These policies include steady fiscal consolidation to reduce debt vulnerabilities; advancing revenue mobilization; enhancing the efficiency of expenditures, in particular to address the re-emergence of wasteful energy subsidies; allowing greater exchange rate flexibility where institutional setups permit and barring balance sheets vulnerabilities; addressing growing financial sector weaknesses in a timely manner; and pursuing policies to foster private investment and enhance potential growth.

CAPITAL FLOWS IN SUB-SAHARAN AFRICA: CAUSES AND CONSEQUENCES

Cross-border capital flows to sub-Saharan Africa from nonofficial sources have increased sharply since the global financial crisis. Scaled by economic size, net capital flows to sub-Saharan Africa were higher than those to emerging market economies in recent years. Much of this increase has been driven by nonresident inflows—particularly portfolio flows. Empirical analysis shows that global factors, notably, United States interest rates, global risk aversion, and commodity prices, are important drivers of capital flows to sub-Saharan Africa. However, strong domestic fundamentals can help to mitigate the risks associated with volatile capital flows. The analysis also suggests that the domestic impact of capital flows depends on the type of flow. In general, portfolio flows tend to be more prone to moving the real exchange rate and output above trend, and to fuel credit growth—vulnerabilities that tend to raise the likelihood of a financial crisis. While, at least historically, portfolio flows have not been strongly associated with either domestic investment or growth, they do seem to boost public consumption (including social spending). By contrast, inward foreign direct investment appears to directly spur domestic investment, and in turn support economic growth. These findings indicate a complex relationship between external finance, domestic macroeconomic stability, and investment and economic growth in the region. Policymakers need to be prudent and ensure that the borrowed resources are used effectively, enhance productivity, and promote sustainable economic growth. Vigilance is also warranted against the buildup of macroeconomic and financial imbalances.

FUTURE OF WORK IN SUB-SAHARAN AFRICA

The current wave of technological advances is set to shake up the landscape for jobs across the world. Against this backdrop, how can sub Saharan Africa create the 20 million jobs per year needed over the next two decades to absorb its growing workforce? This chapter focuses on how the current wave of technological innovation—the Fourth Industrial Revolution—will impact sub-Saharan Africa's comparative advantage and the nature of work within countries in the region. It draws on formal economic models but also on scenario analysis, which allow consideration of how the course of global economic integration and the impact of climate change could shape economic opportunities and thus the future of work in sub-Saharan Africa. The overarching policy challenge is to support the new and emerging sectors that drive growth. If successful, sub-Saharan Africa can create jobs for its young and growing population and make progress toward meeting the Sustainable Development Goals. Development strategies must adapt to the demands and prospects of the Fourth Industrial Revolution. Integration and connectivity are the key pillars of successful growth policies. This includes traditional and digital infrastructure, an education system that keeps pace with changing skill requirements, smart urbanization, safety nets for a volatile labor market, and trade integration.

1. Recovery and Rising Risks

Macroeconomic outcomes in sub-Saharan Africa continue to strengthen, reflecting domestic policy adjustments and a supportive external environment, including continued steady growth in the global economy, higher commodity prices, and accommodative external financing conditions. Growth is expected to increase from 2.7 percent in 2017 to 3.1 percent in 2018; inflation is abating; and fiscal imbalances are being contained in many countries.

While the improved outcomes are welcome, the nature of the adjustment has been such that underlying vulnerabilities—both near-term and medium-term—have yet to be decisively addressed to shield the recovery against risks arising from both domestic and external shocks. More progress on domestic revenue mobilization is needed to ensure debt sustainability and create fiscal space for much needed investment and development spending. Further, potential growth over the medium term remains too low to create the number of jobs needed to absorb anticipated new entrants into labor markets.

The fiscal consolidation thus far largely reflects the oil price rebound for oil exporters coupled with sharp cuts in capital spending in a number of countries. With few exceptions, there has been relatively little progress in strengthening domestic revenue mobilization. Indeed, in some oil-exporting countries (Angola, Republic of Congo, Equatorial Guinea, Gabon) non-commodity revenues declined in real terms in 2017 although other resource-intensive countries were able to raise non-resource revenues. Many countries have delayed adjusting domestic fuel prices in response to the recent oil price increase, resulting in the re-emergence of wasteful energy subsidies. Domestic arrears also remain large, with the stock amounting to about 5 percent of GDP on average at the end of 2017. And beyond the central government, state-owned enterprises (SOEs) are becoming a major fiscal risk in some countries where budgetary resources are used to keep inefficient SOEs afloat.

This fiscal performance constrains the private sector response and deepens pressures on financial systems. The continued incurrence of domestic arrears, typically to suppliers, has also contributed to the buildup in nonperforming loans (NPLs) seen in many countries (Angola, Chad, Ghana, Equatorial Guinea, Mozambique), weighing on credit to the private sector and increasing financial sector vulnerabilities.

Financial sector vulnerabilities are elevated in some countries with high NPLs, low bank profitability, and significant shortfalls in capital ratios. In others, attractive returns on government securities have supported bank profitability.

On the external side, current account balances are little changed. Financial inflows, however, were strong, with Eurobond issuances at record highs in the first half of 2018. The turbulence in emerging market economies as monetary policy normalization in advanced economies progressed has led to some increase in spreads. Reserve buffers have however generally not been rebuilt despite the favorable environment and, in half of the countries in the region, remain below levels considered adequate.

The aggregate picture hides a wide range of country experiences. The recent peace treaty in South Sudan, the ongoing peace process in Mozambique, as well as the improved relations between Eritrea and Ethiopia, provide a window for those countries to move forward. In Angola, important steps have been taken to address longstanding governance issues and to tackle the deep macroeconomic imbalances that have held the economy back in recent years.

Looking forward, the global economy is entering a period of unusually elevated policy uncertainty with significant downside risks that could have adverse impacts on many countries in the region. Growth is already slowing in most advanced economies and could slow more sharply in the event trade tensions escalate. The combination of rising interest rates as output gaps close in the advanced economies and a continued strong dollar will raise debt service burdens, increase the cost of new borrowing, and

This chapter was prepared by a team led by Papa N'Diaye, coordinated by Romain Bouis and composed of Reda Cherif, Jesus Gonzalez-Garcia, Cleary Haines, Miguel Perreira Mendes, Nkunde Mwase, Torsten Wezel, and Jaroslaw Wieczorek.

heighten pressures on competitiveness in those countries whose currencies are pegged, formally or informally, to appreciating currencies.

To better position themselves to address these challenges, countries should:

- Implement fiscal strategies that are designed to reduce debt vulnerabilities consistent with a steady fiscal consolidation. Most countries have devised such strategies; however, to be effective, their implementation needs to proceed even at times of temporary commodity price upswings or ahead of elections, which are scheduled within the next year in many of the larger economies on the continent, including Nigeria, Senegal, and South Africa.

- Advance revenue mobilization. With tax revenues, on average, at 3–5 percent of GDP below estimated potential, there is substantial scope for countries to boost their revenue base and open up fiscal space to address their development priorities. The common elements of the successful revenue mobilization episodes in the region included a focus on basic institutions, on top of an effective and modern tax policy and administration. It also requires measures to build the tax base, to simplify the tax system, and to tackle exemptions and incentives. Importantly, successful reforms did not follow a set template but were tailored to country circumstances (IMF 2018a).

- Enhance the efficiency of expenditures, in particular to address the re-emergence of energy subsidies which are known to be inefficient, by implementing automatic fuel pricing mechanisms (as successfully introduced in Ghana and Mozambique) and, at the same time, undertaking mitigating measures to compensate the poor.

- Allow greater exchange rate flexibility where institutional setups permit and barring balance sheets vulnerabilities.

- Address growing financial sector weaknesses in a timely manner. Waiting until there is a collapse forces a disruptive adjustment and adds to fiscal costs, deepening the drag on growth. Some countries recently made progress in reducing NPLs (Equatorial Guinea, Guinea-Bissau), strengthening capital buffers (Angola, Ghana, Mozambique), and adopting new prudential rules (Economic and Monetary Community of Central Africa (CEMAC), West African Economic and Monetary Union (WAEMU)). Nevertheless, addressing persistent NPLs requires comprehensive NPL reduction strategies.

- Pursue policies to foster private investment and enhance potential growth, including opening to trade (notably in the context of the African Continental Free Trade Area), promoting digital connectivity and a flexible education system, removing market distortions, encouraging financial deepening, ensuring a sound business environment, better allocating public spending, and ensuring adequate provision of public goods (including well-developed infrastructure).

Against this backdrop, Chapter 2 provides a detailed analysis of the trends and dynamics of flows to sub-Saharan African countries by focusing on three key questions: (1) how have nonofficial financial flows—both by asset type and investor residency—evolved over time? (2) what factors have been driving capital flows to the region? and (3) what are the domestic macroeconomic implications (in terms of exchange rates, output, and financial stability) of the various types of foreign inflows?

Finally, Chapter 3 explores how sub-Saharan Africa can create future-proof jobs for its rapidly growing labor force in the context of rapid technological changes, considering three scenarios reflecting different global uncertainties that may shape the future of work in the region and related to technological change, geopolitics, and climate change.

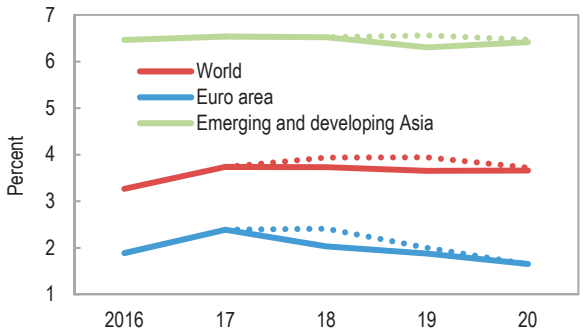
MACROECONOMIC DEVELOPMENTS AND PROSPECTS

A Less-Supportive External Environment with Rising Uncertainty

While global growth continues to expand steadily, rising trade tensions, anticipated monetary policy

normalization, and volatility in asset markets cloud the outlook for sub-Saharan Africa. Global growth is projected at 3.7 percent in 2018 and 2019, down from the 3.9 percent projection of the April 2018 *World Economic Outlook* (WEO). The expansion has besides become more uneven and appears to have peaked in some major economies (Figure 1.1). This is taking place in an environment of increased trade tensions, with tariff increases already in place for a number of products, weakening sector-specific sentiment and other forward-looking indicators, and contributing to greater volatility in commodity and other asset markets. Over the medium term, potential growth is expected to remain below precrisis averages amid population aging and sluggish productivity growth.

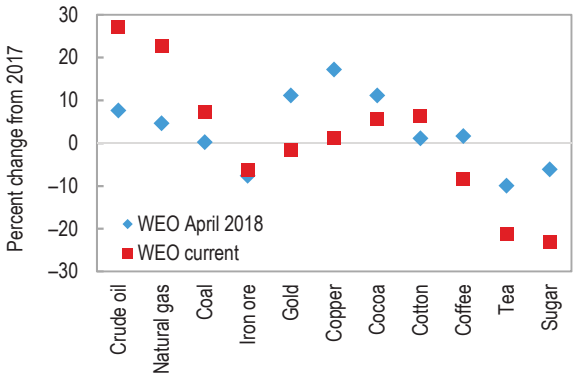
Figure 1.1. Global Growth Projections: Current versus April 2018



Source: IMF, World Economic Outlook database.

Note: Solid lines show current projections; dotted lines show projections of April 2018, IMF, World Economic Outlook database.

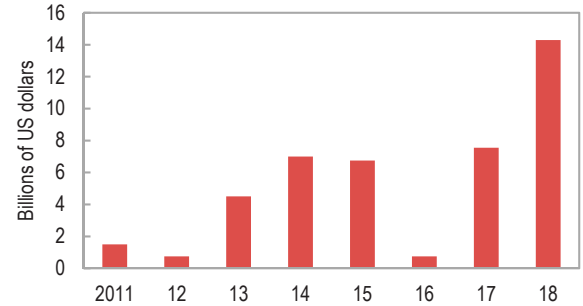
Figure 1.2. Selected Commodity Prices: Expected Changes Average 2019–20 versus 2017



Sources: IMF, Commodity Price System; and IMF Global Assumptions

Note: WEO = IMF, *World Economic Outlook*.

Figure 1.3. Sub-Saharan African Frontier Market Economies: International Sovereign Bond Issuances, 2011–18



Source: Haver Analytics.

Note: Data as of September 2018.

Despite increased volatility in commodity markets, the outlook for energy points to higher prices relative to what was expected last April, but is mixed for metals and other commodities exported by the region (Figure 1.2). While prospects for energy prices bring a relief to oil producers, they also imply a worsening of the terms of trade for oil importers (three-quarters of the countries in the region).

Global financial conditions remain accommodative but have tightened somewhat since mid-April 2018 with higher bond spreads and capital outflows from certain emerging and frontier markets. Global investors' appetite for the region's securities was elevated, with international sovereign bond issuances by sub-Saharan African frontier markets in 2018 reaching US$13.8 billion in the first half of the year, higher than the annual total in any previous year, and compared with US$7.6 billion for the whole year 2017 (Figure 1.3). Senegal, for instance, issued US$2.2 billion worth of Eurobonds in March 2018 with issuance being five times oversubscribed, while Angola and Ghana issued Eurobonds worth US$3 billion and US$2 billion, respectively, in May, with issuances being three and four times oversubscribed, respectively. In July, Angola reopened the May Eurobond issuance and raised an additional US$500 million.

The Modest Recovery Continues, Mainly Driven by Oil Exporters

Average growth for the region (weighted by GDP in purchasing power parity terms) is expected to reach about 3.1 percent in 2018, up from 2.7 percent in 2017 (Figure 1.4). Growth momentum improved most notably for oil exporters, mainly in Nigeria, but remains subdued in South Africa.

- Nigeria is expected to grow by 1.9 percent in 2018, up from 0.8 percent in 2017, mostly owing to fewer disruptions in oil production and some pick-up in the non-oil economy.

The recovery is expected to contribute about 0.7 percentage points to the region's average growth in 2018 and lift activity in Nigeria's trading partners through stronger remittances, financial spillovers, and import demand (IMF 2018b).[1] For example, spillovers to Benin's and Niger's growth are estimated to be ½ and ⅓ percentage points, respectively. Over the medium term, and under current policies, growth is expected to plateau at about 2½ percent, still below the rate of population increase.

- Growth in South Africa is expected to be about 0.8 percent in 2018. While a pickup in private activity is possible as policy uncertainty is reduced, public investment remains constrained by limited fiscal space and weaknesses in SOEs' balance sheets. On current policies, growth is expected to stabilize at about 1.8 percent over the medium term. Spillovers to the region are likely to manifest themselves mainly through the financial sector and import demand (IMF 2016).

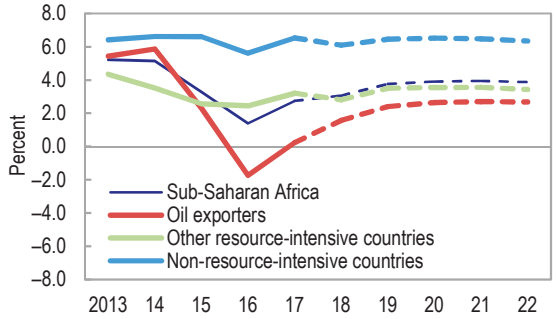
Across countries, there is a sizable disparity in growth performances.[2] Non-resource-intensive countries continue to grow at about 6 percent on average; resource-intensive countries have seen some pickup in growth but still below levels attained prior to the 2014 commodity price shock; and a few countries continue to deal with security problems imposing severe human and economic tolls. One-third of the population of sub-Saharan Africa lives in countries where GDP per capita fell in 2017 and is expected to fall further in 2018 and 2019.

On current policies, growth is expected to accelerate over the medium term to about 4 percent, or 1½ percent in per capita terms. But this will not be enough for the region to fully harness its demographic dividend, as job creation will likely continue to fall short of what is needed to absorb new entrants to the labor markets. Indeed, with the number of sub-Saharan Africans reaching working age (15–64) projected at more than 100 million during 2030–35, exceeding that of the rest of the world, the region will need to create on average 20 million jobs (IMF 2015) every year during 2018–35, that is twice as many as has been created on average over the past five years (Figure 1.5).

Inflation Pressures are Expected to Ease Further

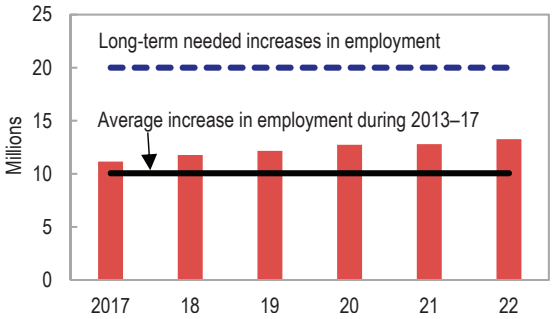
Inflation pressures in sub-Saharan African economies are waning, especially in oil-exporting economies. Average inflation in oil-exporting countries is expected to fall from 17 percent in 2017 to about 13 percent in 2018. Elsewhere, inflation remains relatively low. Inflation dynamics reflect the relatively slow pace of the recovery, some tightening of monetary policy or higher agricultural production and, in many countries, the incomplete pass-through of higher oil prices.

Figure 1.4. Sub-Saharan Africa: Real GDP Growth, 2013–22



Source: IMF, World Economic Outlook database.
Note: See page 52 for country groupings tables.

Figure 1.5. Sub-Saharan Africa: Change in Employment



Sources: United Nations, International Labour Organization; and IMF staff estimates.

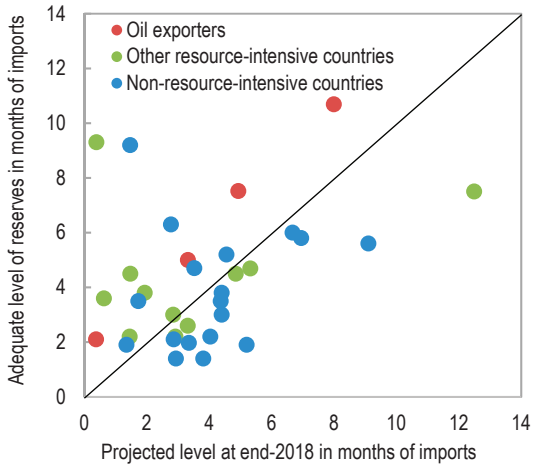
[1] Using the estimated spillover coefficients of Nigeria and South Africa to the rest of the region of 0.08 and 0.11, respectively (Arizala and others 2018).

[2] See appendix tables for historical and forecasts for key macroeconomic variables.

Foreign Exchange Reserve Buffers need to be Rebuilt

Compared with 2017, current account balances are expected to improve in oil-exporting countries and deteriorate in other countries. Despite the adjustment in current account balances for oil-exporting countries, foreign exchange reserve buffers are expected to remain below levels deemed adequate based on metrics derived from emerging and developing countries' crises experiences (Figure 1.6).[3]

Figure 1.6. Sub-Saharan Africa: Reserve Buffers



Sources: IMF, World Economic Outlook database; and IMF staff calculations.

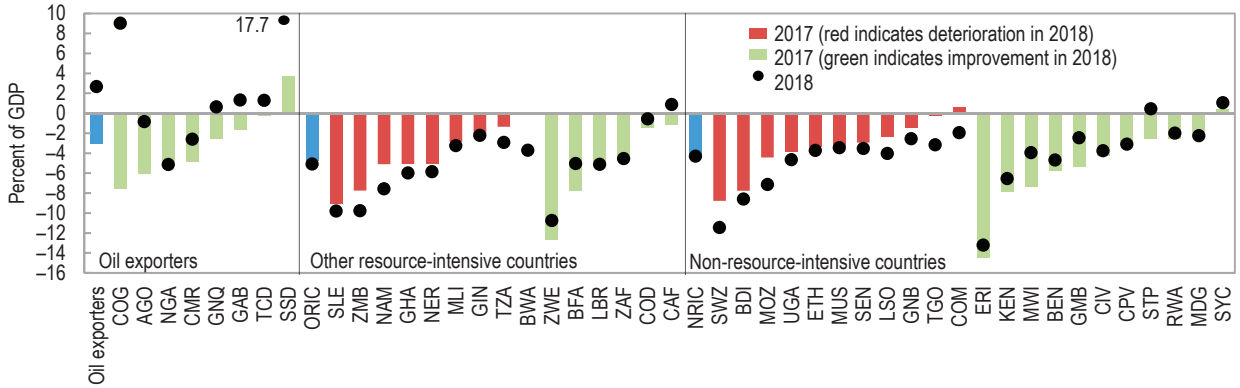
Note: Oil exporters, except for Angola, Nigeria, and South Sudan, are grouped into one data point corresponding to Economic and Monetary Community of Central Africa (CEMAC). West African Economic and Monetary Union (WAEMU) countries are grouped into one single data point and classified as non-resource-intensive. See page 52 for country groupings tables.

Fiscal Consolidation is Proceeding, but its Quality Needs to Improve

Baseline projections point to a further narrowing of fiscal deficits in sub-Saharan Africa. The average fiscal deficit for the region is set to shrink from 4.2 percent of GDP in 2017 to 3.3 percent in 2018. This masks however significant variations across economies, with fiscal balances expected to improve in oil-exporting countries, remain unchanged in non-resource-intensive countries, and deteriorate somewhat in other resource-intensive countries (Figure 1.7). The improvement in fiscal balances in oil-exporting countries stemmed in most cases from increased revenues from the oil sector and cuts in capital expenditures, with a notable exception of Nigeria where public investment has doubled over the last two years, albeit from low levels. Further radical cuts in capital expenditure risk undermining medium-term growth, if this investment is not picked up by the private sector.

Meanwhile, progress on much needed domestic revenue mobilization has been elusive, remaining far short of the region's potential. Under current medium-term fiscal plans, the revenue gap, estimated at 3–5 percent of GDP on average across countries, is not expected to be closed.[4] Indeed,

Figure 1.7. Sub-Saharan Africa: Overall Fiscal Balance, 2017–18



Source: IMF, World Economic Outlook database.

Note: NRIC = non-resource-intensive countries; ORIC = other resource-intensive countries;. See page 52 for country groupings and page 53 for country abbreviations tables.

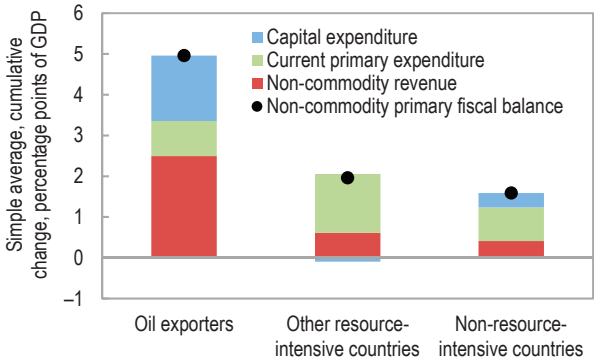
[3] The assessment of reserve adequacy is made using IMF tools specifically designed for emerging market economies and credit-constrained economies. See http://www.imf.org/external/np/spr/ara/ for details.

[4] Sub-Saharan African countries could on average mobilize about 3 to 5 percent of GDP in additional tax collection, through a combination of reforms improving the efficiency of current systems including the reduction of tax exemptions, and of institutional changes, such as improvements in governance and measures to control corruption (IMF 2018c).

domestic revenues are envisaged to rise by about 2½ percent of GDP in oil exporting countries, and only by ½ percent of GDP in other countries (Figure 1.8).

The quality of the fiscal adjustment is also threatened by the re-emergence of fuel subsidies. While most countries did pass lower oil prices through to domestic prices, most countries have not raised prices as much in response to the recent increase in international fuel prices. Indeed, between early 2017 and April 2018, the median pass-through coefficient was zero for oil exporters and 47 percent for oil importers (Box 1.1).[5] Fuel prices are on average at about US$1.09 per liter (Figure 1.9), implying an estimated average fuel subsidy of 2 percent of GDP per annum once transportation and distributions costs, profit margins, and taxes are taken into account.

Figure 1.8. Sub-Saharan Africa: Medium-Term Fiscal Plans 2018–23



Sources: IMF, World Economic Outlook database; and IMF staff calculations.

Note: Excludes Burundi, Eritrea, and South Sudan due to data availability. See page 52 for country groupings tables.

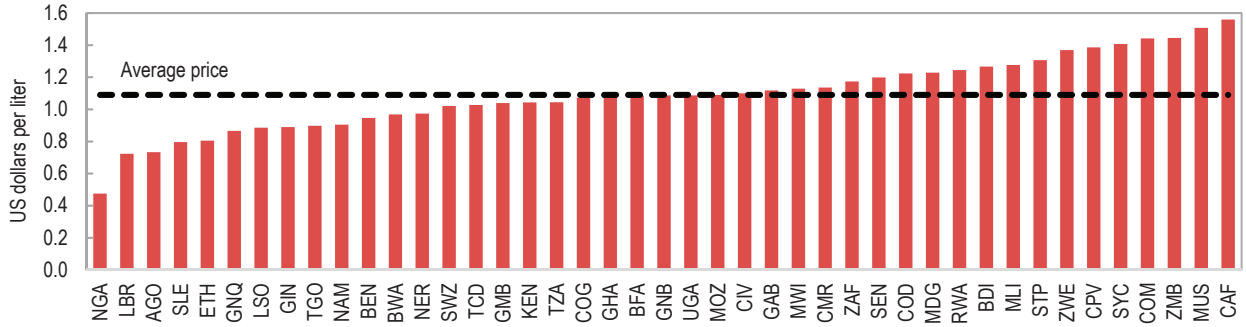
BALANCE SHEET VULNERABILITIES REMAIN ELEVATED

Debt Vulnerabilities Persist

In 2017, 15 sub-Saharan African countries were classified at high risk of debt distress (Burundi, Cameroon, Cabo Verde, Central African Republic, Ethiopia, The Gambia, Ghana, São Tomé and Príncipe, Zambia) or in debt distress (Chad, Republic of Congo, Eritrea, Mozambique, South Sudan, Zimbabwe) (Figure 1.10). Debt dynamics for countries in debt distress or at high risk of debt distress mainly reflect large primary deficits, which for many countries widened sharply with the commodity price collapse (IMF 2018d). In several cases, exchange rate depreciations have given rise to negative balance sheet effects and contributed to a deterioration in debt solvency and liquidity indicators (Figure 1.11).

Reflecting the ongoing fiscal consolidations and growth rebound, the average level of public debt in 2018 is expected to remain around its 2016 level, at about 57 percent of GDP, but there is wide heterogeneity across countries. Debt reduction mainly reflects adjustments in oil exporters and to a lesser extent in non-resource-intensive countries (Figure 1.12). Also, in some highly indebted countries (Republic of Congo, The Gambia) improved revenue performance and higher GDP growth are expected to yield significant improvements in debt servicing capacity.

Figure 1.9. Sub-Saharan Africa: Gasoline Prices, April/May 2018



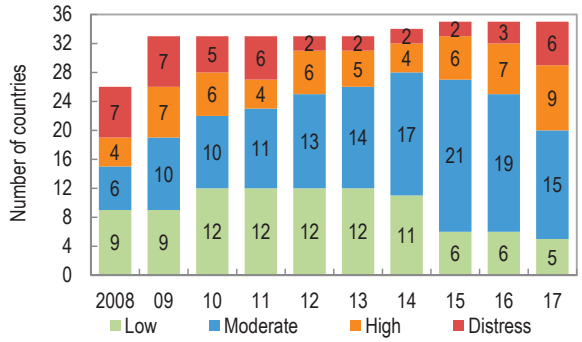
Sources: Country authorities; and IMF staff calculations.

Note: See Box 1.1. for details. See page 53 for country abbreviations table.

[5] Defined as the nominal change in domestic retail prices divided by the nominal change in international prices, both in domestic currency.

Baseline public debt trajectories are subject to significant uncertainties. In particular, several countries face increased foreign exchange risk and debt management challenges with nontraditional official and private creditors playing a more important role. The share of foreign-currency denominated public debt in total public debt increased across sub-Saharan Africa from an average of 23 percent in 2011–13 to 32 percent of GDP in 2017 (Figure 1.13). On the creditor landscape, while the share of concessional financing has remained unchanged and official creditors continue to represent the largest creditor group, the share of debt held by private banks and bondholders has increased to about 15 percent. At the same time, borrowing from non-Paris Club countries, especially from China, has been rising.

