Has Africa Missed the Bus?
The Condescending Consensus on the Continent's Growth

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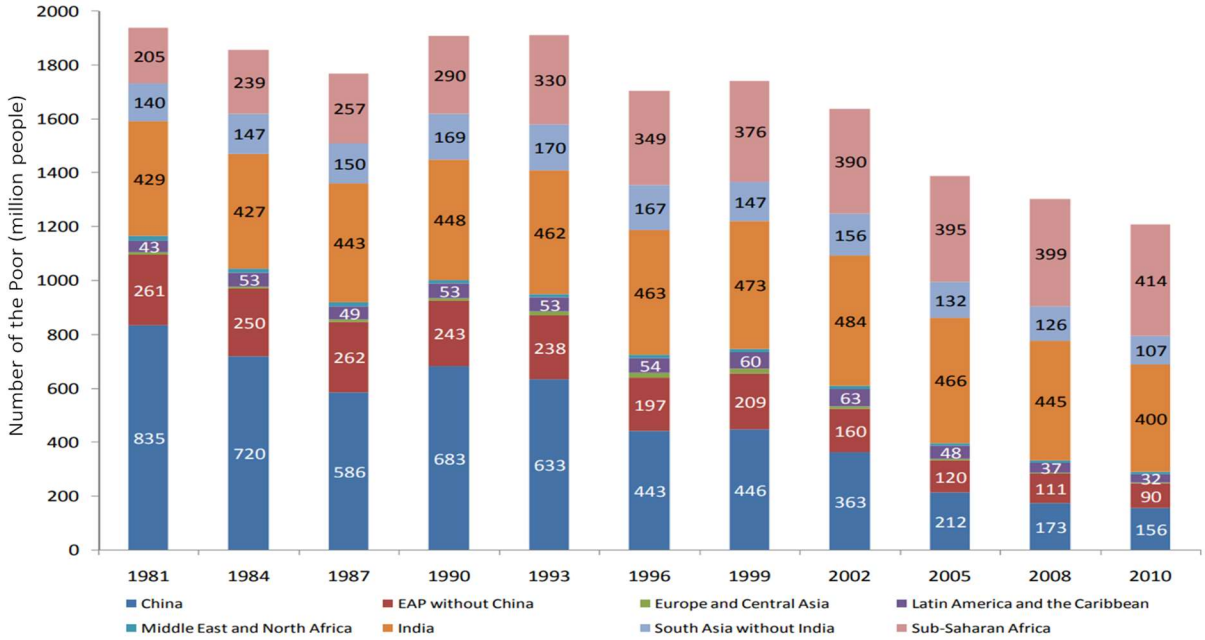
This paper takes a hard look at Sub-Saharan Africa's economic growth between 1960 and 2016. We have not chosen the period accidentally. 1960 was the year in which developing East Asia's per capita income first exceeded Sub-Saharan Africa's. 2016 was when, in recorded history, South Asia's per capita income first exceeded that of Sub-Saharan Africa (henceforth Africa, SSA, or the subcontinent). These numbers translate directly into changes in the global distribution of misery. In 1960, more than half of the world's abject poverty was in East Asia; today that number is less than 15 percent. Back then, Africa's share in world poverty was 15 percent; today it's more than 50 percent. In 1980, there were about 205 million Africans living in extreme poverty. Today, the number is slightly over 410 million. While headcount poverty has doubled in Africa, it has gone down everywhere else.

Figure 1: Since 1980, the number of poor people has doubled in Sub-Saharan Africa



Source: World Bank (n/a), The State of the Poor

This long-term look leads us to a conclusion that is quite different from what many Africa specialists seem to have concluded about the subcontinent's development prospects. Their consensus is an optimistic one, based largely on what has happened in the subcontinent since 2000 compared with what had happened in Africa in the last few decades of the 20th century. A broader perspective that goes back a few more decades and also compares Sub-Saharan Africa with other regions is considerably more sobering. During the last three decades—the best period ever for the developing world—the African subcontinent fell further behind the rest of the world. Now, with tougher times ahead for the global economy, it is not unreasonable to ask whether Africa has missed its big chance.

More importantly, this wider and longer look points to development strategies for the region that are radically different from the current consensus. To simplify somewhat, the current consensus treats each of the subcontinent's 48 countries as equally important for the region's fortunes. Our conclusion is that what really matters are the prospects of Africa's biggest middle income economies—especially those of Nigeria, South Africa and Angola, which together account for almost 60 percent of the region's GDP. What dims the region's prospects is that these economies are not doing well, but this can change quickly. What is disheartening for us is that these three middle-income countries have many of the structural attributes of low-income economies. This is disheartening because it cannot quickly or easily be changed.

The Current Consensus

17 years ago, the front cover of the *Economist* called Sub-Saharan Africa "the hopeless continent". Scholars and economists who study Sub-Saharan Africa appear to have changed their views since. So has the *Economist*. In 2011, a scant decade later, it apologized, with a new cover and slogan "Africa rising".

The *Economist* might have popularized the *Africa Rising* refrain, but it was Mahajan (2009) who started to change the narrative with his claim that "the rise of Africa is hidden in plain sight". In his book *Africa Rising: How 900 Million African Consumers Offer More Than You Think*, he proposed that expanding airports and flight paths and the rapid growth of banking, cellphones, automobiles, and consumer goods are main indicators of Africa's changed fortunes. These developments are just the beginning, the book reasoned; the future held much promise.

The main cause for optimism was decent economic growth in Sub-Saharan Africa between 2000 and 2010. But there were other promising changes as well. In *Emerging Africa: How 17 Countries are Leading the Way,* Radelet (2010) thought that Africa's future was bright because of quicker economic growth, poverty reduction, and increased political accountability since the 1980s. Radelet (2010) emphasized five changes: more democratic and accountable governments; better economic policies; the end of the debt crisis and changed relationships with donors; the spread of new technologies; and the emergence of a new generation of policymakers, activists, and business leaders.

By 2011, when the *Economist* expressed regret for calling Africa hopeless, it was the world's fastest-growing region. Over the next decade, its GDP was expected to grow by six percent annually—if that happened, it would mean that its output would double by 2022. The article emphasized past investments as the main reason to be hopeful about the continent, since the benefits of investments take time (The Economist, 2013). According to Sachs (2012) new energy discoveries, improvements in agriculture, advances in public health, better infrastructure, and improved information, communications and transportation technologies had helped countries in Africa to overcome many development problems. These advancements would be the harbingers of rapid and self-sustaining growth in Africa (Sachs, 2012).

Based on an analysis of Demographic and Health Survey data on the consumption of consumer durables and housing, children's health and mortality, the schooling of youth, and the allocation of women's time between marriage and childbirth and market activity, Young (2012) concluded

that Africa's performance in raising living standards had been outstanding after 1990. The increase in real material consumption in Africa was on par with growth rates in other regions of the world. According to Young (2012), considering the devastating effects of the AIDS epidemic the increase in living standards of about 3.4 to 3.7 percent per annum since 1990 was miraculous.

By the turn of the century, Africa's economies were not just growing rapidly in size, their shapes were also being transformed—the surest sign that this growth would be sustained. McMillan et al. (2014) argued that while structural change in the continent had been growth-reducing between 1990 and 1999, it contributed positively to Africa's overall growth after 2000. Low levels of productivity and industrialization across most of the continent concealed a great potential for growth through structural change. They also saw the recent trends in the global economy as potential opportunities for SSA. First, Africa would be of interest to foreign and local entrepreneurs because of increasing agricultural productivity in the continent. Second, Africa's young workforce could be attractive for labor-intensive manufacturing owing to rising wages in China. Third, resource rich African governments could access financial resources by taking advantage of the bargaining power stemming from natural resources (McMillan, Rodrik, & Verduzco-Gallo, 2014).

To see whether the growth was sustainable or temporary, Cho and Tien (2014) analyzed sources of exceptional growth in SSA that began in the mid-1990s. The subcontinent had experienced promising developments, such as steady progress in decreased fertility, increased foreign direct investment, political stability, and structural transformation (Cho & Tien, 2014). Based on their analysis, they concluded that SSA would sustain its high growth performance.

McMillan and Harttgen (2014) claimed that "recent evidence suggests that the continent is anything but hopeless". They found that the share of labor force employed in agriculture declined between 2000 and 2010 while shares of labor force employed in manufacturing and services increased during the same period. In addition, they found that the mentioned structural change accounts for about half of Africa's per capita output growth for the period 2000-2010 (McMillan & Harttgen, 2014).

Diao and McMillan (2015) argued that Africa's recent growth has been led by the "in-between" sector.[1] Since the "in-between" sector is often informal, it is not reflected in official statistics and hence missed by empirical studies. Many studies therefore give misleading views of Africa's growth performance. According to Diao and McMillan (2015), either the "in-between" sector or modern sector can be the driving force of economy-wide growth in SSA. The co-existence of "in-between" and modern sectors can be an opportunity for SSA rather than a sign of the failure of the development process if governments take into account "in-between" sector in the policy dialogue and development strategies (Diao & McMillan, 2015).

[1] Diao and McMillan (2015) classified small and medium sized businesses as the "in-between" sector by reference to the Lewis Model (1979). According to them, small and medium-sized businesses, which are often informal and mainly focus on buying and selling goods and services to and from the domestic market, have played a greater role in African growth.

In an especially rosy view of Sub-Saharan Africa in a generally optimistic book, Radelet (2015) pointed out that Africans are not as poor, not sick nearly as often, a lot more educated, and better governed than they have ever been before. It is understandable why he was so upbeat: incomes were rising, debt levels had been reduced, inflation had come down a lot, investment was growing, and civil conflict had plummeted. (Radelet, The Great Surge: The Ascent of the Developing World, 2015).

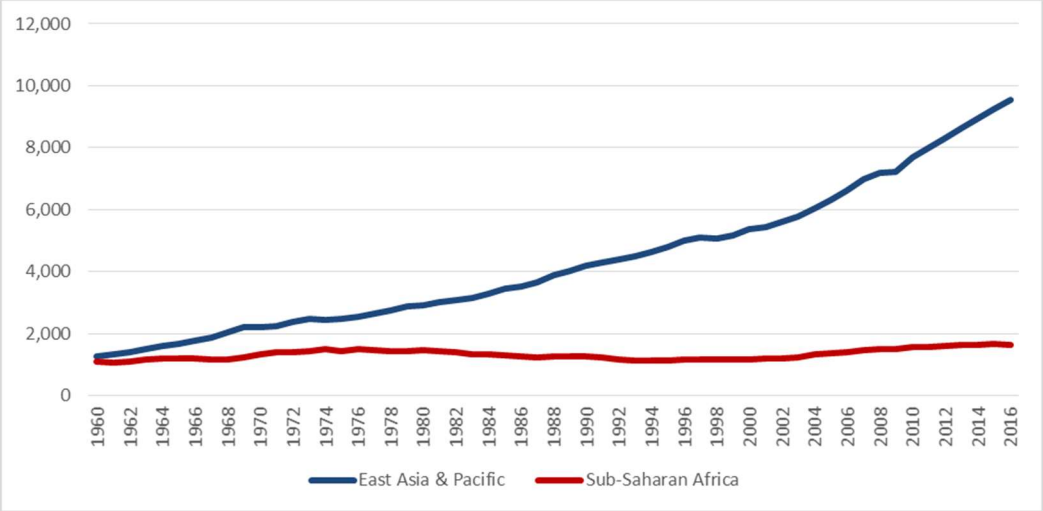
A year later, the McKinsey Global Institute (2016) was still singing the same tune, but it had begun to hedge its bets. In its report on African economy—*Lions on the Move II: Realizing the Potential of Africa's Economies*—it documented that many SSA countries had grown quickly since 2000, even though growth in oil exporting economies wobbled to a slowdown after 2010. This has caused divergence between countries in the subcontinent. But McKinsey put on a brave face: Africa still had strong fundamentals across the whole continent, it said, and long-term growth prospects for the continent were good. Moreover, Africa's young and growing population had created a coming window of opportunity for Africa: the subcontinent was the only remaining "pre-dividend region" in demographic terms, in that the share of the working age population will continue to rise for the rest of the century. If its structural transformation were sustained, Africa would have the fastest urbanization rate in the world. If Africans played their cards right, this rapid urbanization would lead to massive productivity increases and much higher incomes (McKinsey Global Institute, 2016).

All in all, then, Africa specialists have been bullish on the subcontinent's growth prospects. We are not sure that the optimism is justified.

Is the Consensus Correct?

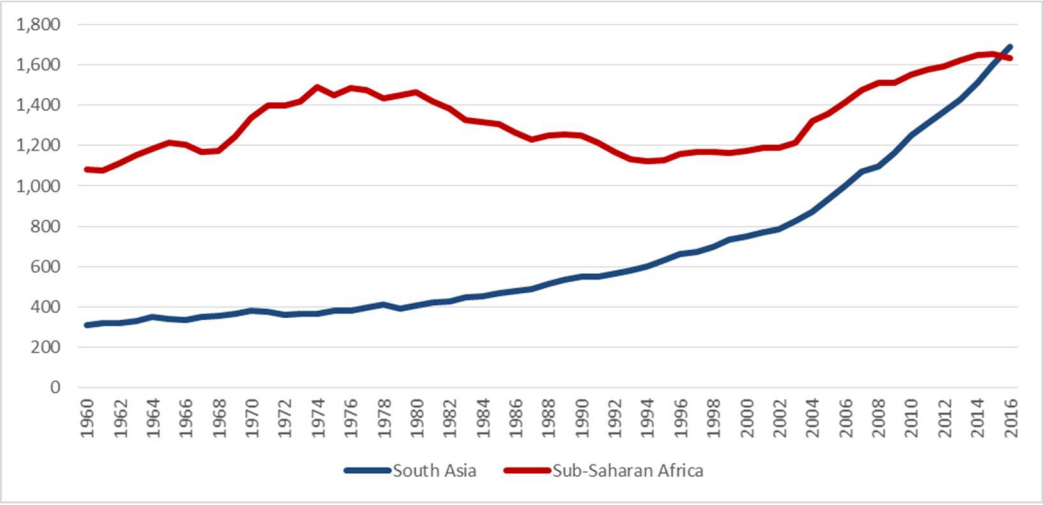
In the 1960s Asians, on average, were much poorer than Africans. In 1960, SSA's Gross Domestic Product (GDP) per capita was slightly less than East Asia and Pacific's GDP per capita, but it was 3.5 times higher than South Asia's. Between 1960 and 2016, the countries in SSA grew at an average of about 0.7 percent per year in per capita terms while the countries in East Asia and Pacific and South Asia grew by about 3.7 percent and 3.1 percent, respectively. By 2015, the per capita GDP of East Asia and the Pacific was roughly six times that of SSA. A year later, South Asian per capita output levels had for the first time exceeded Africa's.

Figure 2: Sub-Saharan Africa and East Asia: GDP per capita (constant 2010 US$); 1960-2016



Source: Authors' calculation based on data from the World Bank's World Development Indicators.

Figure 3: Sub-Saharan Africa and South Asia: GDP per capita (constant 2010 US$); 1960-2016



Source: Authors' calculation based on data from the World Bank's World Development Indicators.

Comparisons with other regions are no more comforting. Between 1960 and 2016, the annual growth rate of per capita GDP of Latin America and the Caribbean (LAC) averaged 1.7 percent, more than double Africa's. For a more meaningful comparison, though, we would have to analyze LAC's growth patterns prior to 1960 since by then the per capita GDP of LAC was three times that of SSA. The World Bank's *World Development Indicators* database goes back to only to 1960, so we used data from the Groningen Growth and Development Center's (GGDC) Madison Project database to compare LAC's earlier growth with SSA's.

Between 1900 and 1960, the average per capita GDP growth rate of the largest eight Latin American countries ranged between 1.1 percent per annum in Argentina and Chile to 4.2 percent per annum in Venezuela. Moreover, countries with lower per capita GDP levels in 1900 performed better than countries with higher initial per capita GDP, such as Argentina, Chile, and Uruguay. Average annual per capita GDP growth rate of the mentioned eight Latin

American countries was 1.8 percent per annum between 1900 and 1960. Taking into consideration initial GDP per capita levels, SSA's long-run growth lags far behind that of Latin America.

Table 1: 8 Latin American Countries: Average Annual GDP per Capita Growth; 1900-1960

GDP/Cap in 1900 (1990 Int. GK$)		Argentina	Brazil	Chile	Colombia	Mexico	Peru	Uruguay	Venezuela	8 L. America
		2,875	678	2,194	683	1,319	680	2,219	821	1,181
Growth Rates	1910-1900	2.9%	1.3%	3.2%	1.3%	2.5%	3.7%	3.5%	0.8%	2.6%
	1920-1910	-1.0%	2.3%	-0.8%	3.2%	0.7%	2.3%	-1.6%	2.8%	0.6%
	1930-1920	1.6%	0.9%	0.3%	3.3%	-1.2%	3.1%	4.9%	11.4%	1.6%
	1940-1930	0.2%	1.8%	1.2%	2.5%	1.4%	1.4%	-1.6%	1.6%	1.0%
	1950-1940	1.8%	3.0%	1.3%	1.3%	2.5%	1.9%	2.4%	6.3%	2.4%
	1960-1950	1.1%	3.4%	1.5%	1.5%	2.9%	2.6%	0.6%	2.6%	2.3%
	1960-1900	1.1%	2.1%	1.1%	2.2%	1.5%	2.5%	1.3%	4.2%	1.8%

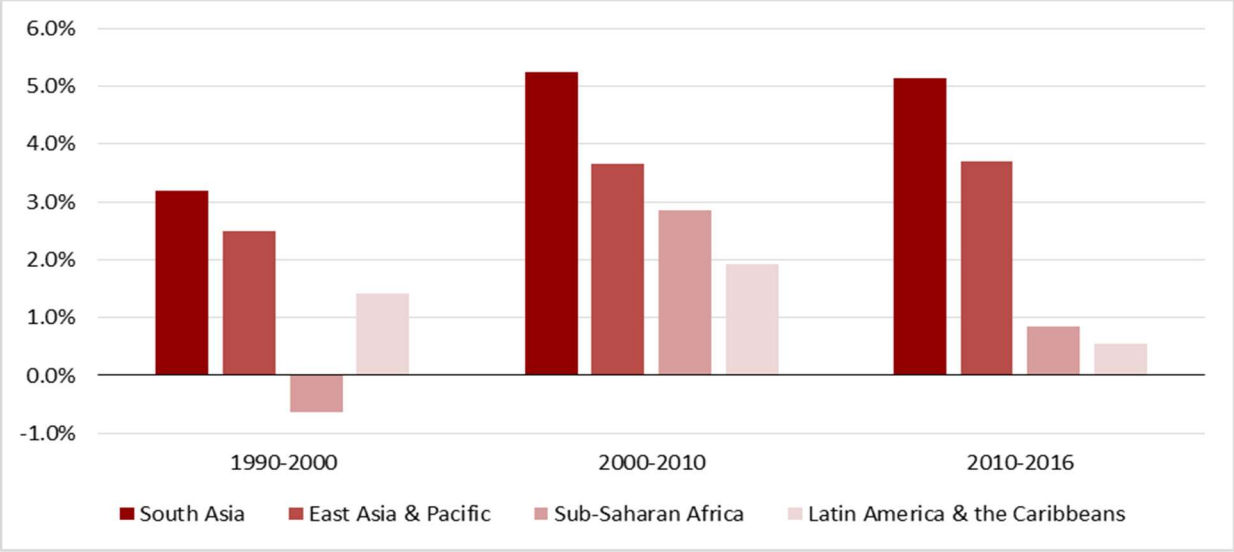
Source: Authors' calculation based on data from the Groningen Growth and Development Center's (GGDC) Maddison Project database.

As a rule, over long enough periods, poorer economies tend to grow faster than countries that have higher levels of income. African economies are now the only exception to this rule.

In general, people who are hopeful about Africa point to the region's growth after 1990 and, even more so, after 2000. A few years ago, some economists called African growth a miracle, mainly due to the region's unusually good performance between 2000 and 2010. The question we ask is: While it was unusual by Africa's own standards, was it miraculous?

To assess this claim, we divide our analysis into three periods: 1990–2000, 2000-2010, and 2010-2016. In all three periods, SSA's average annual per capita growth rate was a lot lower than South Asia's and East Asia and Pacific's. Between 1990 and 2000, SSA's per capita GDP actually shrank by 0.6 percent per annum while other regions' per capita GDP grew between 1.4 percent to 3.2 percent annually. Between 2000 and 2010, even though SSA's per capita GDP grew by 2.8 percent per annum, it remained well below South Asia's and East Asia and Pacific's per capita GDP growth rates, which were 5.2 percent per annum and 3.7 percent per annum, respectively. Finally, between 2010 and 2016, SSA's per capita GDP growth dropped to 0.8 percent per annum, falling far behind South Asia's 5.1 percent growth performance and East Asia and Pacific's 3.7 percent growth. Unless Africa is being held to lower standards than half of humanity—South and East Asia account for 55 percent of the world's population—SSA's per capita GDP growth rates after 1990 fall short of exhibiting the attributes of a "growth miracle".

