Graduation of African Least Developed Countries (LDCs)

Emerging issues in a new development landscape
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Introduction
Introduction

Since 1971, when the least developed countries (LDCs) category was created by the United Nations, sub-Saharan African countries have dominated the list.

Six decades later, Africa still tops this list, accounting for 33 out of the 47 LDCs globally. During this period, only three countries (Botswana, Cabo Verde and Equatorial Guinea) have graduated out of the LDC status, with a further two countries expected to graduate in 2024 (Angola and São Tomé and Príncipe). Based on the current graduation criteria, an additional four African countries may be found eligible to graduate by 2030, though this is far less than the 50 percent target that was agreed by the 2011–2020 Programme of Action for LDCs. Pronounced volatility of economic growth has been a defining characteristic of most African LDCs, compounded further by a lack of resilience to shocks, with COVID-19 being the latest and most severe. For example, in the 1980s and 1990s – the two ‘lost decades’ in development under the structural adjustment programmes – Africa’s growth rates were several times more volatile than those of other developing or developed countries.

This paper analyses growth experiences of African LDCs, including those that graduated from the LDC status and their related structural transformation during 2000–2020. It also examines some of the push and pull factors in graduating from the category, re-examines the theoretical underpinnings of the graduation criteria, and puts graduation in the context of a changed development landscape for Africa and the world. The paper reveals that most African LDCs were unable to capitalize on the commodity price boom of the early 2000s before the 2008–2009 global financial crisis and notes that despite experiencing high growth rates, the continent has seen little structural transformation to support this. It also finds that African LDC economies remain less diversified with correspondingly little complexity and low productive capacities, meaning they have been highly susceptible to and often adversely affected by falling commodity prices in recent history. Where relevant, African LDC experiences are contrasted with those of Asian LDCs, revealing that in general, Asian LDCs are more diversified, have higher productive capacities and have better growth experiences. Although there is strong progress being made in human assets accumulation in Burkina Faso, Burundi, Ethiopia, Mozambique, Rwanda and Senegal, it is still below the threshold according to the Human Assets Index (HAI) criteria for graduation.

However, there are plenty of opportunities for African LDCs, given the continent’s large and young population, rapid technological changes and the fourth industrial revolution, the recent African Continental Free Trade Area (AfCFTA) agreement, and the profound structural shifts in economic activity towards the Global South.

LDCs still face risks though, in particular the resource ‘curse’, lack of diversification, infrastructure deficits, climate change and shifting production patterns. Capitalizing on opportunities while addressing these risks will contribute significantly to accelerating the graduation of African countries from the LDC category. These findings should provide useful insights as part of the United Nations forthcoming review of LDC graduation, as well as the next Programme of Action for LDCs in the decade of action.

1 See William (2001).
2 See UNCTAD (2011).
1. Background
1. Background

In the 2011 Istanbul Programme of Action (IPoA) for Least Developed Countries (LDCs), the international community endorsed the aim of “enabling half the number of least developed countries to meet the criteria for graduation by 2020” (United Nations, 2011).

This paper places the importance of this goal into the current policy landscape characterized by the pledge of the international community to ensure a ‘smooth’ transition; methodological concerns regarding determining eligibility for graduation; and shifting thinking on development against the backdrop of the Sustainable Development Goals (SDGs).

The Istanbul milestone was set after 40 years of policy experimentation with the categorization of LDCs, first discussed at a 1964 session of United Nations Conference on Trade and Development (UNCTAD) in Geneva, recognizing the need to take into account the large differences between ‘poor’ and ‘rich’ countries (United Nations Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States [UN-OHRLLS], n.d.). At Second Session of the United Nations Conference on Trade and Development, held in Delhi in 1968, member states agreed to create the category of LDCs. A tentative list of 25 LDCs was approved by the Twenty-sixth Session of the United Nations General Assembly (resolution number 2768) on November 18, 1971 with “a view to attracting special international support for the most vulnerable and disadvantaged members of the UN family.”

There are currently 46 LDCs: 33 in Africa, 9 in Asia, 3 in Oceania and 1 in Latin America (Map 1). Collectively, the LDCs account for 13 percent of the world population, just above 1 percent of global output, 1 percent of exports and 2 percent of foreign direct investment (FDI) inflows.

If all LDCs were grouped into a single unit, like a country, they would be an economy equivalent to the size of Sweden (with a value of about $600 billion) with the third largest population in the world.

In fact, the scale of this population has made this bloc politically difficult to ignore – more than 650 million people live in African LDCs alone.

The LDC category is heterogeneous, ranging from Tuvalu, with a population of about 10,000, to Bangladesh, with more than 150 million inhabitants. Also part of this category are Burundi, with average per capita income of under $300 and – until recently – Equatorial Guinea, with average income of over $8,000. The complex structure of the indexes used to determine eligibility for inclusion and graduation requires conscious effort to capture the structural characteristics of LDCs. However, a country’s graduation from LDC status is influenced by the status of its peers. Several advanced countries and multilateral institutions still do not formally recognize the LDC category. As a construct of the United Nations, the LDC category is used more extensively by grant-giving bilateral and multilateral development agencies, and the World Trade Organization (WTO), to guide the allocation of preferential aid, market access, and special and differential treatment (S&DT) in trade.

