



**OVERCOMING THE
MIDDLE-INCOME TRAP
AND ACHIEVING
SUSTAINABLE
DEVELOPMENT**

October 2024

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FOREWORD

The Economic Commission for Africa (ECA), one of the five regional commissions of the Economic and Social Council, plays a crucial role in supporting Africa's economic and social development, regional integration and international cooperation through think tank activities and technical assistance to member States. The regional work undertaken by ECA is supported by five subregional offices and a training centre. By focusing on areas such as macroeconomics, governance, trade, statistics, employment, the private sector, finance, social development and climate mitigation and adaptation, ECA provides research on issues of strategic importance for Africa that can guide evidence-based policymaking, capacity-building and advisory services.

Africa's middle-income countries are a diverse group facing unique challenges in their quest to achieve the Sustainable Development Goals and improve the living standards of their populations. Since the early 2000s, these middle-income countries have made significant contributions to the continent's economic and social progress. The growing influence of the middle-income countries beyond income and economic growth is reflected by the fact that they are home to most of the continent's population and have been contributing considerably to the growth of Africa's middle class and improving social inclusion. While they have made notable development achievements, they also face significant challenges in areas such as vulnerability, inequality and rising needs for financing for development. The middle-income countries as a group are characterized by not only their potential, but also limited capacities for structural transformation, productivity gains, technology adoption and innovation, as well their inability to gain access to adequate and affordable finance. These factors are among the key constraints preventing Africa's middle-income countries from escaping the so-called middle-income trap. While these factors will have a direct bearing on a country's prospects of escaping the middle-income trap, there is one salient exogenous factor that all countries will have to deal with: climate change.

Findings contained in the present report indicate that global efforts to combat climate change could also provide the catalyst for the structural adjustment needed to overcome the middle-income trap. Escaping the middle-income trap requires going beyond industrial upgrading and productivity gains and necessitates the development of a strategy to leap-frog into new industries. Green technologies and advances in agriculture could potentially be those new industries. Funding Africa's infrastructure needs while mitigating its environmental impact and improving economic resilience against exogenous shocks will require investment well beyond the capabilities of Governments. Public sector financing and support will need to be leveraged to draw in the private sector. This can be done by providing a secure and comprehensive regulatory framework while simultaneously reducing the risks involved in infrastructure and climate-related investment. Escaping the middle-income trap will also require a holistic policy approach to ensure not only that economies expand at an adequate and consistent pace, but also that the necessary structural shift takes place. Capitalizing on global efforts to mitigate climate change has the potential to catapult African economies on stronger development trajectories. Investment in clean energy infrastructure and the resulting expansion in access to electricity will be critical to support Africa's industrialization efforts and, consequently, play a central role in pushing African countries towards high-income status.

ACKNOWLEDGEMENTS

The present study, titled *Overcoming the Middle-income Trap and Achieving Sustainable Development*, is the fourth report resulting from the collaboration between the Subregional Office for North Africa of the Economic Commission for Africa (ECA) and Oxford Economics Africa, headquartered in South Africa and part of the Oxford Economics Group.

The Head of Macroeconomic Research, Oxford Economics Africa, Jacques Nel, in cooperation with the Economist in the Employment and Skills for Sustainable Development Section of the Subregional Office for North Africa, Amal Nagah Elbeshbishi, carried out the research for the study.

The report was prepared under the guidance of the former Director of the Economic Commission for Africa, Subregional Office for North Africa, Zuzana Schwidrowski. Much appreciation is expressed for insightful comments provided by the Director of the Subregional Office for North Africa, Adam Elhiraika, which were instrumental in the study's completion.

Lastly, many thanks go to all colleagues of the Subregional Office for North Africa for their invaluable contributions at various stages of the study's preparation.

EXECUTIVE SUMMARY

The middle-income trap is an economic development situation in which a country's income and economic output growth stagnate once the country is classified as a middle-income nation. Most African countries are considered middle-income (ranging from lower-middle to upper-middle income), with the most recent estimates showing that 32 African States have a per capita gross national income of between \$1,130 and \$13,850.

While idiosyncratic domestic factors, including history, institutions and the policy and regulatory environment, will have a direct bearing on a country's prospects of escaping the middle-income trap, there is one salient exogenous factor that all countries will have to deal with: climate change. However, global efforts to combat climate change could also provide the catalyst for the structural adjustment needed to overcome the middle-income trap. Escaping the middle-income trap requires going beyond industrial upgrading and productivity gains and necessitates the development of a strategy to leap-frog into new industries. Green technologies and advances in agriculture could be those new industries.

Funding Africa's infrastructure needs while mitigating its environmental impact and improving economic resilience against exogenous shocks will require investment well beyond the capabilities of Governments. Public sector financing and support will need to be leveraged to draw in the private sector. This can be done by providing a secure and comprehensive regulatory framework while simultaneously reducing the risks involved in infrastructure and climate-related investment.

Escaping the middle-income trap will require a holistic policy approach to ensure not only that economies expand at an adequate and consistent pace, but also that the necessary structural shift takes place. Capitalizing on global efforts to mitigate climate change has the potential to catapult African economies on stronger development trajectories. Investment in clean energy infrastructure and the resulting expansion in access to electricity will be critical to support Africa's industrialization efforts and, consequently, play a central role in pushing African countries towards high-income status.

Technological advancements, financial innovations and global efforts towards climate change mitigation have changed the context in which middle-income countries pursue high-income status. Government institutions and public policy will have to play a central role in navigating and indeed capitalizing on this new context. The establishment of governing instruments devoted to a modern industrial strategy and making the transition to green, digital, circular and blue economies will enable African countries to implement high-level institutional and coordination mechanisms that will enhance their intersectoral developmental agendas

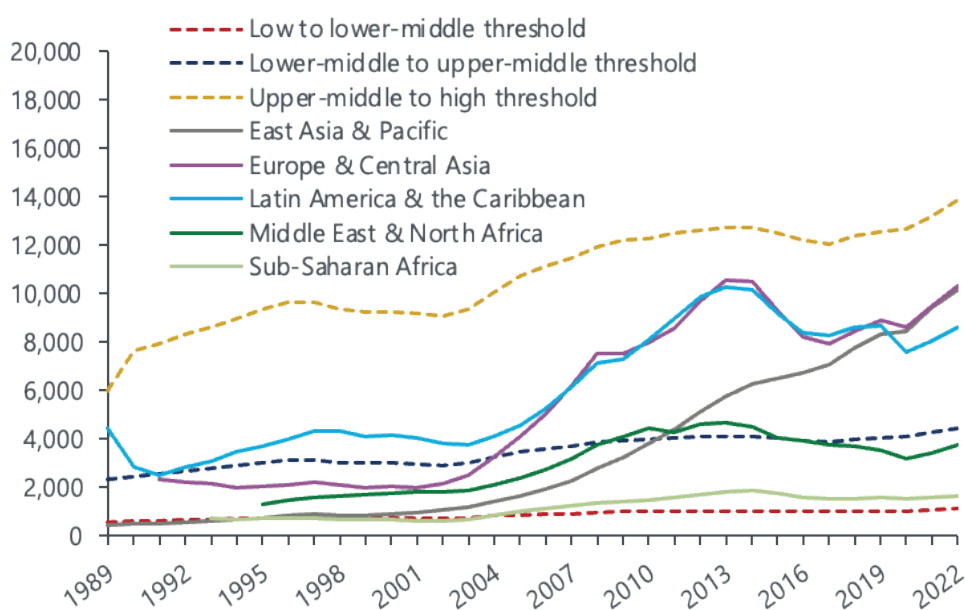
Capitalizing on global efforts to mitigate climate change has the potential to catapult African economies on stronger development trajectories

1. INTRODUCTION AND CONTEXT

In 1989, the World Bank started dividing and classifying countries into four income categories: low, lower-middle, upper-middle and high-income. In 1989, low-income countries had a per capita gross national income below \$580, while high-income countries had a per capita gross national income of at least \$6,000. The World Bank adjusts these income thresholds annually, and they increased by an average of 2.3 per cent annually between 1989 and 2022. In 2022, middle-income countries had a per capita gross national income of between \$1,135 and \$13,845, with a significant portion of African countries falling in this regard.

In 1989, the World Bank included 43 African countries in its income classification analysis. A total of 23 of those countries were classified as low-income, 16 as lower-middle-income, and 4 as upper-middle-income. In 2022, the list expanded to include 52 African countries, with 20 classified as low-income, 24 as lower-middle income and 8 as upper-middle-income. Currently, most African countries are classified as middle-income (ranging from lower-middle to upper-middle-income), with 32 African States having a per capita gross national income between \$1,135 and \$13,845 in 2022.

Figure 1.1: Per capita gross national income and income thresholds (Atlas method) (United States dollars)



Source: World Bank.

While the increasing number of middle-income African countries is commendable, at least 20 countries on the continent still have a low-income classification. Furthermore, according to the World Bank, no African countries are listed as high-income. In 2019, Mauritius and Seychelles were the first African countries to achieve high-income status; however, owing to the disruptive impact of the coronavirus disease (COVID-19) pandemic, especially on those island nations' tourism sectors, both countries lost that distinction and were reclassified as upper-middle-income.

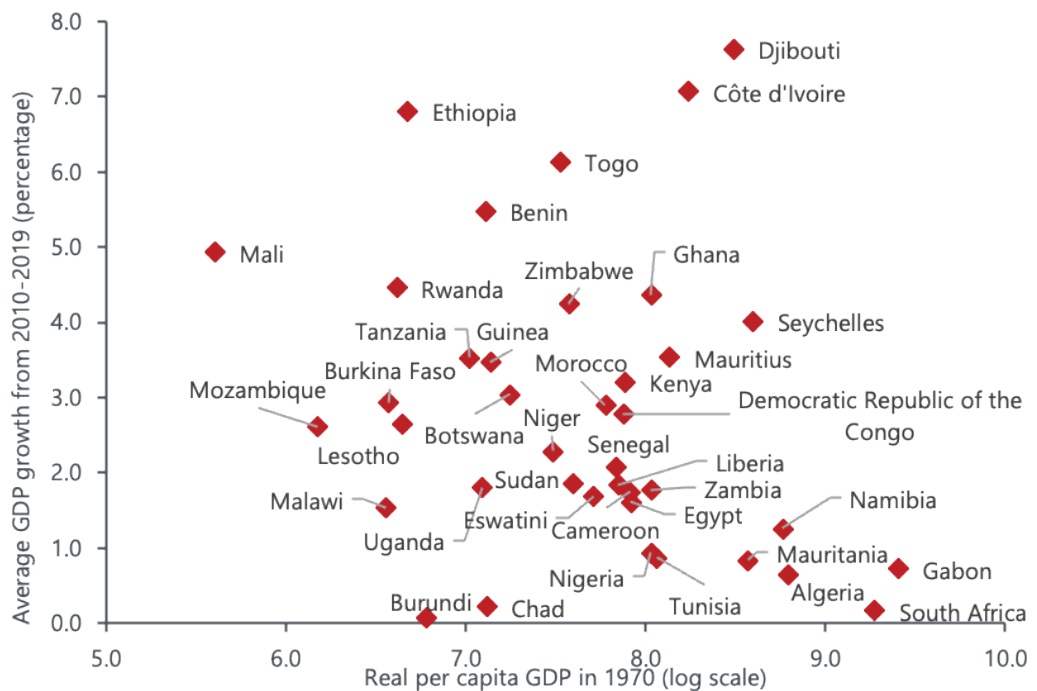
Africa has the lowest per capita income in the World

While Mauritius and Seychelles briefly escaped the middle-income classification, the rest of Africa remains firmly in the low-income or middle-income categories and is far from reaching the World Bank’s high-income threshold. This phenomenon, in which countries are stuck in the middle-income category and unable to move to the high-income category, is commonly known as the middle-income trap.

The middle-income trap is an economic development situation in which a country’s income and economic output growth stagnate once the country reaches the middle-income group. The rapid advancements, competitive edges and economic growth that help to propel a country from a low-income to a middle-income economy taper off, and it cannot sustain the economic growth necessary to become a high-income country. In these countries, the international competitiveness of their exports, such as manufactured goods, diminishes as they develop owing to higher domestic wages. Indeed, the local industries are not as advanced as those in developed countries, reducing the available growth opportunities.

Low-income countries tend to have higher economic growth rates, which should propel them to middle-income status over time

Figure 1.2: Average per capita economic growth, 2010–2019, compared with initial per capita GDP in 1970



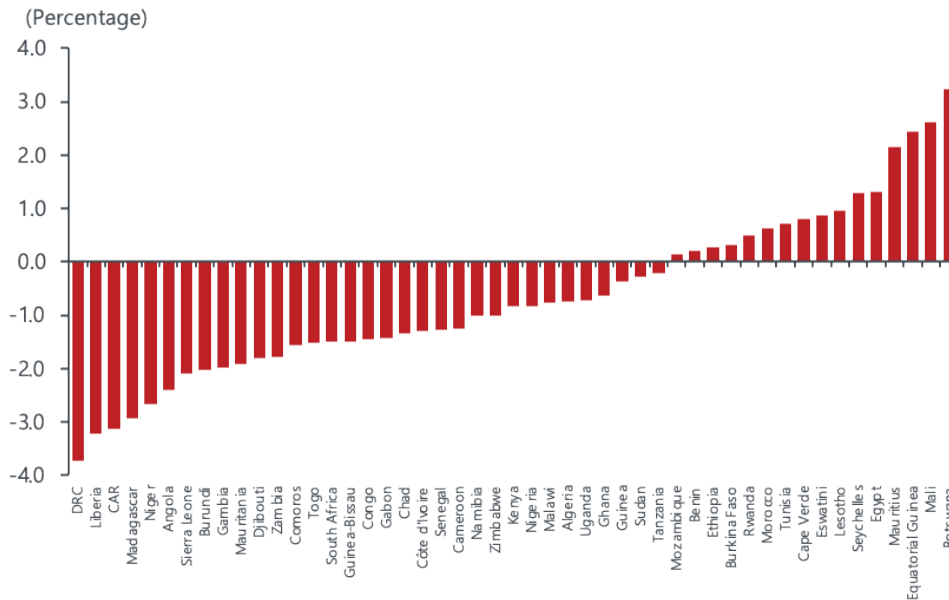
Source: Oxford Economics Africa.

At the heart of economic growth theory is the concept of convergence. According to the economic convergence hypothesis, income levels expand faster in poorer countries than in wealthier countries. Therefore, in the long run, this inverse relationship between growth and development levels should allow low-income countries to catch up to high-income countries.

The first part of the convergence hypothesis holds true in Africa. There is a negative correlation between income levels and economic growth, with low-income African countries, on average, recording higher economic growth rates. African countries, notwithstanding their growing faster, struggle to sustain the high levels of growth needed

to catch up to their high-income peers around the world. Low investment, inadequate industrial diversification, slowing growth, population dynamics and poor labour market conditions serve as crucial hindrances that prevent these countries from catching up and escaping the middle-income trap.

Figure 1.3: Average per capita GDP growth rate, compared with the United States of America, 1970–2019



Real per capita GDP growth in most African countries is well below that of the United States of America, preventing the continent from catching up

Source: Oxford Economics Africa.

Abbreviations: CAR, Central African Republic; DRC, Democratic Republic of the Congo.

For African nations to escape the middle-income trap, economic growth and income levels need to rise much faster or, at a minimum, exceed that of high-income countries. However, this has not been the case. The United States of America recorded an average per capita GDP growth rate of 1.8 per cent annually from 1970 to 2019, with only 16 African countries exceeding this. Those countries ranged from Botswana (5.1 per cent annually) to Mozambique (2.0 per cent annually). Most African countries' income growth fell behind the United States during that period. The Democratic Republic of the Congo was the worst performing country on that metric, with real per capita GDP contracting by an average of 1.9 per cent annually from 1970 to 2019. Disappointing per capita GDP growth is due primarily to high population growth rates, which outpace economic growth. In the case of the Democratic Republic of the Congo, from 1970 to 2019 economic growth averaged 1.2 per cent annually, while the population expanded by an average of 3.0 per cent annually, causing income levels to decline during that period.

Botswana recorded the most significant relative income improvement from 1970 to 2019

Figure 1.4: African countries' per capita GDP, compared with the United States (log scale)



Source: World Bank.