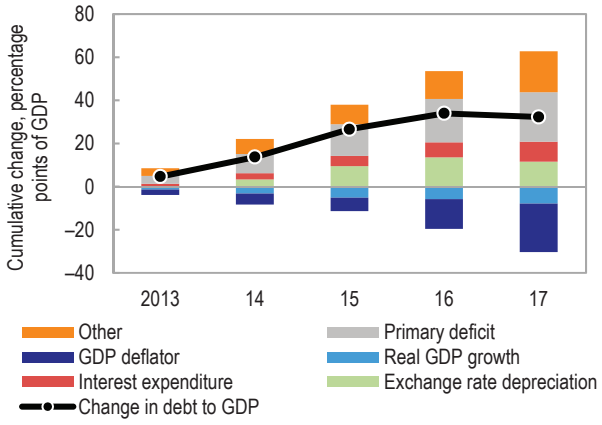
Figure 1.10. Sub-Saharan Africa: Debt Risk Status for PRGT Eligible Low-Income Developing Countries, 2008–17



Source: IMF, Debt Sustainability Analysis database.

Note: Debt risk ratings for Burundi, Chad, The Gambia, Lesotho, Rwanda, São Tomé and Príncipe, and Zimbabwe begin in 2009, Cabo Verde in 2014, and for South Sudan in 2015. PRGT = Poverty Reduction and Growth Trust.

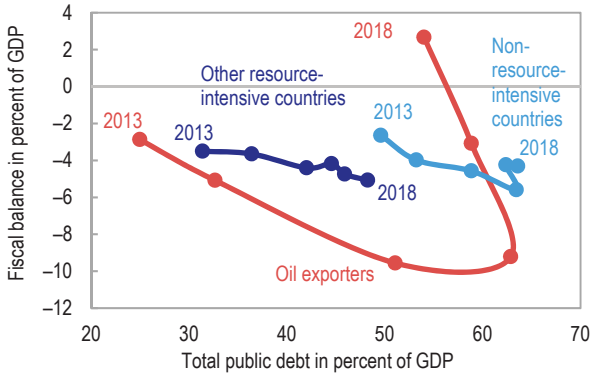
Figure 1.11. Sub-Saharan African Countries at High Risk or in Debt Distress: Cumulative Contribution from Debt Decomposition, 2013–17



Sources: IMF, World Economic Outlook database; and IMF staff calculations.

Furthermore, fiscal uncertainties related to contingent liabilities and the accumulation of public domestic arrears also increased in some countries. Arrears amount to about 5 percent of GDP on average (end-2017 mean) and exceed 20 percent in several countries (Equatorial Guinea, Gabon, The Gambia). In most countries, government arrears to suppliers of goods and services account for the bulk of domestic arrears, followed by those to other private firms and workers as well as to SOEs. In some cases, there has also been an accumulation of arrears among SOEs. The accumulated SOE liabilities to the economy have occasionally reached a worrisome level of 10 percent of GDP or more (Cabo Verde, Cameroon, Ghana, São Tomé and Príncipe, South Africa), implying contingent fiscal liabilities that may compromise the general

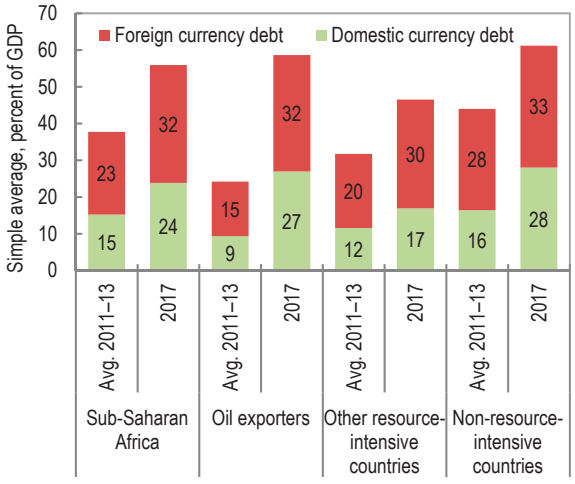
Figure 1.12. Sub-Saharan Africa: Average Fiscal Balance and Public Sector Debt, 2013–18



Source: IMF, World Economic Outlook database.

Note: See page 52 for country groupings tables.

Figure 1.13. Sub-Saharan Africa: Public Sector Debt by Currency, 2011–17



Sources: IMF, Debt Sustainability Analysis database; and IMF staff calculations.

Note: See page 52 for country groupings tables.

government's debt sustainability. In the context of continued restructuring efforts, several countries have managed to clear SOE arrears (Burkina Faso, Côte d'Ivoire), while others increased transparency by auditing the SOE sector (Benin, Niger, Seychelles) and leveraging findings of official reports on SOE performance (Cabo Verde, Ghana, Liberia). Nevertheless, direct support of SOEs' quasi-fiscal activities via subsidies or on-lending represents a considerable burden on the budget in some cases, crowding out higher-priority public spending (Botswana, Cabo Verde, Madagascar).

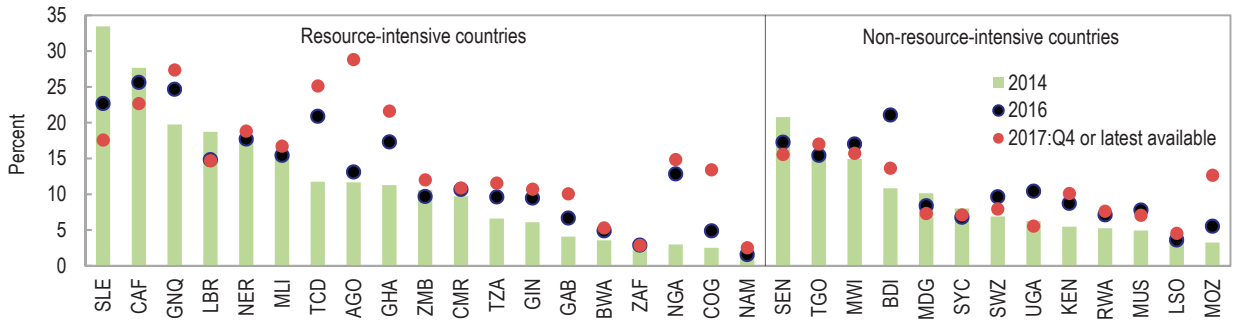
Weaknesses in Bank Balance Sheets are Weighing on Credit Growth

In most sub-Saharan African economies, NPLs are high (Figure 1.14). The accumulation of NPLs has been especially rapid in state-owned banks (Angola, Gabon), mainly reflecting economic slowdown, poor risk management practices (Angola), and high level of arrears to government suppliers (Chad) or delays in their repayment (Equatorial Guinea, Gabon, Ghana, Malawi). In some cases (Ghana), a more stringent application of loan classification requirements and earlier loss recognition, following asset quality reviews, also contributed to the increase in the reported levels of NPLs. However, there are also indications that in some countries NPLs are understated due to evergreening.

Bad loans have eroded commercial banks' profitability in a few countries, while in others (Nigeria, WAEMU), attractive returns on government securities have supported bank profitability. Capital ratios vary significantly among individual banks with some banks experiencing severe shortfalls in several jurisdictions (Ghana, Guinea, Guinea-Bissau, Malawi, Nigeria, Togo).

High NPL ratios, together with slowing activity, have contributed to slowing credit to the private sector in three-quarters of countries (Figure 1.15) most notably in Botswana, Equatorial Guinea, Gabon, Ghana, Guinea, Guinea-Bissau, Liberia, Malawi, and São Tomé and Príncipe. The slowing of credit to the private sector can also be attributed to weak growth and, to some extent, tighter monetary conditions (Cameroon,

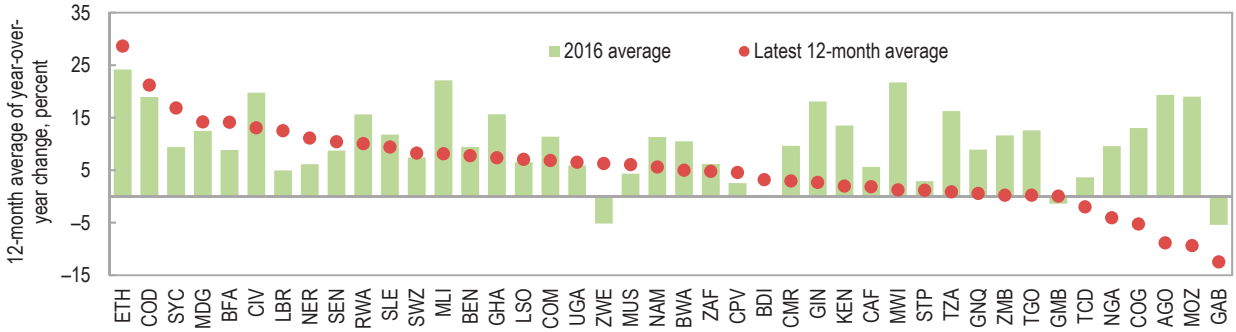
Figure 1.14. Sub-Saharan Africa: Bank Nonperforming Loans to Total Loans



Sources: Country authorities; and IMF, International Financial Statistics.

Note: See page 52 for country groupings and page 53 for country abbreviations tables.

Figure 1.15. Sub-Saharan Africa: Private Sector Credit Growth



Source: IMF, International Financial Statistics.

Note: See page 53 for country abbreviations table.

Equatorial Guinea). Other contributing factors include high levels of household indebtedness (Botswana), uncertainty in the economic and political outlook (Gabon, Ghana, Guinea), and a redirection of bank lending toward government securities (Guinea, Malawi) (Figure 1.16).

Other sources of concern on the health of banks' balance sheets include foreign currency liquidity mismatches (Angola) and high loan concentration (Benin, Malawi, Namibia).

RISKS TO THE OUTLOOK

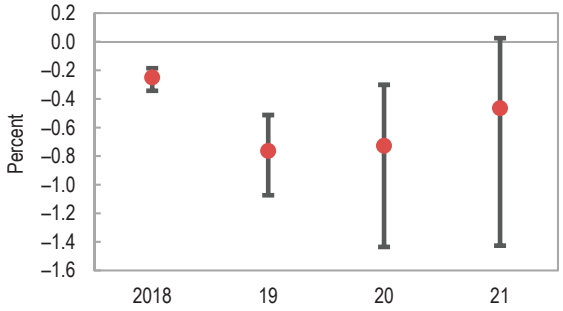
External Risks

Trade tensions

Escalating trade conflicts threaten to derail the global economic recovery in the near term and dampen medium-term growth prospects. Furthermore, a shift away from trade openness in global markets and toward more inward-looking policies would make it more difficult for sub-Saharan economies to achieve the Sustainable Development Goals (SDGs), and to meet the challenges associated with rapid technological change and demographic pressures (Chapter 3).

Trade tensions among the United States, other major advanced economies, and China could entail a cumulative loss of GDP in sub-Saharan Africa of up to 1½ percent of GDP during 2018–21 (Figure 1.17).[6] Sub-Saharan African countries most affected by the trade tensions would be the commodity exporters and those countries (commodity exporters and importers alike) that are more integrated in global markets. The estimated impact reflects the adverse effects of escalating trade tensions on global demand, including import demand from China, commodity prices, and domestic investment.

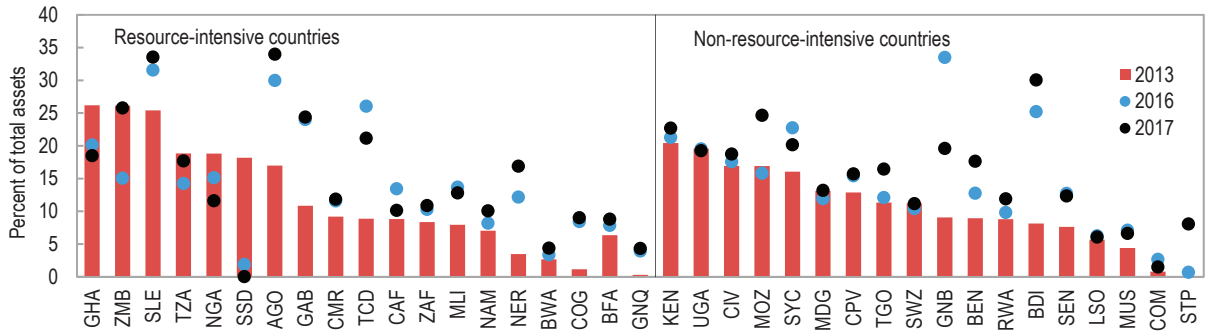
Figure 1.17. Sub-Saharan Africa: Average Potential Impact on GDP of Trade Measures



Source: IMF Research Department staff calculations.

Note: Dots show the average and the vertical lines indicate the interquartile range.

Figure 1.16. Sub-Saharan Africa: Banks' Holdings of Government Debt



Source: IMF, International Financial Statistics.

Note: See page 52 for country groupings and page 53 for country abbreviations tables.

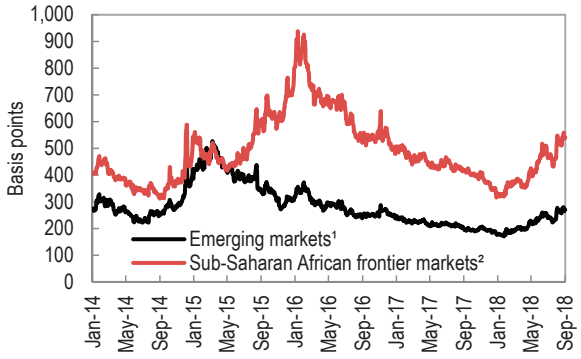
[6] Consistent with the scenarios presented in the October 2018 *World Economic Outlook*, trade tensions simulations assess the economic impact on sub-Saharan African countries of tariffs that have been imposed or announced between the United States and several of its trading partners. Several rounds of tariffs are assumed. First, the United States imposes tariffs on steel (25 percent) and aluminum (10 percent) and a 25 percent tariff on US$50 billion of imports from China, and all US trading partners respond with commensurate retaliatory measures. Second, the United States imposes 25 percent tariffs on US$200 billion of imports from China, and China responds by imposing tariffs that vary between 5 and 25 percent on US$60 billion of imports from the United States. Third, the United States follows through with its threat to impose 25 percent tariff on all imported cars and car parts (about US$350 billion), and the impacted trading partners respond with similar tariffs on US exports of cars and car parts and other goods. Finally, these tariffs are assumed to hamper confidence and tighten financial conditions for corporates as markets expect further worsening of trade tensions.

Tighter global financial conditions

Tighter global financial conditions resulting from faster than envisaged monetary policy normalization in advanced economies or a sudden shift in investors' sentiment could constrain financing and growth for many sub-Saharan African countries. Frontier markets have for now weathered relatively well the bouts of volatility that have hit a few large emerging market economies, and the attendant tightening in spreads since mid-April 2018 (Figure 1.18 and Box 1.2). So far, market pressures have been stronger for the emerging market economies showing evident weaknesses, for example, political uncertainty or macroeconomic imbalances (Argentina, South Africa, Turkey). But should these pressures persist, their spillover effects for the broader category of emerging and frontier markets could become significant.

Higher US interest rates and a stronger dollar could also heighten the risks of a financial crisis, as observed historically in emerging and developing economies. In particular, the probability of a large reversal in foreign flows in sub-Saharan Africa is significantly higher as US interest rates go up (see Chapter 2), while around one-third of currency crises have been associated with a reversal in foreign flows. Thus, the large amounts of maturing bonds for the region's frontier markets in 2019–20 and in 2024–25 suggest substantial refinancing risks (Figure 1.19).

Figure 1.18. Sub-Saharan African Frontier and Emerging Market Spreads, 2014–18



Source: Bloomberg Finance, L.P.

Note: Data as of September 20, 2018.
[1] The emerging market average includes the Emerging Market Bond Index Global (EMBIG) spreads of Argentina, Brazil, Bulgaria, Chile, Colombia, Hungary, Malaysia, Mexico, Peru, Philippines, Poland, Russia, South Africa, Turkey, and Ukraine.
[2] The frontier markets spread includes the spreads of Angola, Cameroon, Côte d'Ivoire, Ethiopia, Gabon, Ghana, Kenya, Namibia, Nigeria, Senegal, Tanzania, and Zambia

These risks are compounded by growing sovereign-banks linkages, which make banking sectors increasingly vulnerable to a tightening of global financial conditions and fiscal challenges.

Domestic Risks

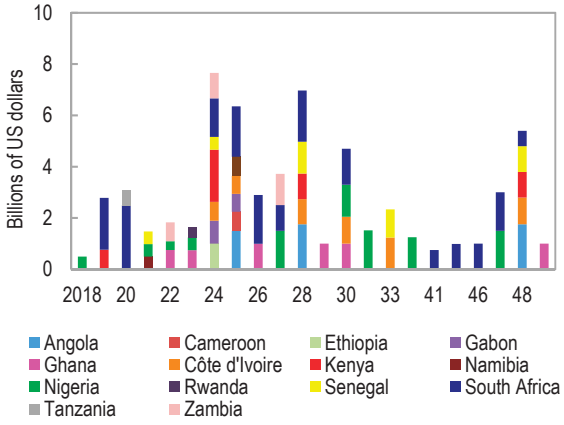
Policy slippages

While most countries have medium-term fiscal plans which aim to achieve sustainable debt levels, those strategies need to be implemented (Figure 1.20). Thus, it is important to resist populist pressures to ease consolidation efforts for example in the event of temporary spikes in commodity prices or in the run-up to elections. Indeed, and particularly for the emerging market economies and frontier economies with significant exposures to international capital markets, it will be critical to avoid policy slippages or higher policy uncertainty including in the run-up to elections in 2019 in countries such as Nigeria, Senegal, and South Africa.

Security risks

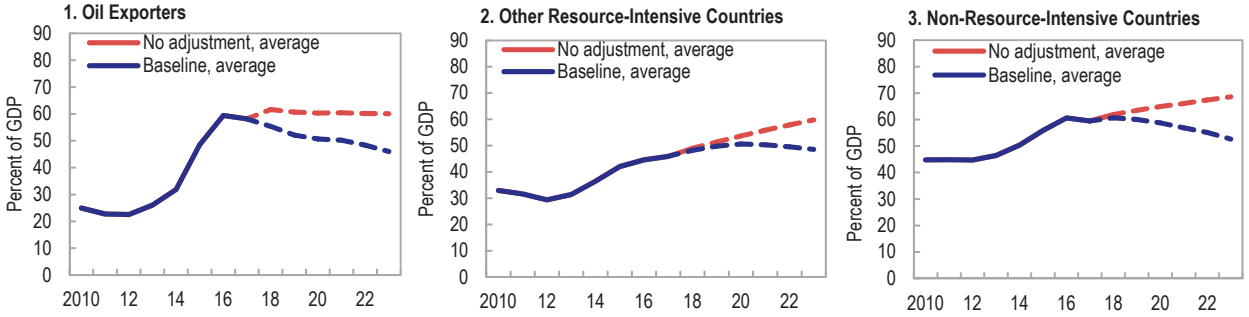
Elevated security risks, in part related to civil unrest and terrorist attacks, impose an enormous human toll, are a drag on growth in many countries of the region, and constrain countries' ability to deliver basic public services. The largest number of incidents of civil unrest and terrorism in the past five years occurred in Nigeria, albeit their frequency has been declining. The number of terrorist attacks in G5 Sahel countries nearly doubled in 2017. The United Nations Office for the Coordination of Humanitarian Affairs (UN-OCHA) estimates that

Figure 1.19. Sub-Saharan African Frontier Markets: Maturity of International Sovereign Bonds



Source: Bloomberg Finance, L.P.

Figure 1.20. Sub-Saharan Africa: Public Sector Debt to GDP, 2011–23



Sources: IMF, World Economic Outlook database; and IMF staff calculations.

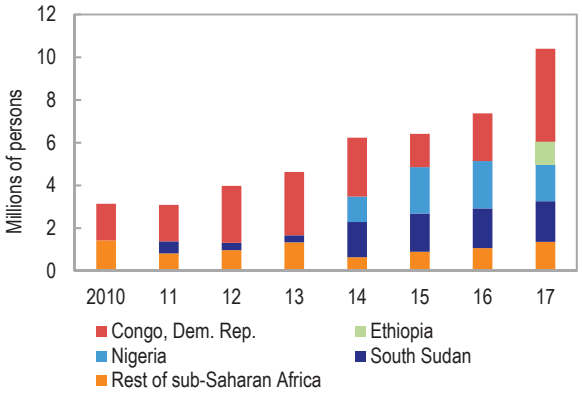
Note: Baseline projections reflect the program or baseline scenarios reported in the latest IMF staff reports. "No adjustment" projections assume that the primary deficit, the real interest expenditure, and the other components of debt accumulation will remain at their 2017 levels, while the exchange rate and real GDP growth components are as in baseline projections. Excludes Burundi, Eritrea, and South Sudan due to data availability. See page 52 for country groupings tables.

security issues will result in more than 30 million people suffering from food insecurity in 2018 (UN-OCHA 2018). Moreover, insecurity has led to a dramatic increase in the number of internally displaced persons (Figure 1.21). While this number stood at about 4 million in 2012, it reached about 11 million in 2017, with largest increases reported for the Democratic Republic of Congo, Ethiopia, and South Sudan. Moreover, in 2017 there was a total of 4 million people seeking refuge in other sub-Saharan African countries, up from 1 million in 2010 (UNHCR 2018). In parallel, about 170,000 migrants from sub-Saharan Africa sought asylum in Europe in 2017, and about 1 million during 2010–17 (Connor 2018).

POLICIES

Prior to the commodity price shock, the region enjoyed a sustained period of strong growth (during 2000–13), thanks to deep structural reforms and highly supportive external conditions. But with a likely less-supportive external environment and as new challenges relating to rapid advances in technology and climate change emerge, sub-Saharan African countries need to create a growth model that is more resilient and capable of creating enough jobs for the region to harness fully its demographic dividend. Doing so would require strong, sustainable, and inclusive growth. Achieving this in turn would require policies to strengthen resilience and facilitate the reallocation of labor and capital into more productive sectors to lift incomes faster.

Figure 1.21. Sub-Saharan Africa: Internally Displaced Persons, 2010–17



Source: United Nations High Commissioner for Refugees.

Strengthening the Foundations for Sustained, Strong, and Inclusive Growth

Increasing fiscal space

Improving the quality of fiscal adjustment is key to ensuring stronger and more sustainable outcomes, while creating fiscal space to pursue development priorities.

- Advance revenue mobilization. With average revenue estimated at 3–5 percent of GDP below potential, there is substantial scope for all countries to raise revenue. A common factor underpinning successful revenue mobilization episodes in the region has been an effective and modern tax policy and administration, such as taxpayer identification numbers, a semi-autonomous revenue authority, the VAT, and taxpayer segmentation. Countries that succeeded in raising revenues paid special attention to measures to build the tax base, simplify the tax system, and tackle exemptions and incentives (IMF 2018a).

- Enhance the efficiency of expenditures. One component is to address the re-emergence of energy subsidies through the implementation of automatic fuel pricing mechanisms (as successfully introduced in Ghana and Mozambique) and, at the same time, undertake mitigating measures to compensate the poor. In addition, countries need to continue to improve the efficiency of public investment by strengthening infrastructure governance institutions for the planning, allocation, and implementation of public investment. They also need to continue enhancing public financial management to avoid the incurrence of arrears and misallocation of expenditure, including by reforming loss-making SOEs. Finally, given the relatively high levels of wage bills in the region, wage bill reform, if properly designed and effectively implemented, would improve the efficiency of expenditures. Such measures should be however carefully designed and targeted since many public-sector workers are employed in the education and healthcare sectors.

- Improve debt management frameworks to better manage currency and interest rate risks (IMF 2018d). This entails strengthening capacity to undertake cost-risk analysis of borrowing options and manage repayments on commercial borrowing (Kenya, Uganda). Cost-risk analysis has helped increase awareness of debt portfolio risks and of the importance of developing the government securities markets in the medium term. Some countries (Cabo Verde, Ghana, Kenya, Tanzania) are updating their medium-term debt strategy to address contingent liability risks. Furthermore, deepening domestic sovereign debt markets (Ghana, Kenya, Namibia, Nigeria, Tanzania) could provide ways to lower currency and interest rate risks.

Addressing financial sector weaknesses

Growing financial sector weaknesses need to be addressed in a timely manner. Waiting until there is a collapse forces a disruptive adjustment and adds to fiscal costs, deepening the drag on growth. Some countries are taking steps to reduce NPLs, including by strengthening creditor rights and reducing lengthy judicial processes in recovering collateral (Guinea-Bissau), halting net accumulation of public domestic arrears to the private sector (Equatorial Guinea), improving the credit information system, modernizing the insolvency regime, and implementing financial education programs for medium-sized enterprises (MSMEs).[7] Nevertheless, addressing persistent NPLs requires comprehensive NPL reduction strategies, including regulatory efforts to accelerate loss recognition, a stronger supervisory focus on recovery actions by banks and reforms of insolvency and debt enforcement frameworks to enable swift restructuring of the debt of distressed but viable borrowers, and support the consistency and efficiency of judicial proceedings. Authorities could also establish permanent macroprudential buffers (on top of micro-prudential minimum) which could be relaxed at the discretion of regulators in the event of shocks, thereby allowing NPLs to be absorbed by capital and for a continued provision of credit.

Countries also recently made progress in strengthening their banking sectors. Angola, Ghana, and Mozambique raised their minimum statutory capital requirement (and in Angola an asset quality review of the systemic banks will be conducted to inform potential capitalization needs); CEMAC adopted a number of new regulations, including on the definition of systemically important institutions (in line with the Basel Committee recommendations); the accelerated resolution of small MFIs; and of a sound emergency liquidity assistance framework; and WAEMU adopted new prudential rules aligned with the Basel II/III

[7] Many countries in the region have recently engaged in several initiatives to promote bank lending. Cabo Verde considers providing partial guarantees on loans to SMEs; CEMAC plans to update the credit registry (postponed to end 2020) and to have an operating credit bureau by early 2020; Guinea has operationalized a new credit information system to provide better information on customers' creditworthiness; Kenya is improving information from credit reference bureaus and adopted a law on movable collateral registry to expand the collateral available against bank lending; Niger has strengthened the credit bureau through March 2018 legislation that obliges utilities to provide information about the payment discipline of their clients and is preparing a law on "warrantage" (defined as granting credit with grain as collateral in secure warehouses).

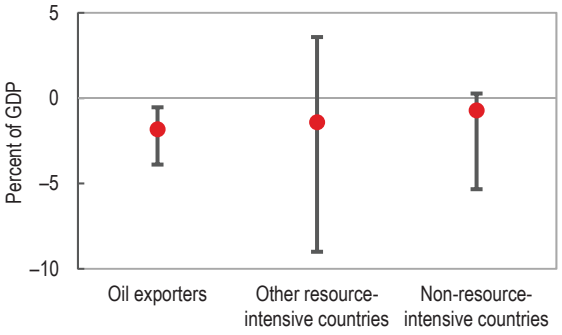
principles that should help consolidate banks' balance sheets and address vulnerabilities.

Entrenching external adjustment

The commodity-exporting sub-Saharan African countries, which experienced historically large negative terms of trade shock in late-2014 and 2015, have seen a progressive improvement in their current account balances in 2016 and 2017 but did little to increase their resilience to such shocks. The adjustment following the shock relied initially mainly on import compression and later was facilitated by a gradual improvement in the terms of trade and a recovery in external demand. Meanwhile, exchange rates and relative prices have played a limited role in part because 10 out of the 23 commodity-exporting countries maintain fixed exchange rate regimes, and in part because of the low sensitivity of current account balances to real exchange rate changes. The latter is due to a limited responsiveness of output and exports to real exchange rate changes, largely reflecting a small share of manufacturing in their economies. The contribution of relative prices to the adjustment has been the largest in non-resource-intensive countries while oil-exporting countries and non-oil-resource-intensive countries have benefitted little from changes in relative prices (Figure 1.22).