3 Three eligible countries, namely Ghana, Papua New Guinea and Zimbabwe, did not agree to belong to the LDC category in 1971.
The global community appears exasperated seeing the number of LDCs almost double – from 25 at birth to 47 at present – creating a ‘permanent club’ of the poor. It reflects negatively on the governance of developing countries, and also embarrasses advanced nations that have spent billions of dollars on overseas development assistance (ODA) over five decades. It was this reckoning that evolved into an ambitious goal during the Fourth United Nations Conference on Least Developed Countries in 2011 that adopted the IPOA for the decade 2011–2020. The goal of halving the list of LDCs by 2020 will, however, be unmet: between 2011 and 2021, 14 countries will have been found eligible, with effective dates for graduation spread throughout the decade (Tables 2 and 3).

Many eligible countries have often sought to postpone their graduation based on two sets of concerns.

i. The first is related to buying time to recover from shocks emanating from natural disasters or global economic conditions;

ii. the second is related to perceived fears about the uncertainty associated with the loss of concessional aid and preferential market access.

The graduation of Samoa was deferred after the 2009 tsunami and the graduation of Vanuatu was deferred following the disaster of Cyclone Pam in 2015 (UNCTAD, 2016; Table 1). Nepal postponed its graduation in 2018 citing sluggish growth at a time of political transition and reconstruction needs in the aftermath of the 2015 earthquake. The uncertainty imposed by the COVID-19 pandemic in 2020 is also likely to encourage countries to ‘wait and see’.

Across African LDCs, the IPOA is being implemented simultaneously with the 2030 Agenda for Sustainable Development and Agenda 2063, a continental action plan developed by the African Union. The first two LDCs to graduate were both African: Botswana in 1994 and Cabo Verde in 2007. Equatorial Guinea was the first country to graduate through the income-only criterion. It increased its gross national income (GNI) per capita manyfold above the income-only graduation threshold of $2,460. Through oil-propelled growth, it was able to increase its GNI per capita to $14,538 (in 2017) but it lags behind on both the Human Assets Index (HAI) and Economic Vulnerability Index as it continues to have low levels of human development and an undiversified economy. Angola, another oil exporter, has been deemed to be eligible for graduation in 2024. São Tomé and Príncipe (2024) is next in line.

Map 1. LDCs
2. Graduation and international support measures
LDCs, by definition, are low-income countries facing severe structural impediments.

In 1971, these deficiencies were initially assessed through three criteria: i) gross domestic product (GDP) per capita (of less than $100); ii) share of manufacturing in GDP (of less than 10 percent); and iii) adult literacy (rate less than 20 percent). LDCs are characterized by weak human and institutional capacities, low and unequal income distribution, and scarce domestic financial resources, and in some cases a history of (or ongoing) conflict and political instability.

LDC inclusion and graduation criteria have been refined over the years, adding relevant advances in development theory, statistical methodology and data availability. As mentioned in an earlier section of this paper, until the 2018 triennial review, the identification of LDCs was based on three criteria. These appear in the left column of Table 1. The right column reflects new proposed changes effective from 2020.

There are three main considerations for graduation:

- A first consideration is the fit of the statistical criteria to the country context. While all LDCs have common characteristics, each is unique. The statistical criteria focus on the common features, while the situational analyses provide confirmation that the fit is appropriate for the country.

- A second consideration is the sustainability of graduation. While thresholds mark levels of progress, it is important that the underlying basis and overall pace of progress confirm a seamless movement from one state of development to the next without structural impediment. Thus, income-only criteria may neglect productive capacities, while human-assets-only criteria may neglect the need for growth to deploy idle assets.

- The third consideration is the incidence of graduation. Withdrawal of LDC status is necessarily disruptive in the short term for some sectors of the economy or segments of society. Grace periods prolong benefits, while proactive measures facilitate adjustment. A combination is desirable for a smooth and inclusive transition.

Countries that have gone through the graduation process so far have all met the income criteria. An economy needs a push to unleash its human asset and productive capabilities, which in turn accelerate the growth process. A stronger push is required to reach a more distant threshold income level. Failure to generate sufficient momentum risks a backward slide to former LDC conditions. Economists depict the process with the Harrod-Domar model, in which income growth accelerates investment and income: if income growth is less than desired growth, the economy’s capital and human assets are underutilized, stagnation sets in and skilled workers migrate. Put simply, human assets are necessary but not sufficient for sustainable development: an environment that enables growth must be created to drive the structural transformation and economic diversification necessary for successful graduation to middle-income status.

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4 This section draws on an internal policy paper prepared by Khalil Hamdani to inform the graduation strategy of an Asian LDC.
5 In 2016, the Committee for Development Policy received a specific mandate from Member States (as contained in the United Nations General Assembly resolution 70/294 and Economic and Social Council resolution 2016/15) to carry out a comprehensive review of the LDC criteria, taking into account the 2030 Agenda for Sustainable Development and other relevant agendas.
6 Only Nepal is seeking to graduate from below the income threshold.
Graduation of African Least Developed Countries (LDCs)