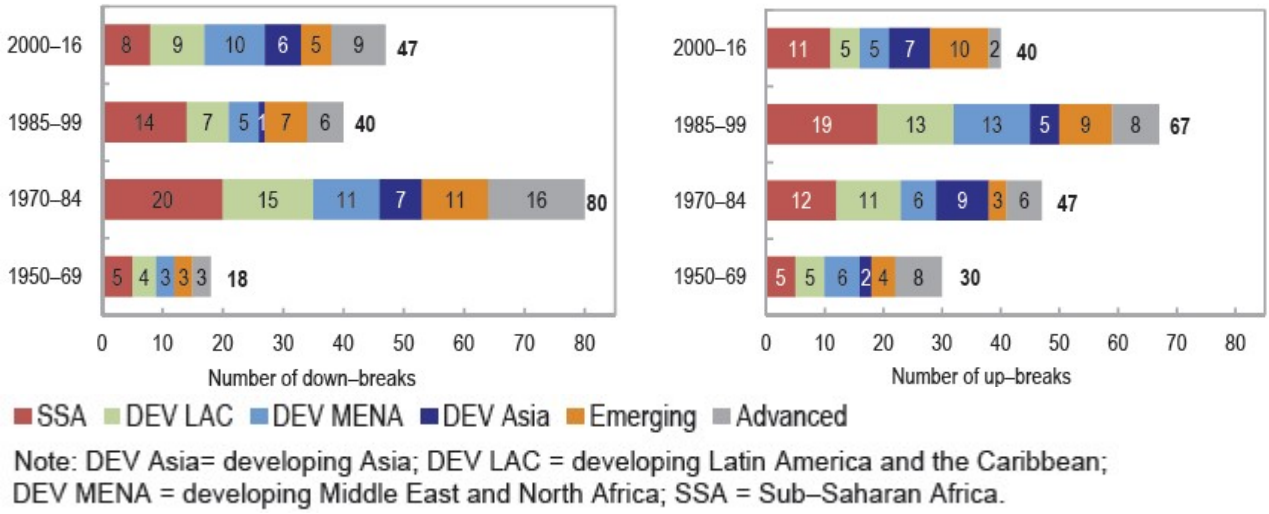
Figure 4: No Miracle in Africa: Per capita GDP growth between 1990 and 2016



Source: Authors' calculation based on data from the World Bank's World Development Indicators.

In addition to SSA's relatively growth performance, growth in Africa is more volatile. In its 2017 *Regional Economic Outlook*, the IMF analyzed growth accelerations ('up-breaks'), growth decelerations ('down-breaks') and sustained growth episodes (growth spells) in SSA and the other regions of the world. According to the report, SSA experienced a significant portion of all growth up-breaks and down-breaks over 1950–2016. This evidence suggests that growth in SSA was marked by relatively frequent swings between expansions and contractions (IMF, 2017).

Figure 5: Selected Regions: Growth Up-Breaks and Down-Breaks; 1950-2016



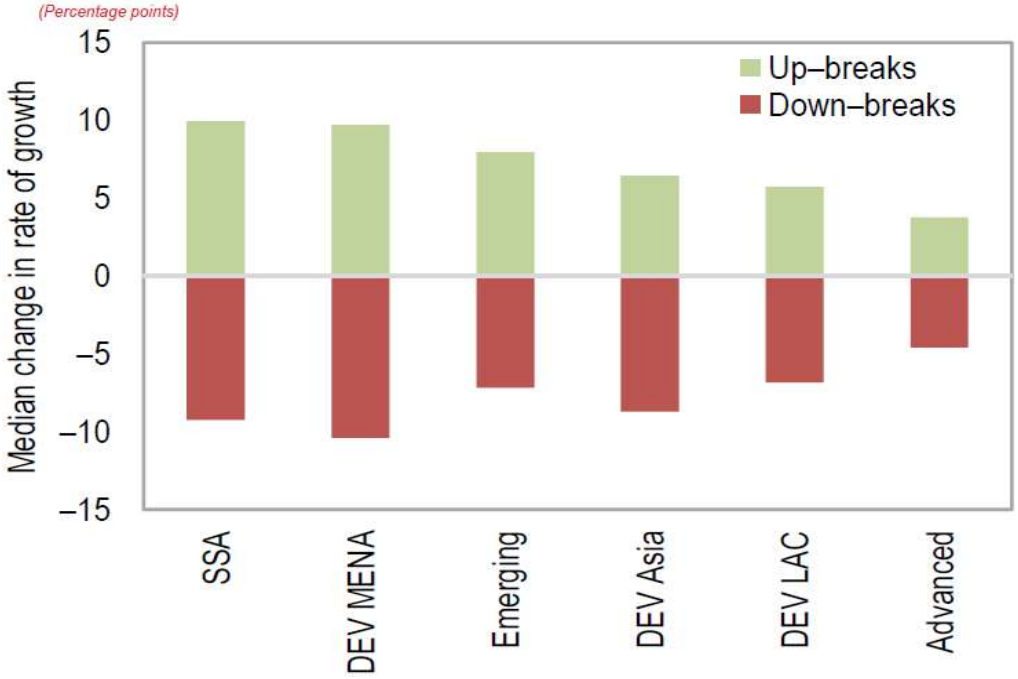
Note: DEV Asia= developing Asia; DEV LAC = developing Latin America and the Caribbean; DEV MENA = developing Middle East and North Africa; SSA = Sub–Saharan Africa.

Source: IMF, Regional Economic Outlook: Sub-Saharan Africa–Restarting the Growth Engine, 2017 (April).

African economies are also more prone to bigger fluctuations between up-breaks and down-breaks. The median difference between after the up-break per capita GDP growth and before the up-break per capita growth was ten percentage points in SSA, the highest volatility among all regions. Likewise, the median difference between after the down-break per capita GDP

growth and before the down-break per capita growth was seven percentage points in SSA, exceeded only by developing Middle East and North Africa (IMF, 2017).

Figure 6: Change in Median Annual per GDP Growth during Up-Breaks and Down-Breaks



Source: IMF, Regional Economic Outlook: Sub-Saharan Africa, 2017.

Perhaps the principal attribute of long-run growth patterns in Sub Saharan Africa is the brevity of its growth spells.[2] Over the last six decades, SSA has experienced more volatile and shorter growth spells. The median length of complete growth spells in resource-intensive SSA economies was about six years; it was five years in non-resource-intensive SSA countries (IMF, 2017). In contrast, this duration was close to 13 years in emerging Asia.

In assessing the region's growth prospects, improvements in infrastructure are an important indicator. The literature has documented the close relationship between infrastructure development and economic growth. Higher productivity, potential for the creation of jobs, reducing transaction costs, increasing human capital are a few of many outcomes of infrastructure development[3]. According to the World Bank's report *Africa's Pulse*, SSA is lagging all developing regions in nearly every dimension of infrastructure development. Even though SSA has improving its infrastructure after 1990, the region is still well behind in the quality and quantity of infrastructure compared to other regions in the world.

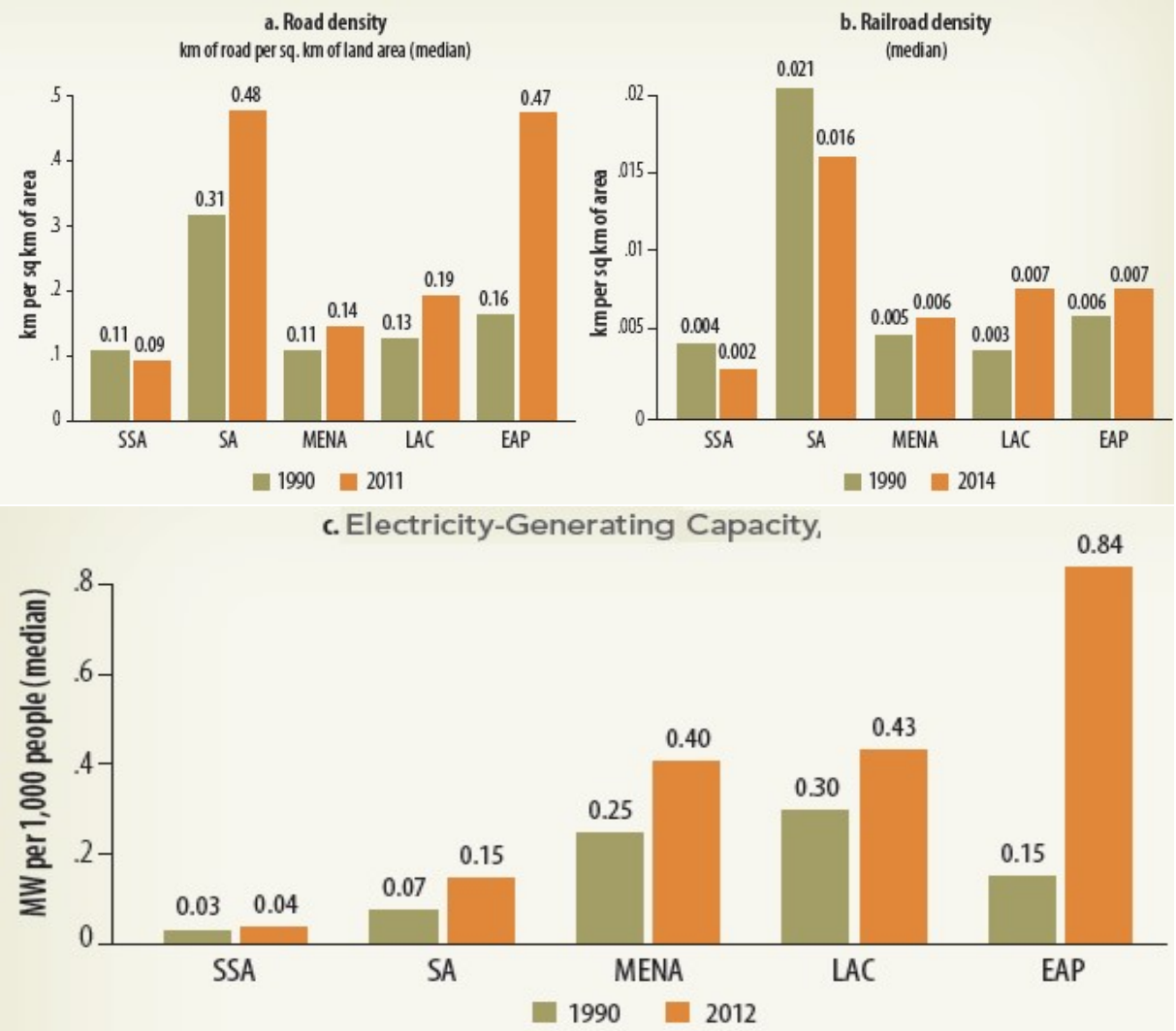
In particular, improvements in power and transport have been unimpressive (World Bank, 2017 b). In 2012, SSA's electricity-generating capacity—which had improved from about 0.03 megawatts per 1,000 people to 0.04 megawatts per 1,000 people since 1990—was still less

[2] According to the IMF 2017 *Regional Economic Outlook*, a complete growth spell is defined as a period of time that is sustained an average rate of per capita GDP growth of at least 2 percent after a growth up-break.
[3] See e.g., Commission for Africa (2005) and Straub (2008).

than a third of South Asia's electricity-generating capacity. Besides this low capacity, only 35 percent of the population had access to electricity in SSA in 2014. The rural population's access to electricity rate was less than 20 percent in 2014. These numbers paint a dark picture in a subcontinent where two thirds of the population are still rural.

SSA's transport infrastructure is also inferior to that of other regions in the world. SSA had the lowest road and railroad densities among developing regions in 1990-2014. This is understandable for a large, sparsely populated, continent. What is discouraging is that it is the only region where density of roads actually declined over 1991-2011. Even though access to safe water and access to improved sanitation facilities rose significantly in SSA after 1990, problems still persist. For instance, the access rate to improved sanitation facilities was just 30 percent in 2015. In addition, access to safe water in both urban and rural areas was much lower than other developing regions over 1990-2015 (World Bank, 2017: Africa's Pulse).

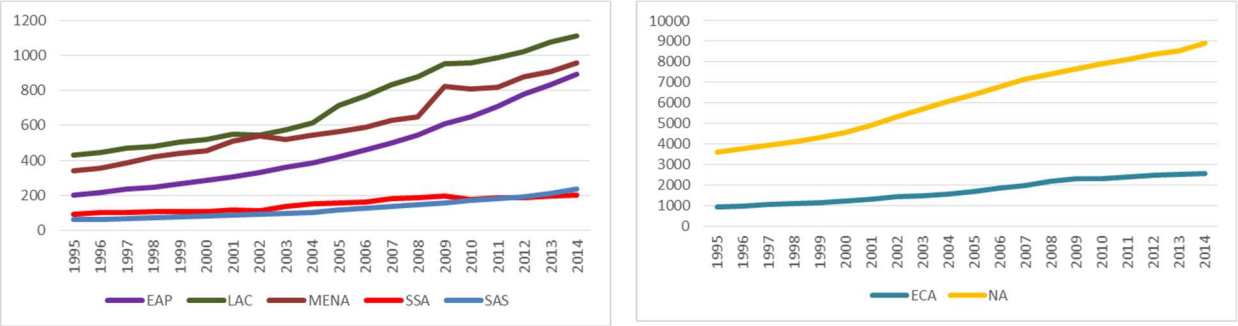
Figure 7: Selected Regions: Transport and Power Infrastructure



Source: World Bank Group, Africa's Pulse, No. 15, April 2017.

SSA also ranked at the bottom of all regions in almost every health indicator. The problem is not just in outcomes; expenditure outlays have not increased nearly as much as in other parts of the world. In 2014, SSA accounted for just 1.6 percent of global health expenditures. Though per capita health expenditure in SSA more than doubled over 1995-2014, the regional growth rate was the lowest—just about 4 percent annually, as compared with almost 7.5 percent for South Asia and more than 8 percent for East Asia and the Pacific. Per capita health expenditures in SSA were about $200 in 2014 (PPP constant 2011 dollars).

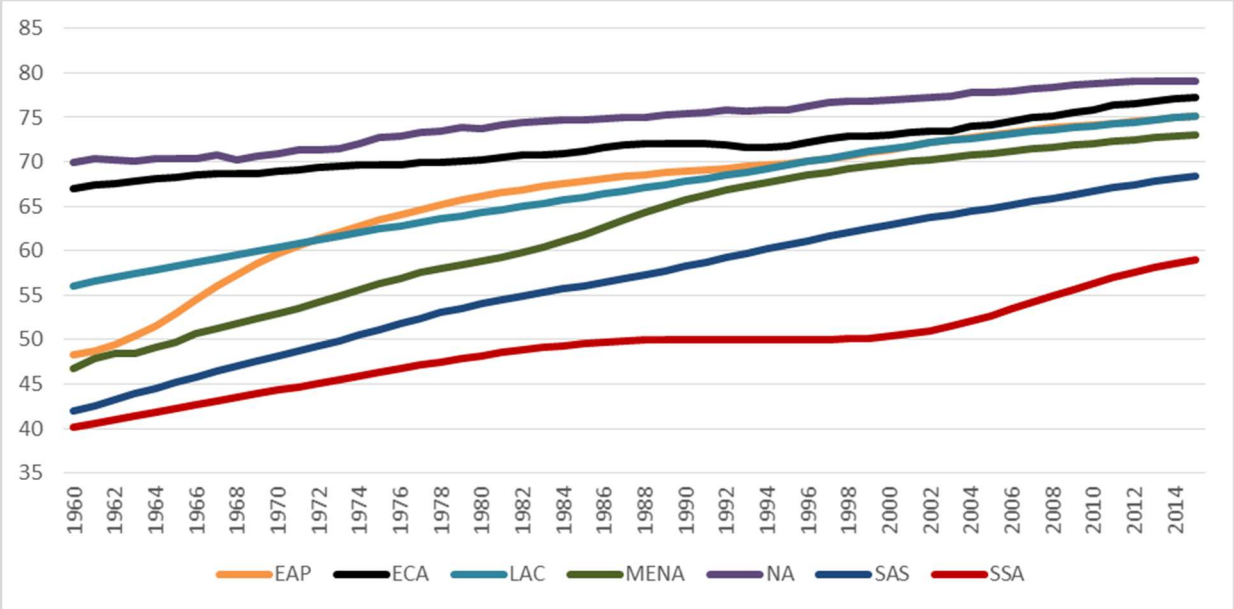
Figure 8: Per Capita Health Expenditures (PPP, constant 2011 international $); 1995-2014



Source: Authors' calculation based on data from the World Bank's World Development Indicators.

With an average life expectancy at birth of 59 years in 2015, SSA ranked at the bottom of all regions. Even though the region's performance was outstanding over 1960-2015, the improvement in life expectancy at birth was not as rapid as in South Asia, East Asia and Pacific, and Middle East and North Africa. In 1960, for example, SSA's and South Asia's life expectancy at birth were, respectively, 40 years and 42 years. By 2015, life expectancy at birth in South Asia exceeded that of SSA by 9 years.

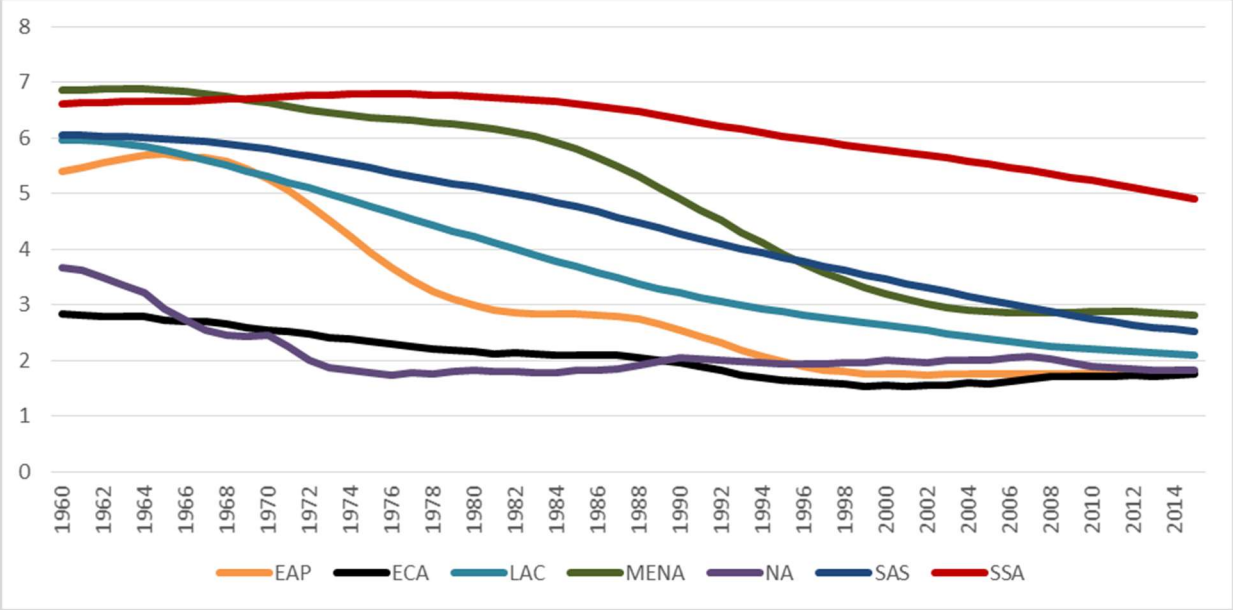
Figure 9: Life Expectancy at Birth (years); 1960-2015



Source: Authors' calculation based on data from the World Bank's World Development Indicators.

Fertility rates of other developing regions–EAP, MENA, SAS, LAC–had converged to developed regions' levels over 1960-2015, reaching 2-3 births per woman in 2015. Sub Saharan Africa didn't experience such a rapid decline in its fertility rates. Fertility decline in SSA proceeded slowly, declining from 6.6 births per woman in 1960 to 4.9 births per woman in 2015.