The adjustment needed to align current account balances with fundamentals and desired policies is not large (Figure 1.23). But facilitating adjustments to shocks would require reducing the region's dependence on commodity exports and improving flexibility by advancing on structural transformation and product and labor markets reforms. Key product market reforms to be implemented in sub-Saharan African countries include: improving product market regulation and encouraging competition (Angola, Côte d'Ivoire, South Africa), providing reliable sources of basic industrial inputs such as electricity (Angola, Côte d'Ivoire, Nigeria), improving the efficiency and finances of SOEs in key network sectors (Angola, Cameroon, Côte d'Ivoire, South Africa), and improving access to credit (Angola, Cameroon, Nigeria). Labor market reforms should aim to reduce skills mismatches through better education and vocational training (Botswana, Namibia, South Africa), minimize the side effects of collective bargaining agreements, and reduce hiring and firing barriers (South Africa).

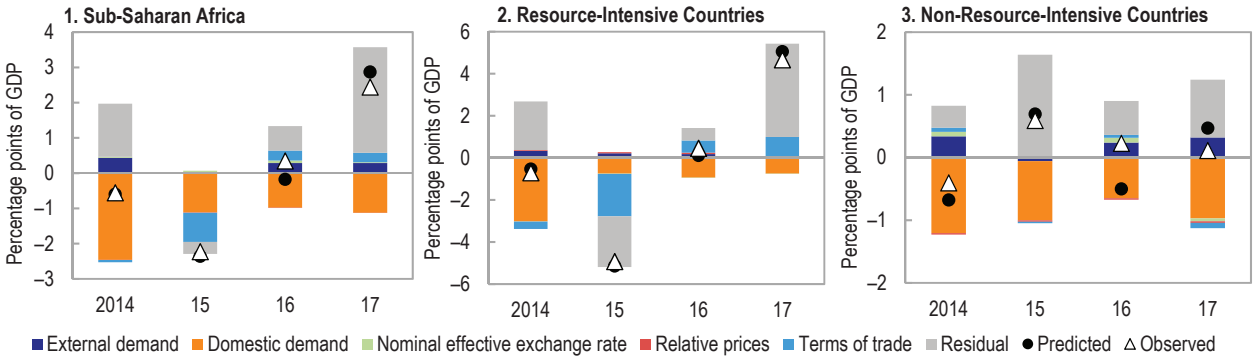
Figure 1.23. Deviation from Current Account Norm, 2018



Source: IMF staff calculations.

Note: Dots show the median deviations and the vertical lines indicate the interquartile range. See page 52 for country groupings tables.

Figure 1.22. Sub-Saharan Africa: Contribution to Current Account Adjustment, 2014–17



Source: IMF staff calculations.

Note: Contributions based on the results of an extended model of the Harberger-Laursen-Meltzer effect. The model relates changes in the current account balance to the terms of trade, domestic and external demands, the nominal exchange rate, and foreign-domestic relative prices. The residuals also contain the average country fixed effects. See page 52 for country groupings tables.

Such reforms would enhance the sensitivity of current account balances to real exchange rate movements.

Improving policies to smooth output fluctuations

Output fluctuations in the region are highly impacted by commodity price volatility.[8] Empirical evidence suggests that commodity price shocks are a key driver of real GDP volatility (Figure 1.24) with the sensitivity of output to commodity prices in diversified economies being lower than in less diversified ones. In particular, the contribution of oil price volatility to output fluctuations ranges from 0 to 2 percent at the short- to long-term horizons in diversified economies, compared with 10 percent in less diversified economies (Figure 1.25).

Thus, promoting greater economic diversification would enhance sub-Saharan Africa's resilience to commodity price fluctuations. Greater economic diversification would shield the region from global commodity market volatility. Many of the drivers of economic diversification are akin to drivers of economic growth, given that these are parallel and mutually reinforcing processes. From this perspective, a better investment climate and labor mobility would facilitate economic diversification. Other key factors include higher quality of infrastructure and human capital.

Sub-Saharan African economies could also be more resilient to commodity price shocks if countries improve their fiscal policy frameworks with a view to enhancing their ability to run countercyclical fiscal positions relative to the commodity cycle (Figure 1.26).[9] Indeed, sub-Saharan African countries tend to contract their primary deficits when commodity prices are high (above trend or during "good times") but only by a small margin.[10] In contrast, when commodity prices are low (below trend or during "bad times"), primary fiscal deficits tend to increase in half of oil exporters and other resource-intensive countries.[11] This suggests that several sub-Saharan African countries face the challenge of building sufficient fiscal buffers during good times.

Overall, improved fiscal policy frameworks to enhance sub-Saharan Africa's resilience to commodity prices include fiscal rules supported by adequate Public Financial Management (PFM) systems, a greater use of state-contingent financial instruments, and for commodity exporters, an adequate institutional framework to manage the revenue inflows from natural resources.

- Fiscal rules could help prepare countries to deal with low commodity prices by inducing swifter consolidation during the upturn, thereby helping bolster fiscal space. While about 21 sub-Saharan African countries are using some form of fiscal rule, many would benefit from greater emphasis on improving the transparency, to avoid ambiguities and ineffective enforcement. A recent IMF staff analysis (IMF 2018c) finds that most sub-Saharan African low-income and developing countries that have debt rules are within comfort levels, as their debt-to-GDP ratios in 2017 are below debt ceilings set under the fiscal rules (Benin, Burkina Faso, Mali, Niger). Nevertheless, fiscal rules in some countries should be aligned with countries' debt-servicing capacity.

- Adequate PFM systems need to be in place to ensure effective implementation of fiscal rules. Important required PFM elements include: (1) a well-established medium-term budget framework, focusing on medium-term fiscal priorities; (2) a top-down budgeting process and a comprehensive budget reporting system; (3) effective budget execution systems (commitment controls and cash management); (4) reliable data and technical forecasting capacity (to minimize forecasting errors);

[8] The results are based on a panel vector autoregression (VAR) model that includes filtered variables of GDP, commodity price, country-specific real effective exchange rates, global economic growth, and US nominal effective exchange rate. The results are broadly consistent with those obtained when a country-specific commodity price index (reflecting each country's commodity export basket) is used instead.

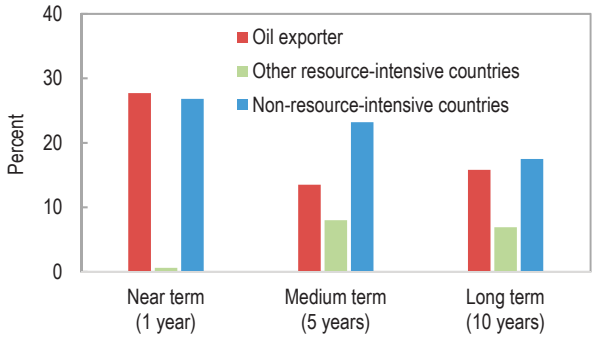
[9] The commodity price index is country specific and reflects each country commodity export basket.

[10] Statistical tests rejected the null hypothesis that the degree of comovement of the primary deficit with the commodity cycle is zero in good times for oil exporters and other resource-intensive countries.

[11] This is statistically significantly different from zero only for other resource-intensive countries.

(5) effective internal and external audit systems (to ensure accountability); and (6) regular publication of fiscal data to ensure transparency.

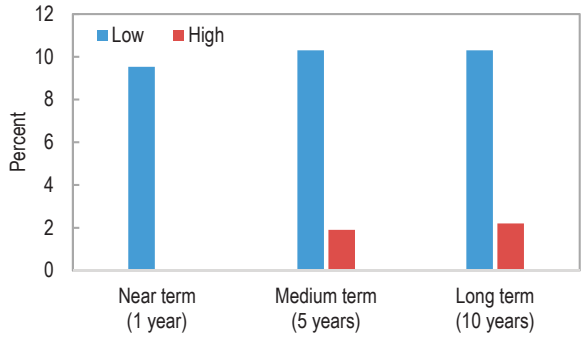
Figure 1.24. Contribution of Oil Price Shock to Output Volatility by Economic Classification



Source: IMF staff calculations.

Note: See page 52 for country groupings tables.

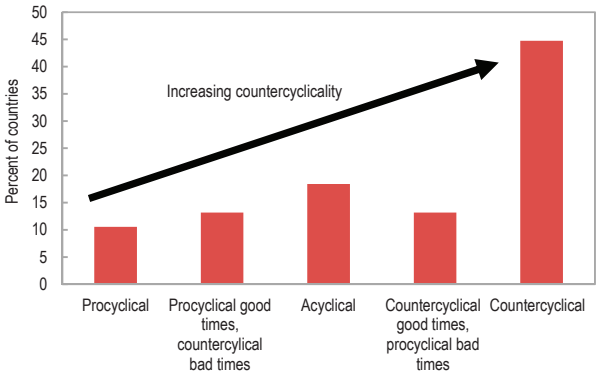
Figure 1.25. Contribution of Oil Price Shock to Output Volatility by Degree of Diversification



Source: IMF staff calculations.

Note: Threshold reflects whether the country is above or beneath the sub-Saharan African average and is computed from the diversification index of Papageorgiou, Rehman, and Wang (forthcoming).

Figure 1.26. Sub-Saharan Africa: Cyclicality of Fiscal Policy and Commodity Price Cycle



Source: IMF staff calculations.

Note: Cycles are obtained by applying the Hodrick-Prescott filter to commodity prices and to the change of the primary fiscal deficit-to-GDP ratio. Identification of "good times" are periods when output exceeds its long-term trend.

- Contingent financial instruments such as insurance schemes and forward markets to hedge commodity price risk could help lower costs associated with volatility in commodity-related earnings. These instruments could help reduce policy procyclicality. In addition, they could enable countries to address liquidity needs more promptly following a shock, since instruments disburse quickly (avoiding the need for procyclical policy measures) and help to preserve debt sustainability through contingent transfers. A few countries have used market-based instruments to hedge against commodity price risks (Ethiopia, Ghana, Malawi) with varying degrees of success. Nevertheless, in general, these instruments are seldom used due to their possibly large cost, a lack of liquidity, their complexity in some cases, and the fact that they only protect against one specific risk. Most countries therefore tend to prefer self-insurance by building buffers.

- Adequate institutional frameworks to manage the revenue inflows from natural resources should be established in the case of commodity exporters.

Monetary policy frameworks also should be further improved to anchor inflation expectations while smoothing output fluctuations. Some progress has been achieved recently in reforming monetary policy frameworks to enhance liquidity management and monetary policy transmission, but further efforts should be pursued. Policy recommendations include reducing excess liquidity in banking systems (especially in CEMAC) through active use of open market operations or/ and increasing the level of reserve requirements; developing interbank markets by improving information on counterparty risks and the development of repo transactions based on public debt securities; bringing and maintaining short-term interest rates to positive territory in real terms (especially in Angola, Nigeria); narrowing the overnight interest rate corridor and establishing a symmetrical interest rate corridor with rates linked to the key policy rate; developing robust forward-looking frameworks for forecasting liquidity and managing inflation; improving the communication of monetary policy actions and objectives to the

public to help anchor expectations; easing interest rate controls; limiting fiscal dominance; and strengthening the independence of central banks.

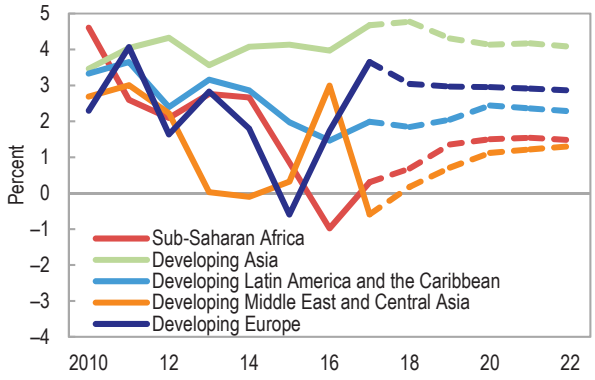
Living Standards Could Rise Faster

The projected 1.5 percent per capita growth on average over the medium term is commensurate to that of other economies in the Middle East and Central Asia, but much lower than in Asia, developing Europe, and Latin America (Figure 1.27). And in general, most economies in sub-Saharan Africa are projected to grow far below the rates expected in countries from other regions at similar levels of per capita income (Figure 1.28).[12] This is the case for several large economies, including Nigeria and South Africa, which are expected to see their real per capita income fall or stagnate over the medium term. In contrast, several countries including Ethiopia, Senegal, and Tanzania, are poised to see their per capita income rise faster than what would be expected given their level of income.

Differences between the region's growth performance and its faster growing comparators' stem mainly from total factor productivity (TFP) growth and physical capital accumulation (Figure 1.29).

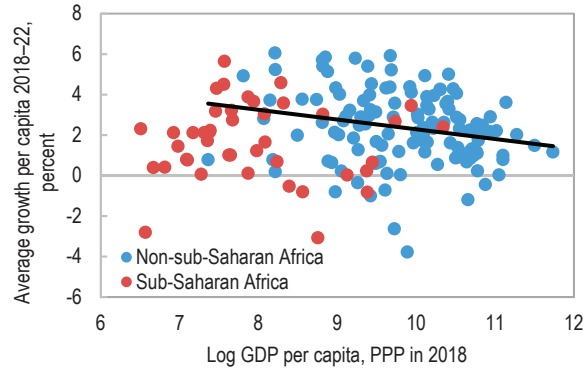
Productivity growth could be raised by facilitating the movement of labor and capital both between and within sectors (Diao, McMillan, and Rodrik 2017).[13] This means broadening the sources of productivity gains from the positive demand shocks

Figure 1.27. Selected Regions: Real GDP per Capita Growth, 2010–22



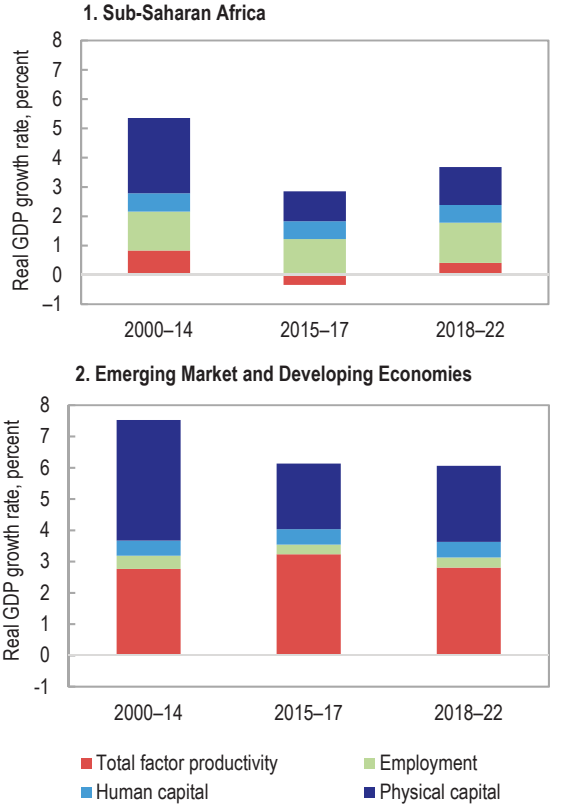
Source: IMF, World Economic Outlook database.

Figure 1.28. Expected Average GDP per Capita Growth and Initial Levels of GDP per Capita, 2018–22



Sources: IMF, World Economic Outlook database; Penn World Table 9.0; and IMF staff calculations.

Figure 1.29. Real GDP Growth Decomposition



Sources: IMF, World Economic Outlook database; Penn World Table 9.0; International Labour Organization; and IMF staff calculations.

[12] The negative slope of the fitted line indicates that on average poorer countries tend to grow faster than richer ones. Being below (above) the fitted line indicates a slower (faster) convergence than what one would expect given the initial level of income.

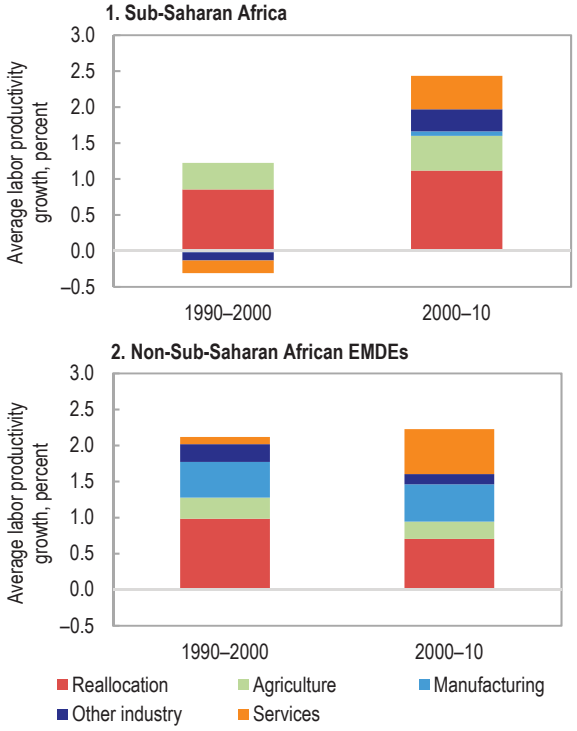
[13] See de Vries, Timmer, and de Vries (2015). The sample includes nine economies from sub-Saharan Africa (Botswana, Ethiopia, Ghana, Kenya, Malawi, Mauritius, Senegal, Tanzania, Zimbabwe), seven from Latin America, six from Asia, and two from the Middle East and North Africa.

and productivity gains in agriculture, which many countries in the region have experienced during 2000–10 (Figure 1.30), to increased efficiency in other sectors.[14] In this regard, the latest wave of technological progress (Chapter 3), the Fourth Industrial Revolution, could increase productivity in sub-Saharan Africa by allowing countries to leapfrog old technologies and some infrastructure. At the same time, these trends could create challenges, with the reshoring of manufacturing activity to advanced economies potentially undermining the traditional export-led growth model that has allowed many east Asian and Latin American economies to transition to higher income status.

Thus, policymakers in the region need to chart a path toward the better outcomes that the Fourth Industrial Revolution could lead to in the long term as presented in Chapter 3. And doing so means that they would need to encourage alternative growth strategies and embrace the opportunities from the Fourth Industrial Revolution by promoting digital connectivity and a flexible education system, removing market distortions, better allocating public spending, and undertaking policies that will foster private investment and risk-taking. Such policies include improving financial deepening, trade openness and integration (including within the continent in the context of the African Continental Free Trade Area),[15] ensuring a sound business environment (especially stronger regulatory and resolution frameworks), and providing adequate public goods, including well-developed infrastructure (IMF 2018e).

These policies could also contribute to allowing sub-Saharan African countries to close efficiency gaps relative to comparators in various sectors, including in manufacturing (about 0.5 percentage points), other industries (0.35 percentage points), and services (0.3 percentage points). If these efficiency gaps were to be closed, average TFP growth would increase by about 1.5–2 percentage points over the medium term.[16] And in such a scenario, average medium-term growth during 2018–22 would reach about 6 percent, compared to 4 percent in the baseline scenario. Higher growth could raise employment growth by an additional 0.6–0.8 percentage points over the medium term, lifting total net employment creation to about 16 million jobs by 2022, closer to the 20 million needed to absorb new entrants to labor markets. Raising growth would also accelerate progress toward reaching the SDGs, building on the progress that has been achieved so far (Box 1.3).

Figure 1.30. Decomposition of Labor Productivity Growth: Between (Reallocation) and Within (Labor Productivity Gain in Each Sector) Components



Source: de Vries, Timmer, and de Vries (2015).

Note: $\Delta y_t = \sum \alpha_{it-1} \Delta y_{it} + \sum y_{it} \Delta \alpha_{it}$ where α_{it} is the employment share of sector i at time t and y_{it} is labor productivity. The first term is the weighted sum of the sectoral "within" components of productivity growth and the second term represents the contribution of labor reallocation across sectors. EMDEs = emerging market and developing economies.

[14] These results are consistent with Diao, McMillan, and Rodrik (2017) who attribute the 2000–10 productivity gains mostly to a reallocation of factor inputs across sectors, resulting from positive demand shocks.

[15] In March 2018, in Rwanda, a large majority of African Union member countries signed an agreement to create a single continental market for goods and services. The agreement will become effective once at least 22 member countries have ratified it.

[16] These calculations assume that the recent structural transformation in sub-Saharan Africa is similar to the one of the 1990–2000 period, when commodity prices were depressed, and that the various elements of the decomposition exercise grow at rates similar to those observed in non-sub-Saharan African economies over the same period, excluding within agriculture productivity gains.

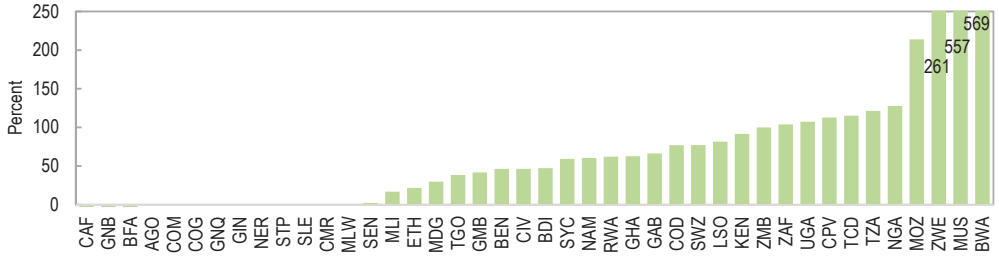
Box 1.1. The Re-Emergence of Fuel (Energy) Subsidies in Sub-Saharan Africa

Universal fuel and energy subsidies have been prevalent in sub-Saharan Africa, but they have substantial drawbacks. One of the rationales behind energy subsidies is that they can provide a highly visible benefit for important segments of the population. However, they are poorly targeted and have a negative impact on economic efficiency by fostering fuel overconsumption, curtailing investment and maintenance in the oil-refining and electricity sectors, and crowding out more productive government spending.

The sustained increase in international fuel prices since the second half of 2017 has been passed through only partially in sub-Saharan African oil importers, while oil exporters have mostly kept domestic fuel prices constant. Between early 2017 and April/May 2018, the median pass-through coefficient (defined as the nominal change in domestic retail prices divided by the nominal change in international prices, both in domestic currency) was zero in oil exporters and positive in oil importers (47 percent, Figure 1.1.1). In contrast, during the period when oil prices fell sharply between mid-2014 and early 2017, oil exporters increased prices of most fuel products (with a median pass-through coefficient of –19 percent) while oil importers recorded a pass-through coefficient of 62 percent (Figure 1.1.2).

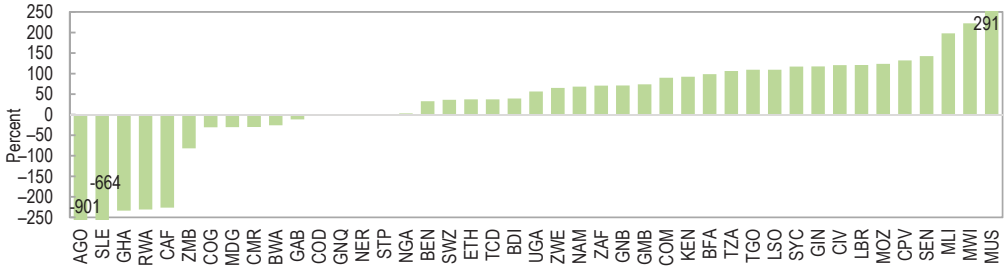
While fuel subsidies in sub-Saharan Africa would have fallen by 1 to 2 percent of GDP per annum between mid-2014 and early 2017, an analysis based on fuel prices by April/May 2018 suggests that those benefits would have been wiped out since then. In particular, staff analysis suggests that net fuel subsidies would have increased by an average of 2 percent of GDP between early-2017 and April/May 2018 (to about 2 percent of GDP).

Figure 1.1.1. Sub-Saharan Africa: Pass-Through of Changes in International Fuel Prices, January 2017 to May 2018



Sources: Country authorities; and IMF staff calculations.
Note: See page 53 for country abbreviations.

Figure 1.1.2. Sub-Saharan Africa: Pass-Through of Changes in International Fuel Prices, June 2014 to January 2017



Sources: Country authorities; and IMF staff calculations.
Note: See page 53 for country abbreviations.

This box was prepared by Mauricio Villafuerte with assistance from Tunc Gursoy.

Box 1.2. Market Developments in Sub-Saharan African Frontier Economies in Periods of Financial Volatility

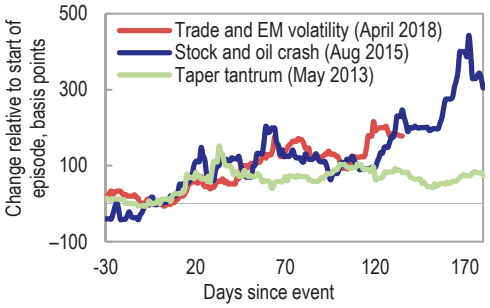
Protracted trade tensions and bouts of volatility emanating from large emerging market economies (Argentina, Turkey) have contributed to some tightening of financial conditions in sub-Saharan Africa, the most visible effects being a significant increase in spreads and substantial portfolio outflows. The increase in spreads has been larger and more sustained compared to the "taper tantrum," but smaller in magnitude than the increase seen between August 2015 and January 2016 when oil prices fell and stock markets crashed in several advanced economies and China. Portfolio outflows have led to a weakening of some sub-Saharan African currencies, especially the South African rand, which was also potentially influenced by idiosyncratic domestic factors in addition to spillovers from trade tensions and Turkey.

There has been a sustained increase in spreads in sub-Saharan Africa since April, with a peak increase of more than 220 basis points (Figure 1.2.1). In comparison, the "taper tantrum" saw a smaller and shorter-lived spike in spreads of 150 basis points; while the "stock and oil crash" episode of August 2015 saw a larger increase of more than 400 basis points.[1] Furthermore, while the increase in spreads has been large recently, the levels of spreads, at about 600 basis points on average, is still below the peak of 900 basis points reached in January 2016.

While all frontier economies in sub-Saharan Africa have seen increases in spreads, exchange rate developments have been more mixed. The Angolan kwanza and the South African rand have depreciated substantially, but most other currencies have seen only moderate movements (Figure 1.2.2). Exchange rate movements have mirrored capital outflows which have reached over US$2 billion since April, with South Africa accounting for about 75 percent of the outflows (Figure 1.2.3). As with spreads, the "stock and oil crash" episode saw the largest exchange rate depreciation for most countries and the largest cumulative outflows. At the same time, stock prices have fallen in most countries during the latest episode.

While we have seen a substantial tightening of financing conditions in sub-Saharan Africa since April, the effects have generally been smaller than the period after August 2015. Risks, however, remain elevated as faster than envisaged tightening of monetary policy in advanced economies, or continued volatility emanating from emerging market economies, can lead to further volatility for sub-Saharan African countries.

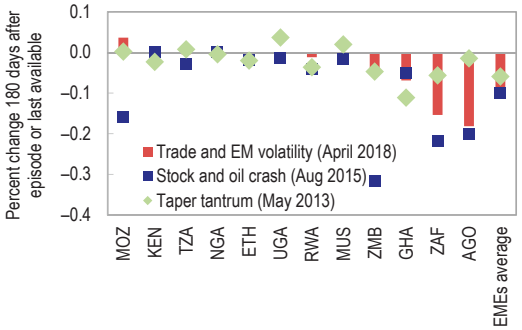
Figure 1.2.1. Sub-Saharan African Selected Frontier Markets: Sovereign Bond Spreads



Source: Bloomberg Finance, L.P.

Note: Selected frontier markets include Angola, Côte d'Ivoire, Gabon, Ghana, Nigeria, Senegal, South Africa, and Zambia. EM = emerging market.

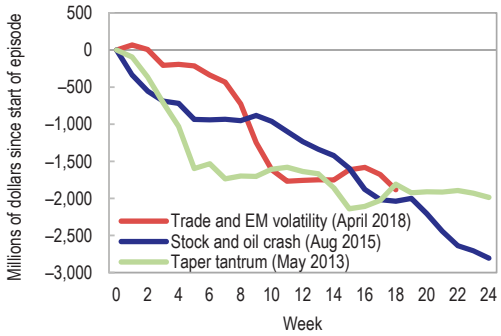
Figure 1.2.2. Sub-Saharan African Frontier Markets: Change in Nominal Exchange Rates (US dollars to national currency)



Source: Bloomberg Finance, L.P.

Note: EM = emerging market; EMEs = emerging market economies. Negative (positive) changes represent a depreciation (appreciation). See page 53 for country abbreviations table.