When comparing relative income levels or per capita GDP between the individual African countries and the United States, very little changed from 1970 to 2019. Most countries, such as Egypt, Gabon, Morocco and South Africa, were classified as middle-income in 1970 and 2019, with their per capita income relative to the United States failing to change notably. These countries fall into the middle-income trap. Similarly, countries such as Ethiopia, Mozambique and Rwanda were classified as low-income in both 1970 and 2019. The most troubling group includes the Democratic Republic of the Congo, Madagascar and Zambia. In this group, these countries' relative real per capita GDP, compared with the United States, was higher in 1970 than in 2019.

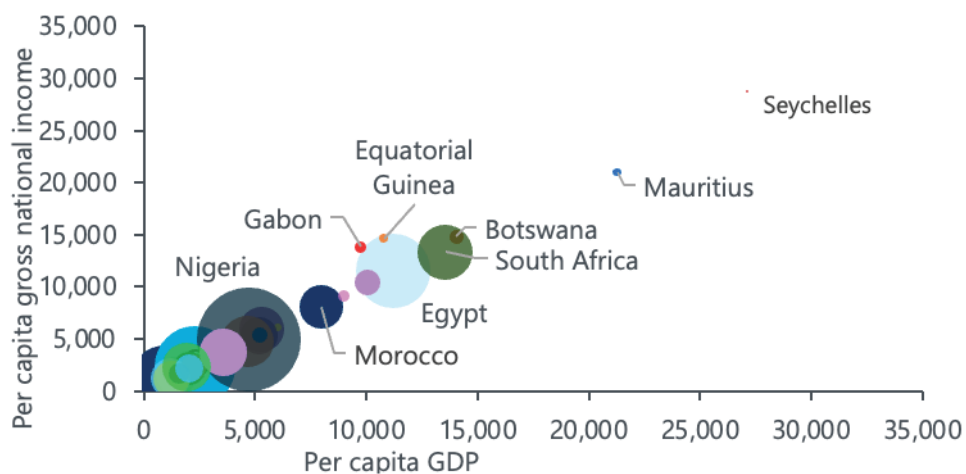
While most African countries failed to make any meaningful improvement from 1970 to 2019, one country bucked the trend. High income and per capita GDP growth helped to propel Botswana from being a low-income nation compared with the United States to a middle-income one. Sadly, Botswana is the exception to the rule, and Africa's economies need to grow faster if these countries are to attain high-income status.

2. MIDDLE-INCOME STATUS: AN ALTERNATIVE VIEW

The dynamics associated with measuring human and physical capital, the accumulation and implementation of innovation and technology, while incorporating urbanization and industrialization, make for a complex process (Triki et al., 2022). To obtain a better understanding of economic welfare in Africa, one must look deeper.

Insufficient fiscal space may well be a constraint on growth in many African countries. However, there are many other “structural” factors to consider. For example, countries with greater economic freedom and favourable operating environments are almost certainly more adaptable to exogenous shocks, both positive and negative. Flexible labour markets, skilled and productive labour forces and accommodating business environments are fundamental drivers of economic welfare. So, too, are affordable access to food and electricity. Countries with well-developed financial markets also have an advantage in providing financing to new businesses, while investment tends to be skewed towards countries with stable macroeconomic and political environments.

Figure 2.1: Per capita gross national income vs. per capita GDP for African economies (United States dollars)



Source: Data compiled from multiple sources by World Bank – processed by Our World in Data.

Note: Bubbles represent relative population size.

2.1 Cost of living

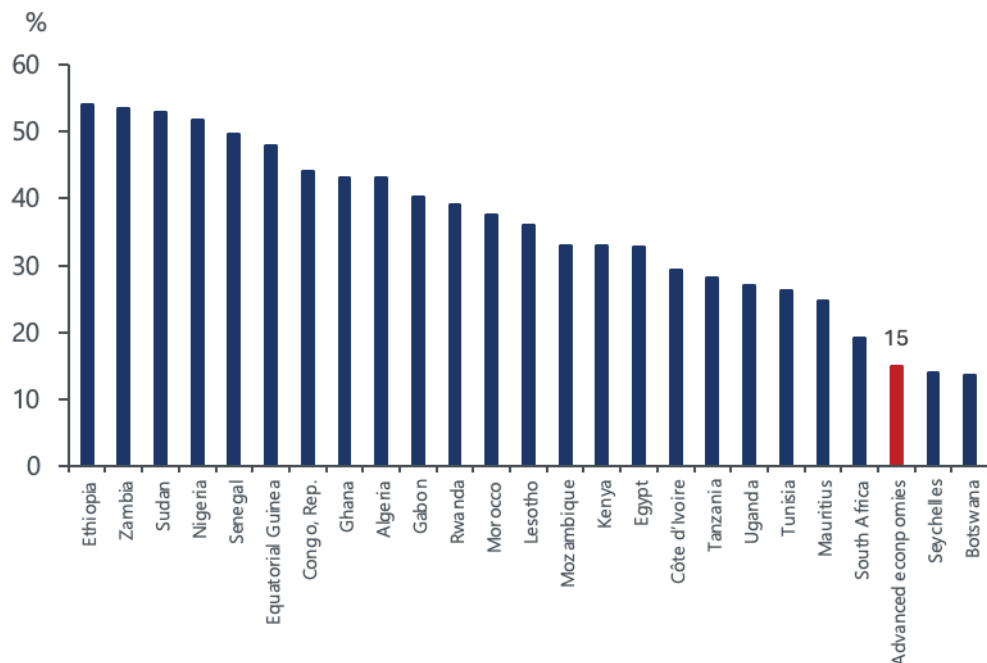
The recent global cost-of-living crisis has once again demonstrated that African countries are disproportionately affected by global shocks. Disruptions to the free trade of goods, including food, fuel and agricultural inputs, have resulted in a rapid rise in global inflation. This has also led to expeditious monetary policy tightening: not only are households battling high price inflation, they must also contend with tighter monetary policy. Post-COVID-19 pandemic monetary policy rate actions by advanced economies compelled

A lack of innovation tends to stifle economic development

African central bankers to react decisively by raising interest rates more rapidly. These recent developments highlight the need to consider the resilience of purchasing power and household spending patterns when assessing a country's broader income status.

On average, the food price sub-indices across Africa account for approximately 36 per cent of the relevant consumer price index baskets, compared with an average of 15 per cent for advanced economies. African economies with relatively high levels of per capita GDP have lower weightings for food price inflation. This implies increased spending inelasticity. Botswana, Mauritius, Seychelles and South Africa are clustered around the advanced economy average, while less developed economies find themselves at the opposite end of the spectrum. These consumer price index weightings are indicative of spending patterns: if a large proportion of income is spent on foodstuffs, it is indicative of limited purchasing power for discretionary goods. This, in turn, provides another perspective on national income levels.

Figure 2.2: Food weight in the consumer basket (Percentage)



Source: Oxford Economics Africa.

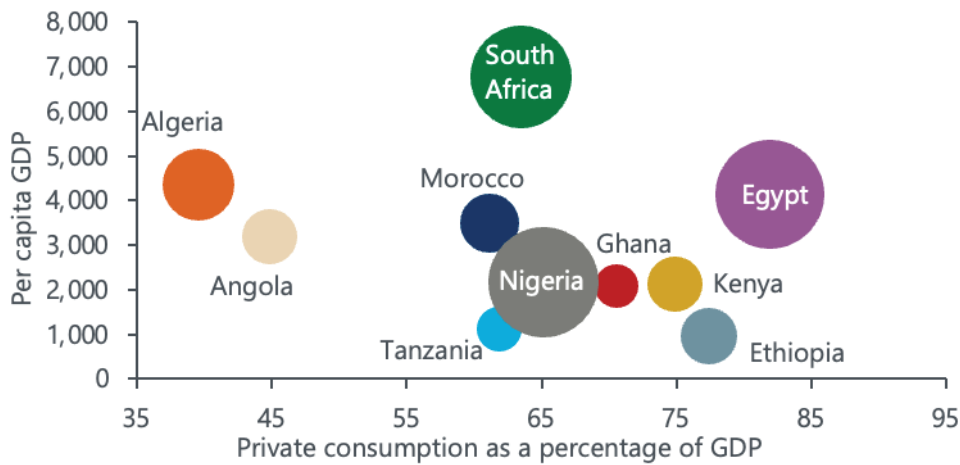
2.2 Purchasing power

The war in Ukraine, together with spillover effects from the COVID-19 pandemic, have had a massive impact on African economies. The impact has also been uneven. The picture for West Africa is mixed, given that the economic performance of the region tends to be tied to international oil prices. Southern Africa's long-term historical weighted average growth rate is the lowest in Africa, undermining household wealth. East African economies have consistently produced the fastest growth rates on the continent for more than a decade.

Consumer price index weightings for food prices are indicative of broader wealth levels

The fundamentals that have underpinned this growth include favourable demographics and economic diversification, together with a steady expansion of basic services. In North Africa, Egypt boasts one of the continent's largest consumer markets. Africa's most industrialized economy, South Africa, stands out for both its economic size and higher levels of per capita GDP relative to other African peers. This has implications for the level of spending and spending patterns. However, Egypt's private consumption as a proportion of GDP, at 85 per cent, is the highest on the continent, followed by Kenya and Ethiopia. Headline GDP can provide a distorted picture of wealth owing to the dominance of extractive sectors, while consumer spending provides a more accurate reflection of household incomes.

Figure 2.3: Consumer spending in Africa's largest economies (United States dollars)



Source: Oxford Economics Africa.

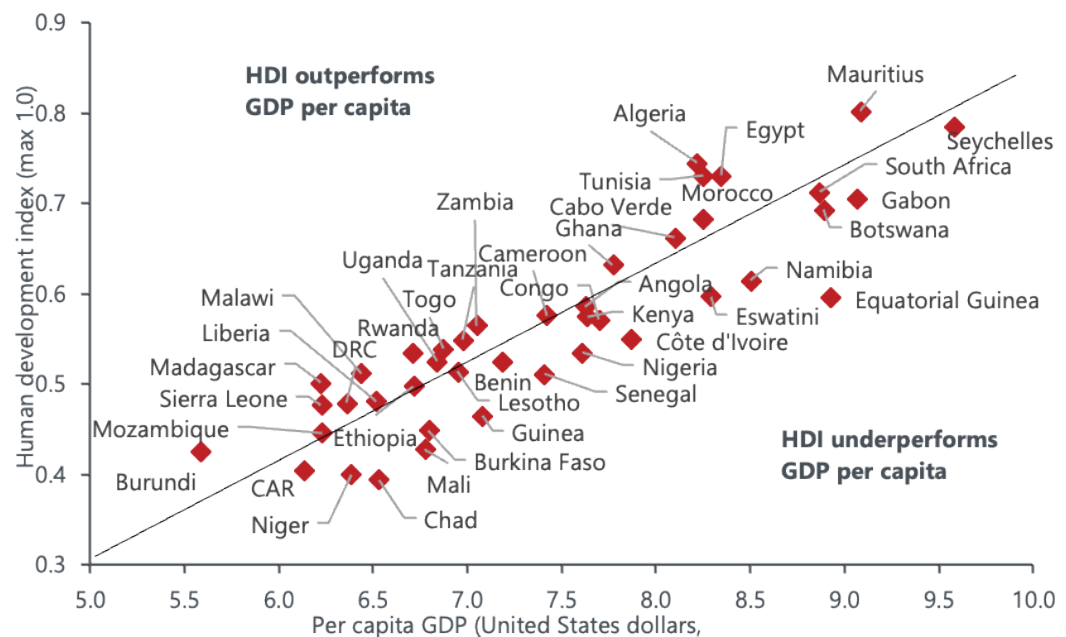
Note: bubbles represent relative GDP sizes (billions of United States dollars, 2022).

The human development index ranks 191 countries on the basis of their social and economic achievements. It consists of three pillars: health (life expectancy); education (years of schooling); and standard of living or income (per capita gross national income). The three human development index pillars are strongly correlated because higher education levels improve living standards and income, raising life expectancies. Moreover, richer countries spend more on education and healthcare, which increases life expectancies.

Nigeria boasts the largest economy, while South Africa is the richest and Egypt's proportional consumption is the highest

There is a strong positive correlation between the human development index and per capita GDP

Figure 2.4: Human development index, compared with nominal per capita GDP in 2021



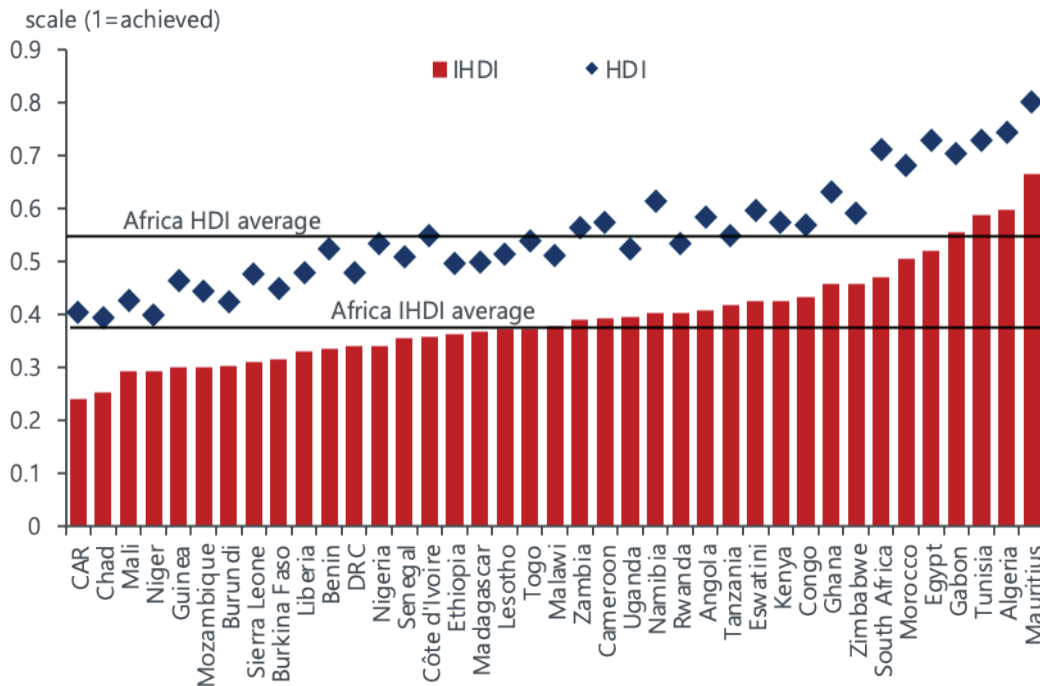
Sources: United Nations Development Programme and Oxford Economics Africa.

Abbreviations: CAR, Central African Republic; DRC, Democratic Republic of the Congo; HDI, human development index.

While there is a strong correlation between a country's human development index score and its per capita GDP, there are countries where the human development index and income levels diverge from expectations. The most extreme case is that of Equatorial Guinea: its relative human development index score is well below the expectations created by its income level. In 2021, Equatorial Guinea's per capita GDP of \$7,510 was slightly higher than that of Botswana (\$7,250); however, its human development index score of 0.596 is notably lower than Botswana's score of 0.693. This divergence is ascribed to Equatorial Guinea's high resource wealth and small population. The hydrocarbon sector disproportionately drives growth in Equatorial Guinea; however, this wealth is not flowing to the rest of the population and is failing to improve living standards in the country.

Intranational inequality and wealth disparities create economic inefficiencies, creating a gap between a country's potential and actual levels of human development. This necessitates the incorporation of a country's inequality-adjusted human development index to complete the analysis. This index captures the distortionary impact of inequality, driving a wedge between the actual level of human development (inequality-adjusted human development index) and a country's current potential (human development index). Egypt, Namibia and South Africa have the most significant disparities between their human development index and inequality-adjusted human development index scores, while the two scores of Burundi, the Niger and Uganda are the closest. South Africa, for example, has some of the highest levels of development in Africa, but is also considered one of the most unequal countries on the planet. This creates a distortionary effect on different indices of human development, with the country's human development index score being the fifth highest in Africa and its inequality-adjusted human development index score ranked seventh.