Figure 10: Fertility Rates (births per woman); 1960-2015



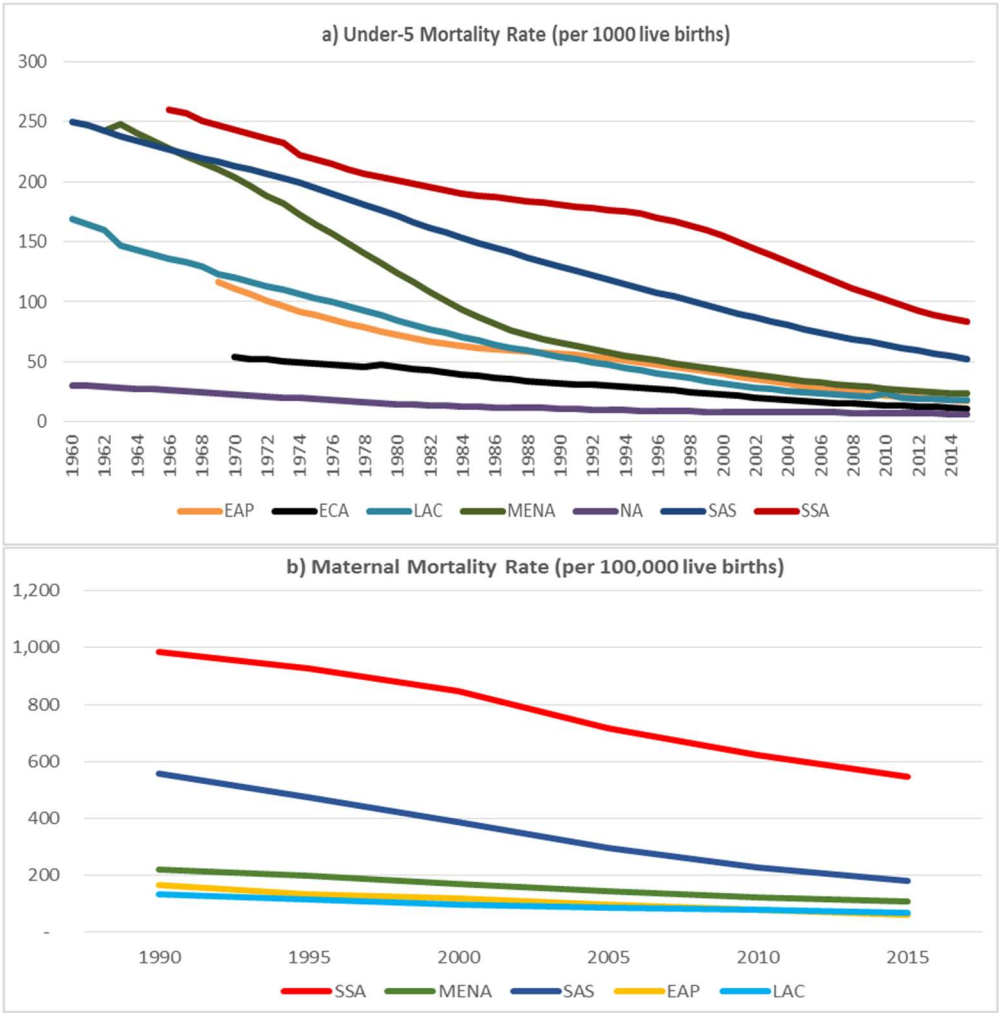
Source: Authors' calculation based on data from the World Bank's World Development Indicators.

With about 83 deaths per 1000 births in 2015, under-5 mortality rate in SSA was still far worse than other regions, even though the improvement since 1960 has been outstanding. During the same period, under-5 mortality rates in other regions had converged to developed countries' under-5 mortality rates. A similar story can be told for maternal mortality. SSA made progress in reducing maternal mortality rate between 1990 and 2015, but the progress is less than in other regions. During 1990-2015, the reduction in maternal mortality rate in SSA was 45 percent, but it was 67 percent in South Asia. In 2015, maternal mortality in SSA was almost three times that of the next worst performer, South Asia.

High levels of stunting[4] among children under the age of five years in SSA is another impediment to development of the continent. Stunting in early life has long term effects, including poor cognition and educational performance, diminished physical development, low adult wages, lost productivity, increased risk of nutrition-related chronic diseases (de Onis, Blössner, & Borghi, 2012). With 34.1 percent of children under the age of five, the prevalence of stunting was highest in SSA in 2016 after South Asia. Furthermore, improvement in prevalence of stunting in SSA has remained behind that of other developing regions over 1990-2016. Reduction in prevalence of stunting was 31 percent in SSA over 1990-2016 while it ranged from 36 percent in North America to 67 percent in East Asia and Pacific.

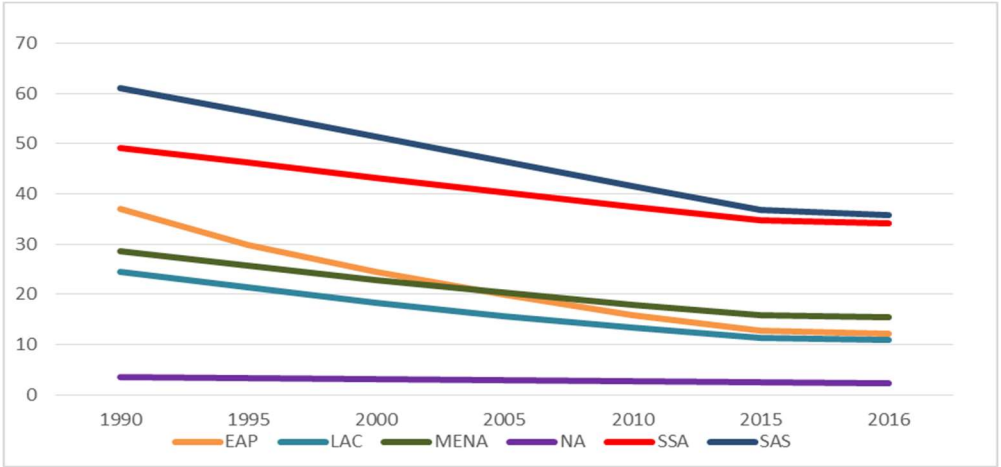
[4] According to the World Health Organization, stunting is defined as having a height more than two standard deviations below the median value of the NCHS/WHO growth reference for any given age (WHO, 1995).

Figure 11: Selected Regions: Maternal and Under-5 Mortality Rates



Source: Authors' calculation based on data from the World Bank's World Development Indicators and UNICEF database.

Figure 12: Prevalence of Stunting (Height for age, % of children under-5); 1990-2016

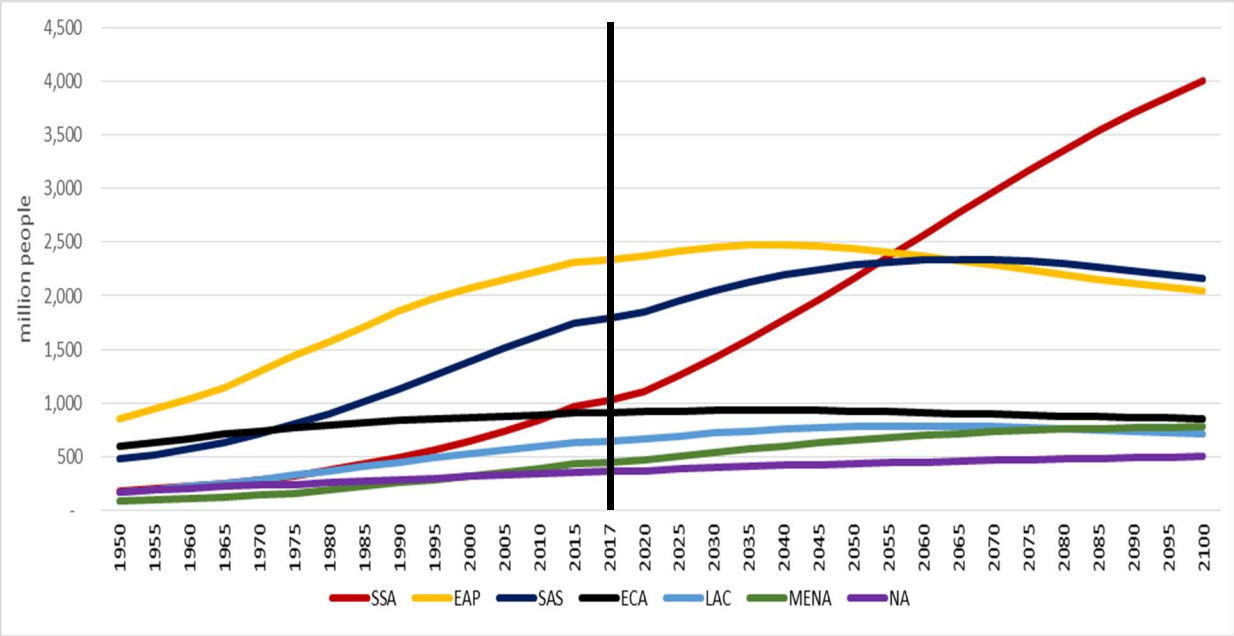


Source: Authors' calculation based on data from the World Bank's World Development Indicators.

With an average annual growth rate of population of 2.6 percent, SSA's population has skyrocketed from 180 million people in 1950 to 1,023 million people in 2017. Its population is projected to exceed South Asia's and East Asia and Pacific's population by around 2050 (United Nations, 2017). According to the United Nations' World Population Prospects, SSA's population is projected to maintain an average annual growth rate of 1.7 percent; average annual population growth will range between -0.2 percent in East Asia and Pacific to 0.7 percent in Middle East and North Africa.

A growing population can have potentially positive impacts on the economy if a rapid increase in absolute number of young workers entering the labor force is matched with growing demand for their labor and skills. Otherwise, a large youth cohort may reduce cohort wages. Moreover, generating enough jobs can be difficult in order to absorb large inflows of youth. Therefore, rapid increase in population can lead to large-scale youth unemployment and destabilize economies (Canning, Raja, & Yazbeck, 2015).

Figure 13: Asia, SSA, LAC, Europe and North America: Population; 1950-2100



Source: Authors' calculation based on data from the United Nations' World Population Prospects, the 2017 Revision.

According to the United Nations' World Population Prospects, SSA's young population will continue to grow a lot over the next eight decades while other regions' youth population will either stabilize or decrease. SSA's youth population will catch up to East Asia and Pacific's and South Asia's by around 2035 and 2040, respectively. If current trends continue, by 2100, there will be as many young people in Sub Saharan Africa as in the rest of the world.

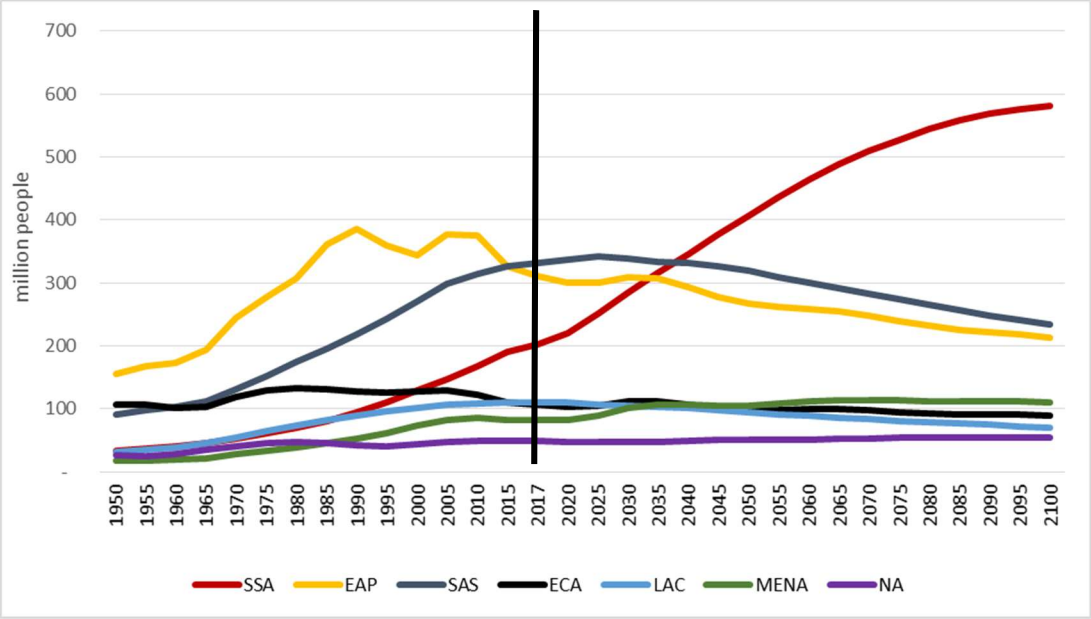
Table 2: Asia, SSA, LAC, Europe and Northern America: Population Growth Rate (Average Annual Percentage Change); 1950-2100

	1960-1950	1970-1960	1980-1970	1990-1980	2000-1990	2010-2000	2017-2010	2017-1950
SSA	2.1%	2.5%	2.8%	2.9%	2.7%	2.7%	2.8%	2.6%
MENA	2.6%	2.8%	2.9%	3.2%	2.2%	2.0%	1.9%	2.5%
SAS	1.8%	2.2%	2.4%	2.3%	2.0%	1.6%	1.3%	2.0%
LAC	2.7%	2.7%	2.4%	2.0%	1.7%	1.3%	1.1%	2.0%
EAP	1.9%	2.3%	1.9%	1.7%	1.1%	0.8%	0.7%	1.5%
NA	1.7%	1.2%	1.0%	1.0%	1.1%	0.9%	0.7%	1.1%
ECA	1.1%	1.0%	0.7%	0.6%	0.2%	0.3%	0.3%	0.6%

Source: Authors' calculation based on United Nations' World Population Prospects, the 2017 Revision.

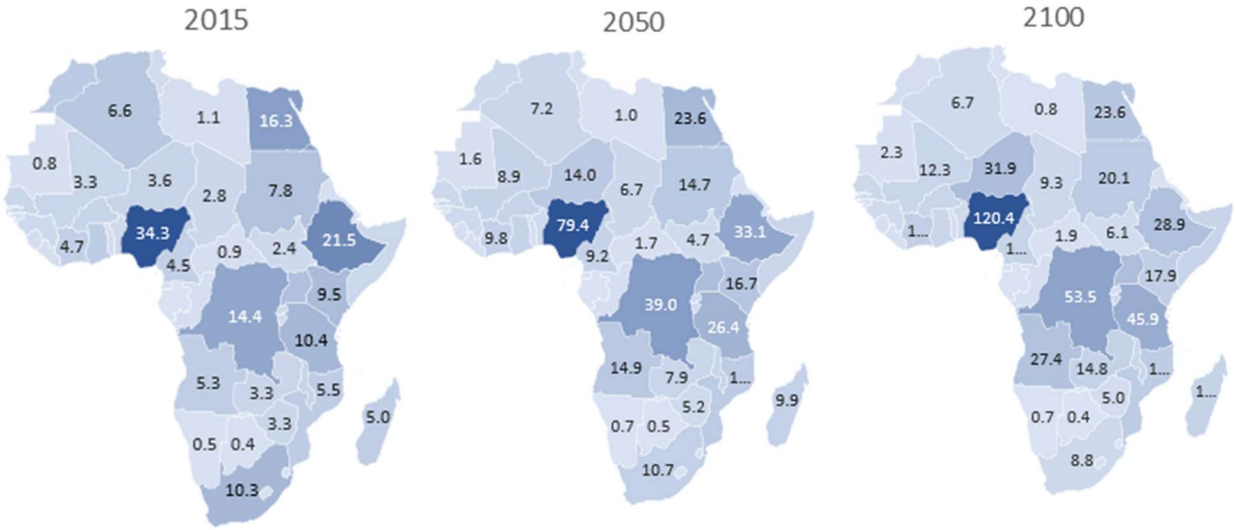
Among economists and international development scholars, wishful thinking about Africa's youth is common. Many see the rise of Africa's youth population as an aid to prosperity, not a drag on economic growth. McKinsey Global Institute's *Lions on the Move II* argued that Africa's young and growing population is an opportunity for Africa since aging is one of the greatest risks of the world, pointing to a positive association between an increasing working-age population and economic growth (McKinsey Global Institute, 2016). Theoretically, a rapid increase in youth population could lead to an increase in savings, higher productivity and more rapid economic growth. But for this to happen, there have to be adequate investments in the health and education of young people; rapid growth in the number of youth necessitates rapid improvements in both access to education and its quality. And private enterprise should be sufficiently vibrant—and regulations reasonably balanced—to create enough job opportunities in order to absorb growing workforce. It is not obvious that most countries in Africa have created these conditions.

Figure 14: Asia, SSA, LAC, Europe and Northern America: Youth aged 15-24 years; 1950-2100



Source: Authors' calculation, based on the United Nations World Population Prospects, the 2017 Revision.

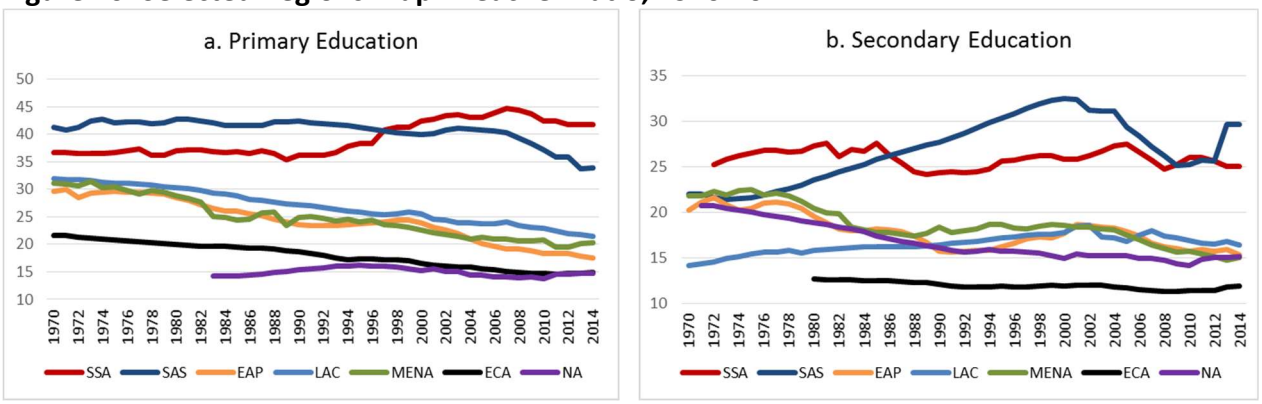
Figure 15: The youth population in Africa will double by 2050
Population aged 15-24 years, by country



Source: Authors' calculation, based on the United Nations World Population Prospects, the 2017 Revision.

Students in SSA have the worst education, on average, in the world. Pupil-teacher ratios in primary education in SSA actually got worse over 1970-2014, while all other regions had experienced improvements. In 2014, SSA ranked at the bottom of all regions in pupil-teacher ratio in primary education. In secondary education, the situation is similar.

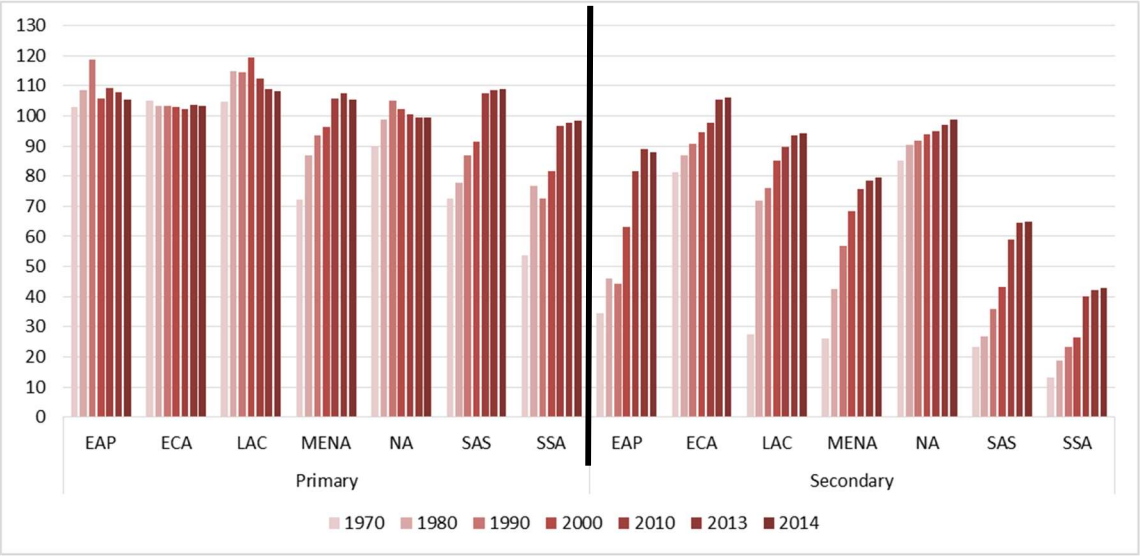
Figure 16: Selected Regions: Pupil-Teacher Ratio; 1970-2014



Source: Authors' calculation based on data from the World Bank's World Development Indicators.