### Table 1. Indicators for LDC graduation

<table>
<thead>
<tr>
<th><strong>Existing indicators</strong> (applied for 2018 triennial review)</th>
<th><strong>Revised indicators</strong> (proposed for 2021 triennial review)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gross national income per capita</strong></td>
<td><strong>Gross national income per capita</strong></td>
</tr>
<tr>
<td>GNI captures the income status and the level of productive resources in a country.</td>
<td>No change in the indicator. The threshold is expected to be slightly below the 2018 value of $1,025.</td>
</tr>
<tr>
<td>The inclusion threshold in 2018 was set at $1,025 and the graduation threshold at 20 percent above the inclusion threshold ($1,230).⁷</td>
<td></td>
</tr>
<tr>
<td>The income-only graduation threshold was twice the graduation threshold. At the 2018 review it was $2,460.</td>
<td></td>
</tr>
<tr>
<td><strong>Human Assets Index</strong></td>
<td><strong>Human Assets Index</strong></td>
</tr>
<tr>
<td>The Human Assets Index (HAI) is a measure of the level of human capital, captured by health and education sub-indexes (5 indicators).</td>
<td><strong>Health sub-index</strong></td>
</tr>
<tr>
<td><strong>Health sub-index</strong></td>
<td>Under-five mortality rate</td>
</tr>
<tr>
<td>Under-five mortality rate</td>
<td>Maternal mortality ratio</td>
</tr>
<tr>
<td>Percentage of population undernourished</td>
<td>Prevalence of stunting</td>
</tr>
<tr>
<td>Maternal mortality ratio</td>
<td></td>
</tr>
<tr>
<td><strong>Education sub-index</strong></td>
<td></td>
</tr>
<tr>
<td>Gross secondary school enrolment ratio</td>
<td></td>
</tr>
<tr>
<td>Adult literacy rate</td>
<td></td>
</tr>
<tr>
<td>The threshold for the HAI was set at 66 and above for graduation and 60 and below for inclusion.</td>
<td>Each indicator has an equal weight of 1/6.</td>
</tr>
<tr>
<td><strong>Economic Vulnerability Index (EVI)</strong></td>
<td><strong>Economic and Environmental Vulnerability Index</strong></td>
</tr>
<tr>
<td><strong>Exposure sub-index</strong></td>
<td><strong>Economic vulnerability sub-index</strong></td>
</tr>
<tr>
<td>Population</td>
<td>Share of agriculture, forestry and fishing in GDP</td>
</tr>
<tr>
<td>Remoteness</td>
<td>Remoteness and landlockedness</td>
</tr>
<tr>
<td>Merchandise export concentration</td>
<td>Merchandise export concentration</td>
</tr>
<tr>
<td>Share of agriculture, hunting, forestry and fishing in GDP</td>
<td>Instability of exports of goods and services</td>
</tr>
<tr>
<td>Share of population in low elevated coastal zones</td>
<td></td>
</tr>
<tr>
<td><strong>Shock sub-index</strong></td>
<td></td>
</tr>
<tr>
<td>Instability of exports of goods and services</td>
<td></td>
</tr>
<tr>
<td>Victims of natural disasters</td>
<td></td>
</tr>
<tr>
<td>Instability of agricultural production</td>
<td></td>
</tr>
<tr>
<td>The Economic Vulnerability Index captures structural vulnerability to economic and environmental shocks and is composed of eight indicators reflecting ‘exposure’ and ‘shocks’.</td>
<td>The ‘population’ indicator is dropped. The ‘remoteness’ indicator is renamed ‘remoteness and landlockedness’. The ‘victims of natural disasters’ indicator is renamed ‘victims of disasters’. The ‘share of population living in drylands’ indicator is added.</td>
</tr>
<tr>
<td>The threshold for the Economic Vulnerability Index is set at 32 and below for graduation and 36 and above for inclusion.</td>
<td>Each indicator has an equal weight of 1/8. EVI thresholds for inclusion and graduation are unchanged.</td>
</tr>
</tbody>
</table>

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⁷ GNI is calculated by converting national accounts data into USD using the World Bank Atlas method (to reduce impact of short-term exchange rate fluctuations). GNI per capita is calculated by dividing GNI in USD by the annual population of a country.
Graduation from the LDC group is based on a triennial review, the conclusions of which the Committee for Development Policy (CDP) uses to advise the Economic and Social Council (ECOSOC) on whether to allow graduation. Complementary country-specific information and the views of the government are also taken into account. While inclusion in the list of LDCs is immediate, graduation is a gradual process. To be eligible for graduation, the country must meet at least two of the three criteria or have the income criterion satisfied by a wide margin (twice the threshold of $2,460) in two consecutive triennial reviews.

Additionally, the CDP takes into account two supplementary inputs: the Vulnerability Profile (VP) produced by UNCTAD and the Ex-ante Impact Assessment (IA) prepared by the United Nations Department of Economic and Social Affairs (UN DESA). The VP identifies vulnerabilities that are not covered by the Economic Vulnerability Index along with other structural features of the country; while the IA explores the possible consequences of the loss of LDC status on international trade, development financing and technical assistance. Once the CDP reviews the reports, it forwards the recommendation to ECOSOC for endorsement. A country graduates from the group three years after the United Nations General Assembly acts on the recommendation of the Council. This time period is critical as it provides prospective countries with the opportunity to come up with transition strategies and force new agreements with development and trading partners. This ensures that the phasing out of International Support Measures (ISMs) does not result in a disruption of the country’s development efforts, as mandated by United Nations General Assembly resolutions 59/209 and 67/221.

LDCs benefit from a multitude of ISMs, broadly clustered into three categories: i) ODA, such as development financing and technical assistance; ii) international trade, including support through preferential market access along with S&DT through the WTO and modest capacity-building through Enhanced Integrated Framework (EIF); and iii) other forms of assistance such as travel support for scholarships, attending the United Nations General Assembly, among other activities.