Figure 1.2.3. Sub-Saharan African Frontier Markets: Cumulative Portfolio Flows



Source: Haver Analytics based on data from Emerging Portfolio Fund Research database.

Note: EM= emerging market.

This box was prepared by Siddharth Kothari.

[1] For comparison, the EMBI Global index saw much smaller increases in spreads of only about 100 basis points after these episodes, with the largest increase following the "taper tantrum."

Box 1.3. Progress Toward the Sustainable Development Goals

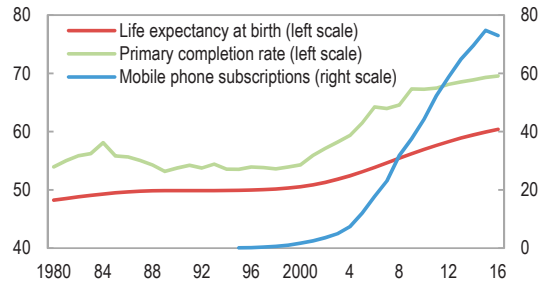
The United Nations' 2030 Agenda for Sustainable Development consists in a far reaching and comprehensive set of Sustainable Development Goals (SDGs) for the world.[1] The implementation of the Agenda was initiated in 2015.

The SDGs were set after a period of significant progress on social and economic development. Since 2000, sub-Saharan African economies have achieved on average a 50 percent increase in real per capita GDP; life expectancy has increased steadily, reaching 60 years by 2016; infant mortality and maternal death rates have fallen sharply; and achievements in primary and higher education have improved, although sub-Saharan African countries are still lagging in pre-school education. And despite a low stock and quality of public infrastructure relative to other regions, investment in infrastructure has been at a comparable level to that in emerging economies (IMF 2018a). At the same time, improvements in telecommunication access have been significant (Figure 1.3.1).

However, reaching the SDGs remains a significant challenge given existing gaps in areas such as education, electricity, health, roads, and water and sanitation (UN 2018). Achieving the SDGs by 2030 would require a significant increase in expenditure in these five areas—initial results of studies on Benin and Rwanda estimate an additional financing need of about 20 percent of GDP a year. Raising tax revenues and enhancing spending efficiency is expected to finance a small part (about 5 percent of GDP) of this spending need, leaving a significant gap for which financing needs to be identified. Higher and sustained growth would also help countries meet the SDGs.

Meanwhile, the IMF has undertaken a number of initiatives to support progress toward the SDGs, including: increasing support for developing countries to boost domestic revenue mobilization, notably through increased resources allocated to technical assistance in this area; expanding infrastructure policy support through strengthening institutional capacity for public investment management; intensifying support for fragile and conflict-affected states and affected neighbors; deepening analysis and policy advice on gender, inequality, and financial inclusion; boosting financial support for low-income countries (LICs) and countries hit by natural disasters; addressing climate change issues in areas of IMF expertise—notably energy pricing; and providing capacity building to strengthen national statistical systems and contributing to the development of an SDG global indicator framework.

Figure 1.3.1. Sub-Saharan Africa: Progress Toward Selected Sustainable Development Goals (SDGs)



Source: World Bank, World Development Indicators database.

Note: Life expectancy is measured in years, primary completion rate is measured as a percent of the relevant age group, and mobile phone subscriptions are per 100 people.

This box was prepared by Reda Cherif.

[1] The SDGs consist of 17 broad goals related to areas such as poverty, hunger, health, inclusiveness, water and sanitation, energy, employment and growth, industrialization and innovation, and the environment.

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2. Capital Flows to Sub-Saharan Africa: Causes and Consequences

In the aftermath of the global financial crisis, there has been a spectacular increase in nonofficial cross-border capital flows to sub-Saharan Africa.[1] With official development assistance to the region on a declining trend, these flows could provide much-needed financing for development initiatives and boost economic growth and welfare. However, large inflows could also pose macroeconomic and financial stability challenges such as economic overheating, currency overvaluation, and unsustainable domestic credit and asset price booms. In the absence of adequate fiscal and macroprudential frameworks, inflows may also encourage excessive borrowing by the public and private sectors, and exacerbate currency, maturity, and capital structure mismatches on balance sheets—leaving countries vulnerable to a sudden reversal of capital flows that may be triggered by factors extraneous to the recipient economy.

The impact of capital flows depends on the type of flow. Debt flows are typically considered the riskiest, while foreign direct investment (FDI) is deemed the safest.[2] The residency of the investor also matters—nonresident investors tend to be more skittish than domestic investors (Forbes and Warnock 2012; Ghosh and others 2014). The recent episodes of capital outflows and the ensuing market volatility experienced by some emerging market economies is a reminder of the fickle nature of cross-border capital flows, and the importance of enhancing resilience to potential reversals.

Against this backdrop, this chapter examines the dynamics and implications of cross-border capital flows to sub-Saharan Africa by focusing on three key questions:

- How have nonofficial capital flows—by asset type, as well as by investor residency—evolved over time?
- What are the main drivers of these flows and, in particular, how vulnerable is the region to a sudden change in global financial conditions?
- What are the macroeconomic consequences of flows—both in terms of risks such as currency overvaluation, economic overheating and financial instability, as well as in terms of potential benefits such as domestic investment and economic growth?

The analysis in this chapter, based on a sample of 45 sub-Saharan Africa countries during 1980–2017, shows that nonofficial capital flows to the region are at historically high levels. In fact, scaled by economic size, net capital flows to sub-Saharan Africa have been larger than those to emerging market economies in recent years. Much of this increase has been due to an increase in liability flows (nonresident acquisition of domestic assets), which have more than tripled since the mid-2000s, while on the asset side, domestic residents have continued to invest abroad on a net basis.

In terms of composition, FDI continues to dominate, though the level of portfolio flows—especially portfolio debt—has increased significantly. Along with the magnitude, the volatility of nonofficial capital flows has also risen. Overall, nonresident flows are more volatile than resident flows, and among the different types of flows, the other investment category (which includes cross-border bank flows) is the most volatile for sub-Saharan Africa, as is the case in emerging market economies.

This chapter was prepared by a team led by Mahvash S. Qureshi and composed of Francisco Arizala, Xiangming Fang, and Mustafa Yenice.

[1] In the chapter, "capital flows" refers to the financial account of the balance of payments. Nonofficial capital flows exclude reserve asset and official other investment (asset and liability) flows (see Annex 2.1 for data description and sources). The terms "capital flows" and "financial flows" are used interchangeably throughout the chapter.

[2] See, for example, Korinek (2018), and Ghosh, Ostry, and Qureshi (2017). The impact of FDI, however, may depend on whether it is "greenfield" investment, mergers and acquisitions, or simply a "round-tripping" of flows (Calderon, Loayza, and Serven 2004; Aykut, Sanghi, and Kosmidou 2017; Gopalan, Ouyang, and Rajan 2018).

Global factors—notably, US interest rates and commodity prices—play an important role in explaining the dynamics of flows to sub-Saharan Africa, with lower US interest rates and higher commodity prices encouraging inflows, and vice versa. The relative importance of global factors, however, depends on the type of flow, with global market volatility having a more pronounced effect on foreign portfolio investment, while US interest rates and commodity prices have a stronger effect on FDI. Evidence from monthly data on investor fund flows and asset prices (sovereign bond yields and stock returns) for a subset of sub-Saharan Africa countries further suggests that these variables strongly co-move with global financial conditions, and that their sensitivity to global factors has increased since the global financial crisis.

While global factors are important, domestic factors also matter in explaining the behavior of flows. In particular, countries with strong economic growth, greater trade openness, and better institutional quality tend to receive more inflows, and are less likely to experience foreign investment reversals.

In terms of macroeconomic consequences, there is no strong evidence that nonresident flows are in aggregate significantly associated with macroeconomic or financial imbalances in sub-Saharan Africa; but the type of flow matters. On average, portfolio inflows are likely to move the real exchange rate and real output above trend, and to fuel credit growth—vulnerabilities that tend to raise the likelihood of a financial crisis. When it comes to domestic investment and economic growth, however, portfolio flows have at least historically not been strongly associated with either, though they do seem to boost public consumption (including social spending). By contrast, inward FDI appears to directly spur domestic investment, and in turn support economic growth.

These findings indicate that nonofficial capital flows have become an increasingly important source of external financing for sub-Saharan Africa, yet there is a complex relationship between these flows, domestic macroeconomic stability, and investment and economic growth in the region. On the one hand, the nonofficial external capital is needed to fill the resource gap and promote economic development; while on the other hand, the fickle nature of such capital makes it a less reliable—and potentially risky—source of finance. This trade-off puts a premium on the careful macroeconomic management of capital flows, which should take into account the nature of the capital (FDI, portfolio, loans, etc.), its domestic use and impact, and the type of investor and borrower.

In this respect, to the extent that sub-Saharan Africa sovereigns are increasingly tapping international capital markets to finance development initiatives, policymakers need to be prudent in ensuring that the borrowed resources are utilized effectively, enhance productivity and promote economic growth. In attracting foreign capital, they also need to be mindful of the attendant consequences for exchange rates such as volatility and misalignments that could hurt the tradable sector and undermine competitiveness. In this regard, structural policies to reduce nominal rigidities and facilitate real exchange rate adjustment could play a useful role, though in some cases foreign exchange intervention to limit currency overvaluation and build adequate reserve buffers may be warranted.

Vigilance is also warranted against economic overheating and the buildup of (private and public sector) balance sheet vulnerabilities to mitigate the risk of a hard landing when flows recede. Countercyclical macroeconomic and prudential policies should be adopted to limit such vulnerabilities and preserve debt sustainability. Improving the compilation and timeliness of balance of payments data is thus critical to monitor flows in real time and to implement the desirable policy actions swiftly. Moreover, to the extent that FDI tends to be less prone to generating vulnerabilities but more likely to energize private investment and growth, efforts should focus on attracting direct investment to the region through strong domestic macroeconomic fundamentals and an improved business climate. These factors are likely to play an even more important role in attracting foreign capital going forward, as global financial conditions may tighten with the normalization of monetary policy in advanced economies.

EVOLUTION OF CAPITAL FLOWS

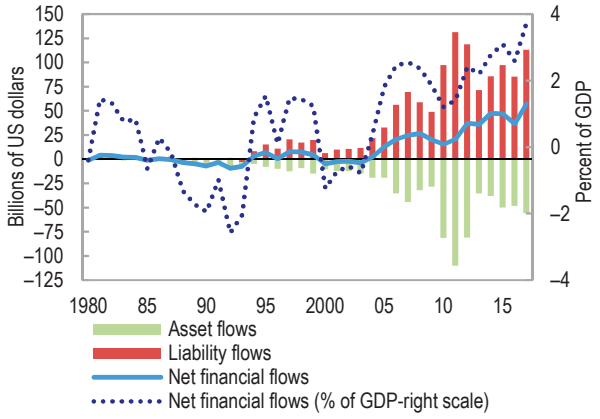
The financial landscape of sub-Saharan Africa has changed profoundly over the last few decades. The region has become more globally financially integrated, with a gradual relaxation of financial account restrictions and a sharp increase in nonofficial capital flows—especially since the global financial crisis (Figure 2.1). Nonofficial net capital flows to sub-Saharan African, which totaled about $4 billion during the 1980s and 1990s, increased six-fold to $25 billion in 2007, before doubling to about $60 billion in 2017. In terms of GDP also, net capital flows to sub-Saharan Africa have been at a historically high level (3 percent of GDP) and exceeded those to emerging market economies (by about 2 percent of GDP) in 2015–17 (Figure 2.2).[3] The difference between net capital flows to sub-Saharan Africa and emerging market economies is even larger when measured relative to their respective financial market sizes (proxied by M2; Annex Figure 2.1.1).

The increase in net flows has been largely driven by liability (or nonresident) flows, which increased from $70 billion in 2007 to $113 billion in 2017. The sharp rise in these flows has been broad-based, with nonresident flows more than doubling in most sub-Saharan Africa countries since the global financial crisis (Figure 2.3). At the same time, on the asset side, domestic residents continued to invest abroad on a net basis (Figure 2.4).

The rise in nonofficial capital flows has happened against a declining trend in official development assistance to the region. Concurrently, sovereign bond issuances have increased notably, suggesting that countries have been tapping alternative sources of finance to meet their developmental needs (Annex Figures 2.1.4 and 2.1.5). As a result, portfolio flows—especially portfolio debt flows—have increased notably, though FDI remains the most dominant type of nonresident flow to the region (Annex Figures 2.1.6 and 2.1.7).[4]

On the asset (domestic resident) side, outflows are concentrated in the direct and other investment categories, though the FDI outflows are mainly driven by Mauritius, which is a global financial center (Annex Figure 2.1.8). The scale of resident-driven outflows from sub-Saharan Africa has often attracted considerable attention, with several studies

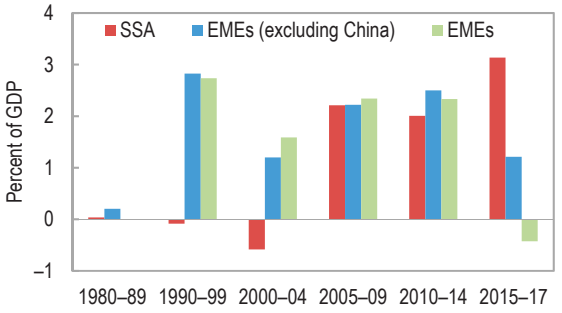
Figure 2.1. Sub-Saharan Africa: Financial Flows, 1980–2017



Source: IMF, World Economic Outlook database.

Notes: Statistics for 2017 are provisional. Negative values indicate outflows. Flows exclude reserve asset and official other investment flows. Net financial flows in percent of GDP is the sum of financial flows to the region in percent of regional GDP.

Figure 2.2. Sub-Saharan Africa and Emerging Markets: Net Financial Flows, 1980–2017



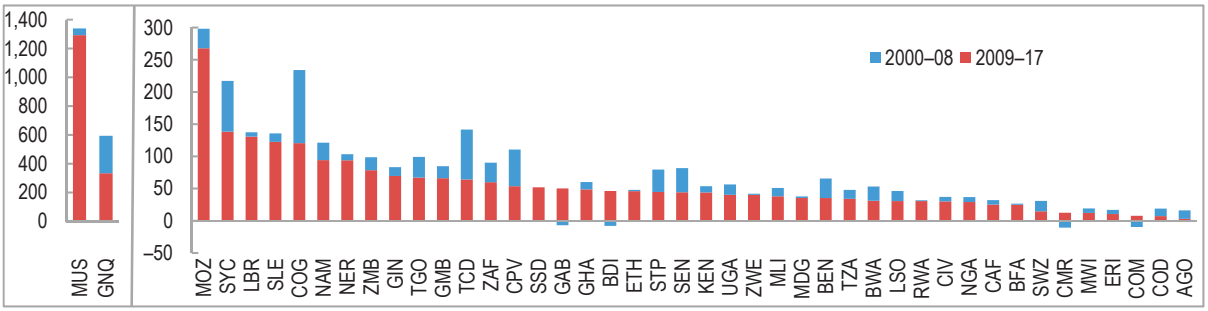
Sources: IMF, World Economic Outlook database; and IMF staff calculations.

Note: No statistics for EMEs including China are reported for 1980–89 because of lack of data availability on China's reserve asset flows for that period. For the period 1990–99, China's data are available for three years 1997–99. EMEs = emerging market economies; SSA = sub-Saharan Africa.

[3] These trends remain similar if South Africa—a major recipient of nonofficial capital flows—is excluded from the sample. In that case, net flows have increased from about $1 billion in 2007 to about $44 billion in 2017, with liability flows increasing by about $50 billion (Annex Figures 2.1.2 and 2.1.3).

[4] Although disaggregated balance of payments data on official and nonofficial portfolio debt flows are limited for sub-Saharan African countries, a comparison of recent sovereign and corporate bond issuances suggests that a large share of portfolio debt flows are to the public sector. For FDI, there has also been a change in the recipient sectors—while the extractive sectors were the main recipients in the 1980s and 1990s, FDI has spread across the manufacturing and services sectors in recent years (UNCTAD 2017).

Figure 2.3. Sub-Saharan Africa: Liability Flows Before and After the Global Financial Crisis, 2000–17 (Percent of GDP)

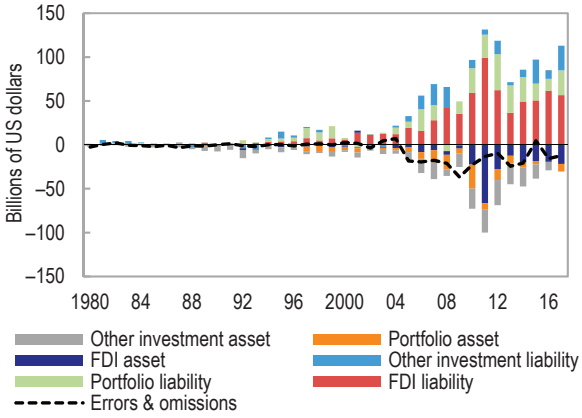


Source: IMF, World Economic Outlook database.

Notes: Statistics for 2017 are provisional. Negative values indicate outflows. Flows are cumulative values in percent of 2017 GDP. Flows exclude official other investment. Mauritius and Equatorial Guinea are plotted on a different scale because of the large size of their liability flows.
See page 53 for country abbreviations table.

arguing that these outflows—together with the mostly negative errors and omissions recorded in the balance of payments—represent "domestic capital flight."[5] In percentage of GDP, however, sub-Saharan Africa's asset flows are on par with emerging market economies, while the errors and omissions category has been much larger, especially since 2005, and largely accounted for by the region's oil exporters (Annex Figures 2.1.9 and 2.1.10).

Figure 2.4. Sub-Saharan Africa: Composition of Liability and Asset Flows, 1980–2017



Source: IMF, World Economic Outlook database.

Notes: Statistics for 2017 are provisional. Negative values indicate outflows. Flows exclude official other investment flows. The components do not necessarily add up to total liability and asset flows because of lack of data availability. FDI = foreign direct investment.

As flows accumulate into stocks, the increase in nonresident flows has translated into a five-fold increase in the stock of external liabilities for sub-Saharan Africa since 2000, while the stock of external debt has more than doubled. Of particular concern is the rising share of short-term debt in total external debt, which has increased from about 8 percent in the early 2000s to 14 percent in the last few years (Annex Figures 2.1.11 and 2.1.12). Sub-Saharan Africa's external debt is dominated by the public sector, with the share of public debt in total external debt, on average, amounting to about 80 percent in 2017.[6]

Shifting Patterns

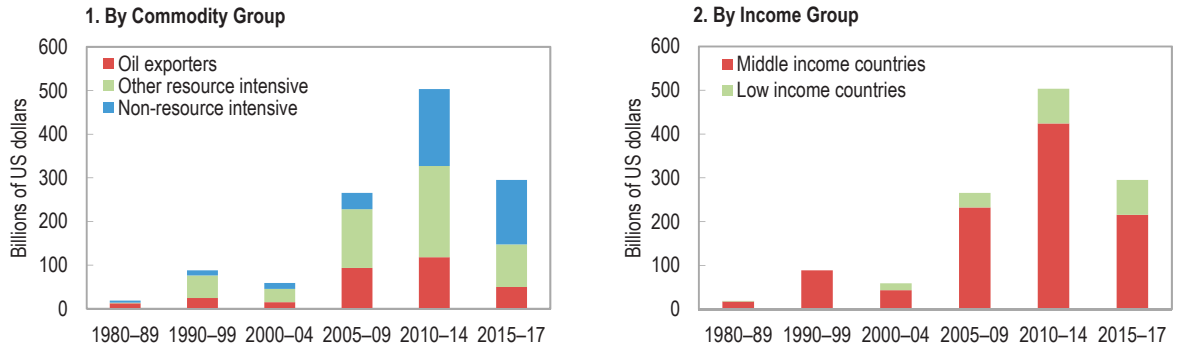
Which countries have been the major recipients of nonofficial foreign flows in recent years? Since the global financial crisis, the share of flows received by non-resource-intensive, mostly low-income countries, has increased (Figure 2.5). This contrasts with earlier years when the resource-intensive-countries received the bulk of foreign investment (mainly because of large direct investments in the natural resource sectors). Among the non-resource-intensive countries, Côte d'Ivoire Ethiopia, Kenya and Mauritius, have been the most attractive destinations for foreign investors—together receiving more than 40 percent of the inflows during 2015–17.[7]

[5] See, for example, Ndikumana and Boyce (2003), and Fofack and Ndikumana (2010).

[6] This ratio is lower (less than 50 percent) for some market access countries (for example, Mauritius, Nigeria, and South Africa).

[7] On the other end, available bilateral data for the outstanding stock of direct, portfolio, and bank investment indicates that the United States, United Kingdom, Eurozone countries (notably, France, Germany, Luxembourg, and the Netherlands), and China are the major sources of foreign investment in sub-Saharan Africa (Annex Figures 2.1.13-2.1.15).

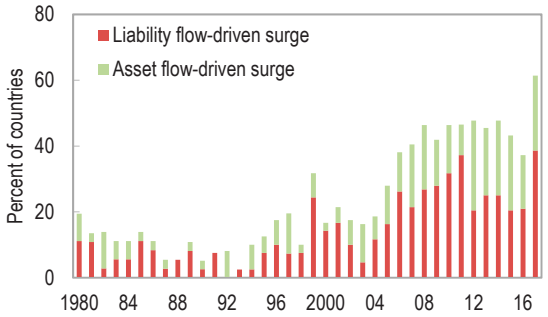
Figure 2.5 Sub-Saharan Africa: Liability Flows, 1980–2017



Source: IMF, World Economic Outlook database.
Note: See page 52 for country groupings tables.

While foreign flows have been concentrated in a few countries, they have risen significantly across the vast majority of countries in absolute terms, as well as in terms of GDP. In 2000, for example, the average net flow received by sub-Saharan Africa countries was about 0.5 of a percent of GDP, which increased to 3 percent in 2007, and further to 5 percent in 2017.[8] A larger number of countries are thus experiencing episodes of large inflows—or "surges"—which for analytical purposes are defined here as net capital flows (scaled by GDP) that lie in both the country's own and the sub-Saharan Africa sample's top one-third of the observations (Figure 2.6).[9] Typically, these surges are driven by changes in nonresident flows, and in only a few years does retrenchment of investment from abroad by domestic residents outweigh the increase in foreign inflows. Among the countries that experienced an inflow surge after the recent oil price collapse, most are non-resource-intensive countries (and none was an oil exporter in 2016).

Figure 2.6 Sub-Saharan Africa: Surges in Net Financial Flows, 1980–2017



Sources: IMF, World Economic Outlook database; and IMF staff calculations.

Volatility in Capital Flows

As the magnitude of capital flows to sub-Saharan Africa has increased, so has the volatility of such flows (Table 2.1). While both nonresident and resident flows (scaled by GDP) have become more volatile in the last two decades, the increase in the volatility of the former has been more pronounced. Overall, nonresident flows are more volatile than resident flows, and among the different categories, other investment has been the most volatile, followed by FDI.

Table 2.1. Volatility of Financial Flows (Percent of GDP)

	SSA			EMEs		
	1980–2017	1980–99	2000–17	1980–2017	1980–99	2000–17
Net Financial Flows	5.66	3.07	5.73	4.13	3.98	3.76
Net FDI	2.16	1.09	2.36	1.44	1.13	1.21
Net portfolio	0.68	0.08	0.59	1.61	1.22	1.84
Net other investment	3.85	2.61	3.61	3.25	3.30	2.62
Liability Flows	4.78	2.75	4.39	3.78	4.56	3.24
FDI	2.54	0.96	2.28	1.49	1.31	1.10
Portfolio	0.28	0.03	0.35	1.53	0.89	1.57
Other investment	3.34	2.15	3.38	2.81	2.93	1.61
Asset Flows	2.92	1.69	2.72	1.94	1.12	1.93
FDI	0.27	0.08	0.28	0.70	0.18	0.71
Portfolio	0.21	0.03	0.18	0.78	0.20	0.83
Other investment	1.83	1.33	2.15	1.64	1.09	1.66

Source: IMF staff estimates

Notes: Statistics are the median of the standard deviation of flows (percent of GDP) for individual countries over the relevant period. Outliers (for example, observations in the top and bottom percentile of the distribution for the relevant country group) are excluded.
EMEs = emerging market economies; FDI = foreign direct investment; SSA = sub-Saharan Africa.

[8] See Annex Figure 2.1.16 for the distribution of net capital flows (in percent of GDP) to sub-Saharan Africa over the years.

[9] See Annex 2.1 for methodological details to identify inflow surges.

The volatility of FDI is, however, driven by a reduction in such flows rather than by their reversal. In fact, the probability of experiencing negative flows (or outflows of nonresident investment) after positive flows is the lowest for FDI, and the highest for other investment and portfolio debt investment.[10] There is also considerable heterogeneity across countries, with flows being the most volatile for oil exporters in the region. Notably, the volatility of both nonresident and resident flows to sub-Saharan Africa is generally higher than that to emerging market economies—highlighting the fickleness of these flows to the region.

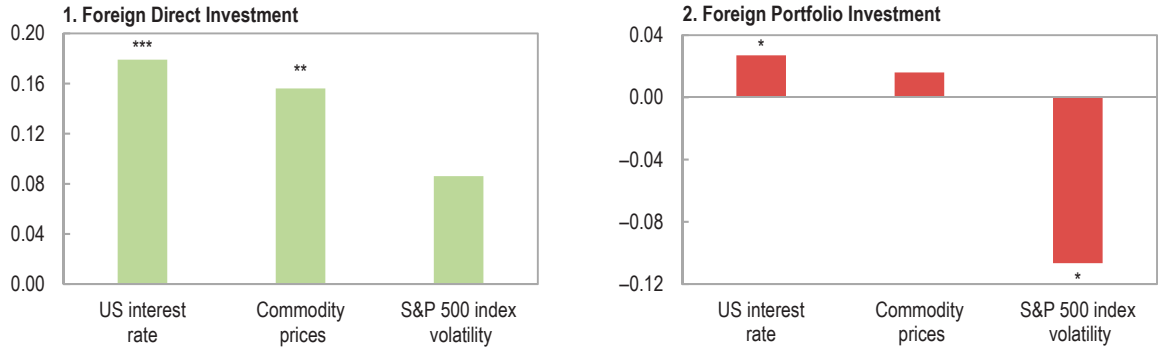
DRIVERS OF CAPITAL FLOWS

What explains the dynamics of capital flows into sub-Saharan Africa countries? Empirical analysis based on annual data over 1980–2017 shows that global factors (such as US interest rates and commodity prices) play an important role, but some domestic characteristics also matter.[11] Specifically, net flows to the region are significantly affected by US interest rates (proxied by US 10-year government bond yield), with a 100 basis point decline in the nominal US government bond yield, on average, implying an increase in net flows by about 0.2 to 0.4 of a percent of GDP. Countries with better macroeconomic performance (measured by real GDP growth), higher real GDP per capita, and a greater need for external financing also receive more inflows on a net basis.

Much of the impact of the decline in US interest rates on net flows stems from an increase in nonresident flows. A 100 basis points decline in the US government bond yield, on average, increases nonresident flows by about 0.3 to 0.5 of a percent of GDP. In addition, nonresident flows are significantly affected by international commodity prices, with a 10 percent increase in the commodity price index implying an increase in these flows by about 0.2 to 0.3 of a percent of GDP. Among domestic factors, there is some evidence that countries with greater trade openness, higher economic growth and per capita income, and better institutional quality attract more nonresident flows, while those with higher external debt receive fewer inflows.

The effect of global factors, however, depends on the type of flow. In general, US interest rates and commodity prices have a much stronger effect on inward direct investment than on other types of flows, while global market volatility has a statistically stronger effect on foreign portfolio flows (Figure 2.7). A 100 basis point reduction in the US government bond yield, for example, implies an increase of about 0.2 percent of GDP of FDI,

Figure 2.7. Sub-Saharan Africa: Impact of External Factors on Direct and Portfolio Investment Liability Flows (Percent of GDP)



Source: IMF staff estimates.