SSA also ranked at the bottom of all regions in school gross enrollment rates. Although there were improvements in both primary school and secondary school gross enrollment rates over 1970-2014, SSA is still well behind other regions. Moreover, gross enrollment rates for secondary and tertiary levels are worrying for SSA. In 2014, secondary school gross enrollment rate in SSA was 42.7 percent and tertiary school gross enrollment rate in SSA was just 8.6 percent. In other regions, secondary school gross enrollment rates ranged from 64.8 percent in South Asia to 106 percent in ECA and tertiary school gross enrollment rates ranged from 20.8 percent in South Asia to 65.1 percent in ECA.

Figure 17: Selected Regions: School Enrollment Rate (percent, gross); 1970-2014



Source: Authors' calculation based on data from the World Bank's World Development Indicators.

Unless education is improved in a hurry, the growing youth population is likely to be a threat for countries in Sub Saharan Africa, not an opportunity.

Since 2000, African economies have proved that they can grow. But even so, growth in Sub-Saharan Africa lagged behind that of developing East Asia and South Asia. Sub-Saharan Africa's annual per capita income growth averaged 2.8 percent per annum between 2000 and 2010 and 0.8 percent between 2010 and 2016. But South Asian incomes have grown by 5 percent each year, and East Asia at almost 4 percent. Africa is moving forward, but it is getting left behind. Part of the problem is that Africa's economies have been more volatile. Growth in Sub-Saharan Africa is characterized by frequent swings between expansions and contractions. In Africa, these swings are not just more frequent, they are also bigger. The IMF has estimated that the median difference in growth before and after expansion per capita growth was ten percentage points in Sub-Saharan Africa, the highest volatility among all regions.

In short, SSA has fallen short of depicting "growth miracle" characteristics during 1950-2016 in spite of the region's impressive economic progress during some shorter periods. SSA still has a long way to catch up to East Asia and Pacific and South Asia, regions that have depicted "growth miracle" characteristics after the 1970s. To get to the root of the problem, the next section of this paper take a closer look at countries in the subcontinent.

The Problem: Africa's Big Middle-Income Economies

When we looked at Sub-Saharan Africa more closely, and contrasted what we found with the experience of other regions, it was not hard to see the problem. The main problem with the subcontinent is that its biggest economies have not done well. And even when they did, their relatively weak economic relations with neighbors contributed to the sluggishness of the subcontinent.

The importance of Nigeria and South Africa

Even if Nigeria and South Africa did not have any economic relations with the countries around them, their economic performance would sizeably determine that of the continent. In 2016, the two countries constituted more than half of SSA's GDP. Adding Angola to the mix makes it almost 60 percent.

Unsurprisingly, South Africa and Nigeria play a big role in SSA's intra-regional trade. According to the World Bank's *World Integrated Trade Solution* database, exports from South Africa and Nigeria to the rest of SSA constituted about 21 percent of SSA's intra-regional exports in 2015, and their total imports from SSA was some 63 percent of intra-regional imports in 2015. Moreover, in 2015, South Africa was the fifth export partner of SSA (as a region) after China, India, the United States and Netherlands. In addition, South Africa was the second import partner of the region after China in 2015.[5] Furthermore, according to the IMF's 2012 *Regional Economic Outlook*, the imports of 21 countries in SSA from South Africa add up to more than one percent of their GDP.

Like any other part of the world, intra-regional trade is important for economic growth in SSA (Kimenyi, Zenia A., & Routman, 2012). The World Bank's *Africa's Pulse* states that "…there is enormous untapped potential for intra-regional trade in Africa to increase and drive export diversification, job creation, and poverty reduction…" (World Bank, 2017 b). By creating economies of scale, intra-regional trade can help the region's industries become more competitive (Kimenyi, Zenia A., & Routman, 2012). Moreover, intra-regional trade allows export-oriented firms to learn how to enter more distant foreign markets, access foreign suppliers and customers (Page, 2012).

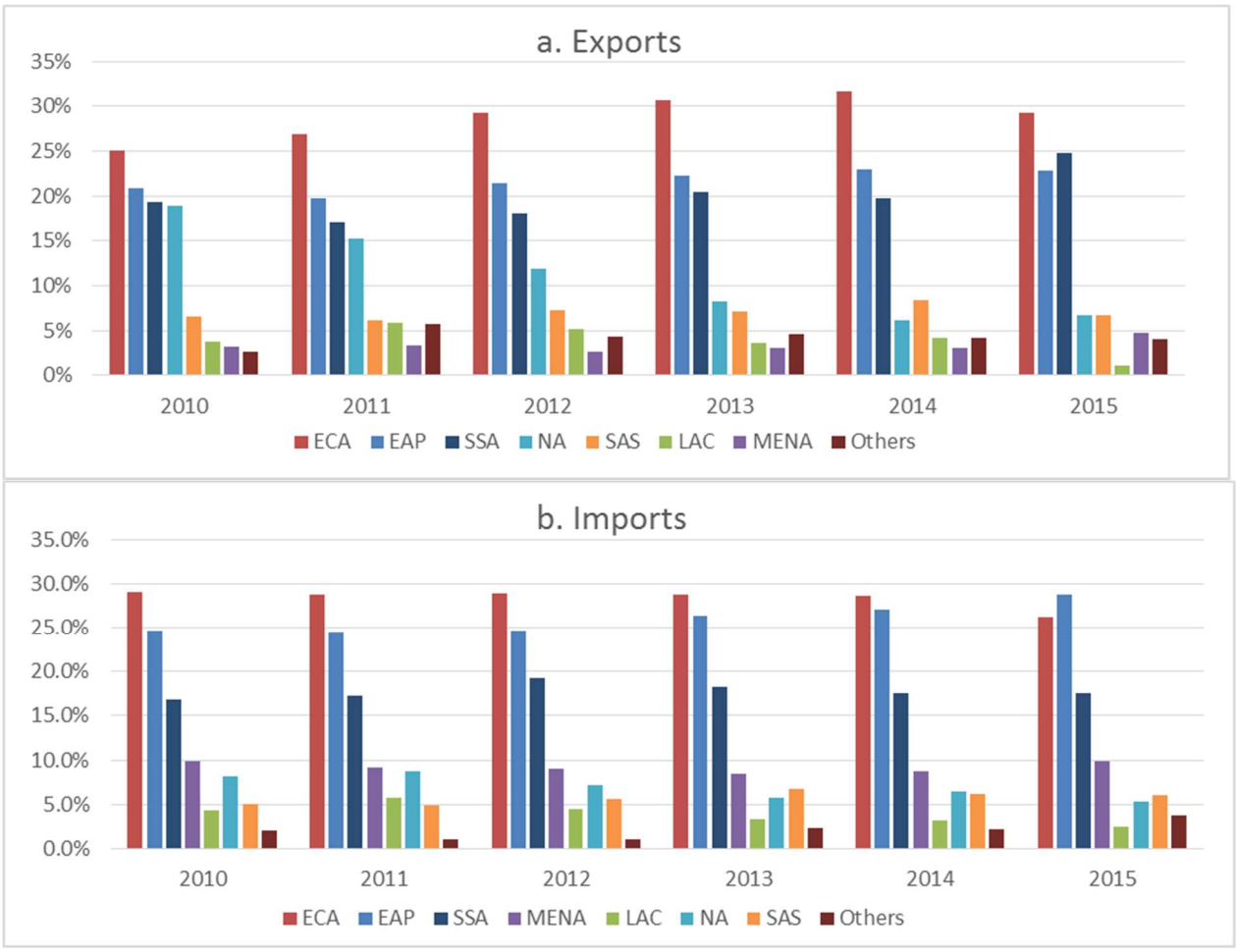
Further, intra-regional trade can help in establishing regional value chains to shape global exports of manufactures, such as phosphates for fertilizers and regional processing of nickel and copper (World Bank, 2017 b). It can enable technology and knowledge transfers to SSA countries (Kimenyi, Zenia A., & Routman, 2012). Improving food security, potential for cross-border trade in services, such as health, education and business services, and arising opportunities for cross-border trade in basic manufactures, such as metal and plastic products are among many other benefits of increasing intra-regional trade (World Bank, 2017 b). In addition, improving intra-regional trade can generate the pressure and resources for improving infrastructure and bring in much needed foreign direct investment (Kimenyi, Zenia A., & Routman, 2012). For all these reasons, trade within Sub-Saharan Africa has to be a high priority.

Slowly growing intra-regional trade and financial relations

It would be fair to say that it has not been a priority. Intra-SSA trade has remained quite low over the years. Regional exports and imports are, on average, about 24.8 percent and 17.5 percent of SSA's total exports and imports in 2015, respectively. Even though SSA recorded an improvement in intra-regional trade in recent years, it is still limited.

[5] For further details, see http://wits.worldbank.org/CountryProfile/en/Country/SSF/Year/2015/Summary

Figure 18: Within region trade, 2010-2015



Source: Authors' calculation based on data from the World Bank's World Integrated Trade Solution Database 2017.

In addition to formal trade relationship between Nigeria and South Africa and the rest of SSA, there are longstanding informal trade links between Nigeria and its neighbors. Trade in some agricultural goods such as cereals and grains and some petroleum products between Nigeria and its neighbors are sizeable, but largely not recorded. For example, 70 percent of the cereal needs of Niger and Chad are met by Nigeria, but just a fraction of this trade is recorded in merchandise trade data. Moreover, smuggled Nigerian gasoline meets more than 80 percent of Benin's domestic fuel consumption (IMF, 2012).

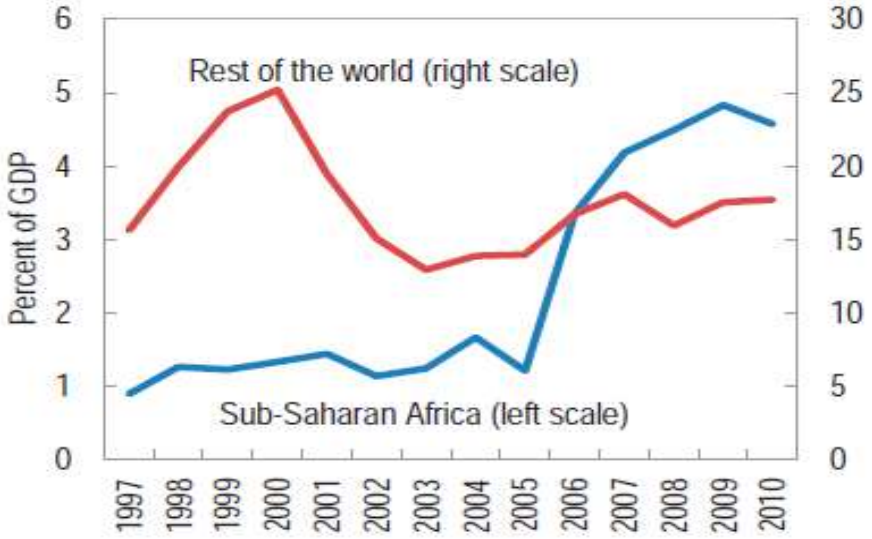
According to the IMF's 2017 *Regional Economic Outlook*, Pan-African banks have been expanding across the subcontinent over the last two decades. The number of subsidiaries of the largest pan-African banking groups skyrocketed after the early 2000s (IMF, 2017). South Africa and Nigeria are the headquarters of many of the largest Pan-African banks. In 2013, for

example, South Africa based pan-African banks had 35 branches and subsidiaries across SSA whereas Nigeria-based Pan-African banks had 62 branches and subsidiaries (IMF, 2015).[6]

In addition, Pan-African banks in Nigeria and South Africa have big ownership stakes in other countries' financial and nonfinancial entities. Among such banks, Nigerian banking groups have the most controlling ownership linkages with other African economies' corporate sectors. South African banking groups have strong linkages with the rest of Africa through non-controlling interests even though they have fewer controlling ownership linkages (IMF, 2017). Pan-African banks have been increasing their activities, including nonbank activities such as insurance and securities dealings (IMF, 2017). Moreover, South African firms have started to provide nonbank financial services, including insurance and wealth management, across the region (IMF, 2012).

As a result, Pan-African banks in Nigeria and South Africa are the largest banks across SSA, and have strong linkages with the rest of the region. So financial sector growth in Nigeria and South Africa has spillover effects in the rest of SSA. In the 2012 (October) Regional Economic Outlook, the IMF documented the significant impact of South Africa's outward foreign direct investment (FDI) on the region's total inward FDI. The report stated that roughly one-fourth of total recorded FDI by South Africa was to SSA in 2011. In other words, as of 2011, South Africa's outward FDI to SSA had reached 6 percent of its GDP (IMF, 2012).

Figure 19: South Africa's Outward Direct Investment; 1997-2010



Source: IMF, Regional Economic Outlook: Sub-Saharan Africa – Maintaining Growth in an Uncertain World, 2012 (October).

Other spillovers

The Nigerian and South African economies also create other spillover effects across SSA. Many immigrants and temporary workers from SSA live and work in South Africa and Nigeria (IMF, 2012). In 2014, for example, South Africa hosted some 1.6 million immigrants from SSA, of which roughly about 1.5 million are from Southern African Development Community (SADC)

[6] According to IMF (2015), Kenya had 27 branches and subsidiaries across SSA and all other SSA countries had 85 branches and subsidiaries across SSA.

region (Lehohla, 2015). These immigrants contribute to their home countries by sending remittances (IMF, 2012). According to the World Bank's *Migration and Remittances Factbook 2016*, South Africa, Côte d'Ivoire, and Nigeria are the top three immigration countries in 2013. Moreover, with $1.1 billion in remittances sent in 2014, South Africa is the second remittance sender in SSA (World Bank, 2016).

According to the IMF's 2012 (October) *Regional Economic Outlook,* there is also a strong association between Nigeria and its neighboring countries in terms of inflation dynamics. The correlation in food prices is even stronger (IMF, 2012).

There are political spillovers too. Being a member of international clubs such as the G20 and the BRICS club, South Africa is a gateway to SSA for emerging and advanced economies in other parts of the world.[7] Since the G20 brings leaders and high level executives together from major economies of the world, critical and important decisions are made in the G20 summits. For instance, during its 2009 summit, member countries agreed on $1.1 trillion in new funds, including trade credits and capital increases to the IMF, in order to help countries with troubled economies (Hutt, 2016) & (Landler & Sanger, 2009). Therefore, South Africa is a bridge between the world's major economies and SSA, and well-placed to inform the world about the region's opportunities and aspirations.

Generating about 23 percent of the world economy and constituting some 43 percent of the world's population, the BRICS club is made up of Brazil, Russia, India, China and South Africa (BRICS Official Website, 2017). The BRICS countries have begun to influence global economic and political affairs. It is expected that the BRICS club will play a role in bringing about global economic governance reforms (Yong, 2012). Furthermore, South Africa can be a bridge between the rest of Africa and the BRICS countries, and can provide a platform for a fruitful dialogue between Africa, the BRICS and the G20 (Yong, 2012).

The regional role of large Middle Income Countries

Emerging market economies have been playing a significant role in the global economy for the last a couple of decades. Growth in emerging market economies can have meaningful cross-border spillovers taking into consideration their rapid integration into global trade and finance networks (Huidrom, Kose, & Ohnsorge, 2017). The study by Huidrom et al. (2017) found that a 1 percentage point increase in growth of seven largest emerging market economies is associated with a 0.9 percentage points increase in growth in other emerging and frontier markets in cumulative terms at the end of three years (The countries are China, Russia, India, Brazil, Turkey, Mexico, and Indonesia). Moreover, at the end of three years, the spillover effects on world growth is an estimated 0.6 percentage points in cumulative terms (Huidrom, Kose, & Ohnsorge, 2017).

In addition to seven largest emerging economies identified by Huidrom et al. (2017), we included two largest middle income economies in both SSA and Middle East and North Africa

[7] The G20 includes 19 major middle income and advanced economies and the European Union. Its members account for about 85 percent of the world economy, and about two-thirds of the world's population (Hutt, 2016).

(MENA) into our analysis. Thus, the emerging economies included in this paper are representative of their regions not only in terms of GDP, but also population and trade.

The relationship between annual growth rate of the largest emerging economies and that of the rest of the countries in each region is different. Even though the aforementioned relationship is positive in SSA, it is not strong over 1961-2016. We also decomposed our analysis into six periods. The relationship between annual growth rate of the largest emerging economies and that of the rest of the countries in each region is positive and stronger, except Iran for both periods and China for the period after 2000. Moreover, the relationship between annual growth rate of South Africa and that of SSA is quite strong over 1991-2016. The relationship is even stronger for some regions when 5-year average growth rates are taken into account. A possible reason is that spillover effects from the largest regional economies to the rest can take time.

Table 3: Selected Countries and Regions: Population and GDP

EAP-Dev[i]	Population[ii] (million)	Population's Share	GDP[iii, iv] (trillion $)	GDP's Share
China	1,409.5	67.4%	19.85	75.4%
Indonesia	264.0	12.6%	2.81	10.7%
Sample Total	1,673.5	80.0%	22.66	86.0%
Region Total	2,091.4		26.34	

ECA-Dev[v]	Population[ii] (million)	Share	GDP[iii, iv] (trillion $)	GDP's Share
Russian Federation	144.0	34.7%	3.52	45.6%
Turkey	80.7	19.5%	1.88	24.4%
Sample Total	224.7	54.2%	5.41	69.9%
Region Total	414.7		7.73	

LAC	Population[ii] (million)	Share	GDP[iii, iv] (trillion $)	GDP's Share
Brazil	209.3	32.5%	2.91	31.9%
Mexico	129.2	20.0%	2.15	23.5%
Sample Total	338.5	52.5%	5.06	55.4%
Region Total	644.4		9.13	

MENA	Population[ii] (million)	Share	GDP[iii, iv] (trillion $)	GDP's Share
Egypt	97.6	20.1%	0.99	12.8%
Iran	81.2	16.7%	1.27	16.5%
Sample Total	380.1	78.3%	2.26	29.4%
Region Total	485.2		7.69	

SAS	Population[ii] (million)	Share	GDP[iii, iv] (trillion $)	GDP's Share
India	1,339.2	74.9%	8.07	81.3%
Sample Total	1,339.2	74.9%	8.07	81.3%
Region Total	1,787.8		9.93	

SSA	Population[ii] (million)	Share	GDP[iii, iv] (trillion $)	GDP's Share
Nigeria	190.9	18.0%	1.01	28.5%
South Africa	56.7	5.3%	0.69	19.3%
Sample Total	247.6	23.3%	1.70	47.8%
Region Total	1,061.1		3.55	

Notes:
i) EAP-Dev: Developing countries in EAP region.
ii) 2017 data.
iii) GDP PPP (constant 2011 international $)
iv) 2015 data for Iran and 2016 data for the rest.
v) ECA-Dev: Developing countries in ECA region.

Source: Authors' calculation based on data from the World Bank's World Development Indicators and the United Nations' World Population Prospects, the 2017 Revision.

Table 4: Selected Regions: The Relationship between Growth Rates of the Largest Emerging Economies and the Rest of the Region (Correlation Coefficients); 1961-2016

		Correlation Coefficients					1961-2016	
Country	Region	1961-1970	1971-1980	1981-1990	1991-2000	2001-2016	Annual growth	5 Yr Avg growth
India	SAS	0.03	-0.18	0.20	0.06	0.60	0.14	0.34
Russia	ECA-Dev				0.74	0.95	0.83	0.98
Turkey	ECA-Dev	-0.20	0.09	0.49	0.24	0.14	0.17	0.28
Egypt	MENA-Dev	0.45	-0.06	0.12	0.70	0.12	0.13	0.67
Iran	MENA-Dev	-0.44	-0.02	-0.05	-0.46	-0.19	-0.19	-0.40
China	EAP-Dev	-0.32	-0.18	0.27	0.53	-0.18	-0.09	-0.37
Indonesia	EAP-Dev	-0.37	0.12	-0.27	0.79	0.18	0.10	0.15
Nigeria	SSA	0.20	0.35	0.12	0.21	0.20	0.22	0.35
South Africa	SSA	0.23	-0.26	0.03	0.58	0.59	0.07	0.06
Brazil	LAC-Dev	0.34	0.60	0.25	0.08	0.42	0.30	0.40
Mexico	LAC-Dev	0.35	0.11	-0.24	0.12	0.39	0.20	0.07

Source: Authors' calculation based on data from the World Bank's World Development Indicators.