Figure 2.5: Inequality-adjusted human development index vs human development index, 2021



High levels of economic inequality drive a wedge between the human development index and the inequality-adjusted human development index in African countries

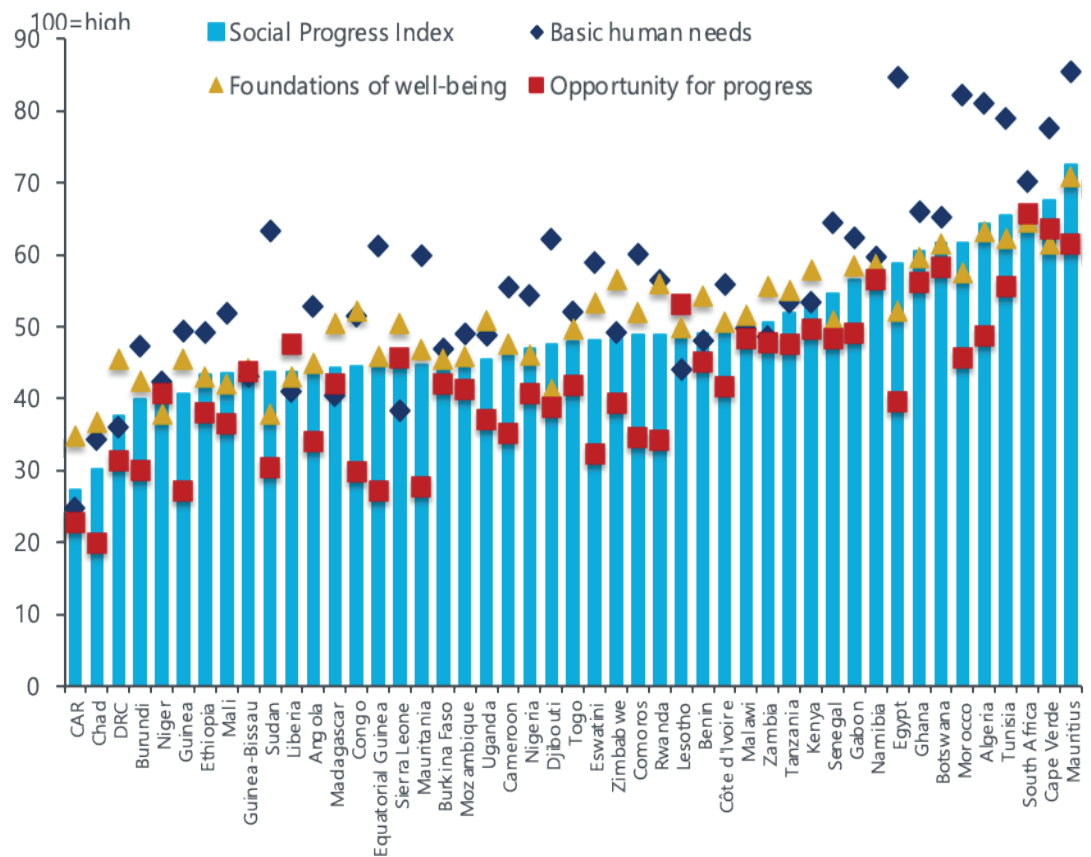
Source: United Nations Development Programme.

Abbreviations: CAR, Central African Republic; DRC, Democratic Republic of the Congo; HDI, human development index; IHDI inequality-adjusted human development index.

As with the human development index, the Social Progress Index measures human development but looks at the extent to which countries provide for their citizens' social and environmental needs. The Social Progress Index rests on three pillars: (a) basic human needs; (b) foundations of well-being; and (c) opportunity for progress. The basic human needs pillar concerns countries' access to food, water and sanitation, shelter and personal safety, and is the best performing Social Progress Index pillar in Africa. The foundations of the well-being pillar includes access to knowledge, information and communications technology (ICT) and environmental quality. The opportunity for progress pillar considers personal rights, freedom of choice, societal inclusiveness and access to advanced education and is the worst-performing Social Progress Index pillar in Africa.

The opportunity for progress pillar is the worst-performing Social Progress Index indicator in most African countries

Figure 2.6: Social Progress Index and its three pillars, 2023



Source: Social Progress Imperative.

Abbreviations: CAR, Central African Republic; DRC, Democratic Republic of the Congo; HDI, human development index; IHDl inequality-adjusted human development index.

Although basic human needs is Africa’s best-performing Social Progress Index pillar, countries such as Lesotho, Liberia and South Africa have it as their worst-performing indicator owing to underperforming primary medical care, insufficient shelter or personal safety concerns.

Mauritius has the highest Social Progress Index score and took the top spot for the basic human needs and foundations of well-being pillars. However, regarding the opportunity for progress pillar, both South Africa (first) and Cabo Verde (second) outperform Mauritius (third). There are four North African countries in the top 10, namely, Tunisia (fourth), Algeria (fifth), Morocco (sixth) and Egypt (ninth). The three worst-performing countries are the Central African Republic, Chad and the Democratic Republic of the Congo, and they diverge notably from the rest of the continent on most metrics.

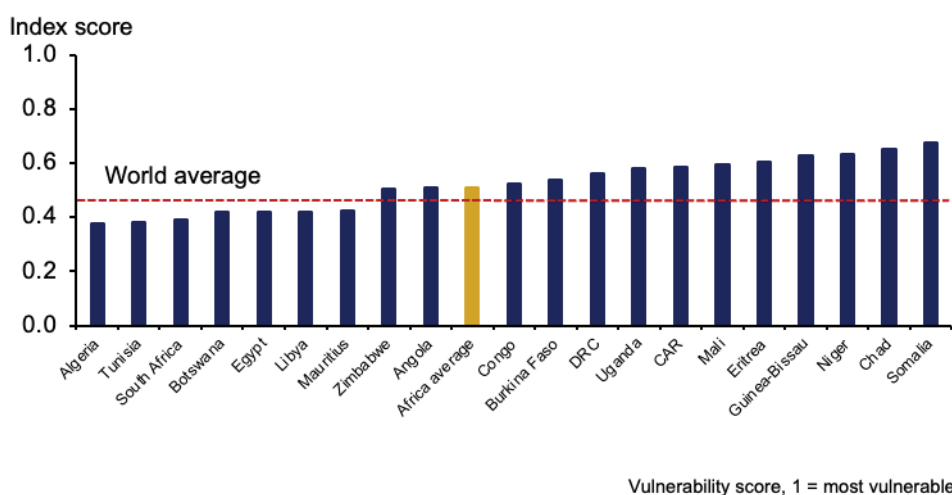
3. CLIMATE CHANGE AND THE MIDDLE-INCOME TRAP

In the present section, both direct and indirect channels through which climate change may have an impact on African countries and subsequently, their ability to escape the middle-income trap, will be identified and assessed.

3.1 Direct and indirect links

Prior to the onset of the COVID-19 pandemic and subsequent lockdown measures to contain its spread, economic growth in Africa had already showed signs of a slowdown. The induced economic downturn exposed severe weaknesses in several African economies and painted a picture of the potential impacts that might stem from climate-related shocks. This underscored the need among many African States to improve their economic resilience in times of crisis, while simultaneously underscoring their ill-preparedness for the inevitable climatic shocks that lay ahead. Climate change will affect African economies through both demand- and supply-side shocks, thus broadening the scope and magnitude of economic costs. This, in turn, necessitates comprehensive and far-reaching mitigation and adaptation measures, which ultimately complicate the continent’s response to climate change-related impacts. However, climate change shocks are somewhat distinct from economic events such as recessions in the sense that their effects are more likely to be persistent and often irreparable (Asafu-Adjaye, Ndung’u and Shimeles, 2022).

Figure 3.1: Vulnerability index scores, 2021



Climate change will result in significant economic losses in Africa if not mitigated

Source: Notre Dame Global Adaptation Initiative (2023).

Abbreviations: CAR, Central African Republic; DRC, Democratic Republic of the Congo.

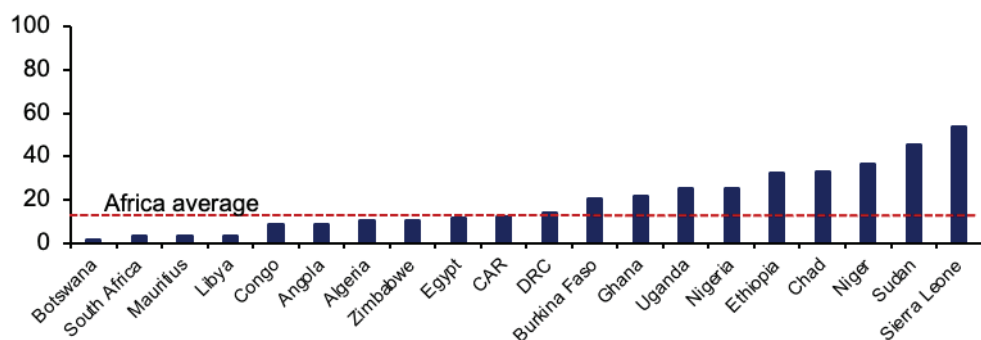
According to the Intergovernmental Panel on Climate Change, temperature increases across Africa are very likely across all emission scenarios, with estimates indicating warming higher than 3°C across Africa by the end of the century, except for Central Africa, where warming of 2.5°C is anticipated (Intergovernmental Panel on Climate Change, 2021).

Perhaps central to Africa's conundrum to escape the middle-income trap, within the climate change context, is the expected impact on agriculture. That said, climate change may hold adverse consequences for labour supply, capital accumulation and productivity – all key ingredients to elevate a country's income status. In 2022, the agriculture, forestry and fishing sector's value added as a share of Africa's GDP south of the Sahara stood at 17.3 per cent (World Bank, 2024). Although estimates vary, roughly 70 per cent of Africans depend on agriculture for their livelihoods, while the vast majority of the continent's population relies on subsistence farming (Biteye, 2016).

Africa's agriculture sector is particularly vulnerable because it is mainly rain-fed. Higher temperatures and a potential decline in rainfall or increased variability thereof will ultimately lead to lower agricultural output on both the commercial and subsistence sides. Apart from the lower agricultural production directly affecting the livelihoods of subsistence farmers, the impacts thereof will likely be channelled through to commodity prices, resulting in inflationary pressures, given the imbalances between demand and supply. This adds an additional layer of economic losses, given that high inflation erodes real household income and necessitates tighter monetary policy conditions, further dampening consumption demand and overall GDP performance. Furthermore, rising temperatures and the ensuing slowdown in agricultural production may also impede exports, undermining export earnings and government revenue.

Rising temperatures may exacerbate food poverty across Africa

Figure 3.2: Gross value-added agriculture as a share of total gross value added, 2022 (Percentage)



Note: Data for Chad, Comoros, Eritrea, Guinea-Bissau, Liberia, Mali, Mauritania and Sao Tome and Principe were not available

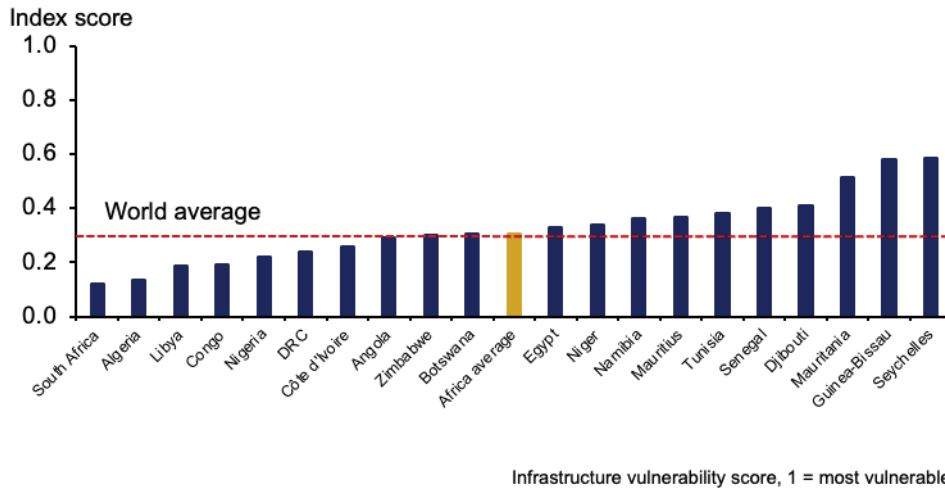
Source: Oxford Economics Africa.

Abbreviations: CAR, Central African Republic; DRC, Democratic Republic of the Congo.

Climate change is also expected to increase energy demand, with global climate-exposed energy demand (before adaptation) forecast to increase between 11 and 27 per cent by 2050 under a moderate warming scenario, while an increase between 25 and 58 per cent is expected under a more severe heating scenario (van Ruijven, De Cian and Sue Wing, 2019). However, energy demand in Africa already exceeds supply by a significant margin, with some 43 per cent of the continent's population not having access to electricity (International Energy Agency, 2023). This will likely remain the status quo over the long term, given the immense backlog in electricity supply, prevailing poor socioeconomic conditions and rapid population growth, which is ultimately compounded by climate change. Climate change

may thus stymie Africa’s ability to escape the middle-income trap, given the importance of energy access for human capital development, productivity and, ultimately, economic development (Stern, Burke and Bruns, 2019).

Figure 3.3: Infrastructure vulnerability scores, 2021



Far-reaching mitigation and adaptation measures are necessary

Source: Dame Global Adaptation Initiative (2023).

Abbreviation: DRC, Democratic Republic of the Congo.

In addition to the above impacts, climate change threatens a host of other economic spheres and ingredients vital for the improvement in socioeconomic conditions and economic development on the African continent. The impact of climate change risks additional government expenditure on disaster relief, infrastructure reparations and social welfare, with the latter potentially being driven by climate-driven migration and conflict. In 2019, Cyclone Idai resulted in damages totalling more than \$2 billion across Malawi, Mozambique, Zimbabwe and other affected areas (World Bank, 2019). Compared with the period 1970–1979, the frequency of droughts in Africa almost tripled between 2010 and 2019, while the frequency of storms increased fourfold and floods 10 times (World Bank, 2021). With the frequency and severity of extreme weather events expected to increase as temperatures rise, State coffers may come under pressure owing not only to increased expenditure, but also lower revenue.

Africa already faces a multitude of developmental challenges that will most likely be exacerbated by climate change. These potential impacts represent structural weaknesses that are already present and impede the continent’s progress towards higher-income groups. Essentially, the continent faces a double challenge: economic development is currently at insufficient levels to meaningfully improve socioeconomic conditions, while climate change may erase the progress made to date or impede future progress. Given the scale of development challenges and forthcoming climate change impacts, adaptation and mitigation measures must be far-reaching and tailored to the African context. Anything less will likely result in climate change restraining Africa’s ability to escape the middle-income trap.

4. AFRICA'S PROSPECTS OF ESCAPING THE MIDDLE-INCOME TRAP

The present section provides an assessment of African nations' prospects of escaping the middle-income trap in the coming decades. These prospects are framed in the context of a changing global climate and the impact that this will have on developmental prospects.

In addition, the structural transitions required to make the transition to a high-income country are examined, as is African nations' prospects of achieving this transition.

4.1 Current growth trajectories

Current growth trajectories bode ill for most African nations

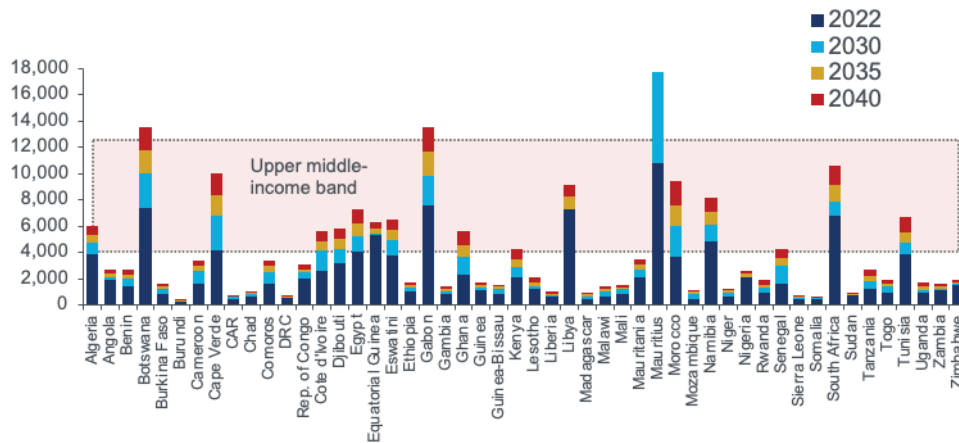
An extended period of robust economic expansion is central to escaping the middle-income trap. While the nature of economic growth undergoes a salient transition on the way towards a country achieving high-income status, which will be discussed later in the present section, a nation still has to string together decades of strong growth to move above middle-income status.