Note: Bars in panels 1 and 2 show the estimated increase in direct and portfolio investment liability flows, respectively, for a 100 basis point decline in the 10-year US government bond yield, a 10 percent increase in the international commodity price index, and a 1 standard deviation shock to the global market volatility index. Estimates obtained from a regression of flows (percent of GDP) on external factors and domestic factors (lagged current account balance to GDP, lagged trade openness, log real GDP per capita, real GDP growth, de facto exchange rate regime, and country-fixed effects.) See Annex Table 2.1.5. ***,**, and * indicate statistical significance of the variable at the 1, 5, and 10 percent levels, respectively.

[10] See the transition probabilities presented in Annex Table 2.1.1. For emerging market economies, FDI is the most stable type of flow, while other investment flows are the most volatile (and documented to be associated with a significantly higher likelihood of financial crises).

[11] See Annex 2.1 for technical details and additional results.

but about 0.03 of a percent of GDP increase in foreign portfolio investment to sub-Saharan Africa. By contrast, a one standard deviation shock to the global market volatility index reduces portfolio flows to sub-Saharan Africa by about 0.1 percent of GDP but has no statistically significant effect on FDI.

Surges and Reversals

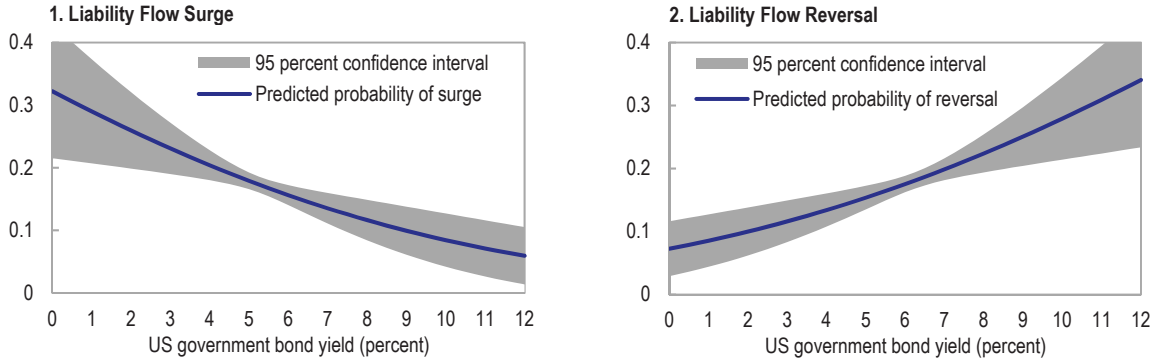
As described above, the frequency of foreign capital inflow surges to sub-Saharan Africa has increased over time. What factors influence the probability of experiencing such large inflow episodes, as well as their reversal? The results highlight the importance of global factors, though the effect is not necessarily symmetric on surge and reversal occurrence (Annex Table 2.1.6). A 100 basis point increase in the US interest rate around the mean value, for example, lowers the likelihood of the occurrence of an inflow surge by about 2 percentage points, and raises the likelihood of a large reversal by 2 percentage points (against an unconditional surge and reversal probability of about 20 percent in the estimated sample; see Figure 2.8). An increase in international commodity prices, however, has a strong impact on the likelihood of a surge across sub-Saharan Africa countries, but only has a statistically significant effect on the probability of a reversal in resource-intensive-countries. When compared to emerging market economies, these results are generally similar, except for the statistically muted effect of global market volatility on surge occurrence and reversal (which is typically strongly associated with surges and reversals in emerging market economies, perhaps because of a much larger share of portfolio equity flows in these countries; Qureshi and Sugawara, 2018).

Among other factors, higher real GDP growth, better institutional quality, and more flexible exchange rate regimes increase the likelihood of experiencing an inflow surge, and lower the likelihood of a sudden reversal of foreign capital (Figure 2.9). The finding of more flexible exchange rate regimes experiencing a higher surge likelihood in sub-Saharan Africa is in contrast to the existing evidence for emerging market economies, which shows that countries with fixed exchange rate regimes receive larger inflows, presumably because of lower currency risk (Ghosh and others 2014; Magud, Reinhart, and Vesperoni 2014; Obstfeld, Ostry, and Qureshi 2018).

Global Financial Cycle and Sub-Saharan Africa

Global factors are thus an important driver of capital flows to sub-Saharan Africa—but how closely is the region connected to the "global financial cycle," defined as the co-movement in global and domestic financial conditions across countries (Rey 2013)? To explore this question, high-frequency monthly data on investor fund flows (specifically, bond and equity flows) and asset prices (bond yields and stock returns) are analyzed. Those data are available for a sub-sample of sub-Saharan African countries (listed in Annex Table 2.1.2) over 2000–17. Using these data, the analysis reveals that global factors such as US interest rates, global risk appetite (proxied by the VIX index),

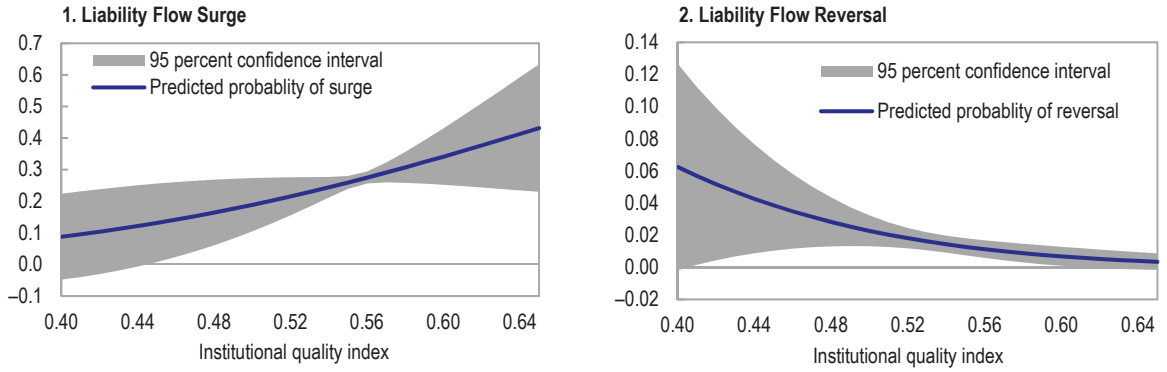
Figure 2.8. Sub-Saharan Africa: Predicted Probability of Surge and Reversal and US Interest Rate



Source: IMF staff estimates.

Notes: Panels 1 and 2 show the predicted probability of experiencing a liability flow surge and large reversal, respectively, at different levels of US government bond yield around the mean, obtained from a probit model controlling for other external factors (commodity prices; S&P 500 index volatility) and domestic factors (lagged current account balance to GDP, lagged trade openness, log real GDP per capita, real GDP growth, de facto exchange rate regime, external debt to GDP, international reserves to GDP, and country-fixed effects).

Figure 2.9. Sub-Saharan Africa: Predicted Probability of Surge and Reversal and Institutional Quality



Source: IMF staff estimates.

Notes: Panels 1 and 2 show the predicted probability of experiencing a liability flow surge and large reversal, respectively, at different levels of the instutional quality index around the mean, obtained from a probit model controlling for external factors (US interest rate; commodity prices; S&P 500 index volatility) and domestic factors (lagged current account balance to GDP, lagged trade openness, log real GDP per capita, real GDP growth, de facto exchange rate regime, external debt to GDP, international reserves to GDP, and country-fixed effects).

and commodity prices affect bond and equity fund flows, but also bond yields and stock prices in sub-Saharan Africa. A one standard deviation shock to the VIX index (in log terms), on average, reduces fund flows by about 0.4 of a percent of GDP, increases bond yields by about 20 basis points, and lowers real stock returns by about 2 percentage points (Figure 2.10). Similarly, a 100 basis point increase in the US government bond yield is, on average, associated with a reduction in fund flows of about 1 percent of GDP, a proportionate increase in bond yields, and a decline in real stock returns by about 1 percentage point.

Notably, these effects are similar to those for emerging market economies (except for commodity prices, which have a significantly larger effect on flows and asset prices in sub-Saharan Africa than in the emerging market economies sample, perhaps because of a fewer number of commodity exporters in that sample). In addition, the sensitivity of both fund flows and asset prices to global factors has generally increased since the global financial crisis (Figure 2.11). For example, a 100 basis point increase in the US government bond yield had a statistically negligible impact on fund flows and bond yields before the crisis, but it has implied a reduction in flows of about 1 percent of GDP and a rise in bond yields of about 115 basis points since the crisis. These results suggest that sub-Saharan Africa has become increasingly connected with the global financial cycle, with domestic financial conditions in the region (as captured by asset prices) moving in tandem with global financial conditions.

MACROECONOMIC CONSEQUENCES OF CAPITAL INFLOWS

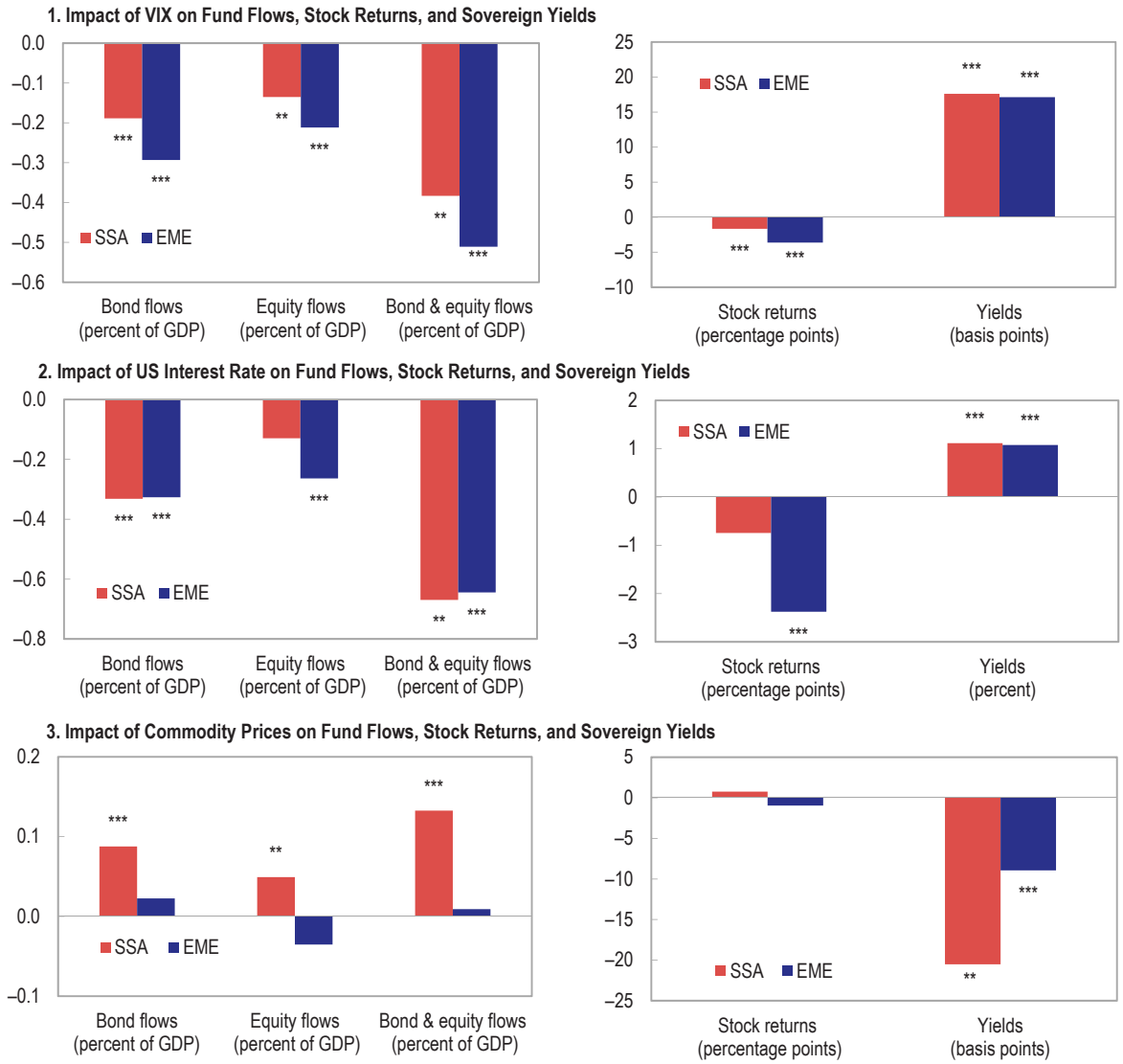
The volatility of capital flows can pose challenges for macroeconomic management when flows surge, but especially when they recede. Recent studies in the context of emerging market economies have shown that the way in which surge episodes are managed has an important bearing on how they end: limiting macroeconomic and financial vulnerabilities during inflow booms can significantly reduce the likelihood of a hard landing when global financial conditions become less conducive (Ghosh, Ostry, and Qureshi 2016). Understanding the macroeconomic implications of inflows to sub-Saharan Africa is thus important to identify the policy tools to mitigate the risks and maximize their potential benefits.

The domestic impact of financial flows, however, may depend on the type of flow. Previous studies in the context of emerging market economies generally show that portfolio and other investment flows are the most prone to creating macroeconomic imbalances and financial vulnerabilities—such as economic overheating, currency overvaluation that may hurt the tradable sector and undermine competitiveness, and excessive credit growth—while FDI is the least risky (see Combes, Kinda, and Plane 2012; Caballero 2016; Ghosh and Qureshi 2016). For sub-Saharan Africa, our results show that, on average, nonresident portfolio flows tend to move the real exchange rate and output above trend (variables typically used as proxies for currency overvaluation and economic

overheating, respectively) and also fuel credit growth. A 1 percent of GDP increase in portfolio inflows is thus associated with a 0.3 of a percentage point larger real exchange rate appreciation relative to the trend, a 0.2 of a percentage point wider gap between the real output and trend, and a 0.1 percent of GDP increase in credit to the private sector (Figure 2.12).

These vulnerabilities—currency overvaluation, economic overheating, and rapid credit growth—are typically associated with an increased likelihood of a financial crisis (Gournichas and Obstfeld 2012; Ghosh, Ostry, and Qureshi 2015). Given the generally low level of financial development in sub-Saharan Africa, the expansion of domestic credit could be viewed as a positive development (reflecting an increase in access to financial services) rather than as a potential source of

Figure 2.10. Sub-Saharan Africa and Emerging Markets: Impact of Global Factors, 2000M1–17M12



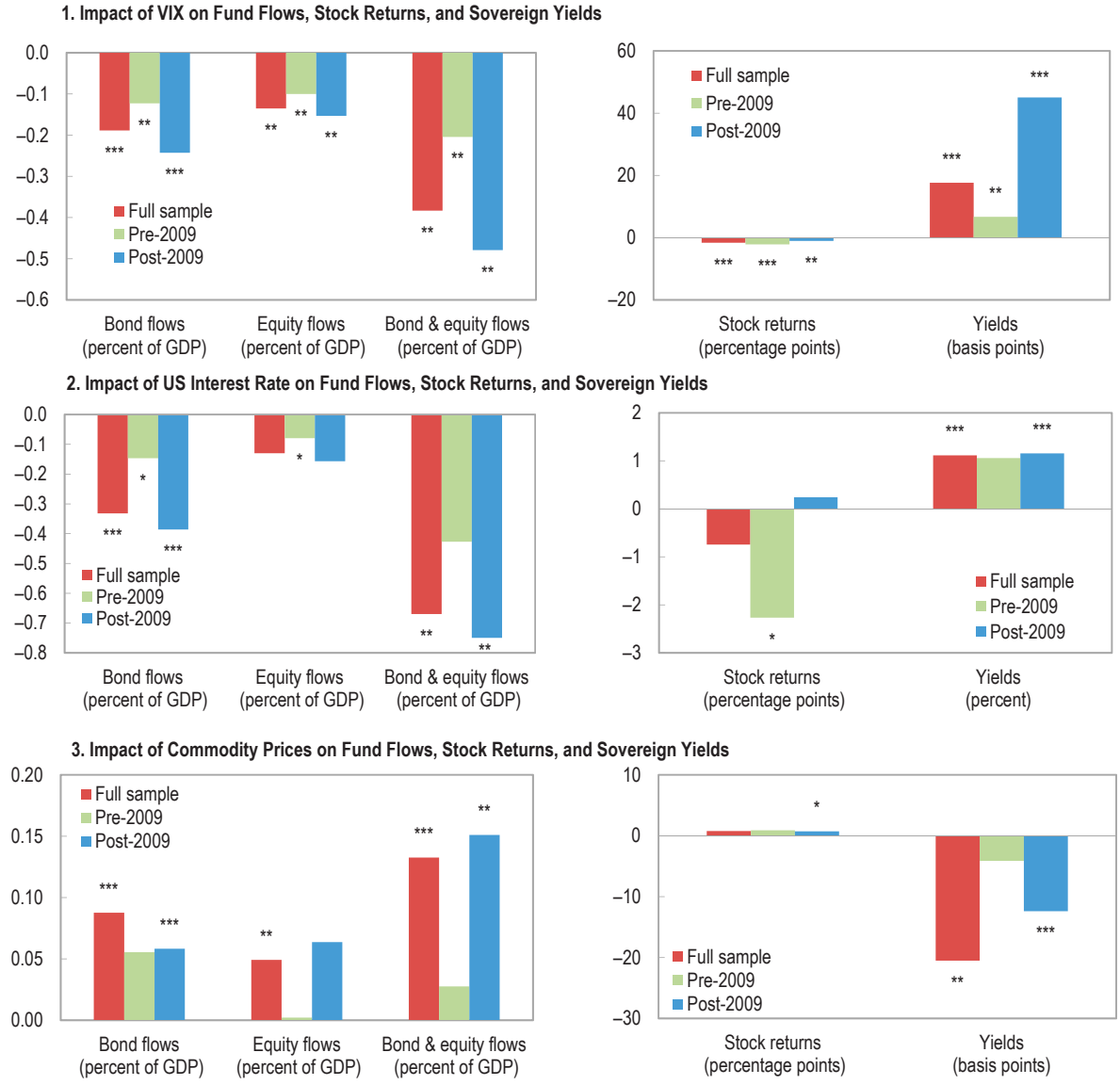
Source: IMF staff estimates.

Note: Panel 1 computes the estimated impact of a 1 standard deviation increase in the (log) VIX; panel 2 shows the estimated impact of a 100 basis point increase in the US 10-year government bond yield; and panel 3 shows the impact of a 1 standard deviation increase in the (log) commodity price index. ***,**, and * indicate statistical significance of the variable at the 1, 5, and 10 percent levels, respectively. EME = emerging market economies; SSA = sub-Saharan Africa; VIX = CBOE Volatility Index.

financial instability. It does however emphasize the critical role of effective credit risk monitoring and management capacity of the financial sector.[12]

While portfolio flows may create macroeconomic challenges, there is little evidence that they are, on average, significantly associated with domestic investment (public or private) or economic growth in sub-Saharan Africa. These flows, however, appear to be positively associated with public consumption (including social spending) in sub-Saharan Africa countries. By contrast, FDI is strongly associated with both private and total investment, with a 1 percent of GDP increase in FDI implying about

Figure 2.11. Sub-Saharan Africa: Pre and Post-Global Financial Crisis Impact of Global Factors, 2000M1–17M12



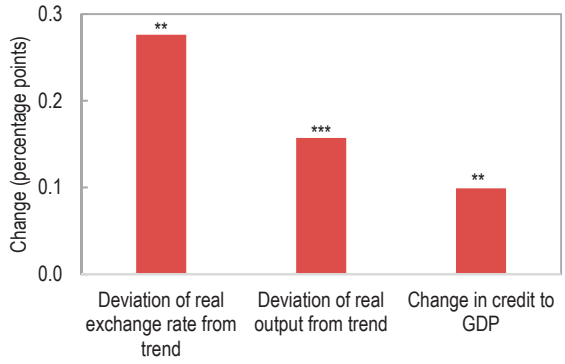
Source: IMF staff estimates.

Notes: Panel 1 computes the estimated impact of a 1 standard deviation increase in the (log) VIX; panel 2 shows the estimated impact of a 100 basis point increase in the US 10-year government bond yield; and panel 3 shows the impact of a one standard deviation increase in the (log) commodity price index. ***,**, and * indicate statistical significance of the variable at the 1, 5, and 10 percent levels, respectively. SSA = sub-Saharan Africa; VIX = CBOE Volatility Index

[12] The key threats to financial stability from rapid credit expansion in low-income countries emanate from the erosion of asset quality, excessive exposure to specific sectors, and political lending (IMF 2014).

a 0.5 of a percentage point higher investment ratio (Figure 2.13).[13] In addition, there is some evidence that the strong effect of FDI on domestic investment in turn translates into a positive association between FDI and economic growth—specifically, a 1 percent of GDP higher level of FDI lifts the short-run economic growth rate by about 0.1 of a percentage point. Among other factors, an improvement in terms of trade, greater trade openness, and lower levels of public debt are also significantly associated with higher growth prospects.[14]

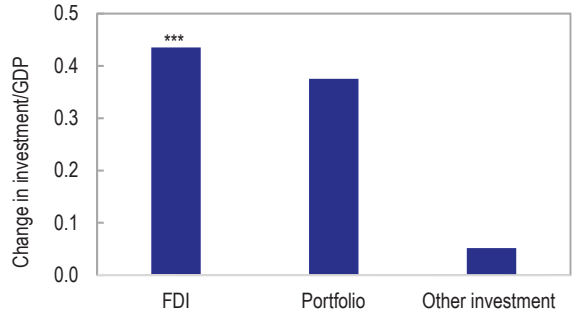
Figure 2.12. Sub-Saharan Africa: Macroeconomic Consequences of Portfolio Inflows (Percentage points)



Source: IMF staff estimates.

Note: Estimates are based on the results reported in Annex Table 2.1.11. ***,**, and * indicate statistical significance of the variable at the 1, 5, and 10 percent levels, respectively.

Figure 2.13. Sub-Saharan Africa: Impact of Liability Flows on Domestic Investment (Percentage points)



Source: IMF staff estimates.

Note: Estimates are based on the results reported in Annex Table 2.1.12 ***,**, and * indicate statistical significance of the variable at the 1, 5, and 10 percent levels, respectively. FDI = foreign direct investment.

CONCLUSION

Nonofficial capital flows to sub-Saharan Africa have increased sharply since the global financial crisis. While these flows can offer myriad benefits, they also carry risks. Much of this increase has been driven by liability (nonresident) flows, which tend to be more volatile than asset (domestic resident) flows.

Global factors—notably, US interest rates and commodity prices—are important in explaining the dynamics of financial flows to sub-Saharan Africa. However, the relative importance of these factors depends on the type of flow. In general, portfolio flows are more sensitive to global market volatility, while FDI appears to respond more to global interest rates and commodity prices. Domestic factors also matter: countries with strong macroeconomic performance, greater trade openness, and better institutional quality tend to receive more inflows, and are less likely to experience large foreign investment reversals.

In terms of the macroeconomic consequences of foreign inflows, portfolio flows appear to be more prone to generating macroeconomic vulnerabilities such as deviation of the real exchange rate and output from trend, as well as with faster credit growth, while there is no strong evidence that these have been statistically significantly associated with domestic investment or economic growth. Portfolio flows do, however, appear to be associated with an increase in public consumption (including social spending). By contrast, FDI appears to directly spur domestic investment, and in turn promote economic growth.

These findings indicate a complex relationship between external finance, domestic macroeconomic stability, and investment and economic growth in sub-Saharan Africa. On the one hand, the region needs nonofficial external capital to fill the resource gap and promote economic development; while on

[13] These results are robust to using five-year averages of the variables to address serial-correlation concerns, as well as to using instrumental variable methodology where flows to the region (percent of regional GDP) are used as an instrumental variable. See Annex 2.1 for details.

[14] These estimates are obtained from annual panel data—the association between FDI and economic growth statistically weakens when using five-year averages of the variables (see Annex 2.1 for details). More generally, the finding of a statistically weak association between portfolio flows and economic growth does not necessarily imply that a reversal of such flows would be inconsequential. A large reversal of these flows could, for example, lead to currency depreciation pressures and a spike in interest rates with attendant consequences for economic stability and growth.

the other, the fickle nature of such capital makes it a less reliable—and potentially risky—source of finance. This trade-off puts a premium on the careful management of capital flows, which should take into account the nature of the capital (FDI, portfolio, loans, etc.), its domestic use and impact, and the type of investor and borrower.

Thus, to the extent that sub-Saharan Africa sovereigns are tapping international capital markets to finance development initiatives, policymakers need to be prudent and ensure that the borrowed resources are utilized effectively, enhance productivity, and promote economic growth. In attracting foreign capital, they also need to be mindful of the attendant consequences for exchange rates such as instability and misalignments that could hurt the tradable sector and undermine competitiveness. In this regard, structural policies to reduce nominal rigidities and facilitate real exchange rate adjustment could play a useful role, though in some cases foreign exchange intervention to limit currency overvaluation and build adequate reserve buffers may be warranted.

Vigilance is also warranted against economic overheating and the buildup of (private and public sector) balance sheet vulnerabilities to mitigate the risk of a hard landing when flows recede. Countercyclical macroeconomic and prudential policies should be adopted to limit such vulnerabilities and preserve debt sustainability. Improving the compilation and timeliness of balance of payments data is thus critical to monitor flows in real time, and to implement the desirable policy actions swiftly. Moreover, to the extent that FDI tends to be less prone to generating vulnerabilities, but more likely to energize private investment and growth, efforts should focus on attracting direct investment to the region through macroeconomic stability and an improved business climate. Strong domestic fundamentals are likely to become even more important in attracting capital going forward as global financial conditions may tighten with the normalization of monetary policy in advanced economies.

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3. The Future of Work in Sub-Saharan Africa

The current wave of technological advances is set to shake up the landscape for jobs within countries and across the world. Previous periods of technological change have led to higher living standards, but transition periods were marked by fears over the future of work as existing jobs were made obsolete and it took time for new and different jobs to arise. Today again, there are fears that the Fourth Industrial Revolution will be disruptive, as technology replaces workers, possibly leading to lower income shares and rising inequality.[1] While most countries are facing this wave of technological change at a time of declining working populations—and are keen to embrace the opportunity to sustain or increase output levels with fewer workers—the challenge for sub-Saharan Africa, where working populations continue to grow rapidly, is very different.

How can sub-Saharan Africa create the 20 million jobs per year needed over the next two decades to absorb its growing workforce?[2] The future of work will be shaped by global forces and their interaction with national and regional developments, raising challenges but also providing opportunities for the region. The main focus of the chapter is the question of how the current wave of technological innovation—the Fourth Industrial Revolution—will impact sub-Saharan Africa's comparative advantage and the nature of work within countries in the region? At the same time, the course of global economic integration and the impact of climate change will shape economic opportunities and the future of work in sub-Saharan Africa.

Making policy decisions in the face of these powerful but highly uncertain trends can be challenging, particularly since many investment decisions and structural reforms have a long-term pay-off. What will the jobs of the future look like in sub-Saharan Africa? What skills do workers in the region need? What infrastructure is critical for sub-Saharan Africa to succeed in the Fourth Industrial Revolution? The complexity of these questions requires thinking in alternative scenarios: "What if…?"

In this chapter, we use economic modeling and scenario analysis to glimpse into the future of work in sub-Saharan Africa. Scenario analysis sketches plausible futures that could happen to provide a framework to think through policy implications: What policies today will steer economies toward desired outcomes? What policies can reinforce positive developments and mitigate adverse ones? What policy challenges are likely to emerge in the future? Scenario analysis is not a forecast that makes a prediction about what the future will be. Rather, it is a tool for making strategic decisions today in light of an uncertain future.

The main findings are as follows:

- The future of work has already begun and matters for policymakers today. The Fourth Industrial Revolution is redefining how and where goods are produced. Some of these new technologies are easier to adopt and adapt, enabling sub-Saharan Africa to leap-frog infrastructure and create new growth sectors, particularly in services.

- There is considerable uncertainty over the impact of technology. Sub-Saharan Africa may be less exposed than advanced economies to automation replacing existing jobs directly given the differences in the structures of the economies and wage levels. However, technological progress that substitutes for low-skilled workers can lead to "reshoring" of production to advanced economies, making the traditional manufacturing led growth model

This chapter was prepared by Aidar Abdychev, Cristian Alonso, Emre Alper, Dominique Desruelle, Siddharth Kothari, Yun Liu, Mathilde Perinet, Sidra Rehman, Axel Schimmelpfennig, and Preya Sharma.