The problem with Africa's two biggest economies: South Africa and Nigeria

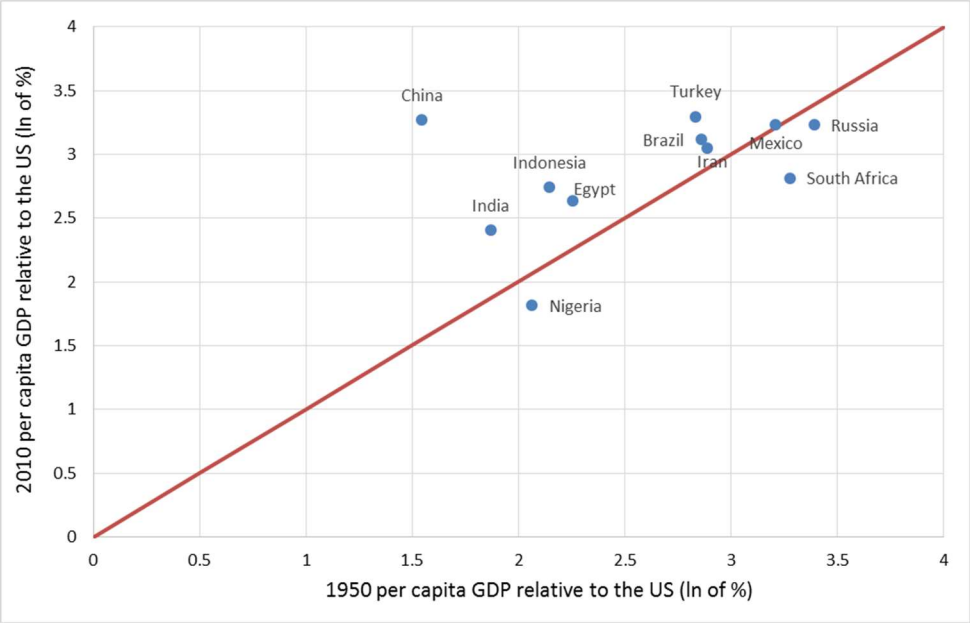
Empirical evidence suggests that many countries were able to grow from low income to middle income economies; however, only a few of them were able to grow to high income economies over the years. Gill and Kharas (2007) defined this tendency as the "middle income trap". According to the World Bank, only 13 countries out of 101 middle income countries in 1960 were able to grow to high income status over 1960-2010 (Agénor, Canuto, & Jelenic, 2012). [8]

One of the interpretations of the middle income trap is the absence of convergence to a benchmark advanced country (Gill & Kharas, 2015). In our analysis, we use the United States as the benchmark country. Figure 20 shows that all of the largest middle-income economies except China did not converge to the United States during the period 1950-2010. In Figure 20, all emerging market economies except China are located near the 45-degree line, which means their income per capita relative to the United States didn't change too much during this period. The most striking result of this analysis is that besides Russia, the only countries below the 45-degree line are the two largest middle income economies of sub-Saharan Africa. In other words, SSA's largest middle income economies underperformed the US as well as other large middle income economies.

Keep in mind that Nigeria and South Africa account for more than half of the region's economic output. If half the region's economy not converge to the benchmark, the odds of Africa doing well as a region are remote.

[8] Equatorial Guinea, Greece, Hong Kong SAR (China), Ireland, Israel, Japan, Mauritius, Portugal, Puerto Rico, the Republic of Korea, Singapore, Spain, and Taiwan, China.

Figure 20: The Largest Middle-Income Countries: Growth Performance Relative to the US; 1950 and 2010

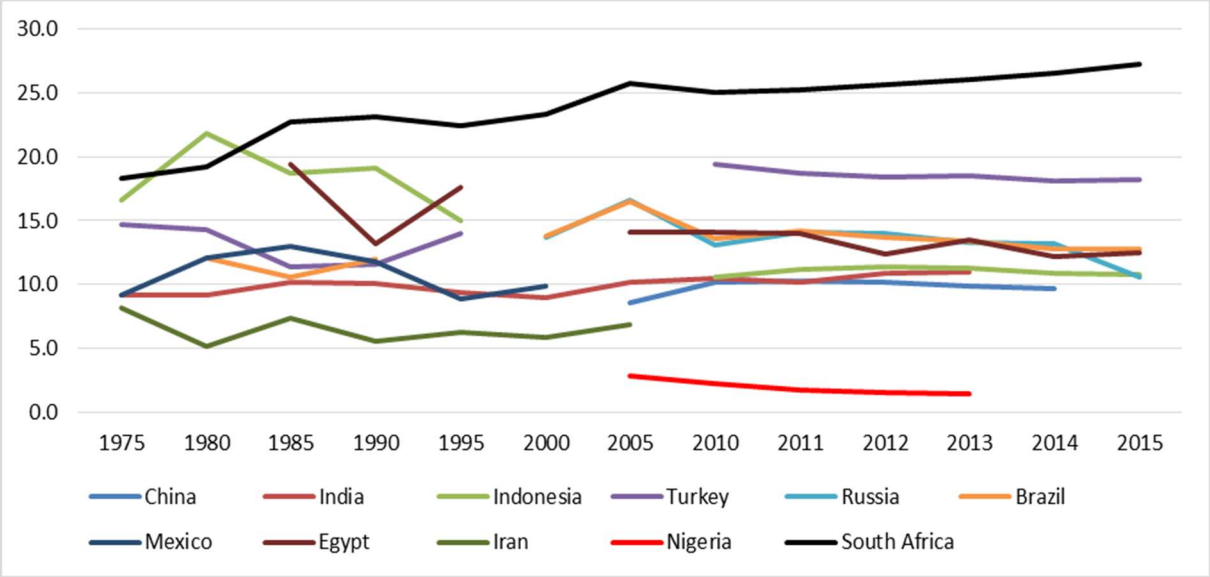


Source: Authors' calculation based on data from the Groningen Growth and Development Center's (GGDC) Maddison Project database.

Looking for reasons for this lack of convergence points to the importance of self-financing. Domestic resources are the most essential untapped source for developing countries for financing national development efforts (Inter-Agency Task Force on Financing for Development, 2016). Domestic revenue mobilization generates fiscal space for sustainable budget expenditures, improves accountability and reduces dependency on foreign aid (Domestic Resource Mobilisation, n.d.). Total government revenue as percentage of GDP is one of the key monitoring indicators of the Sustainable Development Goals (17.1) in order to track domestic revenue mobilization efforts of countries (Inter-Agency Task Force on Financing for Development, 2016). The average tax to GDP ratio is around 10–15 percent in the low income countries while it averages 35 percent for high-income Organization for Economic Cooperation and Development (OECD) countries (Runde & Savoy, 2016).

Tax-to-GDP ratios of the largest middle income economies other than South Africa and Nigeria range from 10 percent to 20 percent. Nigeria is at the bottom of all selected middle income economies with a tax to GDP ratio of about 2 percent in 2013, while South Africa's tax to GDP ratio is getting close to the average of high-income OECD countries. Since Nigeria is an oil-rich country, the low level of tax to GDP ratio may not be perceived as a problem. However, mobilizing domestic revenues is particularly important for resource rich countries since volatility in resource revenues is transmitted to the budget unless an appropriate fiscal framework is instituted (Crivelli & Gupta, 2014). Nigeria's low level of tax to GDP ratio poses a risk to economic growth. For example, although Nigeria's accumulated government debt is about 18.6 percent of its GDP, it is more than three times its annual revenues. At 5.3 percent of GDP, the Nigerian government's revenues are considerably below South Africa's average of about 25 percent since 2005 (Johnson, 2017).

Figure 21: The Largest Middle-Income Countries: Tax to GDP Ratio (Percentage); 1975-2015



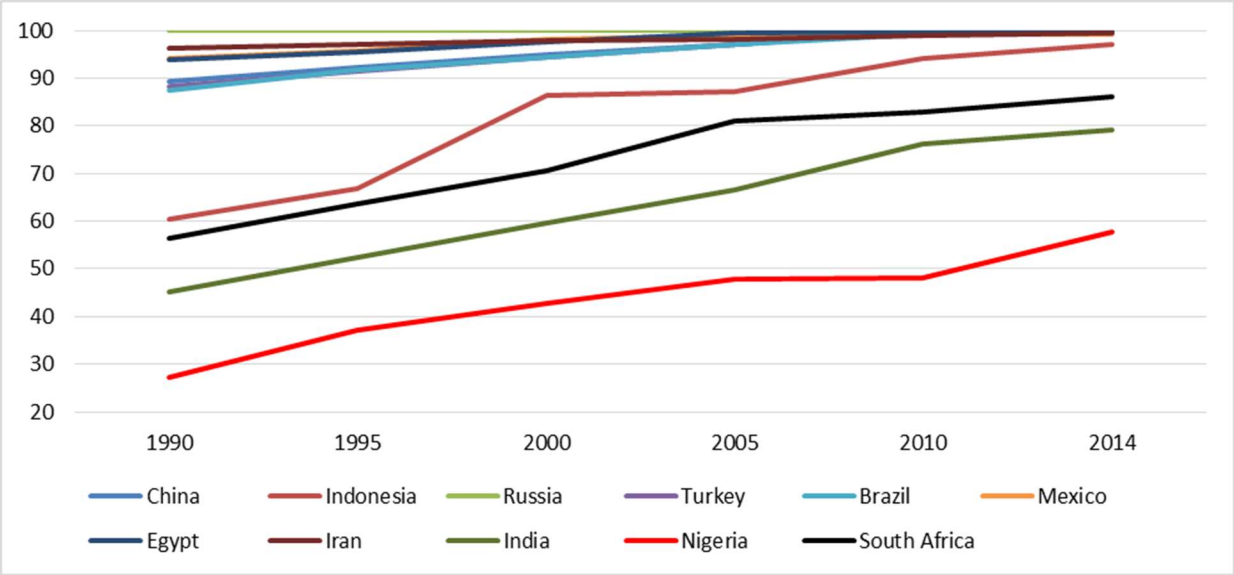
Source: Authors' calculation based on data from the World Bank's World Development Indicators.

Modern energy services are key for both economic development and human well-being (International Energy Agency, n/a). Access to reliable and modern energy is the fundamental ingredient for the provision of clean water, sanitation, healthcare, reliable and efficient lighting, heating, cooking, mechanical power, transport and telecommunications services (International Energy Agency, n/a). Low levels of access to electricity is another challenge for major economies of SSA as well as the rest of the region.

With just 58 percent of population having access to electricity in 2014, Nigeria stands at the bottom among eleven selected major developing economies. Even South Africa does not do well: though 86 percent of its population had access to electricity in 2014, the level was below the average of all middle income countries, which was 89 percent in 2014. Access to electricity in Nigeria and South Africa in 2014 was below that of other major developing countries, except India and Indonesia, in 1990. By 2014, it was below that of every major developing economy except India.

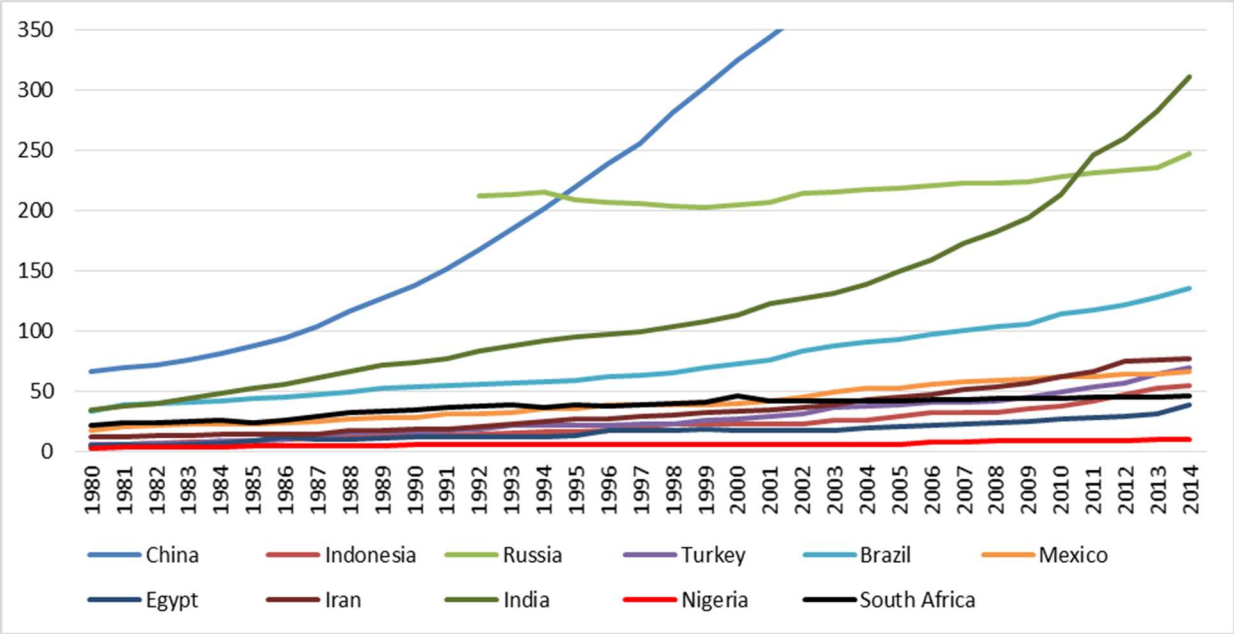
In addition to low levels of access to electricity in Nigeria and South Africa, total installed capacity in these two countries is abnormally low. With less than 50 million megawatts in 2014, Nigeria and South Africa ranked at the bottom of comparator countries, with the exception of Egypt.

Figure 22: The Largest Middle-Income Countries: Access to Electricity (Percentage of Population); 1990-2014



Source: Authors' calculation based on data from the World Bank's World Development Indicators.

Figure 23: The Largest Middle-Income Countries: Total Electricity Installed Capacity (Million Kilowatts); 1980-2014



Source: Authors' calculation based on data from the US Energy Information Administration's International Energy Statistics.
Note: China is not included in the figure after 2001 due to the large gap between China and other countries. China's total electricity installed capacity reached 1.6 billion kilowatts in 2014.

Transport is key to ensure the effective functioning of the economy. Effective transport facilities ensure access to markets for manufacturing and service sector firms, farms and agribusinesses, and facilitate the movement of workers to suitable jobs (World Economic Forum, 2016). Nigeria and South Africa fall on opposite sides of the transport spectrum. According to the Global Competitiveness Report 2016-2017, Nigeria is at the bottom of the selected countries (and nearly at the bottom of all 138 countries) in transport infrastructure, while South Africa is nearly at the top of all selected countries in transport infrastructure.

Table 5: The Largest Middle-Income Countries: Transport Infrastructure[9]; 2016-2017

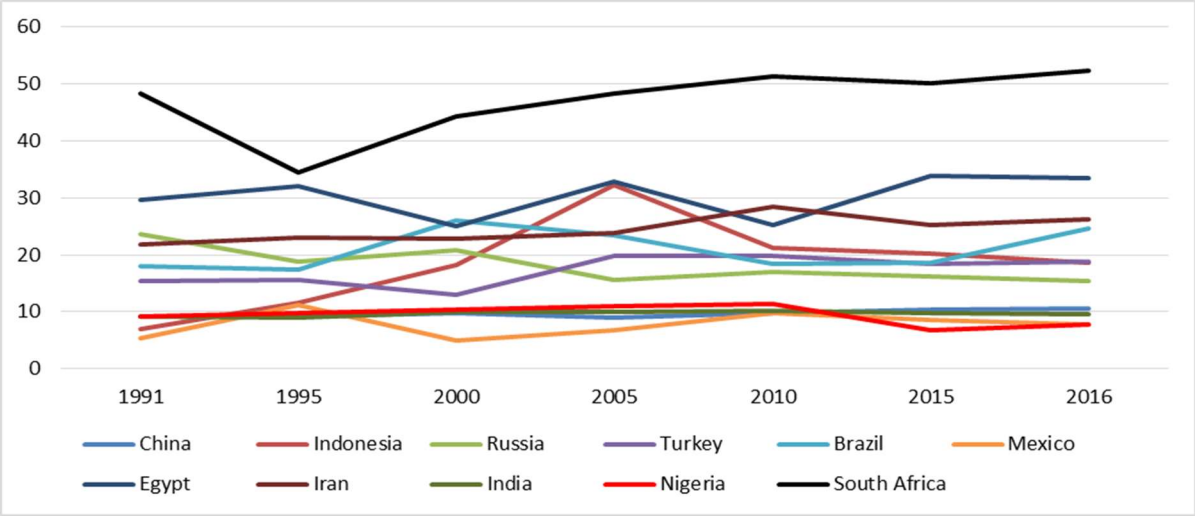
	Quality of Roads		Quality of Railroad Infrastructure		Quality of Port Infrastructure		Quality of Air Transport Infrastructure	
	Rank	Value	Rank	Value	Rank	Value	Rank	Value
China	39	4.8	14	5.1	43	4.6	49	4.8
Indonesia	75	3.9	39	3.8	75	3.9	62	4.5
Russia	123	2.8	25	4.4	72	4	65	4.4
Turkey	28	5	55	3	52	4.5	29	5.4
Brazil	111	3	93	1.9	114	2.9	95	3.9
Mexico	58	4.3	59	2.9	57	4.4	61	4.6
Egypt	107	3	73	2.6	58	4.3	52	4.8
Iran	68	4.1	46	3.5	73	3.9	111	3.4
India	51	4.4	23	4.5	48	4.5	63	4.5
Nigeria	126	2.6	103	1.5	117	2.8	119	3.2
South Africa	29	5	40	3.8	37	4.9	10	6

Source: World Economic Forum, The Global Competitiveness Report 2016-2017.

Economies and societies in which youth unemployment is high are prone to be vulnerable to instability and stagnation (ILO, 2010). Among selected middle income countries, South Africa is especially exposed to the risk of high youth unemployment. With an unemployment rate of 52.3 percent in 2016, South Africa compares poorly with other large middle income countries. South Africa's youth unemployment rate was the third highest in the world after Bosnia and Herzegovina (67.6 percent) and Swaziland (52.8 percent).

[9] As shown in the Global Competitiveness Report 2016-2017, values are on a 1-7 scale of which 7 is the best. Ranks depict the country's relative rank among 138 countries.

Figure 24: The Largest Middle-Income Countries: Youth Unemployment (Percentage of total labor force ages 15-24) (modeled ILO estimate); 1991-2016



Source: Authors' calculation based on data from the World Bank's World Development Indicators.

A large informal economy has many drawbacks. Informality is often associated with lower growth and productivity, and lack of social coverage and other related employment benefits (Benjamin, Beegle, Recanatini, & Santini, 2014). Moreover, informal companies are prone to be small and uncompetitive because of poor access to finance and new technology. In addition, informality reduces government revenues. As a consequence of this, it may be hard for governments to provide public services. If governments try to increase tax rates, this may create an additional incentive to be informal for those in formal sector, creating a vicious cycle between high taxes and high informality (García-Bolívar, 2006).

Table 6: The Largest Middle-Income Countries: Informal Economy (Percentage of GDP)[10]

% of GDP	2008	2010-2014
China	11.5	
Indonesia	17.8	
Russia	40.3	
Turkey	28.6	
Brazil	36.4	
Mexico	28.5	
Egypt	32.4	
Iran	17.0	
India	20.0	
Nigeria	49.6	65.1
South Africa	24.9	25

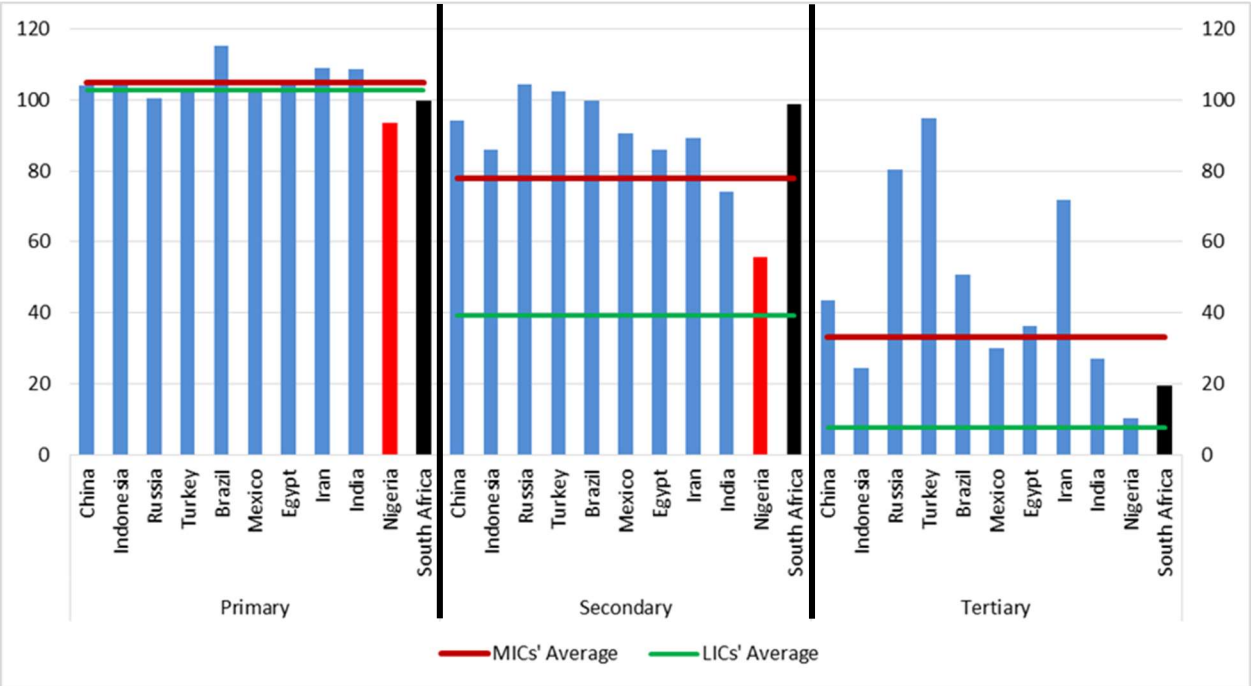
Sources: Elgin, C., and Oztunali, O. (2012). Shadow Economies around the World: Model Based Estimates. Bogazici University,, Department of Economics. Istanbul, Turkey: Bogazici University. (for 2008 data)
Medina, L., Jonelis, A., & Cangul, M. (2017). The Informal Economy in Sub-Saharan Africa: Size and Determinants. Washington, D.C.: International Monetary Fund (for 2010-2014 data)

[10] The studies have different methodologies. In order to estimate the size of informal economy, Medina et al. (2017) used the multiple indicator-multiple cause method whereas Elgin and Oztunali (2012) used a model relying on a two-

Accounting for about 65 percent of its GDP, the size of informal economy in Nigeria is larger than that of any other large middle-income country. For other largest middle-income economies, the size of informal economy ranged from 11.5 percent of GDP in China, which was lower than advanced economies' average of 18 percent, to 40.3 percent in Russia, which was slightly higher than low income economies' average (Medina, Jonelis, & Cangul, 2017) & (Elgin & Oztunali, 2012). The aforementioned high debt to revenue problem of Nigeria stems in part from its large informal economy. Since the Nigerian government is unable to collect revenues from informal businesses, its revenues fall short of middle income standards. Therefore, Nigeria faces debt unsustainability problems not fully reflected in its debt to GDP ratio.