Current growth trajectories bode ill for most African nations in this regard. Even when keeping the current upper-middle income threshold in place, very few African countries are expected to escape the middle-income trap over the coming two decades.

Mauritius is the clear outlier from an African perspective, with the island nation expected to reach high-income status before the end of the present decade. In addition, Botswana and Gabon are expected to reach high-income status by the end of 2040.

However, it should be noted that, especially in the case of Gabon, the measurement and classification methodology could distort perceptions when it comes to assessing developmental status: Gabon remains highly dependent on oil production, which has an outsized impact on GDP figures, but oil wealth does not always permeate the entire economy of the country. This underscores the need to consider alternative perspectives on developmental progress, as discussed earlier, to formulate a more holistic view.

Figure 4.1: Per capita gross national income projections (United States dollars)



Source: World Bank and Oxford Economics Africa.

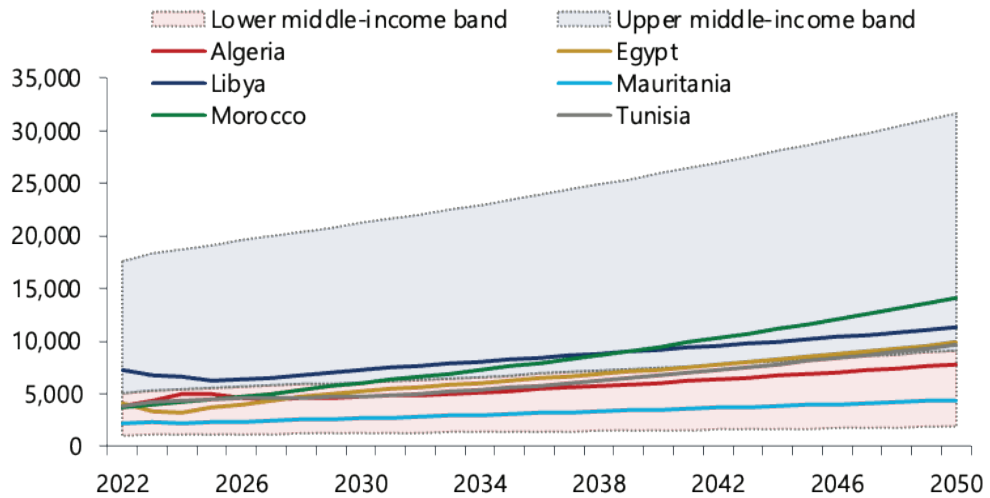
Abbreviations: CAR, Central African Republic; DRC, Democratic Republic of the Congo.

Concerningly, most African countries are expected to remain within the lower middle-income category for the foreseeable future, even when not accounting for future adjustments to the income band thresholds. African nations that are expected to enter the upper middle-income threshold by the end of the decade include Algeria, Cabo Verde, Egypt, Eswatini, Morocco and Tunisia, but none of these countries is expected to transcend that threshold within the subsequent two decades, and this is indicative of the middle-income trap. Furthermore, South Africa is currently within the upper middle-income band but is not expected to break out of that threshold for the foreseeable future. Major African economies that are expected to enter the upper middle-income band for the 2035–2040 period include Côte d'Ivoire, Ghana, Kenya and Senegal.

When adjusting income bands for United States inflation to obtain a better idea of purchasing power at a future date, the difficulty in escaping the middle-income trap becomes even more apparent. First, looking at North Africa, the most recent figures show that Egypt and Tunisia are expected to enter the upper middle-income category around 2040, but that per capita gross national income in these nations will trend in line with the bottom threshold of this income category for the subsequent decade, thus not resulting in any progress towards high-income status. In fact, Morocco is the only North African nation expected to make significant progress in terms of income status over the coming decades. Currently considered a lower middle-income country, Morocco is expected to breach the upper middle-income threshold by the end of the present decade and to make considerable gains within this category in the subsequent two decades. However, current projections suggest that, by 2050, Morocco will remain closer to the lower bound of the upper middle-income band than to the upper bound.

Most African countries are expected to remain within the lower middle-income category for the foreseeable future

Figure 4.2: Per capita gross national income projections: North Africa (United States dollars)

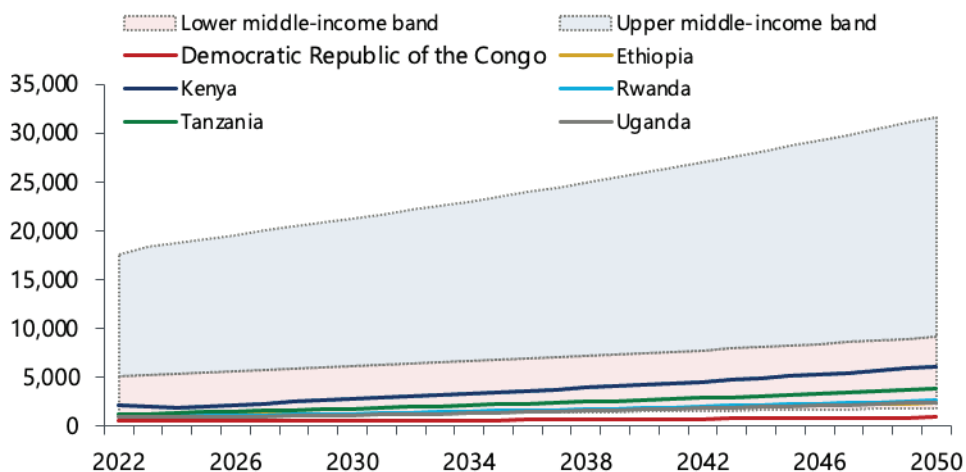


Source: World Bank and Oxford Economics Africa.

Kenya is expected to show the most progress, from an East African perspective, in moving to the upper middle-income category

Looking at inflation-adjusted income bands and current growth trajectories in East Africa, there is little sign of significant progress. No major East African economy is within the upper middle-income category, and this is expected to remain the case over the coming three decades. Kenya is expected to show the most progress from an East African perspective, but at a projected \$6,125 by 2050, per capita gross national income in the country is still expected to be well below the upper middle-income threshold of approximately \$7,270 at that time. At the other end of the spectrum, current projections suggest that the Democratic Republic of the Congo will not attain lower middle-income status in the coming three decades.

Figure 4.3: Per capita gross national income projections: East Africa (United States dollars)

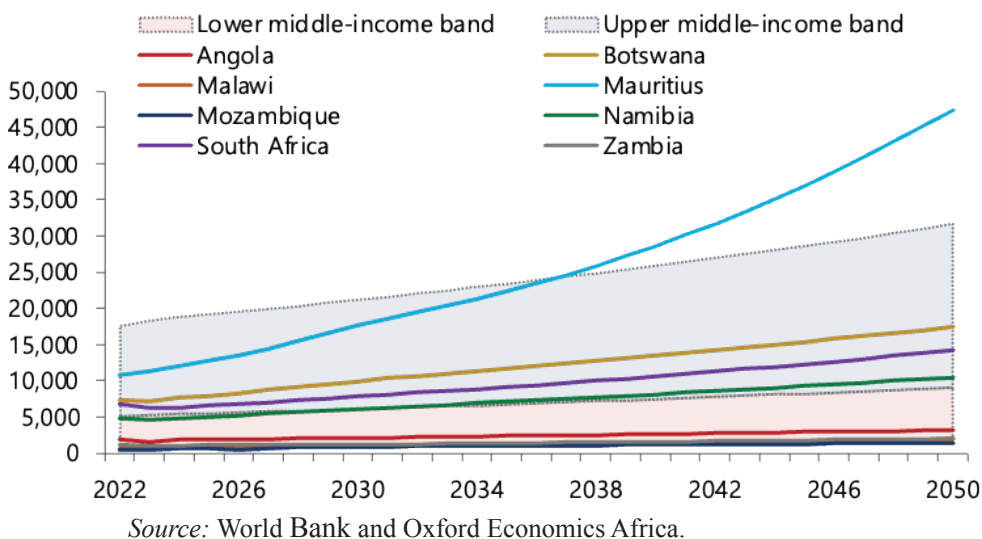


Source: World Bank and Oxford Economics Africa.

Turning to Southern Africa, Mauritius is a clear outlier in the progress, in that it is expected to make progress towards achieving high-income status. Even when adjusting income bands for inflation, Mauritius is still expected to achieve high-income status before 2040. It should be noted that this strong performance will not be driven entirely by a strong GDP

growth outlook, given that many other major African economies have more favourable long-term growth prospects. Other salient drivers behind this strong growth in per capita gross national income include a declining population and relatively measured exchange rate depreciation, which support Mauritian income levels when expressed in United States dollars. Botswana is expected to be the second-best performing Southern African nation with regard to per capita gross national income in the coming decades, but progress will be gradual and, by 2050, Botswana's per capita gross national income is still expected to be closer to the floor of the upper-middle income category than the ceiling. Furthermore, South Africa is expected to make little progress within the upper middle-income band, while per capita gross national income in Namibia is expected to trend in line with the upper middle-income category floor in the coming decades.

Figure 4.4: Per capita gross national income projections: Southern Africa (United States dollars)



Mauritius is a clear outlier in the progress it is expected to make in terms of achieving high-income status

Africa's own development miracle: Mauritius

In 1961, professor James Meade predicted that the development prospects in Mauritius were dismal, given its vulnerability to weather events and price shocks, with a lack of employment opportunities outside the sugar industry. However, through targeted industrial policies, the island nation pivoted from the sugar sector to textiles and apparel in the 1970s, tourism in the 1980s and services since the 1990s.

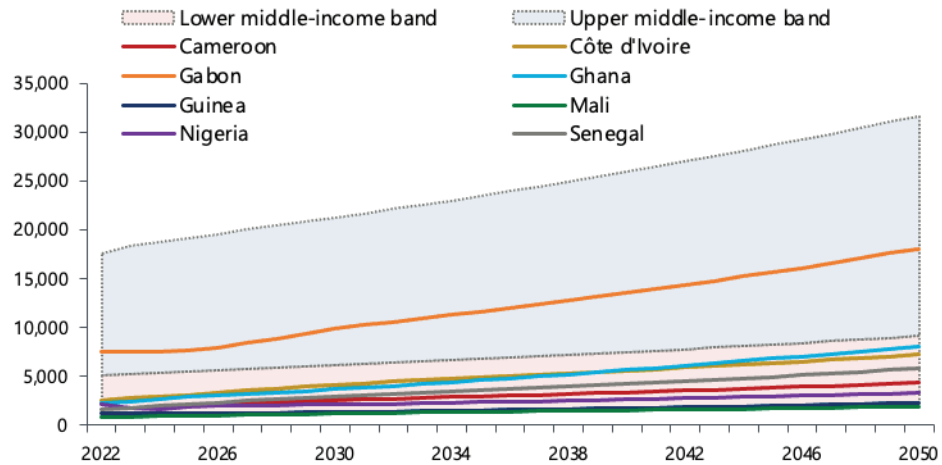
The country focused on energy supply, human capital development, expanding the private sector, ensuring sound institutions and developing its information and communications technology infrastructure. This was further supported by its open trade policies. Once marginalized as an agrarian-based economy with no comparative advantage beyond the primary sector, Mauritius has developed into a regional financial and investment hub, boasting one of the continent's most sophisticated financial sectors.

Source: Oxford Economics Africa.

Lastly, looking at West Africa, Gabon is again the clear outlier, being the only major West African economy expected to be in the upper middle-income category by 2050. Similar

to Botswana, Gabon's gains are expected to be significant in the coming decades, but, by 2050, its per capita gross national income will still be well below the upper threshold of middle-income status. Côte d'Ivoire and Ghana are also expected to show significant gains in the coming decades, but neither of these countries is expected to enter the adjusted upper middle-income band by 2050.

Figure 4.5: Per capita gross national income projections: West Africa (United States dollars)

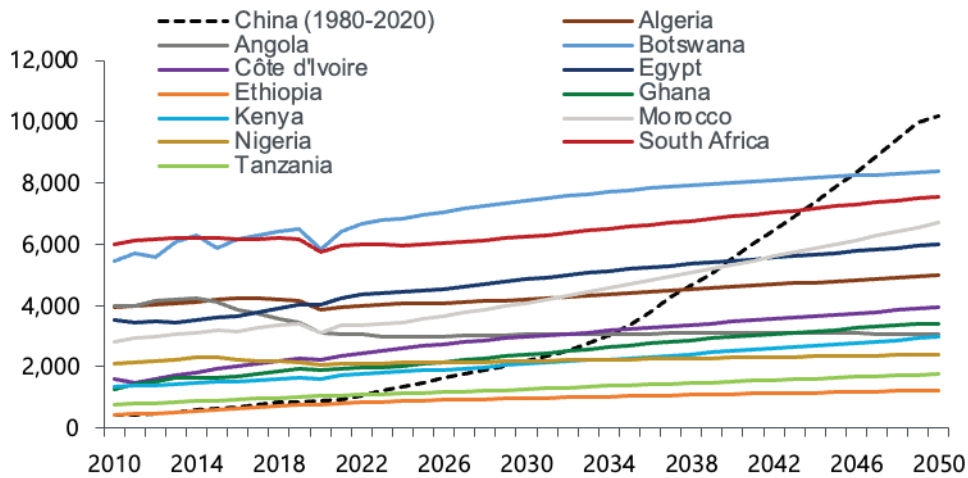


Source: World Bank and Oxford Economics Africa.

4.2 What escaping the middle-income trap would look like

Chinese per capita GDP in constant dollar terms rose nearly fivefold between 2000 and 2020

China is still classified as an upper middle-income country, and the country's rapid ascension up the global economic pecking order has led many countries to try and emulate the Asian giant's success. During the first two decades of the present century (2000–2020), per capita GDP in China in constant United States dollar terms rose nearly fivefold, from a little more than \$2,000 in 2000 to more than \$10,000 in 2020. This translates into a compound annual growth rate of some 8 per cent annually during the 20-year period. This performance is remarkable in both the magnitude of growth and the longevity of the rapid expansion. For comparison, the two African countries that are expected to record the strongest growth in real per capita GDP over the coming 20 years, Mauritius and Morocco, are forecast to register compound annual growth rates of approximately 3 per cent annually

Figure 4.6: Real per capita GDP (United States dollars)

Source: Oxford Economics Africa.

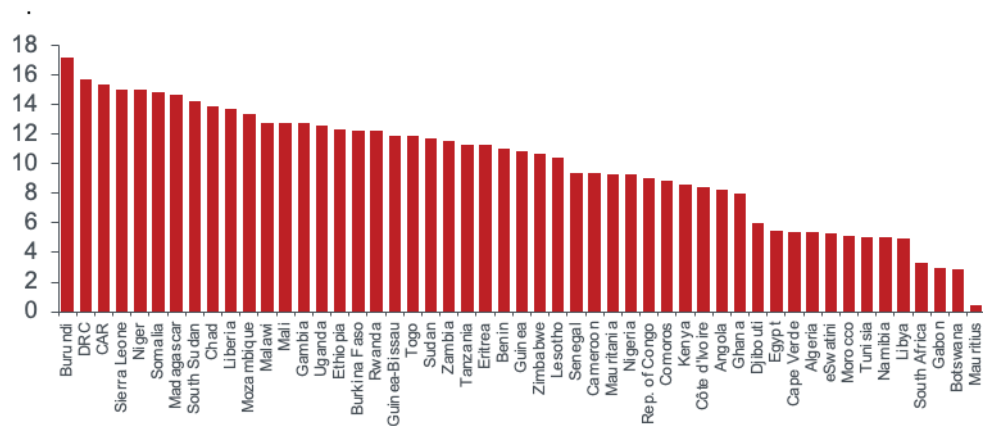
The rapid and sustained expansion in real per capita GDP in China is without precedent historically. While there are reasons to believe that the Chinese model will not be emulated in Africa – see discussion below – it is interesting to consider what per capita GDP in Africa would look like if these nations were able to record similar growth. Taking the thought exercise a step further, it is possible to calculate what economic growth would have to be if African nations were to reach high-income status by 2050.