[1] The Fourth Industrial Revolution is characterized by breakthroughs in artificial intelligence, robotics, the Internet of Things, autonomous vehicles, 3-D printing, nanotechnology, biotechnology, materials science, energy storage, and quantum computing.

[2] The United Nations projects a net increase in the working-age population (15–64 years) in sub-Saharan Africa of 20 million people on average over the next 20 years.

less viable. This requires an openness to adapt development strategies to the demands and prospects of the Fourth Industrial Revolution.

- While there are many uncertainties over what the future of work will look like, today's policy choices can shape outcomes. Governments can facilitate and support the adjustment of economies and workers to the opportunities that are opening up.

- Integration and connectivity are the key pillars of successful growth policies. This includes traditional and digital infrastructure, an education system that keeps pace with changing skill requirements, smart urbanization, safety nets for a volatile labor market, and trade integration.

THE IMPACT OF TECHNOLOGICAL CHANGE: WILL MACHINES REPLACE WORKERS?

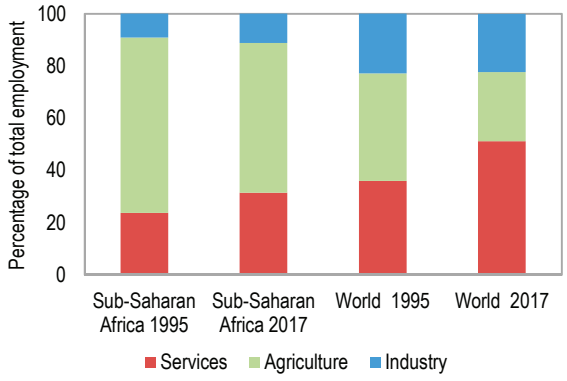
The current wave of technological innovations, characterized as the Fourth Industrial Revolution, has raised an overarching existential question (or fear): Will machines replace workers? Automation and the falling prices of capital goods shifts the balance of production toward capital and away from labor, particularly for more routine tasks. Artificial intelligence may take over high-skilled nonroutine jobs. This has reignited fears that technology will adversely impact jobs and incomes in all countries. Sub-Saharan Africa can be affected directly if automation takes hold in the region or indirectly via exports if automation leads to a reshoring of production to advanced economies and mature emerging market economies.

Historically, technological change yielded significant productivity gains and together with greater trade integration improved living conditions. In particular, the introduction of new "general-purpose technologies" has time and again fundamentally reshaped the way people work, and how goods and services are produced. The steam engine and electricity were the general-purpose technologies that fueled the first two Industrial Revolutions.[3] These periods were marked by elevated uncertainty and fear about dramatic changes in the type of jobs needed and skills required. As such, transition periods were marked by large-scale movements of the workforce across sectors and occupations, for example, from agriculture to manufacturing, and then to services in the case of advanced economies (IMF 2018a). However, once the transition was completed, economies had higher levels of productivity and income and the emergence of new activities created employment opportunities.

A comparable pattern may play out in today's advanced and emerging market economies wherein some existing occupations decline or may even become obsolete, while others spring up. Workers need to make this transition, and as in the past, it may not be easy. There remains considerable uncertainty about which sectors and jobs will be disrupted in advanced economies, with estimates of job losses arising from artificial intelligence, machine learning and robots ranging from 7 percent to 47 percent of the labor force (see McKinsey Global Institute 2017; Frey and Osborne 2017; Nedelkoska and Quintini 2018; Borland and Coelli 2017).

For sub-Saharan Africa, the starting point is different and varies significantly across the region. Most countries do not have a well-established manufacturing sector that provides job security and incomes (Figure 3.1). Most employment is in agriculture and consumer services, often in the informal sector and characterized by income volatility. Infrastructure typically falls short of the needs of its growing economies. And, importantly,

Figure 3.1. Sectoral Shares in Total Employment, 1995 and 2017



Source: World Bank, World Development Indicators.

[3] The Third Industrial Revolution captured information and communication technologies, particularly the rise of the internet.

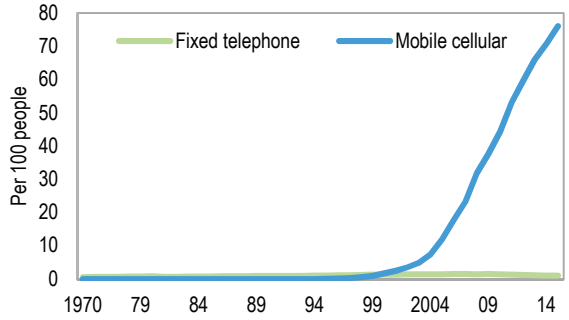
unlike advanced economies and some emerging market economies where the labor force is stabilizing or declining thus providing an incentive to automate, sub-Saharan Africa has a rapidly growing labor force.

Yet, even if the main impact is initially felt in the advanced and emerging market economies the proliferation of automation can also create strong headwinds for sub-Saharan Africa. It could lead to widespread reshoring of manufacturing activities to advanced economies, undermining traditional manufacturing-export led growth strategies. To integrate into global value chains, sub-Saharan African firms must meet global quality standards, and this may require increased automation.

While there is a strong focus on the risk of job losses to automation, some of the new technologies may be easier to adopt and adapt in sub-Saharan Africa. For example, the region has de facto leapfrogged fixed telephone lines and gone straight to mobile networks given their low fixed costs and limited infrastructure needs (Figure 3.2).

Examples of innovative technologies being used and improved across sub-Saharan Africa cut across sectors (Online Annex 3.1). In the agriculture sector, mobile phones and smartphones access timely information about the weather and market movements, advice on seeding, fertilizing and harvesting, or help identify and treat pest infestations. Drones overcome physical infrastructure gaps and deliver critical medical supplies to health centers in rural areas. A 3-D printer can "build" a house in a single day at low costs. Ghana is using GPS information to establish "addresses" where maps and street names or numbers are incomplete. South Africa uses biometric information and payment cards to deliver social grants. And, of course, mobile money, developed and introduced in Kenya, has provided access to financial services to millions of people who were previously excluded.[4]

Figure 3.2. Sub-Saharan Africa: Adoption of Connectivity Technologies, 1970–2014



Source: World Bank, World Development Indicators.

Modeling the Impact of the Fourth Industrial Revolution

We turn to an economic model to illustrate the implications of the different possible natures of technological change for sub-Saharan Africa.[5] The model divides the world into two regions that can trade with each other: an advanced economy region and a low-income region such as sub-Saharan Africa. In both regions, goods are produced using traditional capital, labor, and "robots," with robots defined broadly to include the wide range of new technologies that constitute the Fourth Industrial Revolution, including automation, machine learning, and artificial intelligence. The two regions differ with respect to overall productivity, that is, how many goods can be produced with the same capital stock, workers, and robots. The advanced economy is more productive than sub-Saharan Africa which results in a gap in per capita incomes between the two regions.

In this setting, the nature of technological change determines whether sub-Saharan Africa achieves income convergence or is left behind. Specifically, the impact of the Fourth Industrial Revolution depends crucially on whether robots and labor are substitutes or complements. Robots would substitute for workers, for example, if an automobile factory introduces robots on its assembly line that install headlights, a task previously carried out manually by workers. On the other hand, the use of digital technology in agriculture, like an app that allows farmers to better treat pest infestation, is an example of robots (broadly defined) complementing workers. Of course, both developments can occur in parallel or sequentially.

[4] Digitalization can also vastly improve fiscal policy by transforming the way governments design and implement policies (Gupta and others 2017).

[5] The model is an extension of Berg, Buffie, and Zanna (2018) who study the impact of automation on an advanced economy. See Online Annex 3.2 for details.

The impact of the Fourth Industrial Revolution can be viewed as an increase in robot productivity. What happens in the model if the productivity of robots is doubled? To take advantage of this productivity shock, firms invest in robots and physical capital and increase production. As a result, both regions see an increase in per capita GDP in the long run. However, there are important differences, depending on whether robots substitute for or complement labor (Figures 3.3 and 3.4).

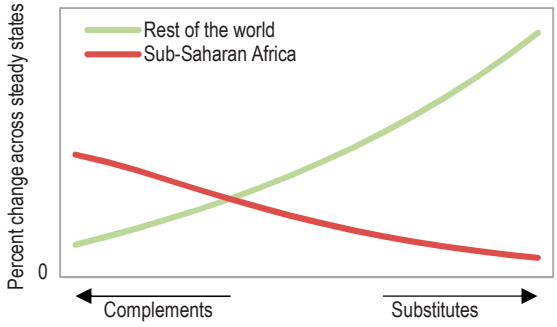
- If labor and robots are complements, the increase in per capita GDP is larger in sub-Saharan Africa than in the advanced economies, that is, there is convergence. Sub-Saharan Africa gains because it has lower wages and that makes it more profitable to invest in robots where they are combined with relatively cheap labor. As robots complement labor, the increase in wages is larger than the increase in the stock of capital, leading to a higher labor share in both regions, with the increase being larger for sub-Saharan Africa.

- If labor and robots are substitutes, the increase in per capita GDP is larger in the advanced economies than in sub-Saharan Africa, that is, the region falls further behind. In this case, introducing robots, and investing in complementary physical capital, is most profitable where wages are high because they save on the cost of employing workers. Given the stronger demand to invest in advanced economies, capital flows out of sub-Saharan Africa during the transition. Furthermore, as robots easily replace workers, the capital and robot stock increases by more than wages, leading to a fall in labor share in both regions. However, the fall in labor share is larger in advanced economies (where it is more profitable to replace workers with robots), indicating that the higher growth in advanced economies is likely to be associated with higher inequality as well.

Historically, labor shares were broadly constant in advanced economies for decades despite large productivity gains, suggesting that technology complemented labor over the longer term. Labor shares in sub-Saharan Africa have also remained stable since the 1950s.[6] However, many countries have seen labor shares decline since the 1980's, and part of the decrease has been associated with technological change (IMF 2017b).

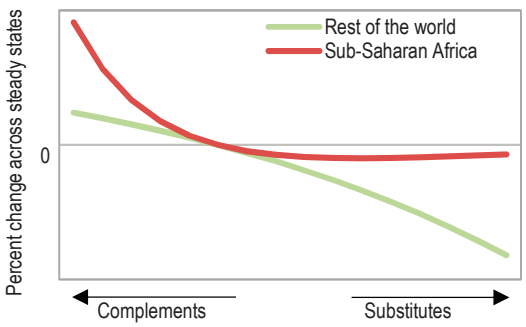
In addition to an increase in the productivity of robots, the model can also be used to investigate the impact of overall productivity increases. Introducing such overall productivity gains, the model suggests that the positive impact on incomes could be bigger than the impact of robots. Thus, even if automation holds back sub-Saharan Africa's convergence with the rest of the world, the region can more than offset this by realizing economy-wide productivity gains. The results highlight the importance of policies to improve infrastructure, education, access to finance, and the business environment which are all typically associated with increases in overall productivity.

Figure 3.3. Model Estimates for GDP per Capita



Source: IMF staff calculations.

Figure 3.4. Model Estimates for Labor Share



Source: IMF staff calculations.

[6] Based on data available for 26 countries in sub-Saharan Africa from Penn World Tables 9.0.

Impact of the Fourth Industrial Revolution on Exports from Sub-Saharan Africa

Assessing the region's vulnerability to automation in its export markets is an important channel through which sub-Saharan Africa could be impacted by the Fourth Industrial Revolution. Compared to advanced and emerging economies, sub-Saharan Africa may be less exposed to automation replacing existing jobs directly, given the differences in the structures of the economies, but also wage levels. Yet, the region may be affected indirectly via exports if automation replaces sub-Saharan Africa's position in value chains, makes it more difficult to enter value chains in the future, or shifts comparative advantage towards competitors.

Two indices are used to gauge the vulnerability of sub-Saharan Africa's exports to automation in advanced economies. The indices are based on different measures of the automatability of occupations that have been suggested in the literature by Frey and Osborne (2017) and Brynjolfsson, Mitchell, and Rock (2018). These indices are mapped to industries, and then to export goods to ascertain how vulnerable an export sector is to automation.

Interestingly, the two resulting export vulnerability indices provide starkly different results. While the Frey-Osborne based index indicates that sub-Saharan Africa's exports, and those of low-income and developing countries in general, are relatively more vulnerable to automation (Figure 3.5), the Brynjolfsson, Mitchell, and Rock-based export vulnerability index shows the opposite, wherein sub-Saharan Africa does not seem as vulnerable to automation (Figure 3.6).

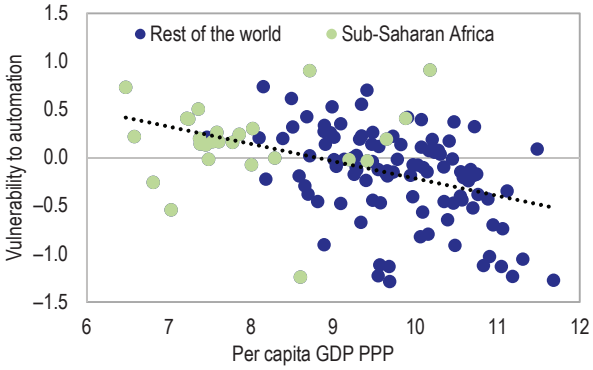
The contrasting findings reflect the different underlying assumptions on how technology impacts jobs. Frey and Osborne consider technologies that replace routine jobs widely found in low-end manufacturing, which constitutes the bulk of noncommodity exports from sub-Saharan Africa (e.g. food manufacturing). Brynjolfsson, Mitchell, and Rock (2018) emphasize machine learning, which is more likely to replace nonroutine cognitive tasks that are used more intensively in advanced economies' exports (for example, electronics and machinery).[7]

These results highlight the inherent uncertainty in assessing the impact of technology. In sub-Saharan Africa, the impact of the Fourth Industrial Revolution will depend on not only the pace of technological progress in general, but also the degree to which technology will complement or substitute different types of labor.

SCENARIO ANALYSIS: EXPLORING THE FUTURE OF WORK IN SUB-SAHARAN AFRICA

Economic models and measures of vulnerability help focus on specific aspects of the impact of technological change on the future of work.

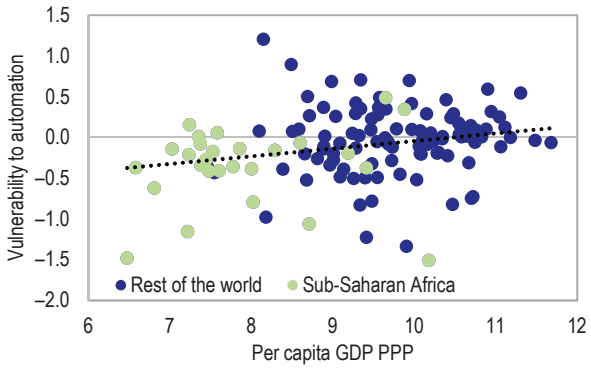
Figure 3.5. Frey-Osborne-Based Index of Countries' Export Vulnerability to Automation



Sources: World Bank, World Development Indicators; Frey and Osborne (2017); and UN COMTRADE.

Note: PPP = purchasing power parity.

Figure 3.6. Brynjolfsson, Mitchell, and Rock-Based Index of Countries' Export Vulnerability to Automation



Sources: World Bank, World Development Indicators; Brynjolfsson, Mitchell, and Rock (2018); and UN COMTRADE.

Note: PPP = purchasing power parity.

[7] There are some industries where both indices agree on the vulnerability to automation. For example, apparel and textile manufacturing are deemed to be susceptible to automation while mining is not as vulnerable.

However, the forces at play are much more complex, closely intertwined, and highly unpredictable. Scenario analysis is a tool which provides a window to peek deep into the future without requiring firm causal relationships to hold.[8] Instead of making a point prediction, scenario analysis develops alternative versions of the future that are told as plausible stories. They are particularly useful in cases of so-called "Knightian uncertainty" which captures situations where it is impossible to attach quantifiable risk probabilities to outcomes due to the unpredictability of events.[9]

The approach can be used for strategic, long-term planning under uncertainty. It is also regularly used by large global firms, national governments, and multilateral institutions. For example, the IMF has used scenario analysis to think about how to best serve its membership over the next 25 years (Behar, Kostial, and Ramírez forthcoming). Scenario analysis was also used during the end of the apartheid regime in South Africa to illustrate the benefits to all from a peaceful handover of power (Kahane 1992).

The value of scenario analysis lies not in one of the scenarios coming true, but in a set of alternative scenarios that together generate insights about the future in all its uncertainty. The approach does not rely on a baseline scenario. All scenario stories should be plausible. Scenarios familiarize us with the diverse ways in which uncertainties can play out and allow us to think through the consequences in a structured manner. This can help spot early warning signs of how uncertainties are unfolding and help design timely and appropriate policy responses. Furthermore, scenarios can help identify policies which are likely to work in most visions of the future ("future-proof" policies) while also highlighting risks associated with policies which are less robust to some future developments.

The starting point is to consider the main uncertainties that will shape the future, how they could play out, and how they interact. Thinking about the future of work in sub-Saharan Africa over the next two decades, three such uncertainties and one underlying trend seem crucial.

- The impact of technological change, in particular automation, machine learning, and artificial intelligence. Will robots replace humans in some, many, or most jobs? Or will robots complement humans, for example, by allowing for reduced work hours and more leisure? Even if robot manufacturing will not come to sub-Saharan Africa for some time, what happens to exports if advanced economies and emerging market economies reshore manufacturing with the help of automation?

- The course of global economic integration. Will the globalization trend continue, allowing for deeper integration and interconnectedness? Or will a backlash take hold, with major economic centers turning inward, and an ensuing global economic disintegration. For sub-Saharan Africa, the question becomes whether global markets remain accessible and can be a source of export-driven growth.

- The speed and severity of climate change. What will the economic and social impact of climate change be? IMF estimates suggest higher temperatures in tropical low-income countries have a long-lasting impact, particularly through agricultural and manufacturing sectors, while services are impacted less (IMF 2017a). How fast will this adverse impact hit? Will certain regions even become uninhabitable, leading to large-scale migration? What mitigation policies will countries put into place?

These uncertainties come on top of a certainty: sub-Saharan Africa's growing population and labor force. The region's population is projected to nearly double in the next two decades, from approximately 900 million in 2015 to 1.7 billion in 2040. As the labor force increases, there is a need to create 20 million jobs each year.

[8] The methodology underlying this section is the Oxford Scenario Planning Approach (Ramírez and Wilkinson 2016). The approach involved interviews with experts from a range of disciplines as well as a facilitated workshop to generate the scenarios.

[9] As scenario analysis explores different futures, it is especially well suited to analyze unquantifiable risks arising from true unknowns regarding key trends or the correct underlying model (Ramírez and Selin 2014).

Against this backdrop, we consider three possible scenarios that seek to span a reasonable range of development trajectories over the next two decades. Of course, sub-Saharan Africa is a diverse region, and the scenarios developed here cannot do justice to this diversity.

In the scenario called Africa Arisen, the impact of technological change is favorable. Technological innovations are to a large degree complementary to humans, including for many low-skilled workers. The global economy continues on its path of deeper integration. Lastly, while climate change has an adverse impact on growth, technological advances are used to mitigate this effect. Sub-Saharan African entrepreneurs seize these opportunities and integrate their firms into global value chains.

In the scenario called Africa for Africa, technological change leads to large-scale displacement of workers in advanced and emerging market economies, triggering inward-looking policies and a reversal of global economic integration. Sub-Saharan Africa is less affected as labor costs are low, but climate change is a drag on growth as changing weather patterns slow productivity gains, and countries are less successful at mitigating these effects. Faced with a less-supportive external environment, sub-Saharan African governments implement fully the Continental Free Trade Agreement and invest in regional infrastructure, creating a common market of more than 1.7 billion people by 2040.

In the scenario called Africa Adrift, the impact of technological change is even more dramatic for all countries. Advanced and emerging market economies become dominated by automated factories. Sub-Saharan African development strategies that invested heavily in infrastructure to support local manufacturing are thwarted, and countries end up with stranded assets and high debt. Climate change creates strong headwinds to growth, and countries do not pursue mitigating measures. Governments fail in countering these trends. Instead, sub-Saharan Africa's dependence on commodities continues, and the region struggles to develop. This creates strong incentives to migrate abroad, although automation in advanced economies limits absorption of migrants.

The scenarios are elaborated further in three hypothetical speeches delivered in 2040 and described in more detail in Online Annex 3.3.[10]

WHAT POLICIES ARE NEEDED TO CREATE FUTURE-PROOF JOBS?

The impact of technology on the future of work is not clear-cut. The challenge for policymakers is to maintain an openness to alternative growth strategies and embrace the opportunities of the Fourth Industrial Revolution.[11] Looking across the scenarios there are contrasting developments depending on how key uncertainties play out, but some common themes emerge that point toward a few key policy areas.

Get Connected

Connectivity goes beyond the need for traditional physical infrastructure of roads, railways, and ports, which is currently the focus of most country investment plans. Experience within the region demonstrates that if there is adequate digital infrastructure and a supportive business environment, new forms of business spring up and increase the efficiency of existing sectors, particularly services which constitutes a growing share of economies. Facilitating a boost in agricultural productivity, not least in the face of climate change, is likely to also rely heavily on digital infrastructure, and broader investment in climate mitigation strategies. Given limited fiscal space, investments in the capability to store and exchange data through an accessible system will require partnership between the public and private sector.

However, for now, internet penetration in sub-Saharan Africa is the lowest in the world—less than half the global average—although a few countries like Kenya, Nigeria, and Seychelles have

[10] The scenario analysis was facilitated by Shirin Elahi and Alberto Behar and benefited from interviews with experts (see online annex 3.4).

[11] For example, new evidence shows that a shift in employment from manufacturing to services need not hinder prospects to gain ground toward advanced-economy income levels (IMF 2018a).

Scenario 1: Africa Arisen

This is a world where technology has increased productivity, the global system has remained on a path of integration, and innovations in agriculture have offset the effects of climate change. The opportunities of technological change and global integration have been successfully leveraged by sub-Saharan Africa, creating an emerging vibrant middle class. However, in a gig economy, job volatility is the norm.

Thank you for logging into the 2040 Virtual Conference on Global Growth Markets for African Entrepreneurs. I would like to especially welcome those of you joining from one of our innovation hubs and thank our global wireless technology providers for their support. As the opening speaker, I was asked to reflect on the last 20 years of breathtaking changes on our continent.

What a journey we have taken, helped by technological advances that were increasingly developed right here at home. These advances have helped us integrate into global value chains, as services trade became the new goods trade.

The transition from agricultural to urban living was down to the ingenuity of a new generation which grew up in a world bursting with creativity. Many of you here today were the young entrepreneurs who saw not just their country, but the world as their potential market. One day a music app from West Africa broke global records. The next day, a southern African print was picked up by one of the global retailers, giving income to a young design student, if only for one season as global fashions shifted quickly.

Even in agriculture, technology had a transformational impact. It happened slowly at first, new varieties of seeds were introduced, text message updates provided irrigation tips, while access to credit helped finance additional inputs. Despite the impact of climate change, yields and acreage under cultivation improved drastically, and, today, we are exporting not just basic commodities but processed food.

However, daily life is still a struggle, especially for those without access to quality education. Large technology-intensive farms dominate agriculture, employing only a few workers. Many families rely on remittances from relatives who moved to the city to better paying jobs. But even these jobs do not always provide a steady stream of income. This volatility is unsettling.

Most governments recognized the need to support the services sector. Maybe they were responding to the pressure of so many people moving to the cities and demanding better services. Or maybe, it just became easier to deliver with the help of technology. Providing internet access to connect people was a fraction of the cost of building railways and roads although our critical digital infrastructure is concentrated in the hands of a few global private companies. Fortunately, we could continue to access financing from abroad.

Education still starts in traditional government-run schools, but the quality is much improved, aided by online materials. Many successful students have degrees in science, technology, engineering or math, but we also see a growing demand in the care economy. Governments strive to provide means-tested unemployment assistance which a rapidly emerging middle class increasingly expects, but this requires continued improvements in tax collection.

So, the onus is on us to keep pushing forward. To remain competitive in the global economy we need to continue to invest in our skills and digital infrastructure but also seek out new growth markets and sectors as the world will not wait for us.

Scenario 2: Africa for Africa

This is a world where inward-looking policies have been dominant in advanced economies, fueled by technology displacing workers. Sub-Saharan Africa has had to chart its own course in a volatile global economic and political environment. Regional integration has spurred growth, partly offsetting the effects of reduced trade with the rest of the world. However, with limited tax revenue, governments struggle to keep up with the continent's growing needs.

Welcome to the 20th Annual Summit of the Africa Youth Leadership Forum. As the opening speaker, I was asked to reflect on the last 20 years of daunting challenges, but also on the opportunities and advances that our continent has seen.

The first summit in 2020 was set against an uncertain environment and what is now referred to as the end of globalization as we knew it. Inward-looking policies in advanced economies and some emerging markets, fueled in part by rising inequality, led to a dramatic unwinding of the global trading system. Unfortunately, our countries suffered, too, as about 80 percent of our exports, mostly natural resources, went outside Africa. We also saw our access to financing shrink dramatically, as our development partners had to increasingly focus on challenges at home.

As many predicted, automation transformed manufacturing in advanced economies. It also made it more difficult for manufacturing to set up on the continent. With constrained access to global markets and technologies, we had to find our own home-grown solutions.

Despite difficult discussions, governments established the Continental Free Trade Agreement in 2023 to promote interregional trade. It was supported by the African Infrastructure Investment Fund tasked with improving regional physical and digital infrastructure. Governments had to dig deep for the seed capital, and continued progress on revenue mobilization was unavoidable. Social media and information technologies helped the youth transcend physical and virtual barriers between our countries, which played a catalytic role in deepening integration.

Regional integration and improved connectivity sparked the growth of entrepreneurship. Our diaspora migrated back and brought skills, ideas, and some savings. The new era gave access to technology that did not require large capital investments, given limited financing. This opportunity was seized by young entrepreneurs. Their can-do/must-do attitude became the driving force behind grassroot innovations that proved quite effective in addressing local needs and conditions. Our people rose to the occasion. Innovative technologies improved productivity in agriculture, and the continent is becoming self-sufficient in food. In industry, 3-D printing enabled the emergence of small-scale and customizable manufacturing and construction. We saw similar changes across the services sectors. In tourism and entertainment, augmented reality now provides amazing experiences. In education and healthcare, artificial intelligence and virtual reality tools facilitate knowledge exchange and learning.

But we cannot rest on our laurels. Our communities are still afflicted with poverty and high unemployment, especially among the youth. Limitations of local and regional markets, infrastructure bottlenecks, and insufficient financing constrain the growth of our companies. The demographic boom and high competition puts too much pressure on the labor market. People continue to move from rural to urban areas, adding demands on an already strained urban infrastructure, and face unstable jobs and low wages. Given the high degree of informality and low level of job security, people are highly vulnerable to economic shocks. I am looking forward to our discussions on how we can start addressing these problems.

Scenario 3: Africa Adrift

This is a world where rapid automation has resulted in reshoring of manufacturing to advanced economies, and climate change has hit harder and faster than expected. In sub-Saharan Africa, development policies have been thwarted by the impact of these global developments, leaving most economies stagnant and indebted. Informal jobs in subsistence agriculture and low productivity services remain dominant.

Good morning. I am honored to deliver the opening speech of the 2040 conference of the African Civil Society Network. Our meeting takes place following two lackluster decades in Africa. I was asked to reflect on the last 20 years of our continent as automation in many of our trading partners pulled the rug from under our own industries and development strategies, and we faced the dramatic effects of climate change as global cooperation faltered and failed to bring emissions down.

The deployment of robots and artificial intelligence in Asia, Europe, and North America changed the nature of global trade. Even with a shrinking labor force due to an aging population, our former trading partners became increasingly self-sufficient as they battled with unemployment and declining wages. The impact on Africa was even more severe. Government policies to attract jobs through tax exemptions and public infrastructure investments were undermined. This left countries with stranded assets, high debt, low domestic revenues, and no fiscal space. With development partners increasingly focused on their own problems, we saw a painful decline in external financing.