Education has a central role in development since it provides both private returns through higher earnings and productivity increases for workers, and social returns, through reduced crime, increased political awareness, and better health outcomes. Among the largest middle income countries, Nigeria and South Africa are the worst performers in primary and tertiary school gross enrollment rates. Nigeria also does the worst in secondary school gross enrollment rate. South Africa, interestingly, is one of the best performers. Moreover, both countries' primary and tertiary school gross enrollment rates are below the middle income average; more strikingly, the primary gross enrollment ratios are below the average for *low income* countries.

Figure 25: The Largest Middle-Income Countries: School Gross Enrollment Rate (percent)



Source: Authors' calculation based on data from the World Bank's World Development Indicators.
Notes: The latest available data are shown in the chart. Countries other than Nigeria have either 2014 or 2015 data. Nigeria's primary and secondary school gross enrollment rates are from 2013 data and its tertiary school gross enrollment rate reflect the numbers in 2011.

sector dynamic general equilibrium model. In addition, data for other countries are left blank since Medina et al. (2017) focuses on SSA in their paper.

Besides low levels of school attainment in Nigeria and South Africa, the quality of education is poor. According to the Global Competitiveness Report 2016-2017, Nigeria was ranked 124th in quality of primary education and 118th in quality of higher education among 138 countries. South Africa's rankings are even worse than Nigeria's: 126th in quality of primary education and 134th in quality of higher education. The consensus view is that the quality of primary, secondary and higher education is generally unsatisfactory for many large middle income countries. Nigeria and South Africa do especially poorly: the quality of education in Nigeria and South Africa is close to the bottom of the list of 138 countries.

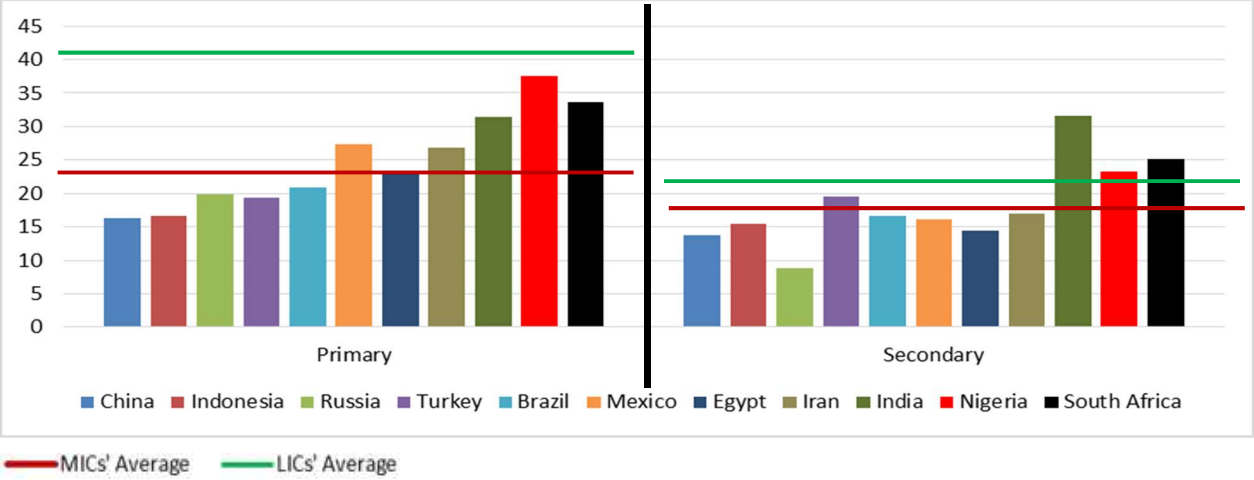
Table 7: The Largest Middle-Income Countries: Quality of Education; 2016-2017

	Quality of Primary Education		Quality of Higher Education	
	Rank	Value	Rank	Value
China	47	4.5	43	4.3
Indonesia	54	4.3	39	4.4
Russia	49	4.4	69	3.7
Turkey	105	3.1	104	3.2
Brazil	127	2.6	128	2.6
Mexico	114	3	112	3
Egypt	134	2.1	135	2.1
Iran	65	4.1	97	3.3
India	40	4.7	29	4.5
Nigeria	124	2.8	118	2.8
South Africa	126	2.7	134	2.3

Source: World Economic Forum, The Global Competitiveness Report 2016-2017.
Notes: As shown in the Global Competitiveness Report 2016-2017, values are on a 1-7 scale of which 7 is the best. Ranks depict the country's relative rank among 138 countries.

The problem starts with inputs to education. Nigeria and South Africa have the worst pupil-teacher ratios in primary education. In Nigeria, there were, on average, 37.6 pupils per teacher in primary education and 23.2 pupils per teacher in secondary education in 2010. In South Africa the averages are 33.6 pupils per teacher in primary education in 2014 and 25 pupils per teacher in secondary education in 2009. Moreover, both did worse than the average middle income country in both primary and secondary education; indeed, both countries did worse than the average *low* income country.

Figure 26: The Largest Middle-Income Countries: Pupil-Teacher Ratio



Source: Authors' calculation based on data from the World Bank's World Development Indicators.
Notes: Latest available data are shown in the chart. Countries other than Nigeria, South Africa and Russia have either 2014 or 2015 data. Nigeria's primary and secondary education data are for 2010. South Africa's secondary education data are for 2009 and Russia's secondary education data for 2012.

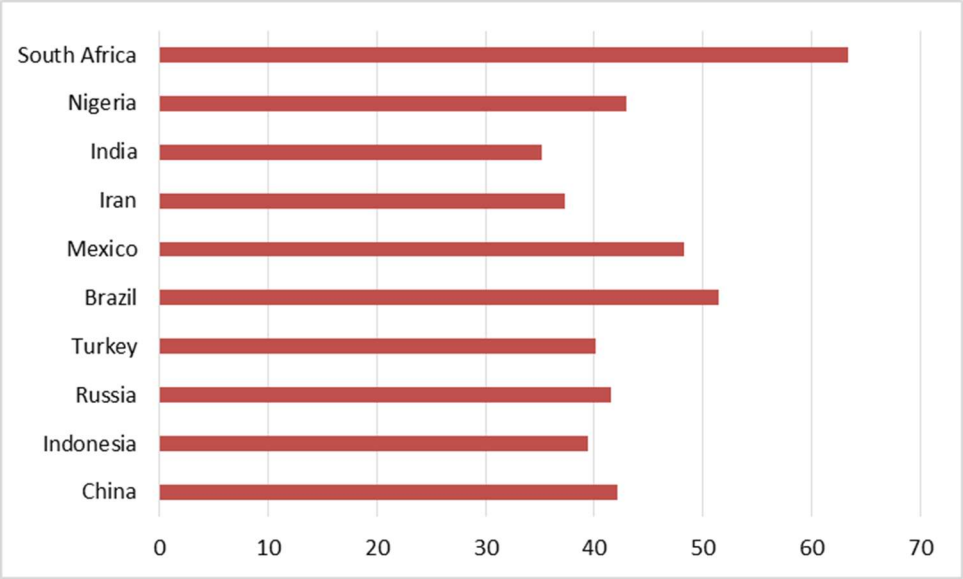
High inequality can undermine education opportunities for poor families. Moreover, inequality can potentially lower social mobility (OECD, 2014). Inequality is one of the unsolved development problems of South Africa. With a Gini index of 63.4 in 2011, South Africa was the most unequal among 142 countries.[11] While South Africa has enjoyed positive economic growth in every year after 1992 except 2009 and has instituted many new social programs, consumption inequality is no lower today than it was during apartheid. High levels of inequality have led other development problems in the country, such as social exclusion, corruption, crime, and political destabilization (van der Westhuizen, 2012).

Poverty means not just a lack of income but also hunger and malnutrition, limited access to education, health and other basic services, such as water and sanitation, social discrimination and exclusion, and even the lack of participation in decision-making (UN, n.d.). Every large middle income country experienced a big decline in poverty after 1980s, with the exception of Nigeria. By the late 2000s, the $1.90 a day headcount poverty in Nigeria was higher than the

[11] The sample of 142 includes any country which has data between 2006 and 2014. Rankings are generated based on last available data.

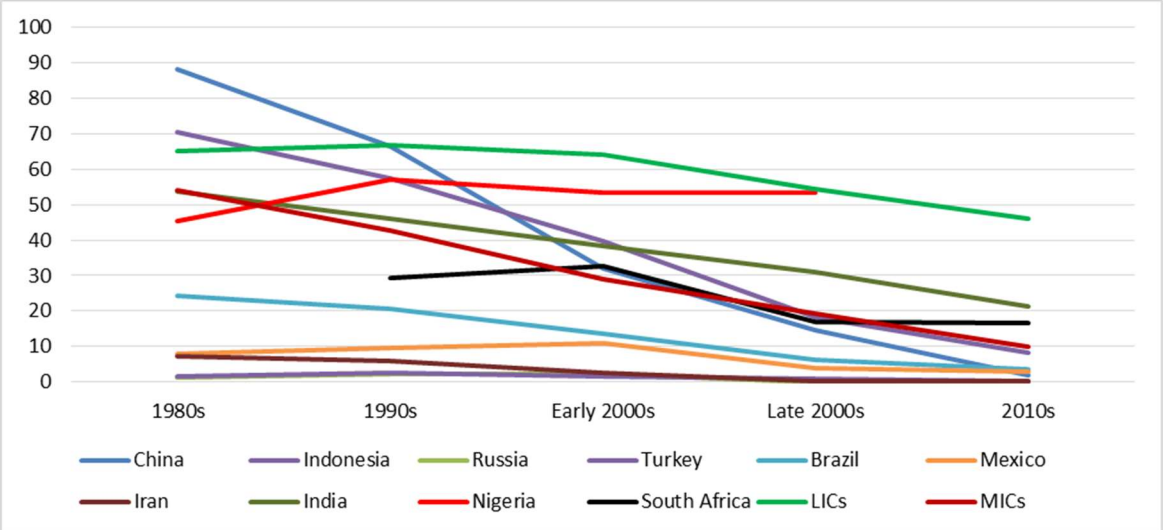
average for *low income* countries. In 2009, after a decade of high oil prices and rapid growth, 53.5 percent of the Nigerian population was still living on less than $1.90 a day.

Figure 27: The Largest Middle-Income Countries: GINI Index (0-100)



Source: Authors' calculation based on data from the World Bank's World Development Indicators.
Note: No data are available for Egypt.

Figure 28: The Largest Middle-Income Countries: Poverty Headcount Ratio at $1.90 (Percent of Population); 1980s-2010s

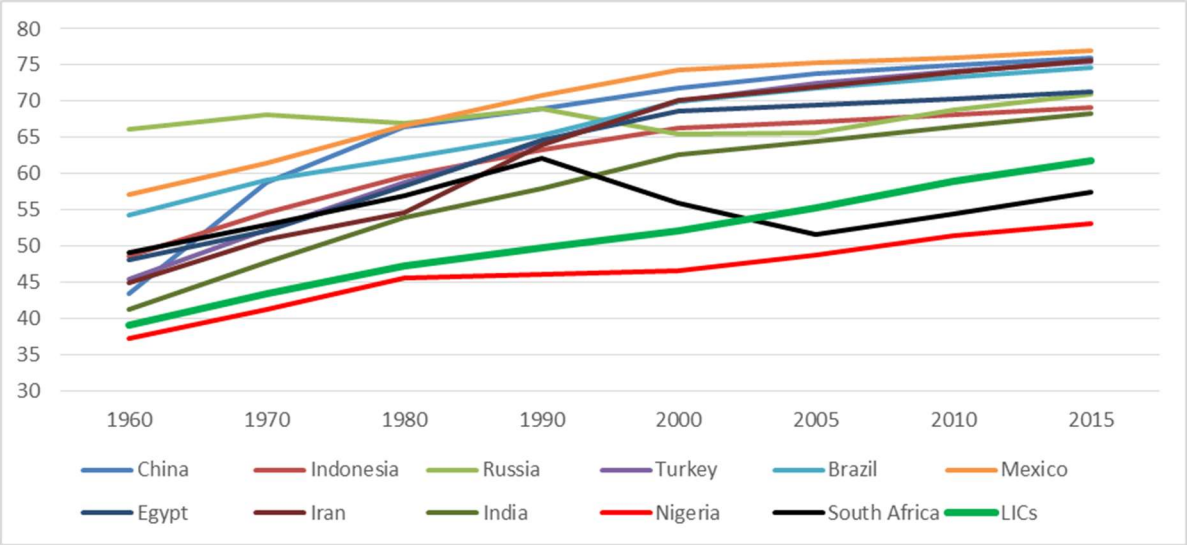


Source: Authors' calculation based on data from the World Bank's World Development Indicators.
Note: Latest available data for this period. Egypt is not included in the chart.

Better health enables individuals and their families to save and invest in their future; and improves workers' productivity and children attendance in schools. Life expectancy is a common measure for health outcomes (Perkins, Radelet, Lindauer, & Block, 2013). Nigeria and South Africa are the worst performers in this measure as well. The other nine countries' life

expectancy at birth ranged from 68 years in India to 77 years in Mexico in 2015. With an average of 53 years and 57 years at birth as of 2015, respectively, life expectancy at birth in Nigeria and South Africa was lower than even the average of low income countries (62 years). More discouragingly, South Africa's life expectancy in 2015 was lower than it was in the 1980s.

Figure 29: The Largest Middle-Income Countries: Life Expectancy at Birth (Years); 1960-2015



Source: Authors' calculation based on data from the World Bank's World Development Indicators.

High maternal and infant mortality rates and the prevalence of malaria, tuberculosis and HIV are the top reasons for Nigeria and South Africa's poor health outcomes. With 814 deaths per 100,000 live births in 2015, maternal mortality rate in Nigeria was well above other large middle income economies. It was almost twice as high as the average for low income countries, which was 496 deaths per 100,000 live births as of 2015. Even though the maternal mortality rate in South Africa is well below Nigeria's, it is high considering that South Africa is an upper middle income economy.

Table 8: The Largest Middle-Income Countries: Maternal and Infant Mortality Rates

	Maternal mortality rate (per 100,000 live births)					Infant mortality rate (per 1,000 live births)							
	1990	2000	2005	2010	2015	1960	1970	1980	1990	2000	2005	2010	2015
China	97	58	48	35	27		80.4	48	42.1	30.2	20.3	13.5	9.2
Indonesia	446	265	212	165	126	148.4	113.1	85.4	62.2	41.1	33.4	27.4	22.8
Russia	63	57	42	29	25		35.4	27.3	21.9	19.7	14.4	10.3	8.2
Turkey	97	79	57	23	16	166	126.2	90.2	55.8	32.1	23.2	16.4	11.6
Brazil	104	66	67	65	44	129.4	102.5	75.9	50.9	28.1	19.5	14.8	14.6
Mexico	90	77	54	45	38		77.5	56.1	37.1	21.6	16.7	14.4	11.3
Egypt	106	63	52	40	33	209.6	162	114.3	63	37	29.2	24.3	20.3
Iran	123	51	34	27	25			78.3	44.6	28.6	21.7	16.4	13.4
India	556	374	280	215	174	165.1	142.8	114.3	88.3	66.4	55.8	46.3	37.9
Nigeria	1350	1170	946	867	814		168.9	127	125.9	112	96.6	81.5	69.4
South Africa	108	85	112	154	138			68	47.4	54	51.5	38.2	33.6

Source: Authors' calculation based on data from the World Bank's World Development Indicators.

Nigeria and South Africa have both seen improvements in infant mortality rates, but the ratios remain higher than those of other largest middle income countries in 2015. Infant mortality

rate in Nigeria had been even worse than that of low income countries average over 1980-2015. Moreover, the improvements in other largest middle income countries were better than these in Nigeria and South Africa. For instance, infant mortality rate in South Africa was better than that in Turkey, Indonesia, Brazil, Egypt and Iran in 1980. However, as of 2015, infant mortality rates in the aforementioned countries were far better South Africa's infant mortality rate. In the 1970s, the infant mortality rates in Nigeria and Egypt were about the same; by 2015, Egypt's rate was less than one third that of Nigeria's.

Malaria, tuberculosis, and HIV are the developing world's most deadly infectious diseases (Perkins, Radelet, Lindauer, & Block, 2013). These diseases create a sizeable economic burden on developing countries; for example, Gallup and Sachs (1995) found that economic growth is reduced by 1.3 percent by higher malaria incidence. Nigeria and South Africa have high levels of malaria, tuberculosis and HIV. The incidence of malaria in Nigeria (381 cases out of 1000 people at risk) was the third highest in the world in 2015, below only Mali and Burkina Faso. The incidence of tuberculosis in Nigeria and South Africa was higher than the average for *low income* countries between 2000 and 2015. South Africa ranked at the bottom in terms of the incidence of tuberculosis.

HIV is another burden for Nigeria and South Africa. HIV in South Africa is particularly high. With about 19.2 percent of adult population (ages 15-49) in 2015, South Africa ranked fourth in prevalence of HIV, doing better only than its neighbors Swaziland, Lesotho and Botswana.

Table 9: The Largest Middle-Income Countries: Incidences of Malaria, Tuberculosis, and HIV

	Incidence of Malaria (per 1,000 population at risk)				Incidence of Tuberculosis (per 100,000 people)				Prevalence of HIV (% of population ages 15-49)				
	2000	2005	2010	2015	2000	2005	2010	2015	1990	2000	2005	2010	2015
China	0.1	0.1	0.02083	0.00016	109	92	78	67					
Indonesia	99	119.1	129.2	26.1	449	437	415	395	0.1	0.1	0.2	0.4	0.5
Russia					128	136	101	80					
Turkey	1741	295.8	0	0	33	33	25	18					
Brazil	62.6	38.7	19.4	7.9	51	49	43	41	0.4	0.4	0.5	0.5	0.6
Mexico	4	1.5	0.6	0.2	29	21	21	21	0.1	0.3	0.2	0.2	0.2
Egypt					26	21	18	15	0.1	0.1	0.1	0.1	0.1
Iran	39.9	43.9	5.3	0.5	22	16	17	16	0.1	0.1	0.1	0.1	0.1
India	42.7	48.1	33.1	18.6	289	279	247	217					
Nigeria	497.8	482.6	416.3	380.8	325	343	339	322	1.4	3.9	3.8	3.5	3.1
South Africa	12.3	4.9	4.8	3.1	585	932	948	834	1	18.7	20.8	18.9	19.2

Source: Authors' calculation based on data from the World Bank's World Development Indicators.

In summary, even though Nigeria and South Africa are classified as middle income countries, they do not display typical middle income country development outcomes. What makes their prospects even more discouraging is they do worse than many low income countries in the leading indicators of economic development: education and health. For some indicators such as life expectancy, they have actually regressed. These are disheartening signs for the two largest middle income economies in Sub Saharan Africa and so for the subcontinent itself.