LDCs, however, have not always been able to maximize these benefits for two reasons:

- Related parties in LDCs are not fully aware of the ISMs due to implementational and communicational failure of governments. This is more pronounced in international trade preferences, where firms (and even governments) are not fully aware of the margins of trade preferences.
- ISMs have been sub-optimally adopted due to a lack of supply-side capacities and insufficient mapping of benefits with LDC constraints: stringent requirements to meet the rules of origin, for instance, restrict the extent to which trade preferences can be availed of; or weak bureaucracies that cannot absorb all the concessional aid on offer.

LDCs enjoy 136 international support measures, as well as additional commitments of partnership with foundations and members of the private sector, mainly in the areas of trade and development assistance.

Although ODA for LDCs has been increasing, in 2017, only 18 per cent of total ODA was allocated to LDCs: of the $166.6 billion total, only $30.2 billion went to LDCs. Despite the longstanding United Nations target of allocating 0.15–0.2 percent of GNI to LDCs, there are no clear provisions for the allocation of ODA among LDCs. Donor countries do not consistently allocate aid according to the needs and capacities of recipient countries but use other factors to determine country allocations (UN-OHRLLS, n.d.).

Likewise, Angola is expected to graduate in 2024, but with the onslaught of the COVID-19 pandemic, there may be reconsideration.

Overall, the benefits of graduation are twofold:

- It can galvanize development efforts within the domestic economy. Graduation can psychologically uplift political consensus and empirically validate strategic direction.\(^{10}\)

- It can improve perceptions in international markets. Finance may be more accessible, credit terms may be more favourable, and bond placements may secure higher ratings. Foreign investors may also be more forthcoming. This benefit could be short-lived if the country’s risk profile, borrowing record and business environment does not measure up to expectations. However, if accompanied with regulatory, institutional and policy improvements, graduation can denote a positive shift in external perceptions.

A smooth transition involves a shift with minimal disruption to economic activity from withdrawal of support measures. A sustainable transition involves a move towards a more dynamic, self-sustaining development, arising from reduced structural impediments. Thus, the aim of transition strategy is to lessen incidence, and to facilitate adjustment, to generate momentum towards effective graduation from a least developed to a developing, middle-income economy.

\(^{10}\) UNCTAD (2016), p. 45, refers to a possible kudos effect: “the opportunity for a government to enhance its reputation and gain future political advantage by claiming responsibility for having brought a country from LDC status to parity with other developing countries.”
### Table 2. LDCs that have passed graduation

<table>
<thead>
<tr>
<th>LDCs</th>
<th>Graduation date</th>
<th>Current income level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Botswana*</td>
<td>1994</td>
<td>Upper middle income</td>
</tr>
<tr>
<td>Cabo Verde*</td>
<td>2007</td>
<td>Lower middle income</td>
</tr>
<tr>
<td>Maldives</td>
<td>2011</td>
<td>Upper middle income</td>
</tr>
<tr>
<td>Samoa</td>
<td>2014</td>
<td>Upper middle income</td>
</tr>
<tr>
<td>Equatorial Guinea*</td>
<td>2017</td>
<td>Upper middle income</td>
</tr>
<tr>
<td>Vanuatu</td>
<td>2020</td>
<td>Lower middle income</td>
</tr>
</tbody>
</table>

*Sub-Saharan Africa

### Table 3. LDCs eligible for graduation in 2018 and 2021

<table>
<thead>
<tr>
<th>LDCs</th>
<th>Income level</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angola</td>
<td>Lower middle income</td>
<td>Found eligible in 2015 and 2018; scheduled to graduate in 2024</td>
</tr>
<tr>
<td>Tuvalu</td>
<td>Upper middle income</td>
<td>Found eligible in 2012; ECOSOC decision in 2021</td>
</tr>
<tr>
<td>Kiribati</td>
<td>Lower middle income</td>
<td>Found eligible in 2018 for the third time; ECOSOC decision in 2021</td>
</tr>
<tr>
<td>Bhutan</td>
<td>Lower middle income</td>
<td>Found eligible in 2018 for the second time; scheduled to graduate in 2023</td>
</tr>
<tr>
<td>São Tomé and Príncipe</td>
<td>Lower middle income</td>
<td>Found eligible in 2018 for the second time; scheduled to graduate in 2024</td>
</tr>
<tr>
<td>Solomon Islands</td>
<td>Lower middle income</td>
<td>Found eligible in 2018 for the second time; scheduled to graduate in 2024</td>
</tr>
<tr>
<td>Nepal</td>
<td>Lower middle income</td>
<td>Found eligible in 2018 for the second time; NOT recommended for graduation in 2018</td>
</tr>
<tr>
<td>Timor-Leste</td>
<td>Lower middle income</td>
<td>Found eligible in 2018 for the second time; NOT recommended for graduation in 2018</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>Lower middle income</td>
<td>Found eligible in 2018 for the first time</td>
</tr>
<tr>
<td>Lao PDR</td>
<td>Lower middle income</td>
<td>Found eligible in 2018 for the first time</td>
</tr>
<tr>
<td>Myanmar</td>
<td>Lower middle income</td>
<td>Found eligible in 2018 for the first time</td>
</tr>
</tbody>
</table>

Note: World Bank classification (as of July 2020).
The ISMs are phased out gradually, with the intensity and approach depending on the type of assistance. For instance, as ODA is typically guided by economic, humanitarian or political considerations rather than on whether the country is an LDC, graduation does not necessarily impact its flows. Many LDCs rely much more on concessional loans from multilateral development banks (MDBs) than grants from bilateral development agencies. Similarly, through commitments made at the WTO, many trade partners, especially the European Union (EU), offer LDCs duty-free quota-free market access for their exports. The elimination of this facility makes it vital for graduating countries to undertake a thorough review of the potential impact of elimination of LDC trade preferences.