As if that was not enough, climate change hit the continent harder and faster than anticipated. You will remember all too well some of our big cities literally running out of water in the 2020s. Or how declining humidity rendered cocoa cultivation unfeasible by 2030. Farmers were forced to switch to subsistence crops. As water reservoirs depleted, rapid migration put pressure on cities, further straining the poor infrastructure. With limited financing, few governments had sufficient resources to adequately invest in climate change mitigation. Many wanted to migrate to Europe and beyond, but these countries as well did not have enough job opportunities to let anybody in.

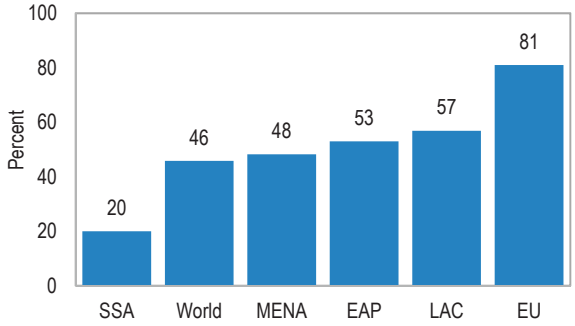
Today's economic realities are sobering. Too many live in extreme poverty. In rural areas, weather dependency and subsistence farming coupled with poor access to water, electricity, and roads contribute to the poverty trap. In the cities, the lack of affordable housing and transportation and perennial high food prices contribute to the urban poverty trap. Those with access to informal networks or remittances are the lucky ones.

One of the main challenges is to fix our education system and adapt it to the demands of this technology-driven world. Those who go abroad for their education or are enrolled in an international online university, are doing well, finding good jobs in the civil service or in large mining companies. But these opportunities are only open to the affluent minority.

Most people are involved in providing low-pay services for these elites, earning wages that are not enough to lift households out of poverty. The lack of formal jobs in cities is proving a fertile ground for crime and terrorism. And we see all too often local or regional conflicts springing up over access to commodities and water. As the crime rate continues to climb, people in extreme poverty are pushed to give up their little savings to illegal human trafficking organizations for the promise of a better life elsewhere. It is a sad reality that private security is the largest employer on our continent.

Where do we go from here? This is the topic of our summit. Better access to the internet and free online learning centers have started to provide opportunities to a growing number of youngsters.

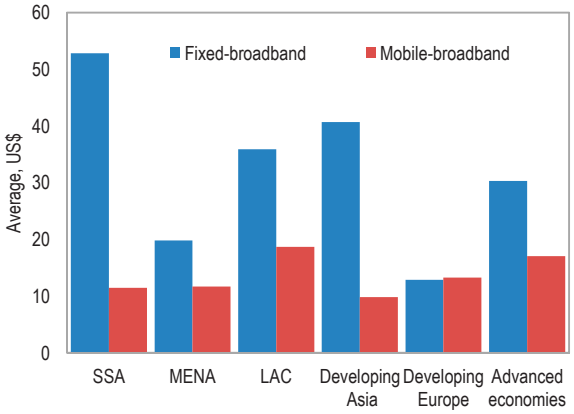
Figure 3.7. Proportion of Individuals Using the Internet, 2016



Source: World Bank, World Development Indicators.

Note: EAP = East Asia and Pacific; EU = European Union; LAC = Latin America and the Caribbean; MENA = Middle East and North Africa; SSA = sub-Saharan Africa.

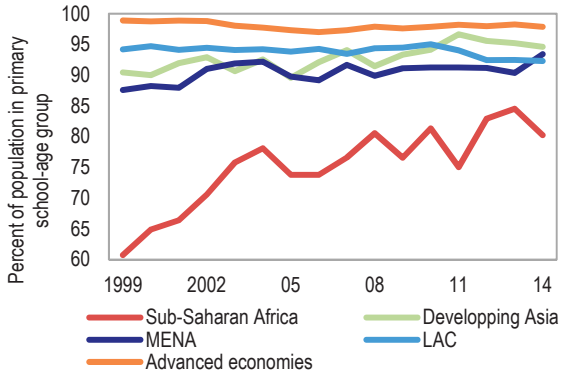
Figure 3.8. Monthly Cost of Fixed- and Mobile-Broadband Internet Connection, 2016



Source: ITU-ICT database.

Note: ITU-ICT= International Telecommunication Union-Information and Communications Technologies; LAC = Latin America and the Caribbean; MENA = Middle East and North Africa; SSA = sub-Saharan Africa.

Figure 3.9. Primary Net Enrollment Rate, 1999–2014



Source: World Bank, World Development Indicators.

Note: LAC = Latin America and the Caribbean; MENA = Middle East and North Africa.

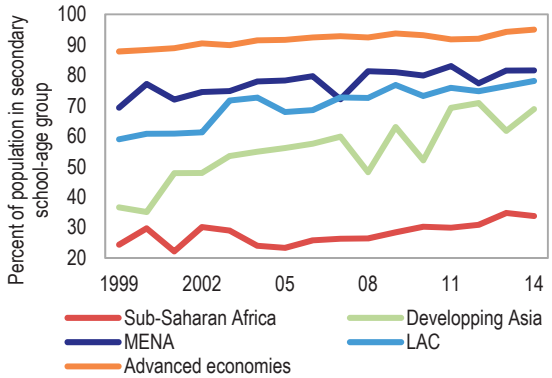
made substantial progress and have penetration levels of close to 50 percent, slightly above the world average (Figure 3.7). The cost of a fixed broadband connection is highest in sub-Saharan Africa compared to other regions. Only for mobile broadband are costs comparable to other regions in US dollar terms (Figure 3.8). However, once costs are scaled by gross national income, sub-Saharan Africa has the least affordable mobile broadband.

Invest in Flexible Education Systems

Whether technology becomes a substitute for or a complement to labor is not necessarily a force beyond our control. Turning the question around, we should ask: What skills will be complementary to technology? What skills are needed to develop and/or use technology? This puts a high premium on education to empower the youth to succeed in the changing world of work. Digital literacy, adaptability, and lifelong learning will likely be skills for success, and secondary education will become more important.

There is considerable uncertainty over what specific skills will be needed. As such, education systems will need to be flexible, while ensuring full enrollment and introducing technology in every classroom. Sub-Saharan Africa has made important gains in increasing primary completion rates (Figure 3.9) but has not kept up with other regions on secondary education. Secondary enrollment rates, a more forward-looking indicator of likely education outcomes for the next generation, remain well below other regions (Figure 3.10).

Figure 3.10. Secondary Net Enrollment Rate, 1999–2014



Source: World Bank, World Development Indicators.

Note: LAC = Latin America and the Caribbean; MENA = Middle East and North Africa.

Smart Urbanization

Looking at the hotbeds of the Fourth Industrial Revolution, these are all situated in cities or urban centers. At present, too many sub-Saharan African cities have insufficient infrastructure, and are oriented more toward local consumer services. This compares with cities in faster growing economies where urban centers are drivers of growth (Gollin, Jedwab, and Vollrat 2015). To create an environment in which entrepreneurs can become drivers of technological adaptation and innovation, sub-Saharan Africa needs a strong focus on urban planning and development. Population pressures put an additional premium on having functioning cities.

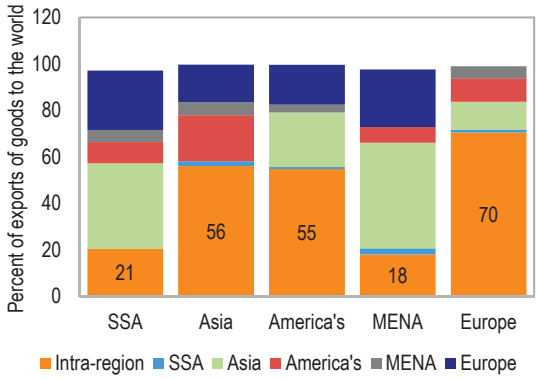
Develop Safety Nets for a Volatile Labor Market

Extrapolating current trends, frequent job transitions may be a key characteristic of a "gig-style" world of work. This will be a change for advanced economies. However, many in sub-Saharan Africa, in particular in the subsistence and informal sector, are already living in such a world and struggle to manage the resulting income volatility. Family and social networks provide some backup, but a major challenge is to expand safety nets that provide some income security. Technology, such as biometric identification and fintech can help with targeting and administration, but revenue mobilization will be key to create the necessary fiscal space.

Deepen Trade Integration

Lastly, further regional trade integration would be a driver of development, not least if the global environment were to become less conducive. The recently agreed Continental Free Trade Agreement is a notable step in this direction and now requires regionwide implementation. Sub-Saharan Africa forms a sizable domestic market if countries move swiftly on trade facilitation and regional infrastructure. This market can provide scale for local firms and make the continent more attractive for foreign direct investment. Trade integration in sub-Saharan Africa has almost tripled since the 1980s but remains at low levels compared to other regions (Figure 3.11). Physical distances and socioeconomic differences—including language and colonial history—constitute barriers to trade in sub-Saharan Africa that seem more important than in other regions (Arizala and others 2018).

Figure 3.11. Exports of Goods to Different Regions, 2017



Source: Direction of Trade Statistics (DOTS).
Note: MENA = Middle East and North Africa; SSA = sub-Saharan Africa.

CONCLUSION

Technological disruptions throughout history have yielded dramatic improvements in living conditions. However, transition periods were often difficult, in particular for those in the declining sectors and occupations. The overarching policy challenge is to support the new and emerging sectors that drive growth. If successful, sub-Saharan Africa can create the required 20 million good-quality jobs per year for its young and growing population and make progress toward meeting the Sustainable Development Goals.

While there are many uncertainties as to what the future of work will look like, today's policy choices shape outcomes. Development strategies must adapt to the demands and prospects of the Fourth Industrial Revolution. Integration and connectivity are the key pillars of successful growth policies. This includes traditional and digital infrastructure, an education system that keeps pace with changing skill requirements, smart urbanization, safety nets for a volatile labor market, and trade integration.

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Statistical Appendix

Unless otherwise noted, data and projections presented in this *Regional Economic Outlook* are IMF staff estimates as of September 20, 2018, consistent with the projections underlying the October 2018 *World Economic Outlook*.

The data and projections cover 45 sub-Saharan African countries in the IMF's African Department. Data definitions follow established international statistical methodologies to the extent possible. However, in some cases, data limitations limit comparability across countries.

Additional tables for historical and forecasts for key macroeconomic variables can be found online in the Background Paper and Statistical Appendix: https://www.imf.org/~/media/Files/Publications/REO/AFR/2018/October/pdf/sreo1018background.ashx

Country Groupings

Countries are aggregated into three (non-overlapping) groups: oil exporters, other resource-intensive countries, and non-resource-intensive countries (see table on page 52 for the country groupings).

- The oil exporters are countries where net oil exports make up 30 percent or more of total exports.
- The other resource-intensive countries are those where non-renewable natural resources represent 25 percent or more of total exports.
- The non-resource-intensive countries refer to those that are not classified as either oil exporters or other resource-intensive countries.

Countries are also aggregated into four (overlapping) groups: oil exporters, middle-income, low-income, and countries in fragile situations (see table on page 52 for the country groupings).

The membership of these groups reflects the most recent data on per capita gross national income (averaged over three years) and the World Bank, Country Policy and Institutional Assessment (CPIA) score, (averaged over three years).

- The middle-income countries had per capita gross national income in the years 2015–17 of more than US$995.00 (World Bank, using the Atlas method).
- The low-income countries had average per capita gross national income in the years 2015–17 equal to or lower than US$995.00 (World Bank, Atlas method).
- The countries in fragile situations had average CPIA scores of 3.2 or less in the years 2015–17 and/or had the presence of a peacekeeping or peacebuilding mission within the last three years.
- The membership of sub-Saharan African countries in the major regional cooperation bodies is shown on page 52: CFA franc zone, comprising the West African Economic and Monetary Union (WAEMU) and CEMAC; the Common Market for Eastern and Southern Africa (COMESA); the East Africa Community (EAC-5); the Economic Community of West African States (ECOWAS); the Southern African Development Community (SADC); and the Southern Africa Customs Union (SACU). EAC-5 aggregates include data for Rwanda and Burundi, which joined the group only in 2007.

Methods of Aggregation

In Tables SA1 and SA5, country group composites are calculated as the arithmetic average of data for individual countries, weighted by GDP valued at purchasing power parity as a share of total group GDP. The source of purchasing power parity weights is the World Economic Outlook (WEO) database.

In Table SA2, country group composites are calculated as the geometric average of data for individual countries, weighted by GDP valued at purchasing power parity as a share of total group GDP. The source of purchasing power parity weights is the WEO database.

In Tables SA3–SA4, and SA6–SA8, country group composites are calculated as the arithmetic average of data for individual countries, weighted by GDP in US dollars at market exchange rates as a share of total group GDP.

Sub-Saharan Africa: Member Countries of Groupings

Oil exporters	Other resource-intensive countries	Non-resource-intensive countries	Middle-income countries	Low-income countries		Countries in fragile situations
Angola	Botswana	Benin	Angola	Benin	Malawi	Burundi
Cameroon	Burkina Faso	Burundi	Botswana	Burkina Faso	Mali	Central African Rep.
Chad	Central African Rep.	Cabo Verde	Cabo Verde	Burundi	Mozambique	Chad
Congo, Republic of	Congo, Dem. Rep. of	Comoros	Cameroon	Central African Rep.	Niger	Comoros
Equatorial Guinea	Ghana	Côte d'Ivoire	Congo, Republic of	Chad	Rwanda	Congo, Dem. Rep. of
Gabon	Guinea	Eritrea	Côte d'Ivoire	Comoros	Sierra Leone	Congo, Republic of
Nigeria	Liberia	Eswatini	Equatorial Guinea	Congo, Dem. Rep. of	South Sudan	Côte d'Ivoire
South Sudan	Mali	Ethiopia	Eswatini	Eritrea	Tanzania	Eritrea
	Namibia	Gambia, The	Gabon	Ethiopia	Togo	Gambia, The
	Niger	Guinea-Bissau	Ghana	Gambia, The	Uganda	Guinea
	Sierra Leone	Kenya	Kenya	Guinea	Zimbabwe	Guinea-Bissau
	South Africa	Lesotho	Lesotho	Guinea-Bissau		Liberia
	Tanzania	Madagascar	Mauritius	Liberia		Malawi
	Zambia	Malawi	Namibia	Madagascar		Mali
	Zimbabwe	Mauritius	Nigeria			São Tomé & Príncipe
		Mozambique	São Tomé & Príncipe			South Sudan
		Rwanda	Senegal			Togo
		São Tomé & Príncipe	Seychelles			Zimbabwe
		Senegal	South Africa			
		Seychelles	Zambia			
		Togo				
		Uganda				

Sub-Saharan Africa: Member Countries of Regional Groupings

The West African Economic and Monetary Union (**WAEMU**)	Economic and Monetary Community of Central African States (**CEMAC**)	Common Market for Eastern and Southern Africa (**COMESA**)	East Africa Community (**EAC-5**)	Southern African Development Community (**SADC**)	Southern Africa Customs Union (**SACU**)	Economic Community of West African States (**ECOWAS**)
Benin	Cameroon	Burundi	Burundi	Angola	Botswana	Benin
Burkina Faso	Central African Rep.	Comoros	Kenya	Botswana	Eswatini	Burkina Faso
Côte d'Ivoire	Chad	Congo, Dem. Rep. of	Rwanda	Congo, Dem. Rep. of	Lesotho	Cabo Verde
Guinea-Bissau	Congo, Republic of	Eritrea	Tanzania	Eswatini	Namibia	Côte d'Ivoire
Mali	Equatorial Guinea	Eswatini	Uganda	Lesotho	South Africa	Gambia, The
Niger	Gabon	Ethiopia		Madagascar		Ghana
Senegal		Kenya		Malawi		Guinea
Togo		Madagascar		Mauritius		Guinea-Bissau
		Malawi		Mozambique		Liberia
		Mauritius		Namibia		Mali
		Rwanda		Seychelles		Niger
		Seychelles		South Africa		Nigeria
		Uganda		Tanzania		Senegal
		Zambia		Zambia		Sierra Leone
		Zimbabwe		Zimbabwe		Togo

List of Country Abbreviations:

AGO	Angola	ERI	Eritrea	MDG	Madagascar	STP	São Tomé & Príncipe
BDI	Burundi	SWZ	Eswatini	MLI	Mali	SYC	Seychelles
BEN	Benin	ETH	Ethiopia	MWI	Malawi	TCD	Chad
BFA	Burkina Faso	GAB	Gabon	MOZ	Mozambique	TGO	Togo
BWA	Botswana	GHA	Ghana	MUS	Mauritius	TZA	Tanzania
CAF	Central African Rep.	GIN	Guinea	NAM	Namibia	UGA	Uganda
CIV	Côte d'Ivoire	GMB	Gambia, The	NER	Niger	ZAF	South Africa
CMR	Cameroon	GNB	Guinea-Bissau	NGA	Nigeria	ZMB	Zambia
COD	Congo, Dem. Rep. of	GNQ	Equatorial Guinea	RWA	Rwanda	ZWE	Zimbabwe
COG	Congo, Rep. of	KEN	Kenya	SEN	Senegal		
COM	Comoros	LBR	Liberia	SLE	Sierra Leone		
CPV	Cabo Verde	LSO	Lesotho	SSD	South Sudan		

List of Appendix Tables SA1—SA8:

List of Sources and Footnotes for Appendix Tables SA1—SA8:

Tables SA1, SA3–SA5, SA8

Source: IMF, Common Surveillance database and IMF, World Economic Outlook database, October 2018.

[1] Fiscal year data.

[2] In constant 2009 US dollars. The Zimbabwe dollar ceased circulating in early 2009. Data are based on IMF staff estimates of price and exchange rate developments in US dollars. Staff estimates of US dollar values may differ from authorities' estimates.

Note: "..." denotes data not available.

Table SA2

Sources: IMF, World Economic Outlook database, October 2018.

[1] In constant 2009 US dollars. The Zimbabwe dollar ceased circulating in early 2009. Data are based on IMF staff estimates of price and exchange rate developments in US dollars. Staff estimates of US dollar values may differ from authorities' estimates.

Note: "..." denotes data not available.

Table SA6

Source: IMF, World Economic Outlook database, October 2018.

[1] Including grants.

[2] Fiscal year data.

[3] In constant 2009 US dollars. The Zimbabwe dollar ceased circulating in early 2009. Data are based on IMF staff estimates of price and exchange rate developments in US dollars. Staff estimates of US dollar values may differ from authorities' estimates.

Note: "..." denotes data not available.

Table SA7

Sources: IMF, Common Surveillance database, and IMF, World Economic Outlook database, October 2018

[1] As a member of the West African Economic and Monetary Union (WAEMU), see WAEMU aggregate for reserves data.

[2] As a member of the Central African Economic and Monetary Community (CEMAC), see CEMAC aggregate for reserves data.

[3] Fiscal year data.

[4] In constant 2009 US dollars. The Zimbabwe dollar ceased circulating in early 2009. Data are based on IMF staff estimates of price and exchange rate developments in US dollars. Staff estimates of US dollar values may differ from authorities' estimates.

Note: "..." denotes data not available.

Table SA1. Real GDP Growth
(Percent)

	2010-15	2016	2017	2018	2019
Angola	4.6	–2.6	–2.5	–0.1	3.1
Benin	4.3	4.0	5.6	6.0	6.3
Botswana	5.5	4.3	2.4	4.6	3.6
Burkina Faso	5.9	5.9	6.4	5.9	6.0
Burundi	3.3	–1.0	0.0	0.1	0.4
Cabo Verde	1.5	3.8	3.9	4.3	4.0
Cameroon	4.8	4.6	3.5	3.8	4.4
Central African Rep.	–3.4	4.5	4.3	4.3	5.0
Chad	6.2	–6.4	–3.1	3.5	3.6
Comoros	2.3	2.2	2.7	2.8	2.8
Congo, Dem. Rep. of	7.7	2.4	3.4	3.8	4.1
Congo, Rep. of	4.8	–2.8	–3.1	2.0	3.7
Côte d'Ivoire	5.8	8.3	7.8	7.4	7.0
Equatorial Guinea	–1.2	–8.6	–3.2	–7.7	–2.6
Eritrea	4.7	1.9	5.0	4.2	3.8
Eswatini	3.3	1.4	1.6	1.3	0.4
Ethiopia[1]	10.2	8.0	10.9	7.5	8.5
Gabon	5.4	2.1	0.5	2.0	3.4
Gambia, The	2.9	0.4	4.6	5.4	5.4
Ghana	7.7	3.7	8.4	6.3	7.6
Guinea	4.5	10.5	8.2	5.8	5.9
Guinea-Bissau	3.6	6.3	5.9	4.5	5.0
Kenya	6.0	5.9	4.9	6.0	6.1
Lesotho	4.2	3.1	–1.6	0.8	1.2
Liberia	5.3	–1.6	2.5	3.0	4.5
Madagascar	2.2	4.2	4.2	5.0	5.4
Malawi	4.6	2.3	4.0	3.3	4.7
Mali	3.9	5.8	5.4	5.1	4.8
Mauritius	3.8	3.8	3.8	3.9	4.0
Mozambique	7.0	3.8	3.7	3.5	4.0
Namibia	5.7	0.7	–0.8	1.1	3.1
Niger	6.6	4.9	4.9	5.3	5.4
Nigeria	5.8	–1.6	0.8	1.9	2.3
Rwanda	7.5	6.0	6.1	7.2	7.8
São Tomé & Príncipe	4.9	4.2	3.9	4.0	4.5
Senegal	4.3	6.2	7.2	7.0	6.7
Seychelles	5.1	4.5	5.3	3.6	3.3
Sierra Leone	5.3	6.3	3.7	3.7	5.5
South Africa	2.4	0.6	1.3	0.8	1.4
South Sudan	–5.1	–13.9	–5.1	–3.2	–4.6
Tanzania	6.8	7.0	6.0	5.8	6.6
Togo	6.1	5.1	4.4	4.7	5.0
Uganda	5.3	2.3	4.8	5.9	6.1
Zambia	6.0	3.8	3.4	3.8	4.5
Zimbabwe[2]	9.1	0.7	3.7	3.6	4.2
Sub-Saharan Africa	**5.1**	**1.4**	**2.7**	**3.1**	**3.8**
Median	5.0	3.8	3.9	3.9	4.5
Excluding Nigeria and South Africa	5.8	3.5	4.4	4.6	5.4
Oil-exporting countries	**5.3**	**–1.7**	**0.2**	**1.6**	**2.4**
Excluding Nigeria	4.1	–2.0	–1.2	0.6	2.8
Oil-importing countries	**4.9**	**3.6**	**4.4**	**4.0**	**4.6**
Excluding South Africa	6.4	5.2	6.0	5.6	6.1
Middle-income countries	**4.6**	**0.4**	**1.8**	**2.3**	**3.0**
Excluding Nigeria and South Africa	5.2	2.7	3.1	3.8	4.9
Low-income countries	**6.5**	**4.4**	**5.8**	**5.4**	**6.0**
Excluding low-income countries in fragile situations	7.4	6.1	7.3	6.3	7.0
Countries in fragile situations	**5.1**	**2.7**	**3.8**	**4.5**	**4.7**
CFA franc zone	4.6	3.5	3.9	4.4	5.0
CEMAC	3.9	–0.3	0.3	1.7	3.2
WAEMU	5.2	6.5	6.6	6.4	6.3
COMESA (SSA members)	6.7	4.8	6.0	5.6	6.1
EAC-5	6.1	5.4	5.3	5.9	6.3
ECOWAS	5.8	0.5	2.7	3.2	3.6
SACU	2.6	0.8	1.3	1.0	1.5
SADC	3.9	1.4	1.8	2.0	2.9

Table SA2. Consumer Prices
(Annual average, percent change)

	2010-15	2016	2017	2018	2019
Angola	10.6	30.7	29.8	20.5	15.8
Benin	2.0	–0.8	0.1	2.3	2.3
Botswana	6.1	2.8	3.3	3.8	3.9
Burkina Faso	1.2	–0.2	0.4	2.0	2.0
Burundi	8.7	5.5	16.6	1.2	7.3
Cabo Verde	1.7	–1.4	0.8	1.0	1.6
Cameroon	2.2	0.9	0.6	1.0	1.1
Central African Rep.	5.2	4.6	4.1	4.0	3.4
Chad	2.7	–1.1	–0.9	2.1	2.6
Comoros	2.8	1.8	1.0	2.0	2.0
Congo, Dem. Rep. of	7.1	18.2	41.5	23.0	13.5
Congo, Rep. of	2.6	3.2	0.5	1.2	2.0
Côte d'Ivoire	2.0	0.7	0.8	1.7	2.0
Equatorial Guinea	3.8	1.4	0.7	0.9	1.4
Eritrea	7.8	9.0	9.0	9.0	9.0
Eswatini	6.0	7.8	6.2	5.0	5.3
Ethiopia	15.2	7.3	9.9	12.7	9.5
Gabon	1.7	2.1	2.7	2.8	2.5
Gambia, The	5.5	7.2	8.0	6.2	5.3
Ghana	11.0	17.5	12.4	9.5	8.0
Guinea	13.6	8.2	8.9	8.2	8.0
Guinea-Bissau	1.6	1.5	1.1	2.0	2.2
Kenya	7.8	6.3	8.0	5.0	5.6
Lesotho	4.8	6.2	5.3	6.3	5.3
Liberia	8.0	8.8	12.4	21.3	24.5
Madagascar	7.3	6.7	8.3	7.8	7.2
Malawi	18.4	21.7	12.2	9.2	8.4
Mali	1.9	–1.8	1.8	2.5	2.1
Mauritius	3.6	1.0	3.7	5.1	4.5
Mozambique	5.7	19.2	15.3	6.0	5.7
Namibia	5.2	6.7	6.1	3.5	5.8
Niger	0.5	0.2	2.4	3.9	2.0
Nigeria	10.4	15.7	16.5	12.4	13.5
Rwanda	3.8	5.7	4.8	3.3	5.5
São Tomé & Príncipe	9.8	5.4	5.7	6.8	5.5
Senegal	1.0	0.8	1.3	0.4	0.9
Seychelles	2.8	–1.0	2.9	4.4	3.7
Sierra Leone	6.2	10.9	18.2	15.6	13.1
South Africa	5.2	6.3	5.3	4.8	5.3
South Sudan	24.9	379.8	187.9	106.4	91.4
Tanzania	9.2	5.2	5.3	3.8	4.7
Togo	1.9	0.9	–0.7	0.4	1.2
Uganda	7.5	5.5	5.6	3.8	4.2
Zambia	8.1	17.9	6.6	8.5	8.2
Zimbabwe[1]	1.5	–1.6	0.9	3.9	9.6
Sub-Saharan Africa	**7.7**	**11.2**	**11.0**	**8.6**	**8.5**
Median	4.9	5.5	5.3	4.0	5.3
Excluding Nigeria and South Africa	7.2	10.6	10.2	8.0	7.0
Oil-exporting countries	**9.4**	**17.6**	**17.1**	**12.6**	**12.7**
Excluding Nigeria	6.9	22.6	18.6	13.1	10.7
Oil-importing countries	**6.5**	**6.9**	**7.0**	**6.1**	**5.8**
Excluding South Africa	7.4	7.2	7.9	6.7	6.1
Middle-income countries	**7.6**	**11.5**	**11.0**	**8.5**	**8.7**
Excluding Nigeria and South Africa	6.5	10.8	9.4	7.1	6.4
Low-income countries	**8.1**	**10.3**	**11.0**	**8.9**	**7.7**
Excluding low-income countries in fragile situations	8.9	6.0	6.8	6.7	6.0
Countries in fragile situations	**5.7**	**13.2**	**13.6**	**9.8**	**8.5**
CFA franc zone	2.0	0.6	0.9	1.6	1.8
CEMAC	2.6	1.3	0.8	1.5	1.7
WAEMU	1.5	0.1	1.0	1.8	1.8
COMESA (SSA members)	8.8	8.4	10.3	8.8	7.7
EAC-5	8.0	5.7	6.5	4.2	5.0
ECOWAS	8.9	12.7	13.0	10.0	10.5
SACU	5.3	6.2	5.2	4.7	5.2
SADC	6.6	10.4	9.9	7.6	7.1

See sources and footnotes on page 53.