Africa's Three Debilitating Development Deficits

We believe that Sub-Saharan Africa has three critical deficits: low levels and poor quality of education, low levels of electrification, and low levels of domestic revenue mobilization. These three key problems are at the core of all other problems of the continent. If they are not fixed, quick and sustained development in Sub Saharan Africa will remain wishful thinking.

The deficit in education

The lack of education is at the core of many development problems. There is no high income country with low levels of education.[12] As William Easterly emphasizes in his book "The Elusive Quest for Growth" that *"(…) no country has become rich with a universally unskilled population"* (Easterly, 2001).

According to the 2018 World Development Report 2018, *"education is a foundational building block for achieving nearly every other development goal. (…) Getting education right—and fulfilling its promise as a driver of development—is essential"* (World Bank, 2017 c). Increasing the knowledge and skills of population is the key to reaching inclusive and sustainable development (OECD, 2015 a). Basic education leads to improvements in the efficiency of every worker, and quality higher education and training is necessary in order for countries to improve their production processes and products (World Economic Forum, 2016).

Schooling and individual earnings are strongly correlated. The rate of return to schooling across countries is believed to average about 10 percent. The rate of return is higher in low-income countries (Hanushek & Woessmann, 2007 a). In addition, education has significant external benefits or positive externalities. Health spillovers, reductions in crime, and more informed political participation are some of the important externalities of education.

Hanushek and Woessmann (2007 b) also found that each year of schooling leads to an increase in the long-run growth by 0.58 percentage points. According to a recent OECD report, ensuring that all youth achieve at least basic skills would help lower middle income countries increase their annual GDP by 28 percent over the next 80 years.[13] The expected gain for upper-middle income countries over the 80 years would be an average annual 16 percent increase in their GDP (OECD, 2015 a).

Hanushek and Woessmann (2007 b) point out that both schooling and quality of education have positive impacts on economic growth. Even though many benefits are attributed to quality of education, schooling influences the long run economic growth of countries since schooling has productivity-enhancing effects. The effects of education (schooling) on economic growth works through three mechanisms. First and foremost, education (schooling) increases labor productivity by improving the human capital of the labor force. Second, education (schooling) may lead to an increase in the innovative capacity of the economy. Last but not least, education

[12] In 2015, primary school gross enrollment rates in high income countries ranged from 82.5 percent in St. Kitts and Nevis to 123 percent in Sweden, with an average of 102.6 percent. The secondary school gross enrollment rate in high income countries ranged between 71.5 percent in Bermuda to 166.8 percent in Belgium, with an average of 106.6 percent.

[13] An 80-year period is reflected in the report as an expected lifetime of a person.

(schooling) aids knowledge diffusion and transmission. Nonetheless, Hanushek and Woessman (2007 b) acknowledged that school attainment cannot by itself alone provide all those benefits. The quality of education improves the efficiency of school attainment (Hanushek & Woessmann, 2007 b).

The educational quality in SSA is as low as educational quantity there. Both low levels of schooling and low quality of education are at the core of the main problems which both SSA and its largest middle income economies have been facing. For instance, low quality of education can cause both high youth unemployment and income inequality since the attainment to primary and secondary school do not by itself alone provide individuals a decent job. Moreover, as Hanushek and Woessman (2007 a) suggest, providing more resources to schools doesn't guarantee success. Schooling will not improve students' skills in a stagnant economy without incentives to invest in the future.

In addition, technological change helps people with higher skills and worsens the skills gap. Technology's effect could be adverse on the distribution of income by reducing the demand for lower skill activities and increasing the premium for higher-skill activities and returns on capital (IMF, 2007). Education (both formal education and vocational training) provides the ability to adapt to changing technology.

In short, the backbone of sustained and inclusive development of SSA is education reform which should put emphasis on both improving current quality of education and boosting school attainment. Therefore, in the long run, SSA can eliminate some of the major development problems, including improving quality of institutions, reducing corruption, better health outcomes, a less informal economy, lower youth unemployment and fewer civil conflicts.

The deficit in domestic revenues

In her 2009 article, Dambisa Moyo stated that Africa was receiving almost $50 billion in international assistance each year and advocates were insisting on doubling it (Moyo, 2009). [14] According to the OECD Statistics database, Africa received $54.3 billion (in current prices) in Official Development Assistance (ODA) in 2014 of which $44.4 billion was for SSA. [15] International assistance to Africa didn't double as claimed by advocates, but it remained substantial. In the last 10 years[16], an average of about $39.1 billion (in 2015 prices) was transferred to SSA every year, a sum higher than the GDP of 41 out of 48 economies in Sub

[14] According to the OECD Statistics database, Africa received $45.1 billion ODA in 2008 of which $39.7 billion was for Sub Saharan Africa.

[15] OECD defines ODA as follows:

"those flows to countries and territories on the Development Assistance Committee (DAC) List of ODA Recipients and to multilateral institutions which are:

i. provided by official agencies, including state and local governments, or by their executive agencies; and

ii. each transaction of which:

a) is administered with the promotion of the economic development and welfare of developing countries as its main objective; and

b) is concessional in character and conveys a grant element of at least 25 per cent (calculated at a rate of discount of 10 per cent)."

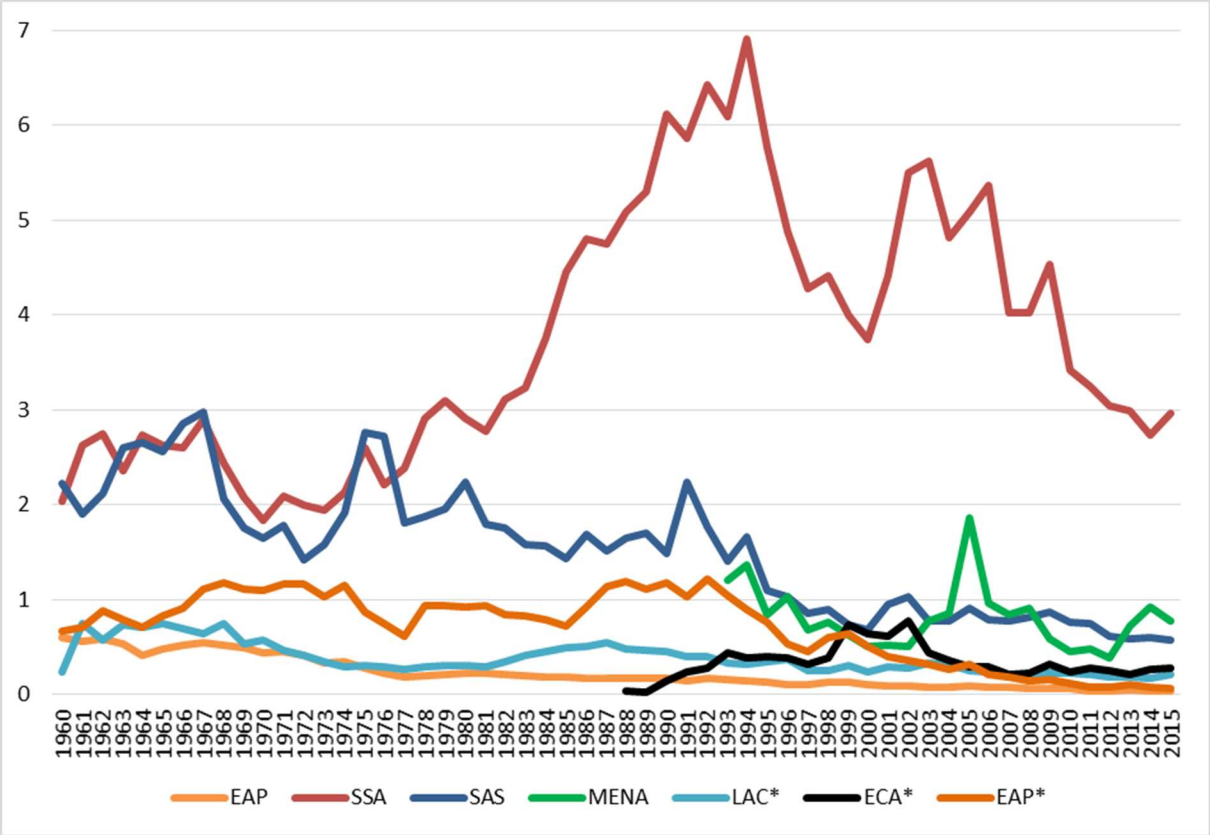
[16] Based on data availability, the last 10 years cover 2005-2014 since the most recent data on OECD Statistics Database are for 2014.

Saharan Africa.[17] Yet, the indicators discussed in previous sections suggest that the money has not really helped. In the aforementioned article, Moyo writes

> *"Yet evidence overwhelmingly demonstrates that aid to Africa has made the poor poorer, and the growth slower. The insidious aid culture has left African countries more debt-laden, more inflation-prone, more vulnerable to the vagaries of the currency markets and more unattractive to higher-quality investment"* (Moyo, 2009).

The following chart summarizes ratio of ODA to Gross National Income (GNI) by regions over the 1960-2015 period. Being about 3 percent of the region's GNI, the ODA to GNI ratio in SSA was still more than three times higher than that of all other regions in 2015 even though it reduced significantly after it peaked in 1994. One of the remarkable points in the chart is that the ODA to GNI ratio was almost same in Sub-Saharan Africa and South Asia until 1976. The gap between the ratios of two regions increased significantly after then. While the gap between ODA to GNI ratio had increased dramatically in SSA's favor over 1976 and 2015, the gap in GDP per capita between the two regions had closed noticeably in South Asia's favor and in 2016, per capita GDP of South Asia exceeded that of SSA for the first time.

Figure 30: Selected Regions: ODA as a share of GNI (percent); 1960-2015



**The regions with asterisk exclude high income countries.*

Source: Authors' calculation based on data from the World Bank's World Development Indicators.

[17] GDP in 2015.

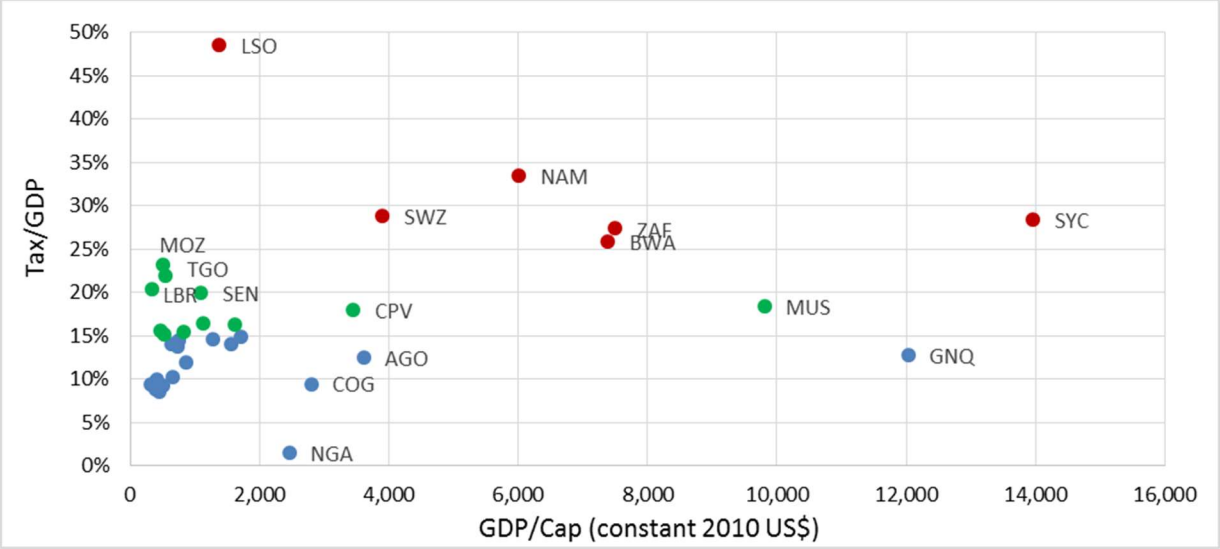
There are opposing views to those of Moyo. Radelet argues that

> *"Foreign aid has not been the major driver of development progress over the last twenty years, nor will it be in the future. But despite all the rhetoric, the evidence shows that aid has been a positive force in supporting the surge of development progress"* (Radelet, The Great Surge: The Ascent of the Developing World, 2015).

That seems to have been true in East and South Asia, and even in Central America, though aid per capita is considerably lower in these countries as compared with Africa (Figure 30). But the real question is whether aid has helped in Sub Saharan Africa. It is clear that for much of Africa (or elsewhere in the world), international aid hasn't been a catalyst for change. There are many reasons for this, including corruption, bad institutions, aid fragmentation, lack of ownership, and so forth. But one of the reasons behind the poor performance of SSA is surely the lack of domestic revenue mobilization.

Total government revenue as a percentage of GDP is one of the key indicators for tracking the domestic revenue mobilization efforts of countries (Inter-Agency Task Force on Financing for Development, 2016). In particular, tax revenues to GDP ratio is a good proxy for relative levels of domestic revenue mobilization. The following chart indicates tax revenues to GDP ratio by the income level of countries in Sub Saharan Africa. Based on the latest available data, only six countries have tax revenues to GDP ratios above 25 percent; for 31 countries, the tax to GDP ratio is below 15 percent. In 2015, the global average for tax revenues to GDP ratio was 15.2 percent, so two thirds of the countries in SSA underperform the world.

Figure 31: Sub-Saharan Africa: Tax Revenues as Percentage of GDP; Latest Available Data



Source: Authors' calculation based on data from the World Bank's World Development Indicators. Blue dots represent countries with tax/GDP ratios lower than 15 percent, green represents countries with tax/GDP ratio between 15 percent and 25 percent, and red represents countries with tax/GDP ratio higher than 25 percent.

In order to finance national development plans, the biggest underexploited source in developing countries is domestic resources (IMF and World Bank, 2016). Domestic revenue mobilization creates fiscal space for sustainable budget expenditures, improves ownership and reduces dependency on foreign aid (European Commission: Domestic Resource Mobilisation,

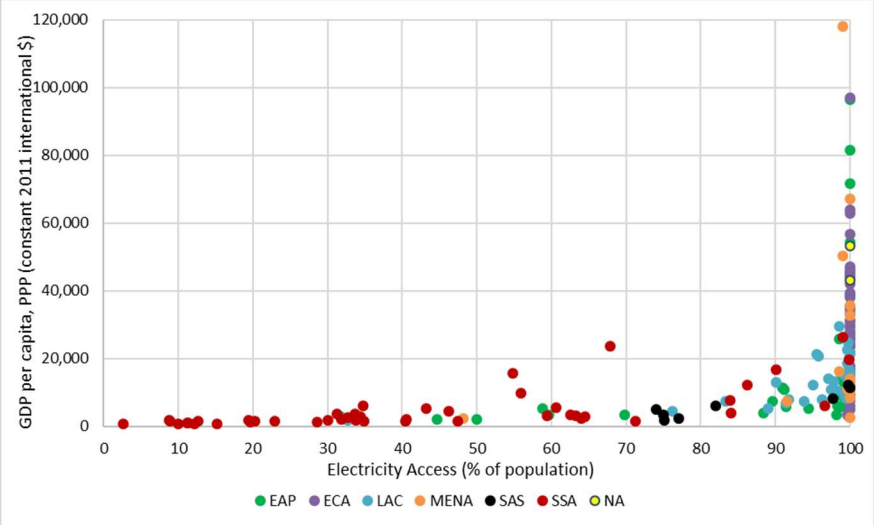
2017). In addition, more tax revenues are associated with more social spending. For instance, Long and Miller (2017) found that more non-resource taxation leads more spending on health, education and social protection for all country income groups. Similarly, a recent USAID study found that a 10 percent increase in national tax revenue increases public health expenditure by 17 percent in low income countries, 4 percent in lower middle income countries and 3 percent in upper middle income countries (Tamarappoo, Pokhrel, Raman, & Francis, 2016).

An effective tax system is the most important component of a plan to improve health and education outcomes. (Fjeldstad, 2014). To strengthen fiscal state and governance relations in developing countries, tax administration reforms are of principal importance (United Nations Economic and Social Council, 2012). Successful tax administration reforms tend to increase tax revenues without changing tax rates. For instance, broadening the tax base has helped in raising revenues without an additional tax burden (OECD, 2015 b). OECD (2015 b) also documented that focused attention on building the taxpayer registry and identifying non-filers had a significant and instant impact on tax revenues. Further, simplified tax procedures can improve the efficiency in tax collection and increase tax revenues (OECD, 2015 b).

The electricity deficit

All forms of production are fed by some type of energy. Operating a factory, running a shop, or growing crops is impossible without energy. So, while energy isn't sufficient for economic growth, it is necessary for it (International Energy Agency, 2004). The empirical evidence shows a strong and positive association between electricity access and income levels of countries. A significant majority of countries, whose access to electricity ratios are higher than 80 percent, are either high income or upper-middle income countries. On the other hand, nearly every country with access to electricity ratios below 80 percent has a low income economy.

Figure 32: Electricity access and per capita income; latest available data

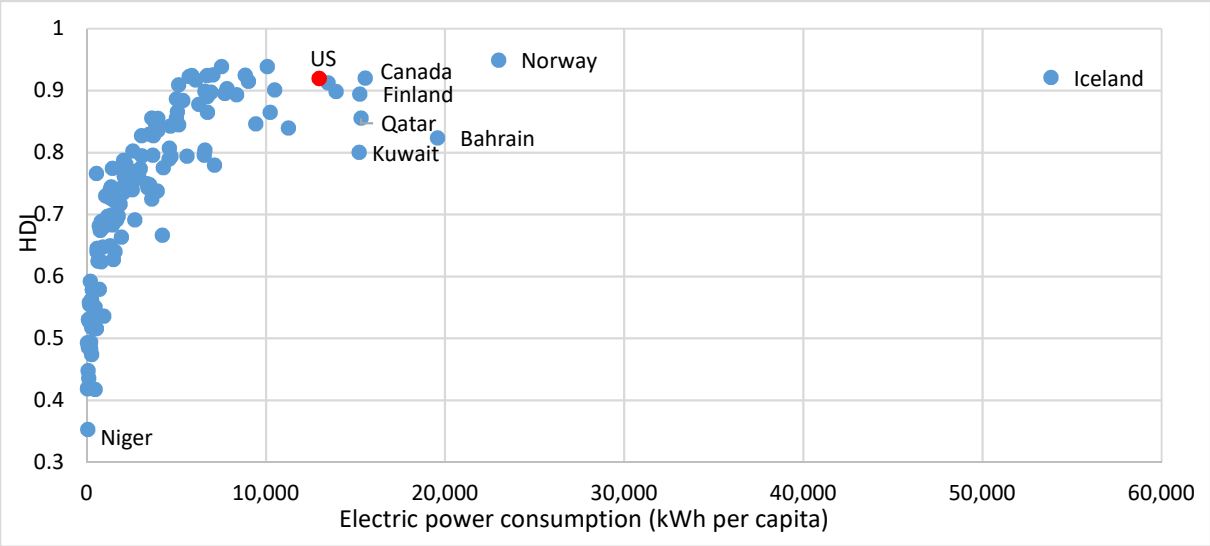


Source: Authors' calculation based on data from the World Bank's World Development Indicators and International Energy Agency's Energy Access Outlook databases.
Notes: 2016 data are the latest available data. However, 2014 electricity access data are used for some countries where the IEA doesn't have 2016 data.

Just as energy is the vital ingredient for economic activities, it is also necessary for education, public health, and basic human needs such as food and shelter (International Energy Agency, 2004). For instance, providing surgeries at hospitals is nearly impossible without reliable access to electricity. Improving the quality of education is almost impossible without providing sufficient electricity to schools and houses. Access to energy, especially electricity, is a precondition to economic development. As Dr. Akinwumi Adesina, President of the African Development Bank, has said: *"Africa is tired of being in the dark. And Africa cannot develop in the dark."*

Figure 33 illustrates the relationship between per capita electricity consumption and human development index (HDI) for all countries for which data are available. As per capita electricity consumption increases, the HDI improves. Unsurprisingly, at low levels of per capita electricity consumption, the relationship is steeper; at these levels of income, increased per capita electricity consumption is associated with a bigger change in HDI.

Figure 33: Human Development Index and per capita electricity consumption; latest data



Note: 2016 data for HDI and mostly 2014 data for electric power consumption per capita.
Source: Authors' calculation based on data from the World Bank's World Development Indicators and 2016 Human Development Report.