At the one end of the spectrum, countries such as Burundi, the Central African Republic and the Democratic Republic of the Congo will have to record average growth rates of more than 15 per cent annually to reach high-income status by 2050. It should be noted that these countries are classified as low-income nations, which explains why this substantial growth would be required to traverse the middle-income category. At the other end of the spectrum, Mauritius is required to grow by an average rate of approximately 0.5 per cent annually, which is lower than the country's projected growth figure. Accordingly, Mauritius is expected to reach high-income status by 2040.

Botswana, Gabon and South Africa are required to record average GDP growth rates of some 3 per cent annually to achieve high-income status by 2050. While not particularly high, this is much higher than these countries' current growth projections. Furthermore, the required growth rate for Egypt is approximately 5.5 per cent annually, while that of Ghana and Kenya is similar to that of the Chinese miracle: a little more than 8 per cent annually. Nigeria's figure is closer to 10 per cent annually.

The rapid and sustained expansion in real per capita GDP in China is without precedent

Figure 4.7: Annual GDP growth required to reach high-income status by 2050 (Percentage)



Source: Oxford Economics Africa.

Abbreviations: CAR, Central African Republic; DRC, Democratic Republic of the Congo.

4.3 The changing nature of growth

China has been cited as an example of a developmental miracle that most countries would like to emulate. However, a realistic assessment of China’s growth strategy dramatically reduces the attractiveness of following suit, and there are indications that China, too, runs the risk of being ensnared by the middle-income trap.

The Chinese growth model during the boom years depended in part on labour, and there are very few countries in Africa that would be able to replicate the Chinese labour success stories. In particular, labour market regulation and inadequate levels of education and training mean that it would be difficult, if not impossible, for Africa to mimic the Asian labour market model.

Indeed, demographic changes, rising wages and a slowdown in economic growth point towards the inadequacy of the labour market model to push China into high-income status. This is because, at the core of the transition to high-income status, there is a structural economic transformation towards higher domestic value addition, increased productivity and the prioritization of research and development.

The Economic Complexity Index produced by The Growth Lab at Harvard University looks at the range and sophistication of products and services that an economy produces and exports, and then translates this into a score. Doing so provides an idea of where these economies are in the transition to more technologically intense production, which, in turn, is a proxy for progress towards the necessary structural transformation. Most African countries underperform on this measure, with Tunisia being the only major African economy to record a positive score.

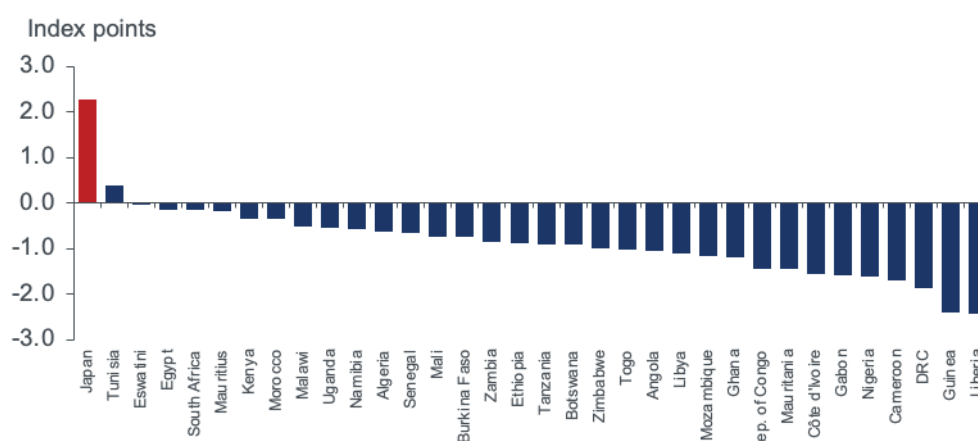
Eswatini also records a relatively good performance on this measure, owing primarily to the role of textiles and manufactured sugar on the country’s exports profile. Eswatini is

A realistic assessment of China’s growth strategy dramatically reduces the attractiveness of following suit

followed by Egypt and South Africa, while at the other end of the spectrum, notable weak performances include those of the Democratic Republic of the Congo and Nigeria.

The latter two performances can in large part be attributed to the fact that exports take primarily the form of raw minerals, which are not processed domestically.

Figure 4.8: Economic complexity score, 2021



Africa's best-performing country in the Complexity Outlook Index is Egypt

Source: *The Growth Lab at Harvard University.*

Note: *Negative values imply the lack of economic complexity; positive values imply strong complexity scores.*

Abbreviation: *DRC, Democratic Republic of the Congo.*

To obtain a better idea of the manufacturing sector's potential prospects, it helps to look at the Complexity Outlook Index. This is a measure of how many complex products are near a country's current set of capabilities. A high Complexity Outlook Index value reflects an abundance of related, complex products that rely on similar capabilities as those present in current production – a positive sign for manufacturing sector development.

The African picture looks slightly more favourable from this perspective, with several countries recording positive scores. Africa's best-performing country in the Complexity Outlook Index is Egypt.

While the inclusion of Kenya, South Africa and Tunisia in the list of top performers is no surprise, given the countries' relatively sophisticated economies, the good performance of the United Republic of Tanzania is somewhat surprising, given the country's poor showing in the economic complexity score.

At the other end of the spectrum in the Complexity Outlook Index are Nigeria and the Democratic Republic of the Congo, meaning that not only do those countries not have the capabilities to produce and export sophisticated products, but also those capabilities are some distance away from being acquired.

North Africa and Southern Africa are the best-performing regions, but the makeup of these performances differs significantly

Figure 4.9: Economic complexity outlook



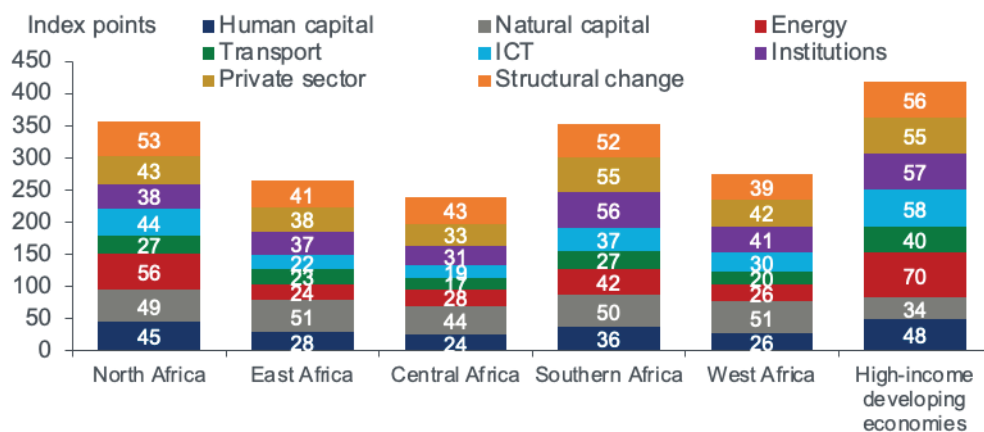
Source: Growth Lab at Harvard University.

Note: Negative values imply the lack of economic complexity; positive values imply strong complexity scores.

Abbreviation: DRC, Democratic Republic of the Congo.

Another way to measure a country’s productive capacity – and thus its progress towards the structural transformation required to achieve high-income status – is by looking at the United Nations Conference on Trade and Development’s productive capacities index. Its aim is to measure the level of development of various productive capacities, to benchmark countries, to identify gaps in production-capacity development and to measure progress in addressing those gaps.

Figure 4.10: Productive capacities index



Source: United Nations Conference on Trade and Development.

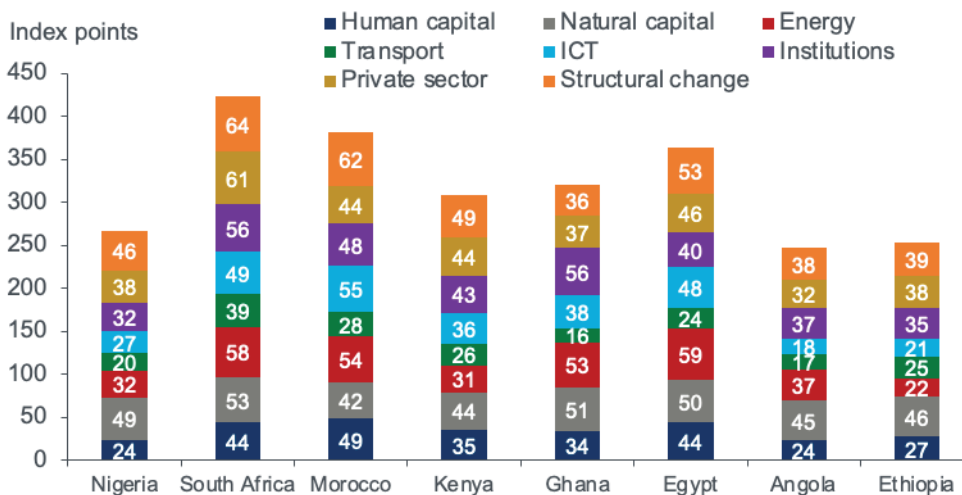
Abbreviation: ICT, information and communications technology.

When looking at Africa’s performance from a regional perspective, the most recent productive capacities index contains some interesting findings. For example, North Africa and Southern Africa are the best-performing regions, but the makeup of these performances differs significantly. While North Africa boasts the strongest human capital

and energy infrastructure scores on the continent, its performance on institutions falls well short of the performance in Southern Africa.

In addition, the Southern Africa region is considered to have a much more vibrant private sector than that of North Africa. (The private sector is here measured by the ease of cross-border trade, the financial and regulatory support to business and the time required to start a business). In turn, Central Africa has the weakest regional performance, with its scores on institutions, the private sector and ICT infrastructure, in particular, underperforming in a regional context. It is also interesting to note that every African region outperforms the high-income developing economy category when it comes to natural capital, which is indicative of how most African countries have leveraged natural resources to stimulate growth, with the productive capacities related to the exploitation of natural resources making much more progress than other areas of productive capabilities. Natural capital estimates the availability of extractive and agricultural resources, including rents generated from the extraction of natural resources.

Figure 4.11: Productive capacities index



Source: United Nations Conference on Trade and Development.

Abbreviation: ICT, information and communications technology.

Looking at the productive capacities index at a national level also produces some interesting findings. Egypt, Morocco and South Africa have the most favourable productive capacities index scores among major African economies. South Africa's most favourable performance relative to these peers relates to its private sector and institutions. The institutions category is intended to measure political stability, regulatory quality and effectiveness, and citizens' freedom of expression and association. For its part, Ghana compares favourably to other major economies when looking at the institutions index.

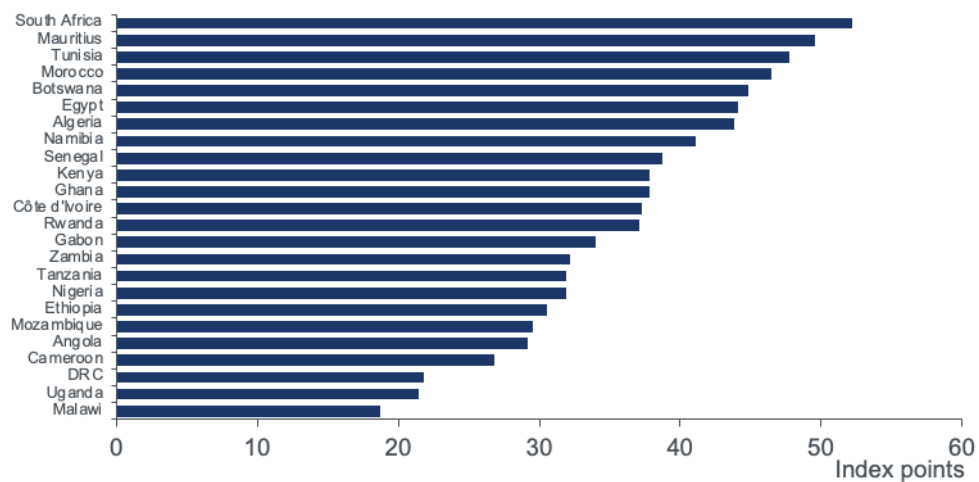
In turn, Morocco outperforms all other major African economies with regard to its ICT sector and the level of human capital. For the purpose of this analysis, it is important to consider the structural change indicator, which is a measure of the movement of labour and other productive resources from low-productivity to high-productivity economic activities. This is a proxy for an economy's current ability to implement the structural changes necessary to make the transition to a high-income society.

Egypt, Morocco and South Africa have the most favourable Productive capacities index scores among major African economies

While some African economies compare favourably on this measure, compared with the high-income developing economies aggregate, it should be noted that many economies captured in the latter category have already undergone the necessary structural transitions.

In addition, most African nations still compare unfavourably to middle-income countries that continue to demonstrate rapid growth (e.g., China, with a structural change score of 99, or India, with a score of 76), as well as advanced economies at the forefront of technological advancements (the United States has a score of 94.9 and Japan has a score of 88.2).

Figure 4.12: Productive capacities index: overall score



Source: United Nations Conference on Trade and Development.

Abbreviation: DRC, Democratic Republic of the Congo.

The productive capacities index suggests that not only do most African nations struggle with an infrastructure deficit – namely, in terms of energy, transport and ICT – but also there are other hindrances preventing the movement of productive resources from low-productivity to high-productivity economic activities. Addressing this problem will be central to escaping the middle-income trap.

Economies that do so are able to undertake structural transformations in which the core of the economy makes the transition from the exploitation of natural resources towards capitalizing on innovation.

4.4 Exogenous considerations: Climate change

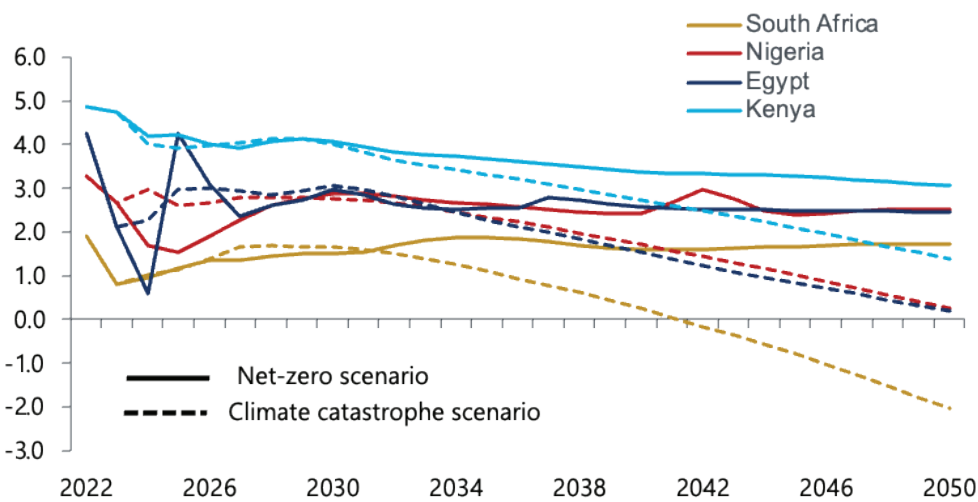
While idiosyncratic domestic factors, including history, institutions and the policy/regulatory environment, will have a direct bearing on a country's prospects of escaping the middle-income trap, there is one salient exogenous factor that all countries will have to deal with: climate change. The channels through which climate change has an impact on economic development have been put forward in the present report.

There is one salient exogenous factor that all countries will have to deal with: climate change

The present section contains an examination of how climate change could change the economic trajectories of several African countries. Two extreme scenarios will be compared: net zero and climate catastrophe. In the favourable net zero scenario, Governments around the world implement stringent policies to target global warming of 1.5°C, reaching global net-zero CO₂ emissions in 2050.