Table SA3. Overall Fiscal Balance, Including Grants
(Percent of GDP)

	2010-15	2016	2017	2018	2019
Angola	1.1	–4.5	–6.1	–0.8	–0.2
Benin	–0.6	–5.9	–5.8	-4.7	–2.4
Botswana	4.5	0.7	0.2	–3.7	–3.0
Burkina Faso	–0.8	–3.5	–7.8	–5.0	–3.0
Burundi	–8.2	–6.2	–7.8	–8.6	–9.1
Cabo Verde	–3.4	–3.1	–3.1	–3.1	–5.9
Cameroon	7.9	–6.1	–4.9	–2.6	–2.1
Central African Rep.	0.5	1.6	–1.1	0.9	0.7
Chad	1.2	–2.0	–0.2	1.3	0.5
Comoros	–1.7	–7.4	0.6	–1.9	–2.7
Congo, Dem. Rep. of	0.1	–1.0	–1.5	–0.6	–1.6
Congo, Rep. of	14.6	–20.4	–7.6	9.0	10.5
Côte d'Ivoire	–1.0	–3.9	–4.2	–3.8	–3.0
Equatorial Guinea	16.3	–10.8	–2.5	0.6	2.3
Eritrea	–17.9	–14.7	–14.5	–13.2	–12.9
Eswatini	1.4	–10.4	–8.8	–11.5	–9.5
Ethiopia[1]	–3.4	–2.3	–3.3	–3.7	–3.5
Gabon	8.5	–4.7	–1.7	1.3	0.7
Gambia, The	–1.6	–6.5	–5.4	–2.5	–0.1
Ghana	–5.2	–8.9	–5.1	–6.0	–3.9
Guinea	–1.1	–0.1	–2.1	–2.2	–2.2
Guinea-Bissau	–5.4	–5.6	–1.4	–2.6	–2.3
Kenya	–1.9	–8.3	–7.9	–6.6	–5.8
Lesotho	7.6	–6.3	–2.4	–4.0	–2.2
Liberia	0.5	–3.7	–5.2	–5.1	–4.9
Madagascar	–2.6	–1.3	–2.4	–2.3	–4.3
Malawi	–2.3	–7.3	–7.3	–4.0	–2.4
Mali	3.6	–3.9	–2.9	–3.3	–3.0
Mauritius	–3.6	–3.5	–3.3	–3.5	–3.5
Mozambique	–2.9	–6.3	–4.4	–7.1	–7.6
Namibia	1.9	–8.7	–5.1	–7.6	–9.8
Niger	7.1	–6.1	–5.0	–5.9	–4.5
Nigeria	4.7	–3.9	–5.3	–5.1	–4.5
Rwanda	0.6	–2.3	–2.5	–2.0	–2.1
São Tomé & Príncipe	31.5	–4.2	–2.6	0.4	–3.7
Senegal	–2.0	–3.3	–3.0	–3.5	–3.0
Seychelles	–0.7	0.2	0.4	1.0	1.1
Sierra Leone	2.2	–8.5	–9.1	–9.8	–10.0
South Africa	0.1	–4.1	–4.6	–4.6	–4.5
South Sudan	...	–21.3	3.7	17.7	–3.7
Tanzania	–2.5	–2.2	–1.4	–2.9	–4.1
Togo	–1.5	–9.6	–0.3	–3.2	–0.7
Uganda	–0.8	–4.9	–3.8	–4.7	–5.9
Zambia	2.1	–5.8	–7.8	–9.8	–10.9
Zimbabwe[2]	–3.5	–8.4	–12.7	–10.8	–9.1
Sub-Saharan Africa	**1.7**	**–4.5**	**–4.8**	**–4.2**	**–3.9**
Median	–0.7	–4.9	–3.8	–3.5	–3.0
Excluding Nigeria and South Africa	1.1	–5.0	–4.7	–3.6	–3.5
Oil-exporting countries	**5.3**	**–4.6**	**–5.2**	**–3.3**	**–3.0**
Excluding Nigeria	6.6	–6.0	–5.0	0.1	0.3
Oil-importing countries	**–0.5**	**–4.5**	**–4.6**	**–4.7**	**–4.5**
Excluding South Africa	–1.2	–4.7	–4.6	–4.8	–4.5
Middle-income countries	**2.2**	**–4.8**	**–5.1**	**–4.4**	**–3.9**
Excluding Nigeria and South Africa	2.6	–6.1	–5.4	–3.6	–3.0
Low-income countries	**–1.3**	**–3.7**	**–3.7**	**–3.7**	**–4.0**
Excluding low-income countries in fragile situations	–1.6	–3.2	–3.4	–4.0	–4.1
Countries in fragile situations	**0.4**	**–4.9**	**–4.3**	**–2.6**	**–2.9**
CFA franc zone	4.7	–5.6	–3.9	–2.1	–1.4
CEMAC	9.3	–7.3	–3.6	0.5	0.9
WAEMU	–0.1	–4.3	–4.2	–4.0	–3.0
COMESA (SSA members)	–1.7	–4.8	–5.4	–5.2	–5.1
EAC-5	–1.9	–5.5	–5.0	–5.0	–5.1
ECOWAS	2.9	–4.3	–5.0	–4.9	–4.1
SACU	0.3	–4.1	–4.5	–4.7	–4.6
SADC	0.3	–4.0	–4.6	–4.0	–4.1

Table SA4 Government Debt
(Percent of GDP)

	2010-15	2016	2017	2018	2019
Angola	37.2	75.3	65.0	80.5	71.8
Benin	30.6	49.7	54.6	56.8	55.0
Botswana	18.6	15.6	14.0	13.2	13.5
Burkina Faso	30.4	38.3	38.1	41.2	41.3
Burundi	41.4	48.4	51.7	58.4	63.5
Cabo Verde	97.8	129.5	127.1	130.0	130.6
Cameroon	19.6	32.5	36.9	36.9	36.6
Central African Rep.	39.7	56.0	52.9	46.9	41.8
Chad	34.2	52.4	52.5	49.2	45.4
Comoros	33.8	27.7	32.4	29.0	30.5
Congo, Dem. Rep. of	22.3	19.3	18.1	16.2	15.0
Congo, Rep. of	60.8	128.7	130.8	100.7	89.9
Côte d'Ivoire	52.1	47.0	47.0	48.8	47.3
Equatorial Guinea	12.4	43.3	37.4	37.3	37.4
Eritrea	132.2	132.8	131.2	129.4	127.3
Eswatini	15.0	25.5	28.4	37.6	44.3
Ethiopia[1]	44.5	53.2	54.2	59.5	59.9
Gabon	29.0	64.2	62.7	58.4	57.0
Gambia, The	56.0	82.3	88.0	82.8	77.1
Ghana	56.1	73.4	71.8	71.2	67.1
Guinea	44.2	41.8	37.9	40.4	43.1
Guinea-Bissau	53.6	57.9	53.9	55.3	52.7
Kenya	45.9	53.2	54.2	56.1	55.4
Lesotho	36.9	36.2	33.7	39.3	38.7
Liberia	20.7	28.3	34.4	40.1	42.5
Madagascar	33.5	38.4	36.0	35.1	36.4
Malawi	46.6	60.3	59.2	57.9	57.6
Mali	26.5	36.0	35.4	36.9	37.1
Mauritius	59.6	66.1	64.0	63.9	62.5
Mozambique	54.2	121.6	102.1	112.9	118.7
Namibia	25.6	39.5	41.3	47.2	54.0
Niger	29.7	45.2	45.3	46.3	48.4
Nigeria	12.7	19.6	21.8	24.8	26.8
Rwanda	24.8	37.3	40.5	42.6	43.4
São Tomé & Príncipe	77.6	93.1	88.4	76.9	73.7
Senegal	36.5	47.8	48.3	50.4	47.5
Seychelles	75.5	69.1	63.6	59.9	54.9
Sierra Leone	39.9	54.9	63.9	79.2	93.4
South Africa	42.4	51.6	53.0	55.7	57.3
South Sudan	26.8	86.6	62.7	43.7	53.2
Tanzania	31.0	38.0	37.0	37.4	38.6
Togo	54.9	81.6	75.7	75.7	70.6
Uganda	27.1	37.4	40.0	42.9	44.7
Zambia	31.8	60.7	63.1	70.9	77.6
Zimbabwe[2]	50.5	69.9	82.3	81.9	79.6
Sub-Saharan Africa	**31.0**	**43.8**	**45.4**	**48.5**	**48.2**
Median	35.8	51.6	52.9	50.4	53.2
Excluding Nigeria and South Africa	37.3	54.0	53.1	56.2	54.8
Oil-exporting countries	**19.0**	**33.8**	**35.7**	**39.3**	**37.7**
Excluding Nigeria	32.5	65.9	60.6	66.7	60.9
Oil-importing countries	**40.8**	**50.6**	**51.4**	**53.9**	**54.5**
Excluding South Africa	39.7	50.1	50.5	52.8	53.0
Middle-income countries	**29.8**	**42.5**	**44.7**	**47.9**	**47.4**
Excluding Nigeria and South Africa	38.2	58.9	56.8	60.7	57.8
Low-income countries	**36.0**	**47.9**	**48.1**	**50.4**	**50.9**
Excluding low-income countries in fragile situations	35.9	49.2	49.2	52.9	53.9
Countries in fragile situations	**40.5**	**50.0**	**50.6**	**50.1**	**49.1**
CFA franc zone	33.0	49.1	49.5	49.2	47.6
CEMAC	27.4	52.6	53.7	50.4	48.3
WAEMU	39.1	46.4	46.5	48.3	47.1
COMESA (SSA members)	39.5	49.5	51.2	53.9	54.2
EAC-5	36.2	45.0	46.0	47.9	48.3
ECOWAS	20.3	29.6	32.2	35.0	35.7
SACU	40.6	49.0	50.5	53.2	54.9
SADC	39.0	53.3	52.5	56.7	56.3

See sources and footnotes on page 53.

Table SA5. Broad Money
(Percent of GDP)

	2010-15	2016	2017	2018	2019
Angola	35.2	39.5	31.1	27.1	27.6
Benin	37.5	41.0	39.2	45.7	46.3
Botswana	43.9	41.4	40.2	40.6	41.1
Burkina Faso	30.5	38.9	43.5	45.9	48.2
Burundi	24.6	21.7	22.9	25.8	26.4
Cabo Verde	87.4	104.1	105.5	104.6	103.1
Cameroon	21.6	22.5	22.6	22.8	22.8
Central African Rep.	23.4	26.2	26.7	26.8	26.8
Chad	13.4	15.8	15.8	16.0	16.2
Comoros	37.7	45.9	45.0	45.0	45.0
Congo, Dem. Rep. of	11.3	12.5	13.4	13.2	13.4
Congo, Rep. of	33.5	42.7	34.9	30.5	27.3
Côte d'Ivoire	15.6	14.1	12.8	16.7	17.8
Equatorial Guinea	14.5	17.4	16.1	16.4	19.0
Eritrea	112.1	100.8	101.4	101.7	101.4
Eswatini	25.1	30.5	29.5	29.1	29.1
Ethiopia[1]	27.2	28.9	31.7	34.1	35.6
Gabon	23.0	24.7	22.7	22.7	24.7
Gambia, The	35.0	36.7	40.0	39.9	38.5
Ghana	30.9	33.9	32.3	32.3	32.8
Guinea	24.5	24.9	24.1	23.3	23.3
Guinea-Bissau	37.4	46.9	45.2	46.1	46.0
Kenya	41.5	38.4	36.9	39.1	39.1
Lesotho	32.7	31.1	35.1	34.5	33.8
Liberia	23.3	20.5	19.9	19.9	19.9
Madagascar	25.6	28.4	29.6	29.5	29.5
Malawi	24.6	23.0	23.7	24.1	24.1
Mali	26.8	28.9	29.0	29.4	29.0
Mauritius	99.9	109.9	113.6	114.7	114.7
Mozambique	32.8	37.1	35.6	34.2	34.1
Namibia	58.4	51.7	53.4	53.4	53.4
Niger	22.6	27.1	24.1	24.8	25.3
Nigeria	20.3	26.5	26.7	27.6	27.8
Rwanda	21.0	23.9	23.6	24.9	26.1
São Tomé & Príncipe	38.9	34.3	31.4	32.7	32.7
Senegal	30.3	37.4	37.5	36.5	44.3
Seychelles	61.4	71.8	77.7	77.9	77.9
Sierra Leone	22.4	25.1	24.5	25.3	25.6
South Africa	73.1	72.6	72.6	72.6	72.6
South Sudan	19.9	28.8	16.0	15.2	18.8
Tanzania	24.0	22.3	21.3	21.1	21.5
Togo	45.5	54.2	56.9	56.9	56.9
Uganda	20.5	21.9	22.1	22.6	23.2
Zambia	20.7	20.6	22.1	23.0	23.1
Zimbabwe[2]	26.3	34.5	44.7	48.3	51.1
Sub-Saharan Africa	**36.2**	**38.2**	**37.7**	**38.0**	**38.3**
Median	27.5	30.5	31.1	29.5	29.1
Excluding Nigeria and South Africa	29.5	31.2	30.3	30.7	31.5
Oil-exporting countries	**22.3**	**27.8**	**26.5**	**26.6**	**26.9**
Excluding Nigeria	27.3	31.3	26.0	24.0	24.6
Oil-importing countries	**46.4**	**45.4**	**45.2**	**45.5**	**45.6**
Excluding South Africa	30.3	31.2	31.5	32.5	33.3
Middle-income countries	**39.2**	**41.6**	**40.8**	**41.0**	**41.2**
Excluding Nigeria and South Africa	33.2	34.8	32.4	32.4	33.2
Low-income countries	**25.3**	**27.3**	**28.0**	**29.0**	**29.8**
Excluding low-income countries in fragile situations	25.8	27.4	28.1	29.4	30.3
Countries in fragile situations	**23.6**	**25.5**	**25.2**	**26.0**	**26.4**
CFA franc zone	23.7	26.9	26.2	27.3	28.7
CEMAC	21.0	24.0	22.5	22.2	22.5
WAEMU	26.1	29.1	28.9	30.9	33.1
COMESA (SSA members)	31.1	31.8	33.1	34.6	35.2
EAC-5	29.6	28.2	27.3	28.3	28.6
ECOWAS	22.4	27.7	27.7	28.7	29.3
SACU	70.5	69.6	69.6	69.6	69.5
SADC	53.9	53.4	52.4	51.8	51.6

Table SA6. External Current Account[1]
(Percent of GDP)

	2010-15	2016	2017	2018	2019
Angola	4.4	–4.8	–1.0	–2.1	–1.9
Benin	–8.0	–9.4	–11.1	-10.6	-8.9
Botswana	5.4	13.7	12.3	8.7	7.7
Burkina Faso	–6.8	–7.2	–8.1	–8.6	–7.6
Burundi	–16.8	–13.1	–12.3	–13.4	–12.6
Cabo Verde	–9.7	–2.4	–6.2	–9.1	–10.2
Cameroon	–3.3	–3.2	–2.7	–3.2	–3.0
Central African Rep.	–8.7	–5.5	–8.4	–8.9	–8.4
Chad	–9.0	–9.2	–5.7	–4.2	–5.5
Comoros	–4.3	–7.4	–4.1	–9.2	–10.1
Congo, Dem. Rep. of	–5.6	–3.1	–0.5	–0.0	–1.8
Congo, Rep. of	0.0	–73.6	–12.9	9.1	12.4
Côte d'Ivoire	1.8	–1.1	–4.6	–4.6	–4.2
Equatorial Guinea	–8.3	–12.9	–5.9	–3.1	–3.6
Eritrea	1.0	–2.1	–2.4	–1.6	–2.3
Eswatini	11.8	17.2	13.7	10.3	9.8
Ethiopia[2]	–5.6	–9.0	–8.1	–6.2	–6.2
Gabon	11.0	–9.9	–4.9	–1.6	–0.5
Gambia, The	–7.5	–5.9	–13.1	–12.5	–13.6
Ghana	–9.7	–6.7	–4.5	–4.1	–4.0
Guinea	–13.9	–31.1	–6.9	–21.2	–16.4
Guinea-Bissau	–4.2	1.3	–2.0	–3.6	–4.1
Kenya	–8.2	–5.2	–6.3	–5.6	–5.3
Lesotho	–7.4	–8.2	–3.7	–6.0	–12.5
Liberia	–16.5	–14.1	–19.1	–18.3	–21.4
Madagascar	–5.5	0.6	–0.3	–2.2	–3.4
Malawi	–8.7	–13.6	–9.5	–9.3	–8.1
Mali	–5.1	–7.2	–5.8	–7.2	–7.8
Mauritius	–7.9	–4.3	–6.6	–8.2	–10.4
Mozambique	–34.6	–39.3	–22.4	–18.2	–44.7
Namibia	–6.6	–13.8	–3.3	–6.0	–7.6
Niger	–19.0	–15.7	–14.1	–16.2	–18.3
Nigeria	1.8	0.7	2.8	2.0	1.0
Rwanda	–9.9	–15.8	–6.8	–8.9	–9.4
São Tomé & Príncipe	–20.4	–6.5	–8.2	–7.0	–10.2
Senegal	–6.5	–4.0	–7.3	–7.7	–7.1
Seychelles	–19.5	–20.1	–20.5	–18.4	–18.0
Sierra Leone	–28.8	–2.3	–11.3	–13.4	–14.1
South Africa	–4.1	–2.8	–2.5	–3.2	–3.5
South Sudan	–2.1	1.3	–5.0	–8.8	2.7
Tanzania	–9.9	–4.5	–2.8	–4.3	–5.5
Togo	–9.2	–9.3	–8.0	–9.2	–8.0
Uganda	–7.8	–2.9	–4.6	–6.9	–8.9
Zambia	2.5	–4.5	–3.9	–4.0	–3.4
Zimbabwe[3]	–14.6	–3.4	–4.1	–5.8	–5.6
Sub-Saharan Africa	**–2.5**	**–3.9**	**–2.3**	**–2.8**	**–3.4**
Median	–7.4	–5.9	–5.8	–6.2	–7.1
Excluding Nigeria and South Africa	–4.5	–6.8	–4.6	–4.8	–5.4
Oil-exporting countries	**1.8**	**–2.2**	**0.8**	**0.7**	**0.2**
Excluding Nigeria	1.6	–8.5	–2.6	–2.0	–1.4
Oil-importing countries	**–5.9**	**–5.0**	**–4.2**	**–4.8**	**–5.5**
Excluding South Africa	–7.5	–6.2	–5.3	–5.8	–6.6
Middle-income countries	**–0.9**	**–2.6**	**–1.1**	**–1.6**	**–1.9**
Excluding Nigeria and South Africa	–1.1	–5.7	–3.3	–3.3	–3.2
Low-income countries	**–9.6**	**–8.2**	**–6.3**	**–6.9**	**–8.2**
Excluding low-income countries in fragile situations	–10.8	–9.3	–7.5	–7.5	–9.7
Countries in fragile situations	**–5.5**	**–8.5**	**–4.8**	**–4.9**	**–4.7**
CFA franc zone	–3.2	–8.9	–6.2	–5.0	–4.7
CEMAC	–1.7	–13.7	–5.1	–1.7	–1.2
WAEMU	–4.9	–5.3	–7.0	–7.5	–7.2
COMESA (SSA members)	–6.2	–5.6	–5.2	–5.1	–5.4
EAC-5	–8.9	–5.4	–5.1	–5.7	–6.2
ECOWAS	–0.5	–1.6	–0.3	–1.3	–1.7
SACU	–3.6	–2.2	–1.6	–2.6	–3.0
SADC	–3.5	–3.8	–2.3	–3.2	–4.2

See sources and footnotes on page 53.

Table SA7. External Debt, Official Debt, Debtor Based
(Percent of GDP)

	2010–15	2016	2017	2018	2019
Angola	22.0	44.0	34.5	42.1	44.3
Benin	17.5	21.4	23.1	23.6	25.7
Botswana	12.5	10.0	14.0	11.3	9.8
Burkina Faso	23.5	26.1	24.3	23.7	23.7
Burundi	21.2	16.7	15.3	14.9	14.1
Cabo Verde	72.2	92.7	99.2	95.3	96.2
Cameroon	11.0	19.6	22.5	23.6	25.5
Central African Rep.	18.3	28.2	27.9	23.6	21.7
Chad	23.6	27.1	28.7	26.0	25.1
Comoros	32.5	26.3	30.1	26.5	28.0
Congo, Dem. Rep. of	17.4	13.8	13.1	12.9	12.3
Congo, Rep. of	23.9	48.2	41.0	30.5	28.4
Côte d'Ivoire	34.2	26.9	30.6	33.5	32.8
Equatorial Guinea	7.1	9.1	9.0	10.3	13.1
Eritrea	30.2	20.5	20.1	20.1	19.9
Eswatini	7.8	9.5	10.3	12.6	14.1
Ethiopia[1]	25.1	33.8	33.5	30.5	30.8
Gabon	21.9	35.6	40.6	37.4	40.6
Gambia, The	30.3	40.9	46.3	45.1	43.1
Ghana	27.3	38.5	36.5	34.5	31.3
Guinea	29.7	22.2	20.7	26.5	31.1
Guinea-Bissau	27.0	22.8	20.9	19.9	20.0
Kenya	21.9	26.1	26.9	28.3	29.1
Lesotho	31.0	34.8	33.4	34.0	37.0
Liberia	9.3	20.1	24.7	29.6	34.1
Madagascar	23.2	25.4	24.4	25.0	27.2
Malawi	21.4	32.7	32.4	30.8	31.3
Mali	21.1	23.8	25.6	24.1	24.1
Mauritius	14.1	14.6	12.9	12.0	10.6
Mozambique	45.2	92.4	90.7	91.6	95.1
Namibia	7.9	16.6	15.5	16.2	16.6
Niger	19.2	29.7	30.7	31.4	33.8
Nigeria	3.1	4.0	6.3	8.2	7.9
Rwanda	18.9	33.6	36.9	38.4	38.9
São Tomé & Príncipe	77.6	78.8	74.7	66.9	64.8
Senegal	25.9	31.2	39.5	42.8	42.2
Seychelles	42.9	31.8	30.0	28.8	26.9
Sierra Leone	27.0	36.1	45.9	56.8	69.4
South Africa	12.7	18.9	21.3	19.9	20.4
South Sudan	...	...	...	...	...
Tanzania	22.7	28.7	27.9	28.2	28.9
Togo	15.8	19.3	20.8	23.6	25.8
Uganda	15.9	22.0	25.4	28.1	30.4
Zambia	16.2	38.2	36.9	41.2	44.5
Zimbabwe[2]	45.0	42.1	38.6	36.5	33.2
Sub-Saharan Africa	**13.9**	**20.6**	**22.2**	**23.0**	**23.1**
Median	21.7	26.6	27.9	28.2	28.7
Excluding Nigeria and South Africa	22.0	30.6	30.0	31.1	31.6
Oil-exporting countries	**8.1**	**13.7**	**15.2**	**17.3**	**16.8**
Excluding Nigeria	19.2	35.8	31.4	34.7	36.3
Oil-importing countries	**18.6**	**25.4**	**26.5**	**26.3**	**26.8**
Excluding South Africa	23.3	28.9	29.5	29.9	30.2
Middle-income countries	**11.7**	**18.1**	**20.1**	**21.0**	**20.9**
Excluding Nigeria and South Africa	20.8	31.6	30.3	32.3	32.7
Low-income countries	**24.0**	**29.4**	**29.7**	**29.5**	**30.2**
Excluding low-income countries in fragile situations	23.9	33.2	33.6	33.2	34.2
Countries in fragile situations	**25.7**	**25.6**	**26.1**	**26.5**	**26.4**
CFA franc zone	20.6	25.9	28.4	28.8	29.5
CEMAC	15.7	25.0	26.5	25.4	26.8
WAEMU	25.8	26.5	29.8	31.4	31.5
COMESA (SSA members)	21.5	27.2	27.4	27.4	27.8
EAC-5	20.8	26.5	27.3	28.5	29.5
ECOWAS	8.8	11.6	14.6	16.6	16.1
SACU	12.6	18.4	20.7	19.4	19.8
SADC	16.8	26.2	25.7	26.0	26.6

Table SA8. Reserves
(Month of imports of goods and services)

	2010–15	2016	2017	2018	2019
Angola	7.8	10.3	6.1	4.9	5.5
Benin[1]	...	...	...	...	...
Botswana	11.6	14.6	12.9	12.5	11.8
Burkina Faso[1]	...	...	...	...	...
Burundi	3.4	1.4	1.4	1.3	1.3
Cabo Verde	4.8	6.1	5.2	5.2	4.8
Cameroon[2]	...	...	...	...	...
Central African Rep.[2]	...	...	...	...	...
Chad[2]	...	...	...	...	...
Comoros	7.1	6.6	6.3	6.7	6.0
Congo, Dem. Rep. of	1.4	0.5	0.5	0.6	0.7
Congo, Rep. of [2]	...	...	...	...	...
Côte d'Ivoire[1]	...	...	...	...	...
Equatorial Guinea[2]	...	...	...	...	...
Eritrea	2.2	2.0	1.5	1.5	1.4
Eswatini	4.3	3.6	3.4	2.8	2.7
Ethiopia[3]	2.0	2.1	2.0	1.7	1.7
Gabon[2]	...	...	...	...	...
Gambia, The	4.4	1.4	2.8	2.9	3.0
Ghana	2.8	2.6	2.9	2.9	3.0
Guinea	2.4	1.4	1.4	1.9	2.1
Guinea-Bissau[1]	...	...	...	...	...
Kenya	4.1	4.7	4.1	4.4	4.5
Lesotho	5.2	4.4	4.2	3.5	3.7
Liberia	2.1	3.0	3.1	2.8	3.0
Madagascar	2.8	3.0	3.6	3.8	3.9
Malawi	2.0	2.9	3.3	2.9	3.1
Mali[1]	...	...	...	...	...
Mauritius	5.6	8.3	9.3	9.1	9.0
Mozambique	3.1	2.8	4.6	2.9	2.3
Namibia	2.6	2.6	1.6	1.5	1.0
Niger[1]	...	...	...	...	...
Nigeria	5.8	6.5	7.2	8.0	7.5
Rwanda	4.9	4.1	4.1	3.9	3.8
São Tomé & Príncipe	4.0	3.9	3.3	3.3	3.3
Senegal[1]	...	...	...	...	...
Seychelles	3.2	3.7	3.7	3.3	3.3
Sierra Leone	2.7	3.5	3.3	3.3	3.5
South Africa	5.2	5.7	5.6	5.5	5.2
South Sudan	2.8	0.2	0.1	0.4	0.4
Tanzania	4.0	5.3	5.3	4.8	4.7
Togo[1]	...	...	...	...	...
Uganda	4.6	5.1	5.0	4.4	4.2
Zambia	3.0	2.4	2.0	1.4	0.8
Zimbabwe[4]	0.5	0.8	0.5	0.4	0.4
Sub-Saharan Africa	**5.0**	**5.2**	**4.9**	**4.9**	**4.8**
Median	3.5	3.5	3.4	3.3	3.3
Excluding Nigeria and South Africa	4.3	4.2	3.6	3.3	3.4
Oil-exporting countries	**6.0**	**6.6**	**6.3**	**6.6**	**6.6**
Excluding Nigeria	6.3	6.7	4.6	4.0	4.6
Oil-importing countries	**4.1**	**4.2**	**4.1**	**4.0**	**3.8**
Excluding South Africa	3.4	3.3	3.2	3.1	3.1
Middle-income countries	**5.5**	**6.0**	**5.6**	**5.8**	**5.7**
Excluding Nigeria and South Africa	5.5	5.6	4.4	4.2	4.4
Low-income countries	**2.7**	**2.4**	**2.4**	**2.2**	**2.2**
Excluding low-income countries in fragile situations	3.1	3.2	3.3	2.9	2.8
Countries in fragile situations	**2.9**	**1.4**	**1.4**	**1.7**	**1.8**
CFA franc zone	5.2	3.1	3.2	3.8	4.0
CEMAC	5.2	2.3	2.4	3.0	3.6
WAEMU	5.3	3.9	3.9	4.7	4.5
COMESA (SSA members)	3.0	3.1	2.9	2.9	2.9
EAC-5	4.2	4.9	4.6	4.4	4.4
ECOWAS	5.1	5.2	5.6	6.1	5.8
SACU	5.3	6.0	5.7	5.6	5.3
SADC	5.2	6.0	5.2	4.8	4.6

See sources and footnotes on page 53.

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