If deemed necessary, countries can negotiate the extension of preferences with trading partners for a couple of years. For instance, China granted a transition period of three years for duty-free treatment for Samoa after it graduated in 2014. Likewise, the EU offers a generalized scheme of preferences ‘plus’ (GSP+) status which offers full removal of EU customs tariffs on over 66 percent of tariff lines after the graduating country ratifies and implements 27 conventions related to labour and human rights, good governance and environmental protection. Similarly, Samoa received support through EIF on trade facilitation and implementation of institutional reforms even after graduation. CDP also recommends that trading partners “consider alternative market access solutions for graduating countries post-graduation, such as free trade agreements that are not specific to LDCs.”

Other assistance such as travel-related support, if requested, can also be extended for up to three years. This support was used by Cabo Verde and Maldives after they graduated. Graduates are also given an 80 percent discount rate on contributions to United Nations peacekeeping operations.

a. Country cases

This section describes the experience of three African LDCs after their graduation. The key lessons derived from these cases is that: i) good governance can steer a country towards and beyond sustainable graduation even if the initial conditions were unfavourable, and ii) graduation based on the income-only criterion reflects the ‘lopsided’ character of development which makes the country vulnerable to reversal.

**Equatorial Guinea**

Graduating in 2017 by meeting the income-only criteria, Equatorial Guinea remains highly dependent on oil. Petroleum represents 90 percent of its total exports and fiscal revenue. However, with depletion of its existing oil reserves along with low levels of investment, real GDP has contracted every year since 2013 (see Figure 1 below).

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![Figure 1. GDP per capita growth (%: 5-year average)](source: World Bank (2020)).

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11 See World Bank (2020); United Nations (2019).
In early 2020, GDP was expected to further contract by two percent; the COVID-19 pandemic and falling oil prices have lowered the estimation further by -8.4 percent. Growth rates have also been volatile: between 1997 and 2015, they fluctuated between 95 percent and -7 percent.

Equatorial Guinea’s progress on the HAI remains slow, increasing only by 0.7 points, from 57.4 during graduation to 58.1 in 2019. The gross secondary enrolment ratio remains unchanged, at 26 percent, but the under-five mortality rate has improved from 96 to 89 per 1,000 live births. Equatorial Guinea’s Economic Vulnerability Index (EVI) remains below the threshold of 32. While its score in instability of exports of goods and services has improved, it is not a result of fundamental change in the economy but rather a statistical outcome (changing time period to calculate the index). Likewise, three years after its graduation, the country’s productive capacity index (PCI) is lower than the LDC group’s average (45) at 42.9 and is significantly falling behind on the human capital component of PCI.

**Figure 2.** Equatorial Guinea, total value-added growth and contributions (%)
Cabo Verde\textsuperscript{12}

Cabo Verde graduated in 2007 by meeting the GNI per capita threshold and the HAI threshold. Its economy heavily depends on external sources of financing, notably remittance and ODA. Its graduation discourse, therefore, centred around the potential loss of aid that accounted for an average of 18 percent of GNI, 10 years prior to its graduation; while ODA has fallen, it still accounts for 14 percent of GNI.

The continued growth achieved by Cabo Verde since its graduation is a result of policy measures taken during the graduating process. For example, the tourism sector saw a range of sectoral and investment policies that attracted productive investment and boosted growth years before it graduated. However, progress in economic and environmental vulnerability has remained slow – the EVI stands at 35.9, 3.9 points above the required score of below 32.

Remittances supplement investment and expenditure in the social sector. The involvement of the diaspora in national policymaking is important. Its Ministry of Diaspora Affairs focuses on incentivizing remittance inflows through formal channels and seeks to facilitate diaspora investment. For a small island state in West Africa, Cabo Verde is a development ‘success’ on account of relatively effective governance.

Figure 3. Cabo Verde, total value-added growth and contributions (%)

Source: UNCTAD (2020).

\textsuperscript{12} See CDP (2018); UN DESA (2018a).
Botswana\textsuperscript{13}

As the first country to graduate from the LDC group in 1994, Botswana has been one of the fastest growing economies for several decades, enabling it to enlist itself in the upper middle-income country group in 2005. High rates of growth and investment in human capital have alleviated poverty from 30 percent in 2003 to less than 16 percent in 2017. Its GNI per capita stands at $6,845.

Growth in Botswana was spearheaded by mining (particularly diamond extraction) in the 1970s and 1980s, while services have emerged as a significant sector since the 1990s. The country has also invested in providing equitable access to basic services such as education, health and infrastructure. Botswana’s HAI stands at 79, with improvements particularly in health-related indicators such as the under-five mortality rate, which improved from 86 per 1000 live births to 36 between 2000 and 2018. Its Gini coefficient, a measure of inequality, is quite high at 53 percent.

\textbf{Figure 4. Botswana, total value-added growth and contributions (%)}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{Botswana_Growth.png}
\caption{Botswana, total value-added growth and contributions (%)}
\end{figure}

Source: UNCTAD (2020).

\begin{footnotesize}
\begin{itemize}
\item[\textsuperscript{13}] See World Bank (2005); UN DESA (2018c).
\end{itemize}
\end{footnotesize}
The country has a history of effective natural resource management along with conversion of natural wealth into productive investment in built capital and human assets. However, its high concentration of diamonds in merchandise exports, along with the geographical constraints imposed by its small size and landlockedness, lead the country to score poorly in the Economic Vulnerability Index (45.5), making it vulnerable to external shocks. Nonetheless, in recent years, Botswana has experienced substantial economic diversification away from natural resources: household consumption, along with the services sector, have become major contributors to national output.