Furthermore, aggressive and coordinated carbon pricing and technological investment support a move towards cleaner and more efficient energy consumption. By contrast, in the climate catastrophe scenario, Governments fail to meet their policy pledges and global temperatures targets by 2.1°C by 2050. This results in severe physical damages that accelerate over time.

Figure 4.13: Annual GDP growth in extreme climate scenarios (Percentage)



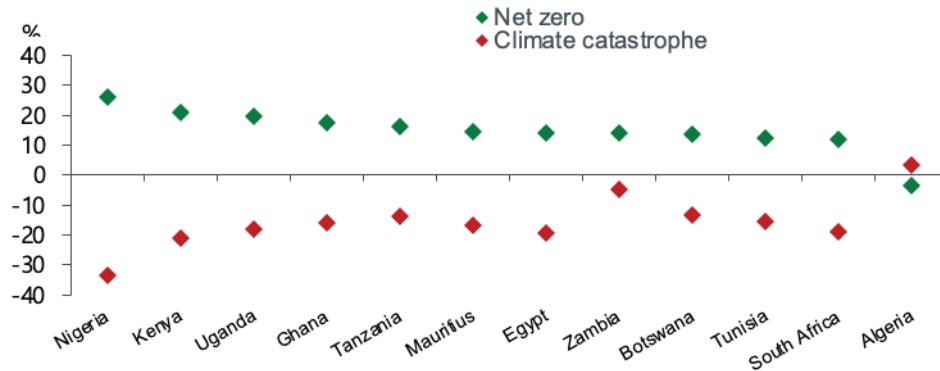
Source: Oxford Economics Africa.

The modelling shows that, while the impact of the various scenarios differs considerably between countries, the effects remain significant across the board. For example, South Africa is poised to be one of the hardest-hit economies in the case of a climate catastrophe. The country's dependence on coal in the context of rising global coal prices will push electricity prices higher, which will feed into higher inflationary pressures and a drop in competitiveness. In addition to the myriad other spillovers such as higher food prices due to adverse weather and more limited fiscal space, this could lead to the South African economy commencing a contractionary trend over the long term.

In turn, while the relative impact of these scenarios is seemingly less severe in Kenya than in the continent's three largest economies, GDP growth in the East African nation is still expected to drop from an average rate of 3.5 per cent annually for the period 2030–2050 in the net-zero scenario to 2.7 per cent annually in the climate catastrophe scenario. The implications of an extended period of lower growth are considerable, especially when looking at the impact on variables such as per capita GDP.

South Africa is poised to be one of the hardest-hit economies in the case of a climate catastrophe

Figure 4.14: Difference in per capita GDP (United States dollars) by 2050, relative to baseline(Percentage)



Source: Oxford Economics Africa.

To determine how climate change could affect efforts to escape the middle-income trap, the difference in per capita GDP by 2050 under the various scenarios relative to the baseline provides valuable insights. These figures incorporate the broader macroeconomic implications of the various climate outcomes, including the impact on external balances, exchange rate developments, prices and economic growth. The findings suggest that per capita GDP in Nigeria will be affected most significantly among the largest African economies. In the net-zero scenario, per capita GDP is expected to be some 26 per cent higher than the figure projected in the baseline by 2050. This might sound counterintuitive for a country that depends mainly on fossil fuels, but the fiscal boost represented by carbon taxes, lower domestic energy prices due to lower oil prices, less volatile agricultural production and the investment impetus stemming from the transition to greener energy will result in a notable improvement in the country's economic outlook. By contrast, the climate catastrophe scenario will result in higher food and energy prices and will not entail the investment boost stemming from the green energy revolution. At the other end of the spectrum, Algeria is one of the few countries globally that could see only a marginal change in per capita GDP, depending on the climate outcome. Its dependence on oil, the country's energy infrastructure and structural dependence on food imports suggest that the impact will, on aggregate, be much less severe on Algeria's economic outlook than for most other African nations.

Climate change represents a salient exogenous factor that will have a direct bearing on Africa's efforts to escape the middle-income trap. However, global efforts to combat climate change could also provide the catalyst for the structural adjustment needed to overcome the trap. Escaping the middle-income trap requires going beyond industrial upgrading and productivity gains and necessitates the development of a strategy to leap-frog into new industries (Triki and others, 2022). Green technologies and advances in agriculture could potentially be those new industries.

5. LEVERAGING EFFORTS TO COMBAT CLIMATE CHANGE

The present section offers an examination of how African nations' efforts to reach high-income status – thus escaping the middle-income trap – can be supported by global efforts to combat climate change. This includes a look at how developmental funding will change, a changing energy landscape, the proliferation in demand for green minerals and a re-emphasis on agricultural resilience.

5.1 Africa's developmental Achilles' heel: Funding

The challenging fiscal positions of most African Governments limit their ability to fund climate change mitigation and adaptation efforts. Many countries face huge public debt burdens, with insufficient fiscal leeway to finance large-scale capital projects. It is also difficult for these countries to raise finance at affordable rates without further compromising their debt burdens. African countries need significant international financial support under preferential terms if they are to progress to low-carbon economies, improve resilience against adverse weather conditions and supply the world with key transition materials. In addition, access to funding will need to be accompanied by technical assistance to improve project and programme preparation on the continent to attract low-cost finance into bankable projects. Any delay in investment can lock African countries into carbon-intensive development pathways and undermine efforts to increase economic resilience against climate-related shocks.

While every dollar invested in climate adaptation can generate up to 10 dollars in economic benefits through multiplier effects, many adaptation projects are high-risk, and it can be difficult to source financing for such projects (Global Centre on Adaptation, 2023). In recognizing the benefits of greater access to climate funding, the United Nations Framework Convention on Climate Change has established several mechanisms to offer financial assistance to developing countries and promote the aspirations of the Kyoto Protocol and the Paris Agreement. These facilities can be accessed to help to alleviate their exposure to the adverse effects of climate change and to support efforts towards greener economic development. For example, the Green Climate Fund is intended to advance shifts towards low-emission and climate-resilient development pathways by supporting projects, policies, programmes and activities in developing countries that promote environmentally sustainable development. In turn, the Global Environment Facility is intended to protect the environment by assisting developing nations in meeting their commitments to multilateral conventions through national, regional and global partnerships.

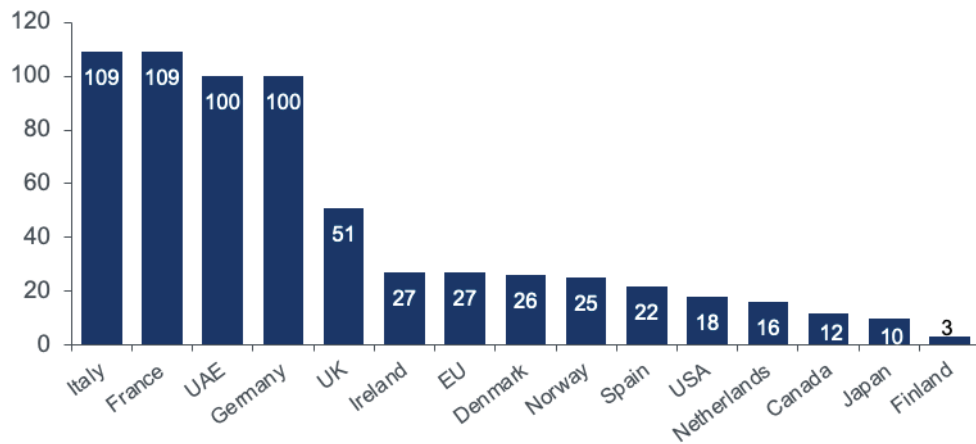
A salient development regarding climate funding was the announcement at the twenty-eighth session of the Conference of the Parties to the United Nations Framework Convention on Climate Change of the establishment of the Loss and Damage Fund. The Fund will be operationalized through the World Bank within eight months after the twenty-eighth

African countries need significant international financial support under preferential terms if they are to progress to low-carbon economies

session and will assist vulnerable developing countries in their response to economic and non-economic loss and damage from climate impacts such as extreme weather and slow, onset events, such as sea level rise. Although the establishment of the Fund marked a milestone that had been years in the making, only \$792 million has been committed, far less than the estimated \$100 billion to \$580 billion in annual economic and non-economic losses registered in developing countries stemming from climatic events.

The establishment of the Loss and Damage Fund marked a milestone that had been years in the making

Figure 5.1: Pledges to the Loss and Damage Fund (Millions of United States dollars)



Source: Natural Resource Defence Council.

Abbreviations: EU, European Union; UAE, United Arab Emirates; UK, United Kingdom of Great Britain and Northern Ireland; USA, United States of America.

While multilateral and bilateral funding will be central to increasing economic resilience against climate change, the developmental impetus potentially brought about by efforts to combat climate change will materialize only if countries can crowd in private capital. Financing instruments involving transition or green, social, sustainable and sustainability-linked bonds provide an opportunity for African countries to attract additional capital by mobilizing private funding at scale and thereby attract investors that do not typically invest in individual projects. These bonds are issued with reduced interest terms or capital payments on the condition that the proceeds are used for investment in specific climate or sustainability projects or goals. There are more than \$2.5 trillion in environmental, social and governance-related investment funds, but issuances remain highly concentrated in developed nations (PricewaterhouseCoopers, 2023).

Debt-for-climate swaps involve the writing-off of or reduction in sovereign debt in exchange for investment in climate adaptation or mitigation projects. These instruments provide an opportunity for developing countries to approach bilateral and multilateral creditors to have their debt forgiven if the funds that were to be spent on repayments are instead diverted to climate adaptation and resilience projects, such as resilient buildings, drought-resistant seeds, disaster risk reduction and management systems, water treatment plants, ocean conservation and environmental restoration practices (Hebbale and Urpelainen, 2023).

A small mountainous kingdom leads the way

In 2021, the Lesotho Electricity Company and the Government entered into an agreement with a consortium to develop the country's first independent power producer project. The parties concluded a 25-year power purchase agreement and the related connection and implementation agreements for a 20-megawatt solar photovoltaic plant to be developed, operated and owned by a partnership of international and local private sector firms.

The project is funded by the Renewable Energy Performance Platform, with equity support from Norwegian investment (Norfund) and the Lesotho Pension Fund.

The announcement signifies a commitment from the Government of Lesotho to increase the level of private sector participation in its electricity supply industry, as well as in the diversification thereof. The agreement reduces pressure on the Government's balance sheet and is a welcome message to prospective energy sector investors wishing to expand their African footprint into the kingdom.

Source: Oxford Economics Africa and media sources.

Funding innovations in the realm of climate finance represent a valuable opportunity for African nations to boost development efforts

Funding innovations in the realm of climate finance represent a valuable opportunity for African nations to boost development efforts. Not only will the funding be directed towards areas critical to resilient and sustainable development, but also climate change mitigation efforts could provide an impetus to industrialization efforts.

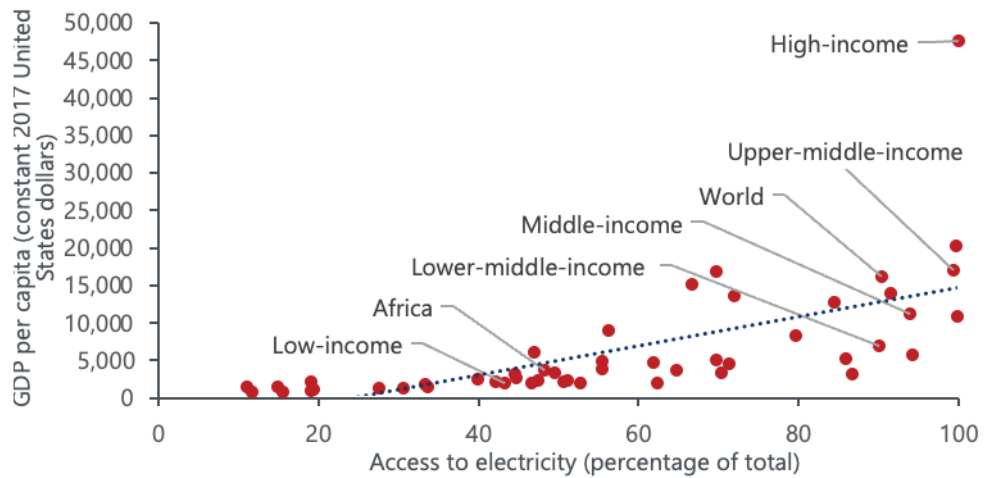
Ensuring that African economies remain on low-carbon developmental trajectories will mitigate the environmental footprint of African economic development, while simultaneously increasing access to critical factors of production such as energy.

5.2 A changing energy landscape

The International Energy Agency sees energy access as the "golden thread that weaves together economic growth, human development and environmental sustainability" (International Energy Agency, 2017). While the direction of the causality is subject to debate, a strong positive correlation exists between a country's electricity access and economic development.

The major North African economies and Mauritius have the highest electricity access rates in Africa, with the latter also boasting the highest per capita GDP. Conversely, Chad and Burundi have the lowest electricity access rates, with the latter recording the lowest GDP per capita.

Figure 5.2: Relationship between energy and per capita GDP



Source: Data compiled from multiple sources by World Bank, processed by Our World in Data.

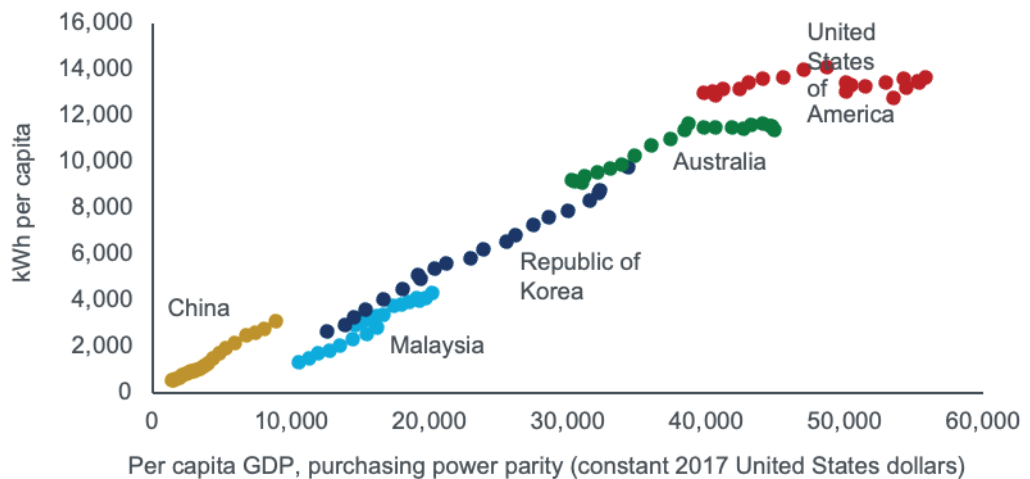
There is a strong positive correlation between a country's electricity access and economic development

Africa's poor access to electricity is due to a blend of demand- and supply-side constraints. On the demand side, low-income levels still play a significant role because most households (notably in rural areas) cannot afford the relatively high cost of an electricity connection.

Supplying electricity as conventional alternating current (AC) requires minimum building standards that many existing houses in Africa do not meet. On the supply side, electricity generation is often constrained by unsustainable electricity pricing, in which tariffs are set by the Government or other regulatory bodies rather than market forces.

Although low electricity tariffs are good for consumers, electricity producers often do not recover production costs at these low prices and fall into financial distress, requiring substantial support from the Government. At these low margins, electricity utilities are also unable to perform the required maintenance on existing generation units, resulting in unreliable electricity supply with intermittent blackouts.