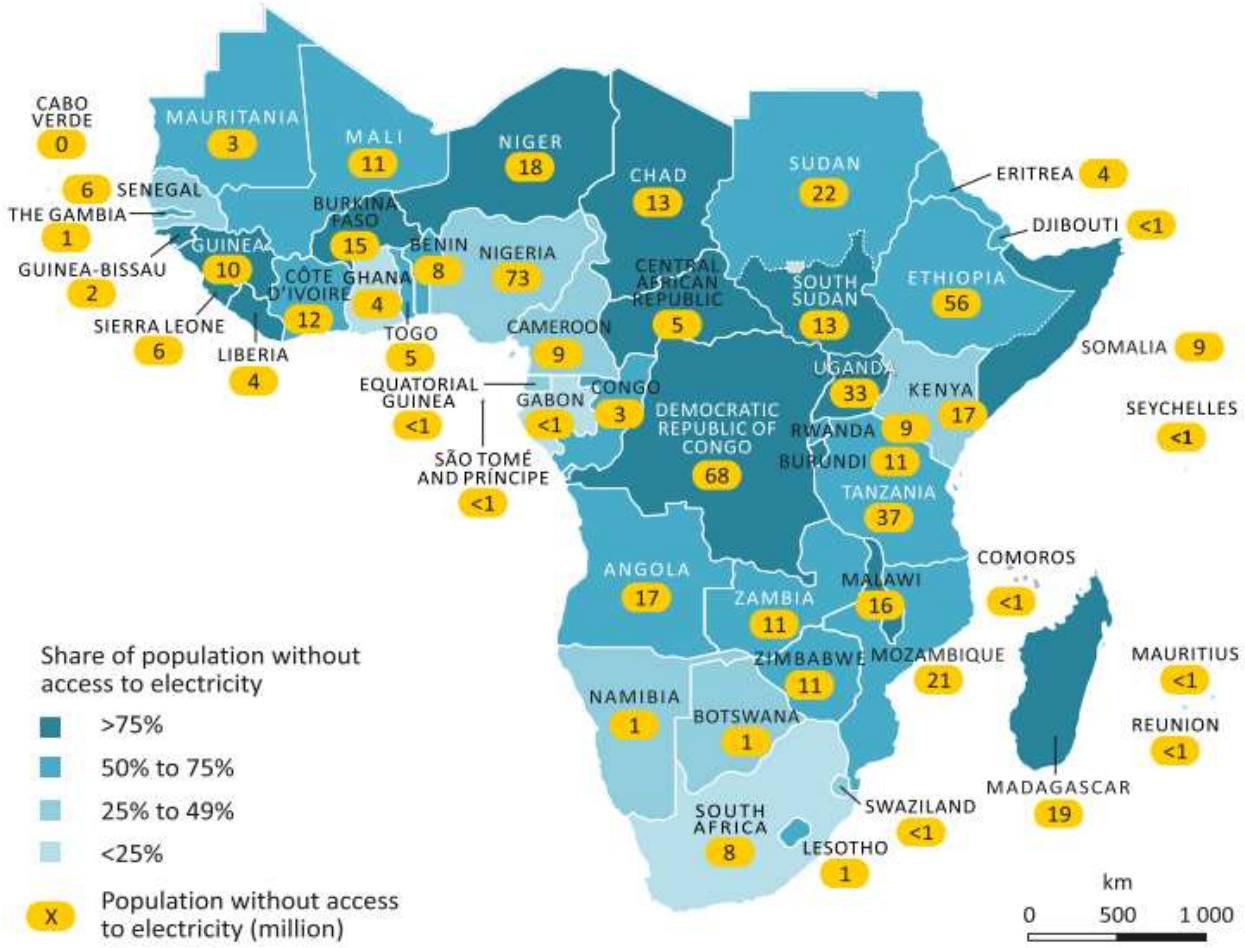
According to the *World Energy Outlook 2017*, some 588 million people in SSA—more than half of the region's population—did not have access to electricity in 2016. Across the world, about 1,060 million people were living without access to electricity in 2016, so more than half are in Africa. The electrification rate in Africa's urban areas averaged 71 percent while that in rural areas was only 23 percent. Improving electricity access will contribute significantly to the continent's economic and human development.

What makes matters different in Africa is that the region has the fastest growing population, and it is expected that both urban and rural populations will continue to grow rapidly for a while. Countries in the region needs to improve both rural and urban access to electricity at the same time (International Energy Agency, 2014 b). But the sector is poorly understood: *"Africa's*

energy sector is vital to its development and yet is one of the most poorly understood parts of the global energy system" (International Energy Agency, 2014 a).

Even though grid-based power generation capacity in SSA has increased from 68 gigawatts (GW) in 2000 to about 90 GW in 2012, electricity-generating capacity is still low, with about 0.04 megawatts per 1000 people in 2012 (International Energy Agency, 2014 a) & (World Bank, 2017 b). Even the power available from the installed capacity cannot be delivered to customers due to poor maintenance. Therefore, power that is available to consumers is noticeably lower than the total installed capacity (International Energy Agency, 2014 a). Further, there are massive transmission and distribution losses. For example, the loss rate was higher than 20 percent in Nigeria, Zambia, Ghana, Côte d'Ivoire and Congo Republic in 2012. Excluding South Africa, the average electricity loss for the region was about 18 percent. The electricity loss in South Africa, which has half of the total installed power generation capacity in the region, was around 10 percent (International Energy Agency, 2014 a). In almost every African country, inadequate electricity is just a fact of life (Castellano, Kendall, Nikomarov, & Swemmer, 2015).

Figure 34: Sub-Saharan Africa: People living without access to electricity; 2016



Source: International Energy Agency (2017), Energy Access Outlook 2017.

The severe shortage of electricity infrastructure may well be the single biggest obstacle for economic development in Africa (International Energy Agency, 2014 b). Paradoxically, the subcontinent is starved of electricity even though it is rich in energy resources (International Energy Agency, 2014 b). The region's power sector is underdeveloped in all aspects, including energy access, installed capacity, and overall consumption (Castellano, Kendall, Nikomarov, & Swemmer, 2015).

According to the International Energy Agency's 2014 *Africa Energy Outlook*, three actions in the energy sector could increase the size of the region's economy by 30 percent by 2040. First, bigger investments in power sector to reduce power outages by half and achieve universal electricity access in urban areas. Second, deeper regional co-operation and integration. Last but not least, resources and revenues should be managed better by adopting robust and transparent processes (International Energy Agency, 2014 b).

A Region Held Back by Low Expectations

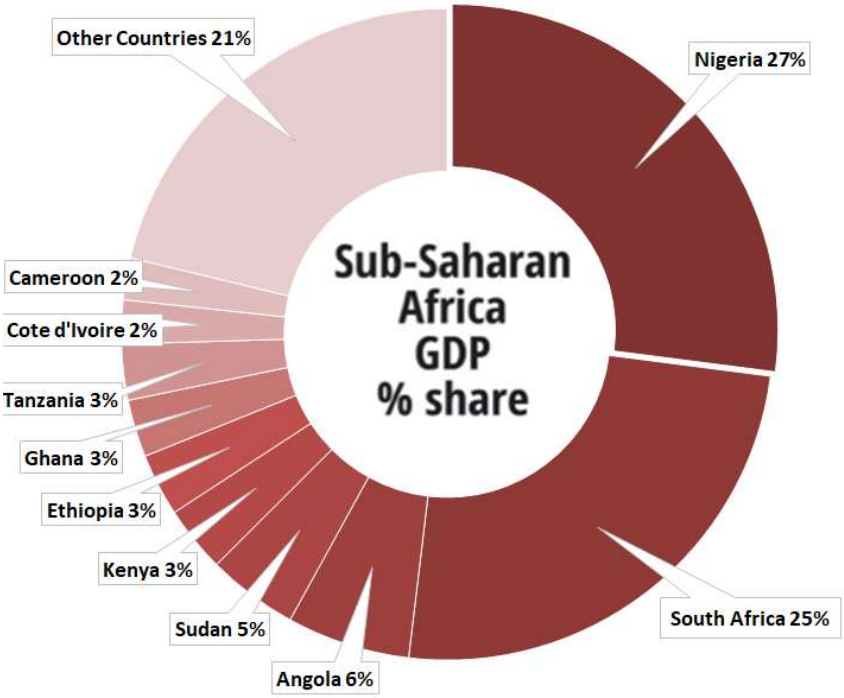
We conclude this paper with three simple points. The first is that over the last few decades, African countries have shown that the subcontinent is capable of considerable progress. The 48 countries of Sub-Saharan Africa have shown that when external conditions are right, they can grow their economies, reduce poverty rates, and improve human development outcomes. Living standards have gone up almost everywhere, but some countries have been outstanding. Countries like Ethiopia and Rwanda have made remarkable progress despite serious setbacks such as civil conflict.

Our second point is that while Africa has been moving ahead, it is being left behind, especially by more than half of humanity which lives in Asia. As a region, Africa has clearly not done as well as East Asia. Now South Asia has overtaken Africa in many aspects of development. In 2016, in terms of per capita income, South Asia overtook Africa. We have to rethink how development happens, both in Africa and in other parts of the world, and assess why Africa has not done quite as well as the other parts of the world.

Our third point is that when we examine the experience of other regions, it is hard to escape the conclusion that Africa will not do well unless its largest economies do well. Africa's three biggest economies—Nigeria, South Africa and Angola—together are 58 percent of the region's economy.[18] Sadly, these three economies are not doing well.

[18] The top three economies have 58 percent of Africa's GDP, the next three 11 percent, the remaining 42 just 31 percent.

Figure 35: The top three middle income countries have almost 60 percent of Africa's GDP



Source: Authors' calculation based on data from the World Bank's World Development Indicators.

The problem: Africa is falling behind

The consequences of poor economic performance in Nigeria, South Africa and Angola during the last two decades have been adverse for the entire subcontinent. There are twice as many poor people in Africa today than there were three decades ago: in 1980, there were some 200 million Africans living in extreme poverty; today the number is above 400 million. These numbers have gone down everywhere else. Starting this year, for the first time, the country with the largest number of people living in extreme poverty will be in Africa (Nigeria), and not in Asia (India).

Smaller neighbors like Rwanda have shown some of the problems that they are facing can be overcome. But unless the big three do well, Africa will continue to fall behind. In this respect, Africa is not different from other parts of the world. Latin America does not do well when Brazil and Mexico are in trouble. East Asia is doing so well because China and Indonesia have upped their game. South Asia is doing well because India became one of the fastest growers in the world, and now Bangladesh has joined it.

Africa is ranked at the bottom of all regions in almost all health indicators, and people often think it's because a lot of the money is wasted. But Sub-Saharan Africa accounts for only 1.6 percent of global health expenditures. The problem is being addressed, but not quickly enough. Over the last two decades, per capita health expenditures have more than doubled. But again, Africa is being left behind. Annual growth of per capita health spending has averaged 4 percent since 1995, but in South and East Asia it was close to 8 percent.

Life expectancy in Sub-Saharan Africa is about 60 years today, a big improvement over what it was in 1960, when it was just 40 years. That is a 50 percent increase in the length of life. But look at what happened in South Asia during the same time. In 1960, life expectancy there was the same as Africa's. Now it is almost 70 years—ten years more than in Africa. Africa has moved forward, but other parts of the world have moved faster.

The story is the same with other indicators of health. Child mortality and maternal mortality rates have fallen a lot, but these rates are twice as high in Africa than in South Asia. Another problem is stunting among kids younger than five years, which has long term effects, like poor cognition and educational performance, low adult wages, lost productivity, increased risk of nutrition-related chronic diseases. One out of every three kids in Africa is stunted. This is a little better than in South Asia. But India and Bangladesh are paying a lot of attention to this problem; it is not clear that African countries are doing the same.

Another big problem is education. Africa has fallen behind in both access to schooling and quality of education. Students in Sub-Saharan Africa have the lowest educational attainment, on average, in the world taking into consideration schooling and quality of education. For instance, pupil-teacher ratios in primary education in Sub-Saharan Africa have become worse since 1970, while all other regions improved. Even more worrisome is that many education indicators in Nigeria, South Africa and Angola look more like those in low-income countries, not their middle-income peers.

Infrastructure, especially transport and energy, is also a problem. Again, though Africa countries have been improving their infrastructure after 1990, the region has been falling behind in the quality and quantity of infrastructure compared to other regions. Sub-Saharan Africa's transport infrastructure also has to do a lot of catching up to reach the performance level of other regions. Sub-Saharan Africa has the lowest road and railroad densities among developing regions over 1990-2014. Even more seriously, it is the only region where density of roads has been declining.

In 2016, almost 600 million people in Sub-Saharan Africa did not have access to electricity; that is more than half of the population of the subcontinent. Two out of three people in African cities have electricity now, and that is a good thing. But the electrification rate in rural areas was less than 25 percent in Sub-Saharan Africa. This makes all the difference, because two out of three Africans still live in rural areas, and rural populations are expected to grow.

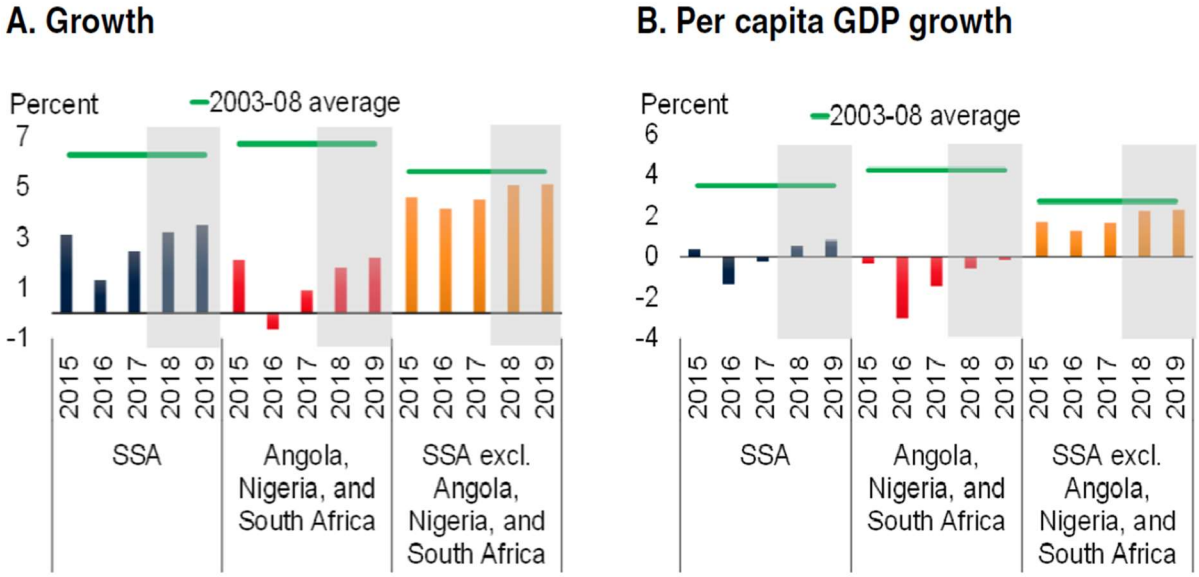
How Africa can do better: transforming Nigeria, South Africa and Angola

We now know that African economies are capable of the transformations that we have seen in Asia. Ethiopia, Rwanda, and Senegal have shown that countries on the continent can put together a string of successes. These smaller economies can show others how to engineer the transformations needed for development. But these smaller economies cannot pull the regional economy forward; that task has to be done by Nigeria, South Africa and Angola.

Earlier 2018, as they do every January, the IMF and the World Bank published their forecasts for the world economy. The IMF said that the global economy is set to grow at 4 percent over the next two years. Africa will grow at about 3.5 percent. This means that even as its economies are

growing, Africa is falling behind. Africa's population growth is twice that of the rest of the world, so the gap in per capita incomes is growing, not shrinking.

Figure 36: Lately, Nigeria, South Africa and Angola have not been doing well



Source: World Bank (2018): Global Economic Prospects.

The problem is that Africa's three largest economies—Angola, Nigeria and South Africa—have not been doing well lately. These three economies have barely grown during the last three years. During this time, average per capita incomes in Africa have fallen. The prognosis for the next three years is also not good. In Angola, Nigeria and South Africa, per capita income will continue to fall. And if these three economies—especially Nigeria and South Africa—do badly, the subcontinent cannot do well.

Big emerging economies like China, India, Brazil and Russia have been playing a growing role in the global economy for the last two decades. Large developing economies can have sizeable cross-border spillovers through trade and finance linkages. Latin America did well when Brazil and Mexico were doing well, not when Chile and Colombia were the only two economies doing well. East Asia really started to do well not when Taiwan and South Korea did well, but when China and Indonesia began doing well. The same is true of South Asia, India and Bangladesh. With a combined GDP that is more than half of the subcontinent's, Nigeria and South Africa play a crucial role in the development of the Sub-Saharan Africa.

The problem is that both South Africa and Nigeria seem to be stuck in different stages of middle income. South Africa and Nigeria underperform their peers in terms of almost all development indicators. In many respects, the two countries do not even display middle-income development patterns. They do worse than many low income countries in some development indicators, especially poverty, education and health. While the next three largest economies—Sudan, Kenya, and Tanzania—are doing better, their size will not reach the size of the Nigerian or South African economies any time this century. Together, the size of these three economies is less than half the size of the Nigerian economy.

But Nigeria, South Africa, and Angola have not done nearly as well as China, Indonesia, India or Bangladesh. So even when the big middle income economies have done well, smaller economies in Africa do not feel the effects quite as much as in other regions.

What is needed: Big transformations in education, electricity, and taxes

Sub-Saharan Africa has three big development problems. They are: low levels and low quality of education, low levels of electrification, and low levels of domestic revenue mobilization. In countries such as Nigeria, they are "bleeding wounds" which have to be treated quickly.

The precondition of Sub-Saharan Africa's sustained and inclusive development is education reform ensuring significant improvements in both current quality of education and school attainment. Eliminating the major development problems will be a long journey. But the first step must be to ensure that every African child gets a decent education.

Sub-Saharan Africa is rich in energy resources, but it is starved of electricity. For example, Nigeria, a lower middle-income economy with immense energy resources, has close to 73 million people without access to electricity. South Africa, an upper middle-income economy, has some 8 million people without access to electricity. The region's power sector is underdeveloped in all aspects—energy access, installed capacity, and overall consumption.

Energy is a vital ingredient for economic activities, but it also contributes to education, public health, and basic human needs such as food and shelter. Countries whose access to electricity ratios are greater than 80 percent are either high income or upper-middle income countries. On the other hand, nearly all countries with access ratios below 80 percent are low-income countries.

The third priority is domestic financial resources. In the last decade, Africa got an average of about $40 billion in foreign aid each year. But aid hasn't been a catalyst for change in the subcontinent. There are many reasons behind this, including corruption, bad institutions, aid fragmentation, and lack of ownership. However, one of the main reasons is foreign aid's negative externality on domestic revenue mobilization. Domestic revenue mobilization creates fiscal space for sustainable budget expenditures, improves ownership and reduces dependency on foreign aid. In addition, higher tax revenues are associated with more social spending.

Sub-Saharan Africa underperforms every other region in terms of domestic revenue mobilization. The largest economy of the subcontinent, Nigeria, is at the bottom of the list, with a tax to GDP ratio or less than 2 percent in 2013. Since Nigeria is an oil-rich country, the low level of tax to GDP ratio may not be perceived as a problem when oil prices are high. But oil prices have been low a lot more often than they are high. An effective tax system has to be seen as the *sine qua non* for sustainable development.

Rethinking Africa's Development

The emphasis in this paper on education, energy and taxes is not novel—they have been seen as priorities for Africa by most observers. But our emphasis on the 3-5 large middle income economies as the lynchpin of African development is more novel, and considerably more controversial.

Does such a strategy mean that the smaller economies should be seen as a lower priority for international organizations? We don't advocate that. It is encouraging to see that three poorer countries—Ethiopia, Rwanda, and Senegal—are showing that African transformations can be as rapid as those in Asia. These countries deserve international recognition and support—not because they will pull the region forward through expansion but because they will inspire through example.

Our point simply is that future development of the region's largest economies will decide the future of the subcontinent. Sub Saharan Africa today has a GDP of almost $1.5 trillion. Of this, roughly about $1 trillion is in Nigeria, South Africa and Angola. It stands to reason that Africa will not do well unless these economies—especially Nigeria and South Africa—do well. When they start growing steadily, they will pull in investors from all over the world, and pull the entire region forward. When the larger middle-income economies of the subcontinent—Nigeria, South Africa, Angola, Sudan, and Kenya—pick up the pace, they will engineer the transformations of their economies that are necessary to transform the continent.

So improved governance in these countries will improve the lives of all Africans. It is difficult for multilateral institutions like the African Development Bank, the World Bank, and the IMF to explicitly base their regional strategies on just three countries out of 48. But private development organizations do not face such constraints. We think the Gates Foundation got it right when it picked Nigeria, South Africa and Ethiopia as focus countries in Sub-Saharan Africa, just as it has picked India as a focus country in South Asia and China and Indonesia as focus countries in East Asia.

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