**Figure 5. Economic diversification in Botswana**

Source: UNCTAD (2020).
3. Methodological issues in LDC eligibility criteria
3. Methodological issues in LDC eligibility criteria

The LDC eligibility criteria were most recently revised on 31 March 2020 by the CDP (see Table 1). The revision “confirmed the basic concept of the criteria, simplified their structure and expanded their coverage of structural impediments to sustainable development” (CDP, 2020).

Revisions are necessitated by measurement improvements or conceptual reconsiderations. Here, the emphasis on gender inequality and malnutrition, and a broadened coverage of environmental vulnerability – including the addition of an indicator on the share of population living in drylands – demonstrate the updating of conceptual norms.

However, the new set of revisions appear to be more of a tweak than an overhaul. In fact, in all revisions since 1971, an overwhelming emphasis has been placed on continuity and stability of the basic premises rather than a rethink of the continued relevance of the variables and indicators. Advances made in the science of composite indicators have also not been internalized.

Composite indexes such as the HAI and the EVI – and also the GNI per capita – are valuable communication tools and inputs for policymaking, but they present methodological complications, can be easily manipulated and could lead to misleading information about countries and policies. This section highlights the methodological steps that could be taken to make the composite indexes much more scientific and rigorous, following the guidelines of the OECD and the Joint Research Centre of the European Commission (2008).

a. Theoretical framework

The LDC criteria are supposed to capture structural weaknesses that reflect under-development. The current indicators related to income, human assets and vulnerability are much broader than the original list of income, size of manufacturing and literacy, but the ‘paradigm’ is still stuck in the past.

Development today is a much more well-rounded concept, interpreted as an expansion of freedoms, opportunities and capabilities. The premise that people are the real wealth of nations, and the real end of development, led the United Nations to define human development as a “process of enlarging people’s choices.”

These choices can be infinite, but the three essential ones are for people to lead a long and healthy life, to acquire knowledge and have access to resources needed for a decent standard of living. Additional choices range from socio-economic and political freedoms to opportunities for being creative and productive, and enjoying personal self-respect and guaranteed human rights (United Nations Development Programme [UNDP], 1990).

The paradigm of human development views poverty as a deprivation of capabilities, and not just of income. It is seen as a denial of opportunities to lead the kind of life that people have reason to choose and value. The notion of human capabilities, therefore, focuses on what people are actually able to do and what people are able to be. Incomes are only important for their instrumental roles in expanding opportunities. The paradigm, therefore, rests on two pillars: i) formation of human capabilities, such as being educated, healthy and in a position to command control over resources; and ii) the use people make of these acquired capabilities for leisure, production, political-economic liberties and participation in sociocultural affairs. This is laid the groundwork for the concept of human development and its measure, the Human Development Index (HDI).

In an era of sustainable development, a fundamental rethink of the theoretical foundation of the LDC classification is overdue.

This needs to be an exercise that transcends patchwork. Measures like the HDI and the Multidimensional Poverty Index are gaining currency not only for their quantitative efficacy, but also their philosophical tethering to the concept of development as an augmentation of capabilities and an enlargement of people’s choices. The LDC criteria need to be derived from a renewed conception of sustainable development in the 21st Century, and not simply be an arbitrary list. It is important to establish that the eligibility criteria are not ‘atheoretical’.

14 This section is adapted from Waglé (2015).
b. Variable selection and imputation of missing data

The choice of variable is guided by the theoretical framework. Variables need to be selected on the basis of relevance, analytical soundness, timeliness and accessibility. Cross-country comparability of data often limits the choice of variables. While survey or qualitative data are increasingly used to compute composite indexes, the compromises made in assessing the strengths and weaknesses of the indicators need to be transparently explained. When data are missing, there are ways to fill them through single or multiple imputation.

What is badly defined is likely to be badly measured; the theoretical foundation of composite indexes, therefore, need to be continually revisited. There should always be clarity on the phenomenon being measured: are we measuring inputs or outputs? Or outcomes? Are the variables reflecting ‘stock’ or ‘flow’?

The indicators of graduation criteria currently used are largely ‘first-generation’ measures of development that look at basic achievements in health, education, nutrition, economic vulnerability and average income. These are often ‘stock’ variables that are accrued over decades. They do not capture progress in ‘second-generation’ development challenges that deal with quality. For example, high gross secondary enrolment numbers give no indication of the quality of learning or the rate of attrition. Building on early childhood investments, skills beget skills in a complementary and dynamic way (Heckman, 2012). Shortcomings in the early years, starting with brain formation, accumulate over time and can translate into lifelong liabilities in mental and physical development that may be impossible to overcome at later stages. This implies that the roots of inequality are planted early in life.

Underinvestment in children, particularly from disadvantaged families, leads to an intergenerational persistence of poverty.

Challenges of health and education now need to be met in an integrated manner with a series of interventions from birth to the age of five. This implies an allocation of the required funds for adequate nutrition, pre-school programmes, parenting skills and other known interventions that enrich cognitive competence. Similarly, in the health component, the under-five mortality and maternal mortality rates do not reflect the quality of health care received by people when they are alive.

c. Multivariate analysis

When indicators are chosen arbitrarily, the underlying interrelationships between them are ignored, often leading to ‘indicator-rich but information-poor’ indexes.