Figure 5.3: Trend between energy usage and GDP per capita, 1990–2010

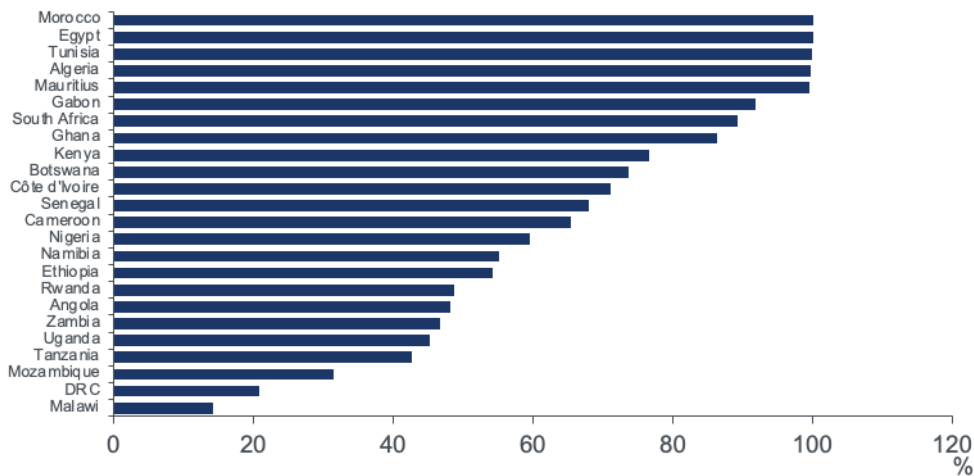


Source: Our World in Data.

While it is vital for countries to improve electricity access, the reliability of electricity supply is equally as important. According to World Bank data, 77 per cent of private firms operating in Africa south of the Sahara experienced power outages in 2021, with the average number of outages per month being nine. This is the highest rate of power outages per region in the world. Years of underinvestment that lead to transmission network weaknesses, non-payment of electricity bills, ageing infrastructure, periodic droughts or suboptimal rainfall that cause the shutdown of hydroelectric plants, lack of skills to maintain national grids, vandalism and theft of cables and poor management of power plants are all factors contributing to the inefficient and unreliable power supply in Africa.

The lack of access to electricity and clean cooking does not mean that individuals do not consume energy

Figure 5.4
Proportion of the population with access to electricity

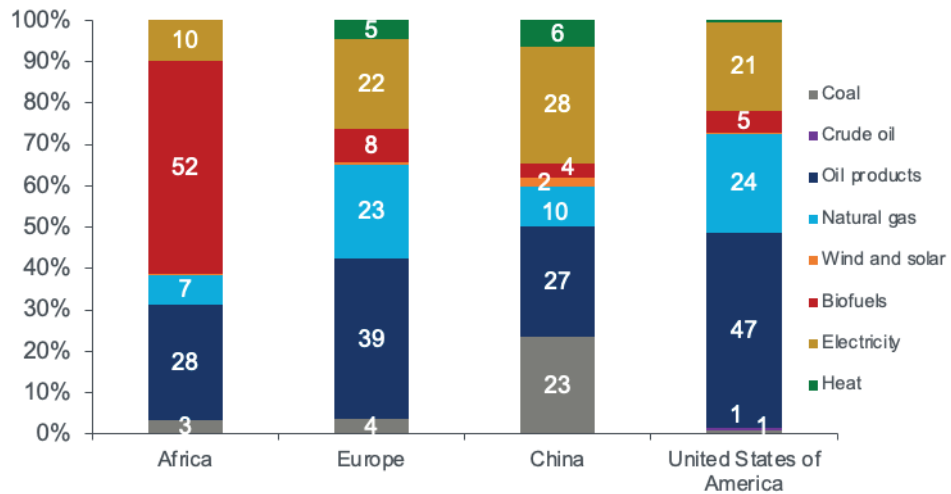


Source: World Bank.

Abbreviation: DRC, Democratic Republic of the Congo.

The lack of access to electricity and clean cooking does, of course, not mean that these individuals do not consume energy. When looking at energy supply by source, we see that the African energy landscape is dominated by biofuels and waste, which is, in turn, dominated by traditional biomass such as wood, charcoal and manure. More than 80 per cent of the energy supply in Ethiopia and the United Republic of Tanzania is generated by burning biomass, while this figure is more than 90 per cent in the Democratic Republic of the Congo. The corresponding figure for the United States is under 5 per cent, with a significant proportion of that taking the form of biodiesel and ethanol fuel.

Figure 5.5: Primary energy supply by source (Percentage)

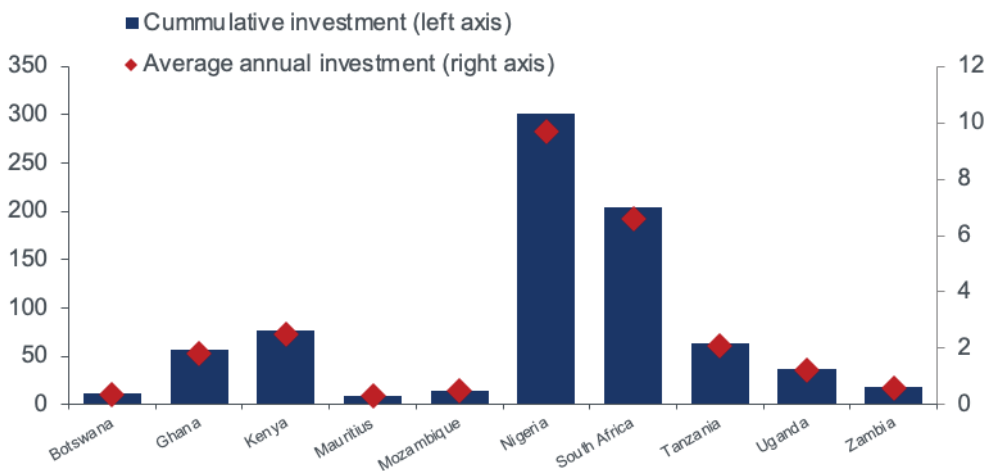


Source: Oxford Economics Africa.

This reliance on the burning of biomass has significant social and environmental implications

This reliance on the burning of biomass has significant social and environmental implications. With respect to the former, estimates from the International Energy Agency suggest that approximately 500,000 people in Africa died prematurely owing to household air pollution in 2020, while an additional 300,000 died from outdoor air pollution. In addition to the loss of life, an overreliance on dirty cooking technologies has pernicious socioeconomic implications. The gathering of firewood, which is often a time-consuming and arduous process, traditionally falls upon the women of the household. This curtails the time available for schooling and represents a practical hurdle in attaining education.

The energy transition is a process that involves major prospects for investment in low-carbon mitigation and adaptation infrastructure in Africa. The continent needs capital, not only to lower green-house gas emissions and power accelerated industrial development, but also to eliminate stark energy poverty and an inordinate reliance on traditional biomass. The investment opportunities on the continent span the entire energy and electricity landscape, from the production of cleaner fuels and electrical power generation to grid infrastructure, energy storage and efficiency measures.

Figure 5.6: Energy sector capital investment needs, 2020–2050 (Billions of United States dollars)

Source: Oxford Economics Africa.

Estimates based on International Energy Agency assumptions suggest that Nigeria would require \$9.7 billion on average per year to realize a net-zero CO₂ emissions pathway by 2050. Nigeria is followed by South Africa, which needs \$6.6 billion annually to shift away from its coal-fired energy system.

The energy sector investment needs of the other countries are comparatively smaller, yet large, averaging between \$0.3 billion and \$2.5 billion per year, although the amount grows more robustly toward 2050. The challenging fiscal positions of most African Governments limit their ability to fund the shift to net-zero emissions on their own. Many countries face huge public debt burdens, with insufficient fiscal leeway to finance large-scale capital projects.

Nevertheless, public funds have a critical role to play in derisking and mobilizing private capital, which is available in abundance, as well as in attracting low-cost funding from development partners.

Capitalizing on global efforts to mitigate climate change has the potential to catapult African economies on stronger growth trajectories. Investment in clean energy infrastructure and the resulting expansion in access to electricity will be critical to support Africa's industrialization efforts and consequently, play a central role in pushing African countries towards high-income status.

5.3 A potential mining renaissance

Not only will Africa benefit from efforts to ensure that the continent's development is on an environmentally favourable footing, but also global efforts to reduce carbon emissions could boost Africa's extractive sector. The continent is host to substantial reserves of copper, cobalt, tin and manganese, which are minerals critical to the green energy transition.

Capitalizing on global efforts to mitigate climate change has the potential to catapult African economies on stronger growth trajectories

The Democratic Republic of the Congo is particularly well poised to benefit from the shift towards more sustainable energy, given that it sits on notable reserves of cobalt, copper and tin. The country accounts for just under 50 per cent of all known cobalt reserves and is the largest producer of both copper and tin on the continent. Copper is seen as pivotal in the renewable energy drive because it is a key input in everything from electric vehicles to solar panels and power grids.

In the Democratic Republic of the Congo and Zambia, mines can run at a smaller scale using hydropower, thus limiting the carbon footprint of copper production in the country – an important feature when cross-border carbon tariffs come into play. In turn, high-purity manganese has become increasingly important in the production of batteries used in electric vehicles and as backup storage for electricity harvested from renewable sources such as solar and wind.

Africa boasts several critical minerals that will be used in the global green transition

Figure 5.7: Significant green mineral reserves

Cobalt	Lithium	Copper	Manganese	Tin	Graphite
Democratic Republic of the Congo	Zimbabwe	Democratic Republic of the Congo	Côte d'Ivoire	Democratic Republic of the Congo	Mozambique
Morocco		Zambia	Gabon	Nigeria	United Republic of Tanzania
			Ghana	Rwanda	
			South Africa		

Source: United States Geological Survey.

South Africa is the largest manganese producer in the world and holds nearly 40 per cent of total known reserves. Gabon, a country that depends heavily on oil for growth, revenue and exports, accounted for more than 20 per cent of global manganese output in 2022, while Ghana and Côte d'Ivoire accounted for some 5 and 2 per cent, respectively.

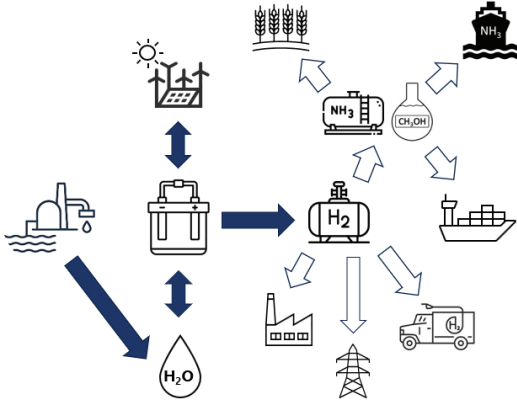
Investment in the mining of these minerals could contribute to diversification efforts in countries such as Côte d'Ivoire and Gabon and dramatically contribute to the development of the Democratic Republic of the Congo. For its part, while South Africa remains highly dependent on its platinum group metals sector, the country is also host to the largest manganese reserves on the planet.

In addition to capitalizing on the greater demand for green minerals, Africa could also potentially play a key role in the development of the international green hydrogen industry.

Green hydrogen essentially means extracting the hydrogen from water using renewable energy and then using the hydrogen and its derivatives. Hydrogen has practical applications as a feedstock in heavy industry and in fuel cells to power long-distance transport. Its derivatives, such as ammonia and methanol, are used in producing fertilizers and as fuel in the marine transport sector. Reducing emissions in hard-to-decarbonize sectors, such as

heavy industry and long-distance transport, is a key component of achieving global net-zero emissions.

Figure 5.8: Various uses of green hydrogen



Source: Oxford Economics Africa.

Most major economic regions have green hydrogen production targets and, importantly, expect some hydrogen demand to be satisfied with imports. While the transportation and conversion of hydrogen face financial and efficiency hurdles, the trade in hydrogen derivatives, such as ammonia, has considerable potential.

Several African countries have a comparative advantage in producing green hydrogen owing to the abundance of natural resources that can be leveraged in the production process.

In addition, hydrogen and its various derivatives can play a central role in African development objectives. A clean source of energy for heavy industry could provide a boost to the sector, while greater access to fertilizers will increase agricultural yields and improve agricultural resilience.

Africa could play a key role in the development of the international green hydrogen industry

5.4 The necessary agricultural revolution

Agriculture remains the backbone of most African economies. In recognition of the economic and sociopolitical importance of the agricultural sector, the Comprehensive Africa Agriculture Development Programme, a continental initiative that falls under the strategic Agenda 2063, is intended to increase public investment in agriculture and boost agricultural productivity.

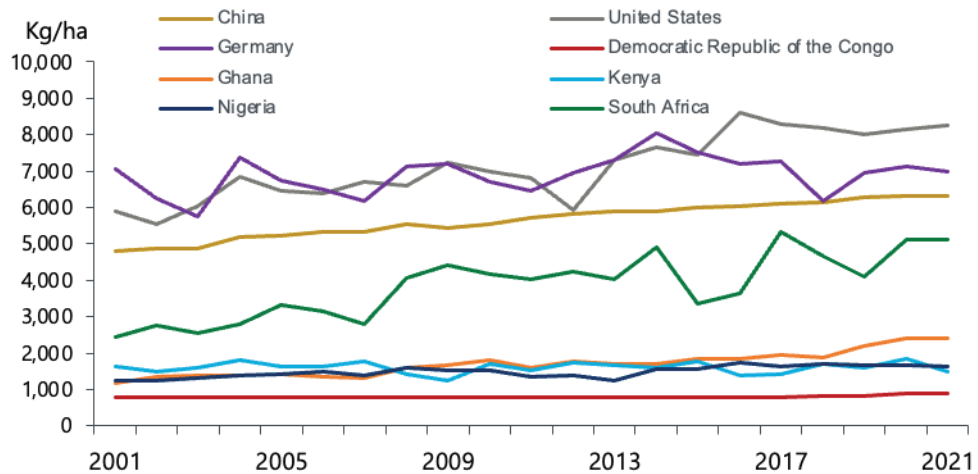
Delivering on Africa's agricultural potential will require significant investment across the spectrum of inputs (fertilizer and hybrid seed), infrastructure (irrigation, storage and freight) and markets (improvement in regional trade flows and policies).

The direct impact that a changing climate has on agricultural output in Africa means that the sector will have to be a key beneficiary of adaptation efforts. Not only will African

Governments have to prioritize the development of the sector, but also climate-related development finance will have to be directed towards agriculture.

Improving African agricultural resilience will boost development prospects by protecting livelihoods and shielding purchasing power: surges in food prices, often driven by adverse weather developments, are often the reason behind volatile and elevated overall consumer price inflation.

Figure 5.9: Domestic cereal yields

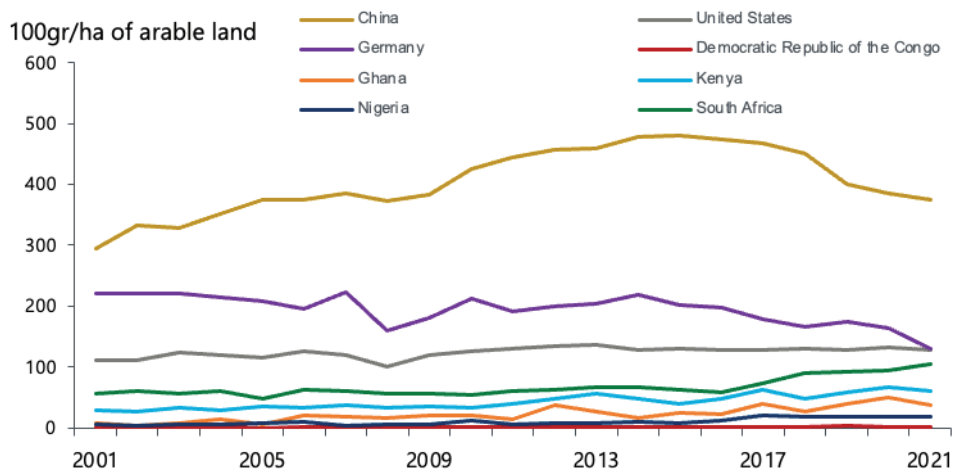


Source: World Bank.

There is significant scope to increase the use of agricultural inputs in Africa

In addition to improving resilience through investment in infrastructure such as irrigation systems, there is significant scope to increase agricultural output on the continent. The use of inputs such as fertilizers pales in comparison to that in more advanced economies. Consequently, African agricultural yields are much lower than those seen elsewhere. Improving yields will once again be an important step in climbing the income ladder because more widely available food stocks at more predictable prices have a significant impact on household finances. The impact on incomes will also be significant, given the prevalence of subsistence farming on the continent.

Figure 5.10: Fertilizer consumption



Source: World Bank.