The HAI and Economic Vulnerability Index together comprise 14 indicators, many of which are strongly correlated to each other. By using methods such as principal components analysis or factor analysis, the indicators that account for the greatest variation among countries can be identified and filtered.

Indicators that are similar across countries are of little interest. Adult literacy, for example, is no longer considered a useful measure of educational attainment. Ideally, cross-national assessments of learning in science, mathematics and reading levels proxy for educational quality, but such data is not universally available in LDCs. The HDI replaced literacy with mean years of schooling, as calculated in Barro and Lee (1993; 1996; 2001; 2010), as the indicator to measure the education of adults because this indicator is more frequent, and has broader coverage and better discriminatory power than literacy. The world average literacy rate rose from 66 to 84 percent between 1970 and 2010; almost half of countries have a literacy rate higher than 95 percent and developed countries no longer collect data on basic literacy (United Nations Educational, Scientific and Cultural Organization Institute for Statistics, n.d.).

Several indicators that are currently used to compute the EVI also exhibit an overlap or are methodologically problematic. For example, remoteness is a difficulty for landlocked countries where transport links are few and delays and costs are present at border crossings. The criteria measure distance to world markets and adjust for transit difficulty. However, the distance measure should exclude regional markets, which are a default destination for unreachable world markets. As major trade of many LDCs is in the subregional market, the remoteness calculation for its global trade is underestimated. Therefore, under existing methods, LDCs are found to be physically less distant from world markets than many non-LDCs.

The world average literacy rate rose from 66 to 84 percent between 1970 and 2010.
Furthermore, the environment is a concern of low-lying coastal zones and also of fragile mountain areas at risk of being strongly impacted by climate change. While the revised Economic Vulnerability Index broadens the environmental vulnerability sub-index, it remains incomplete. In the aftermath of several economic crises, including the one aggravated by COVID-19, vulnerability has come to assume greater policy salience. From factors like horizontal inequality making societies vulnerable to violent conflict to the problem of the ‘missing middle’ in social protection where the needs of informal sector workers are often unaccounted for, the conception of vulnerability is broadening from mere ‘helplessness’ to reducing exposure to risks and uncertainty.

d. Normalization, weighting and aggregation

Indicators have different measurement units. We ‘normalize’ data before aggregating them by rendering them unitless and making them comparable. In the LDC methodology, the ‘min-max’ rule is used to normalize indicators to achieve an identical range [0 1] by subtracting the minimum value and dividing by the range of the indicator values. Extreme values, however, could distort the transformed indicator.

An important issue in composite indicators is to decide how the sub-indexes are weighted, and what the functional form of the index is. When indicators are additively aggregated, there is perfect substitution across the dimensions: the health sub-index compensates for the educational sub-index and the environmental vulnerability sub-index compensates for the economic vulnerability sub-index.

The marginal rate of substitution between dimensional achievements is constant, which undermines policy prioritization. For example, during and after pandemics like COVID-19 that impact mortality and life expectancy more directly than education outcomes, the linear aggregation method does not prompt policymakers to focus more on health. If the maximization of the index is the goal, this method of aggregation highlights ‘corner solutions’ of emphasizing one dimension and ignoring others. A shift to a geometric mean to aggregate the sub-indexes redresses the problem of perfect substitutability between variables. A multiplicative form accentuates the worst deprivations.

An important review of the way indicators are chosen, weighted and aggregated must also include a thorough uncertainty and sensitivity analysis to determine how robust the indexes are when faced with differing weights and functional forms. The LDC sub-indexes currently in use are simple and transparent but they must also be scientifically vetted using the framework outlined above. This is yet to be done with the rigour necessary to classify almost 25 percent of the countries worldwide with profound economic implications.

**Ten steps for constructing a credible composite index**

1. Theoretical framework
2. Data selection
3. Imputation of missing data
4. Multivariate analysis
5. Normalization
6. Weighting and aggregation
7. Uncertainty and sensitivity
8. Back to the data
9. Links to other indicators
10. Visualization of results

Source: Adapted from OECD and the Joint Research Centre of the European Commission (2008).
4. Shifts in development thinking
4. Shifts in **development thinking**

The decade beginning in 2020 marks an era of accelerated implementation of the sustainable development agenda.

This reconfigures income-centric conceptions of development, economic diversification, the nature of shocks and vulnerability, among others. These have direct implications for the way the category of LDCs is created, and what graduation means in a new development landscape filled both with opportunities and risks.

**a. Beyond income: linkages with the Sustainable Development Goals**

Development is about improving the quality of life. The conventional, mainstream emphasis on measuring national progress in terms of GDP is not only inadequate to capture the diverse facets of well-being, but it blurs the end goal of development itself, which is overall human welfare, not material output measured monetarily. Agenda 2030 articulates the SDGs, which were born out of the need to pursue socially inclusive and environmentally sustainable economic growth in an integrated manner. The normative basis of sustainable development is the pursuit of a good global society supported by three core beliefs:

1. **There should not be poverty amidst plenty.**
2. **The global community of nations must foster social cohesion and mobility, reduce inequalities and end all forms of discrimination within and across societies.**
3. **Humans have a moral obligation to preserve planet Earth.**

A corollary of the above is that while the pursuit of increased incomes is an important focus of development, quality of life captures a broader set of achievements, from better education and nutrition, to a cleaner environment and even realization of greater individual freedoms. As higher income is seen as a necessary – but not sufficient – condition to achieving many of these broader goals, the issue of economic growth is central to the study of development, as is the concern about how this may or may not translate into reduced poverty and decreased inequality between the genders, within and among groups and nations, and across generations; and whether all these processes to generate and share prosperity adversely impact environmental sustainability and planetary boundaries.