During the twenty-eighth session of the Conference of the Parties to the United Nations Framework Convention on Climate Change, some \$200 million was pledged by the Bill & Melinda Gates Foundation and the United Arab Emirates towards assisting smallholder farmers in both Africa and South Asia to support resilience and climate change adaptation. Moreover, in the opening days of the summit, the Green Climate Fund received \$3.5 billion in pledges dedicated to supporting climate change mitigation in developing countries, while the African Development Bank pledged to increase its financing for climate adaptation to \$25 billion by 2025 through the promotion of climate-smart investment related to water treatment, recycling and other segments of the water value chain. Apart from these initiatives, the World Bank also indicated that it would increase the scope of climate-resilient debt clauses, while the African Development Bank announced the adoption of climate-resilient debt clauses to provide some relief and financial security amid intensifying climatic events.

6. CHALLENGES AND POLICY IMPLICATIONS

Escaping the middle-income trap will require a holistic policy approach to not only ensure that economies expand at an adequate and consistent pace, but that the necessary structural shift takes place in a sustainable trajectory (see United Nations, Economic Commission for Africa, 2024). The fundamental feature of the transition from middle- to high-income status is the shift from an investment (or factor-driven) economy to an innovation-driven knowledge economy (Triki and others, 2022). This requires an active industrial policy to guide industrial transformation and that supports the development of technological capabilities. In addition, funding constraints and the sheer magnitude of the investment required mean that Governments will have to leverage private capital. Greater private sector participation alleviates fiscal pressures so that increased public funding can be directed to structural investment in adaptation infrastructure. To mobilize the requisite capital, it is imperative for countries to have clear investment frameworks, policy certainty and credible mitigation plans while offering sufficient incentives for private investment. At the same time, it is vital for climate mitigation plans to be pragmatic in order to ensure that the structural shift to environmentally sustainable energy systems does not compromise energy security and affordability, along with much-needed socioeconomic development.

The policy implications of making the transition to a high-income country in the context of a changing global climate and, importantly, efforts to combat climate change can be categorized into two fields: the basics and innovations.

Figure 6.1: Policy areas of focus

Escaping the middle-income trap	
The Basics	The Innovations
<ul style="list-style-type: none"> • Property rights • Education 	<ul style="list-style-type: none"> • Derisking investment • Active industrial policy

Source: Oxford Economics Africa.

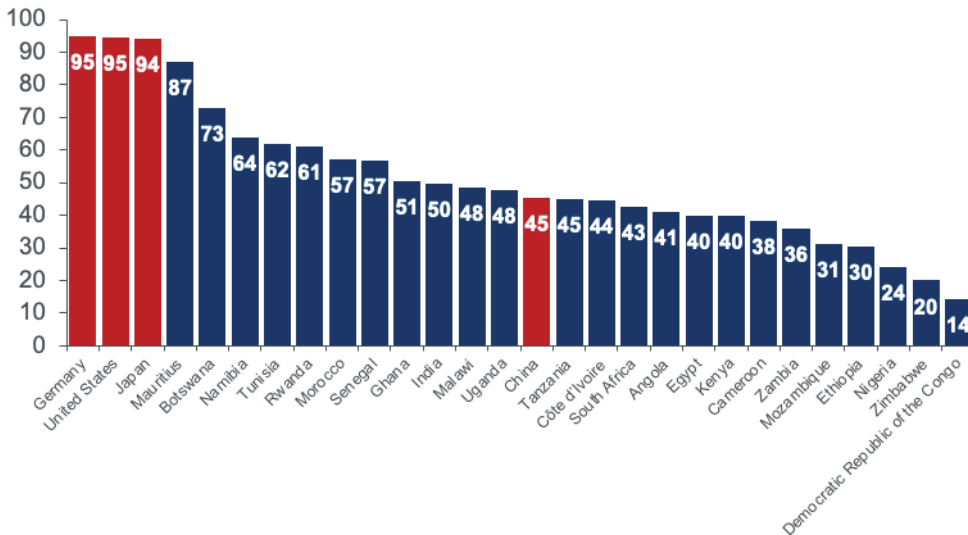
6.1 The basics

Making the transition to high-income status will require the foundations for sustained and diverse economic development to be in place. The most fundamental yet often overlooked of these is secure property rights. This not only refers to protection against theft, but includes the security of knowing that tangible and financial capital will not be expropriated without consent and that a well-functioning judicial system will resolve any disputes in this regard. In addition, the lack of secure property rights disincentivizes long-term saving and investment, which is critical for the development of sophisticated industries. The quality and effectiveness of property rights in Africa are well below the global norm, which has led to the continent underperforming on measures of long-term investment and savings.

Making the transition to high-income status will require the foundations for sustained and diverse economic development to be in place

Figure 6.2: Property rights

Index points, 100=best

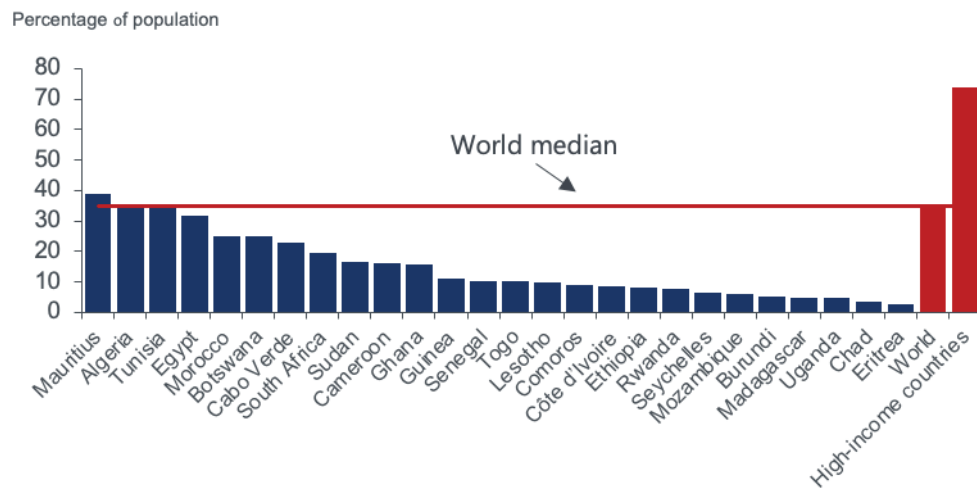
**Source:** The Heritage Foundation.

Another cornerstone of sustainable economic development is an adequately skilled workforce. The rapid economic ascension of the Republic of Korea was preceded by 40 years of investment in quality education. A skilled workforce is critical for vibrant and diverse economic growth and a prerequisite for the structural transition towards innovation needed to catapult an economy into high-income status.

While the problems facing African schools vary, there is a common trend throughout the continent: Enrolment rates drop significantly after primary schooling, there is a shortage of qualified teachers and the structure of educational spending is skewed primarily towards post-primary education. Given that primary schools have the highest enrolment rates, there is a small window of opportunity to educate and retain children in schools. Therefore, greater emphasis should be placed on ensuring that the quality of education in primary schools improves, notably by allocating more resources (e.g., qualified teachers and basic learning supplies) and rethinking the curriculum to ensure that the labour market is prepared for the demands of the future. While access to quality primary education is the first important step in cultivating an adequately skilled labour force, the longer-term aim should be to improve the level of tertiary educational attainment. The level of tertiary educational attainment is indicative of a country's readiness to adopt advanced technologies and innovate. The gross enrolment of populations at tertiary institutions differs widely across the continent. Mauritius has the highest enrolment rate, with 38.7 per cent of the adult population having attended some form of tertiary education, while on the opposite side of the spectrum, Eritrea has an enrolment rate of only 2.6 per cent (UNESCO Institute for Statistics, 2022). Most countries are below the global average for gross tertiary enrolment of 35 per cent, with the African average (excluding North Africa) of 8.6 per cent being very low.

**Another
cornerstone
of sustainable
economic
development is
an adequately
skilled workforce**

Figure 6.3: Gross enrolment in tertiary institutions in Africa



Source: United Nations Educational, Scientific and Cultural Organization.

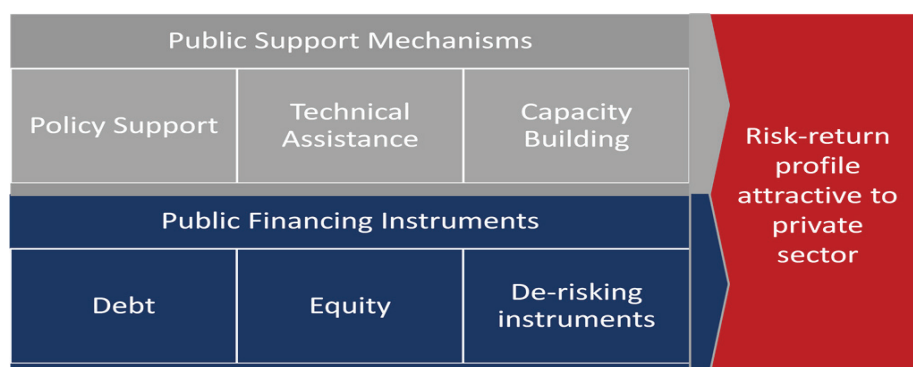
Human capital plays a central role in the transition to high-income status owing to the salient role of innovation. The structural shift towards an innovation-driven economy requires increasing enrolment at the tertiary education level, more specialized technical skills, higher public expenditure on research and development and greater sophistication of ICT infrastructure to enable a larger share of knowledge-based activities in productive sectors (Paus, 2017). The difference between countries' income levels can, in part, be explained by their capacity to create the environment for innovation to thrive (Triki and others, 2022).

Policymakers will have to capitalize on technological advancements and innovations related to finance and climate mitigation

6.2 The innovations

Technological advancements, financial innovations and global efforts towards climate change mitigation have changed the context in which middle-income countries pursue high-income status. Government institutions and public policy will have to play a central role in navigating and indeed capitalizing on this new context. The establishment of governing instruments devoted to a modern industrial strategy and making the transition to green, digital, circular and blue economies will enable African countries to implement high-level institutional and coordination mechanisms that will enhance their intersectoral developmental agendas.

Funding Africa's infrastructure needs while mitigating its environmental impact and improving economic resilience against exogenous shocks will require investment well beyond the capabilities of Governments. Public sector financing and support will need to be leveraged to draw in the private sector. This can be done by providing a secure and comprehensive regulatory framework while simultaneously reducing the risks involved in infrastructure/climate-related investments.

Figure 6.4: Public sector tools to reduce finance risk

Source: Oxford Economics.

With regard to the regulatory framework, to incentivize investment in areas such as green energy (to improve broader access to energy – a prerequisite for industrialization), Governments can put in place carbon prices to discourage the use of high-emitting assets or tax credits for low-carbon investment. Similar incentives can be put in place to encourage investment in other critical areas such as water provision, transport infrastructure and education. A transparent and effective incentive structure, together with the oversight of a well-functioning judiciary and universal protection of property rights, is the first step to bringing the private sector into the fold.

Once the essential public support mechanisms are in place, direct public sector financing schemes can crowd in the private sector. While Governments can finance projects directly, to be used more effectively, public funds need to catalyse financing from the private sector. Governments can crowd in the private sector by reducing perceptions of risk and improving the risk-return profile of investment. This can be done through blended finance, a structuring approach that uses grants or concessional or philanthropic capital to produce a market-equivalent investment opportunity. For example, Governments can use guarantees to reduce the risk of investing in a large infrastructure project. This allows projects to have a risk-return profile that is more appealing to a broader set of investors. Many financial risk management instruments can mitigate or transfer risk across various parties. Credit guarantees, for example, have a guarantor (e.g., the Government) who agrees to pay the loan in case of default, reducing risk by adding this safety net. Guarantees, along with grants and types of subordinated debt, are instruments that can be used as catalytic first-lost capital. When added to capital structures, this encourages institutional investors because it improves the risk/return profile and helps them to meet investment parameters.

While putting in place measures to incentivize private sector participation, a clear and comprehensive industrialization policy is needed to act as a developmental lodestar (see United Nations, Economic Commission for Africa 2014). This requires an alignment of various institutions and actors within Government towards defined developmental objectives.

Importantly, a modern industrial policy not only encompasses investment incentives and the provision of the necessary infrastructure, but also requires a holistic approach that addresses all factors of production: land, labour, capital and entrepreneurship.

To be used more effectively, public funds need to catalyse financing from the private sector

Land as a factor of production within a broader industrialization strategy will take on another level of complexity in the context of climate change. A coherent strategy regarding the management of natural resources will entail decisions on the exploitation of non-renewable natural resources (including hydrocarbons and green minerals) and renewable resources (forests, oceans and renewable energy). Importantly, these decisions will have to feed into other more traditional geospatial decisions regarding infrastructure, urbanization and industrial clustering.

As discussed earlier in the present report, labour in the form of human capital will play a central role in a country's transition to high-income status. An exemplary case study in this regard is the Republic of Korea. Through investment in both human capital and infrastructure over the past two decades, the Republic of Korea was able to establish the ICT industry as a key driver of economic development. A strong focus on research and development, through both government and private investment, drove the technological shift, while securing highly qualified workers was also key to increasing the efficiency of research and development investment. A more productive and educated labour force can act as a catalyst for economic sophistication.

The capital requirements to fund Africa's infrastructure needs are unsurmountable for Governments to take on alone, and private funding will have to be leveraged. A comprehensive industrialization policy not only crowds in private capital, but, through incentives and a broader policy framework, also directs where private capital is channelled. This does not always entail the top-down identification of specific sectors to develop, but rather the creation of an economic environment that cultivates the development of sophisticated and innovation-driven sectors.

Entrepreneurship is the factor of production that merges the other three. Progress on enhancing human capital, improvements to the business environment and incentives to develop specific industries will all encourage the emergence of entrepreneurship. In addition, entrepreneurial activity will be central to creating a culture of innovation, which, in turn, will be critical in moving towards a knowledge-based economy.

A modern industrial policy requires a holistic approach that addresses all factors of production

7. CONCLUSION

Current growth trajectories bode ill for most African nations' prospects of escaping the middle-income trap. Botswana, Gabon and South Africa are required to record average GDP growth rates of approximately 3 per cent annually to achieve high-income status by 2050. While not particularly high, this is much higher than these countries' current growth projections. Furthermore, the required growth rate for Egypt is some 5.5 per cent annually, while that of Ghana and Kenya is similar to that of the Chinese miracle: just over 8 per cent annually. Nigeria's figure is closer to 10 per cent annually

Making the transition to high-income status will require the foundations for sustained and diverse economic development to be in place. The fundamental feature of the transition from a middle- to high-income status is the shift from an investment (or factor-driven) economy to an innovation-driven knowledge economy. This requires an active industrial policy to guide industrial transformation that supports the development of technological capabilities. In addition, funding constraints and the sheer magnitude of the investment required mean that Governments will have to leverage private capital.

Capitalizing on global efforts to mitigate climate change has the potential to catapult African economies on stronger growth trajectories. Investment in clean energy infrastructure and the resulting expansion in access to electricity will be critical to support Africa's industrialization efforts, and consequently, play a central role in pushing African countries towards a high-income status.

The policy implications of making the transition to a high-income country in the context of a changing global climate, and, importantly, efforts to combat climate change can be categorized into two fields: the basics and innovations. The most fundamental yet often overlooked of these is secure property rights. Another cornerstone of sustainable economic development is an adequately skilled workforce. Human capital plays a central role in the transition to a high-income status owing to the salient role of innovation.

Once the essential public support mechanisms are in place, direct public sector financing schemes can crowd in the private sector. While Governments can finance projects directly, to be used more effectively, public funds need to catalyse financing from the private sector. Governments can crowd in the private sector by reducing perceptions of risk and improving the risk-return profile of investments. This can be done through blended finance – a structuring approach that uses grants or concessional/philanthropic capital to produce a market-equivalent investment opportunity.

While putting in place measures to incentivize private sector participation, a clear and comprehensive industrialization policy is needed to act as a developmental lodestar. This requires an alignment of various institutions and actors within Government towards defined developmental objectives. Importantly, a modern industrial policy not only encompasses investment incentives and the provision of the necessary infrastructure, but also requires a holistic approach that addresses all factors of production: land, labour, capital and entrepreneurship.

Once the essential public support mechanisms are in place, direct public-sector financing schemes can crowd in the private sector

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