**However, sustainable development is not just a normative concept: it is also a science of complex systems.** The interaction between the elements bears the emerging properties of a complex system that produces something “more than the sum of its parts” (Sachs, 2015).

For example, youth employment is linked to skills and education, but also has a more complex relationship with accessibility to transportation, which is linked to school enrolment. As Sachs (ibid.) notes, complex systems represented by a global economy, social connectedness, and Earthly climate and ecosystems exhibit non-linear responses to shocks: a modest change in the components of the system can provoke a large change in the performance of the system as a whole.

A meaningful graduation from LDC status, as opposed to a ‘technical graduation’, requires progress in all aspects of sustainable human development. From this perspective, an oil-dependent country whose export windfalls are determined by external economic circumstances cannot be deemed to have overcome its structural impediments just by having exceeded an arbitrary threshold of income per capita, if it has simultaneously sidelined building human assets and institutions at home.

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15 Adapted from Wagle, Dixit and Neopane (2019).
b. Understanding economic diversification anew

For decades, economic diversification was understood in narrow terms: i) produce and export new goods to new markets; and ii) rebalance output by reallocating resources within and across sectors and industries. Policies that diversify exports and production are helpful from the perspective of lowering risks and volatility, but they do not necessarily lead to high economic performance.

The new evidence is that policies should support diversification of national asset portfolios into natural capital, built capital and public institutions (intangible capital). According to Gill et al. (2014), fair governance and efficient governments are necessary for all countries, but resource-rich economies need them much earlier in their development journey. They need to be adept at disciplining government spending; creating the regulatory conditions for enterprises to become competitive; and saving resource rents in sovereign stabilization funds to not only moderate output fluctuations but also transfer wealth to future generations by investing in human and physical infrastructure.

Resource-rich economies need not only to generate resource rents, but also to raise 'adjusted net savings'—that is, building capital faster than depleting non-renewable resources. Often, gaps are greater for less tangible forms of capital such as learning achievement than for the more tangible forms of capital such as the number of schools and hospitals. These global lessons are relevant for LDCs, many of which are resource-rich: while in their early days of development catch-up, they are already reaping substantial resource rents.

Economic diversification forms the bedrock of the SDGs, IPoA, the Vienna Programme of Action for Landlocked Countries for the Decade 2014–2024 and the SIDS Accelerated Modalities of Action (SAMOA) Pathway, among other targets and agreements.

Many African countries have high dependence on the export of agricultural products, oil and mineral resources. These suffer from a cycle of boom and bust in global markets. Commodity booms also tend to lead to appreciation of the exchange rate and reduced competitiveness. It is these concepts of diversification and vulnerability that are reflected in the EVI: four of the eight indicators deal with the share and volatility of agricultural production and exports.

As the ‘Product Space’ methodology emphasizes, successful diversification depends on assessing existing competencies and making strategic bets to move into new activities with potential. There is now an emerging consensus that it is not just what type of products a country exports that is important, but how they are produced. The main hypothesis of the ‘Product Space’ methodology is that firms or nations that build up competence in producing a certain good can redeploy and adapt their human, physical and institutional capital more easily if they seek to produce goods that are ‘related’ to those that they are already producing.

Related goods share similar productive knowledge: a country that makes one good is likely to also have the capabilities to produce others that are adjacent on a network of tradeable goods that maps the distance between pairs of products that are co-exported by a large number of countries. The greater the proximity between goods, the easier it is for goods to be newly produced or scaled up, helping identify future opportunities in trade, production and innovation.

Furthermore, Easterly, Reshef and Schwenkenberg (2009) show that manufacturing exports are often dominated by a few ‘big hits’. Success in exports – and specialization – is driven by a narrow range of specific products brought to specific markets. While this appears to negate the argument for export diversification, Imbs and Wacziarg (2003) find that economies tend to diversify over most of their development path: only after reaching a relatively high threshold of income is further growth associated with specialization. Klinger and Lederman (2004) find a similarly inverted-U relationship between income and export activity.

Diversification is important for developing countries because it allows them to develop competence.

Based on the above elaboration, the discourse on diversification now needs to shift from counting the number of products and markets to assessing assets and competencies. Government efforts to diversify exports or economic production are called ‘economic diversification’ policies. In contrast, policies to diversify asset portfolios lead to ‘diversified development’ (Gill et al., 2014).

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16 To better understand the success and failure of resource-based development, 12 case studies of resource-rich countries were commissioned: Australia, Botswana, Canada, Chile, Malaysia, the Netherlands, Nigeria, Norway, Saudi Arabia, United Arab Emirates, United States of America and Venezuela.

17 For example, it is hard for a country to move from a dominant production of bananas, oranges, or olive oil towards electronics, fintech firms, and cars – as Costa Rica, Israel and Turkey have done – without government intervention to redress market failures. On the other hand, because of the deployability of comparable capabilities, an economy can naturally graduate from the production of garments, textiles and toys towards electronic and car assembly.

18 This paragraph draws on the Trade Competitiveness Diagnostics of the World Bank (Reis and Farole, 2012).
c. Rethinking structural transformation

The process of structural transformation involves shifting labour and other productive resources away from agriculture towards industry, and later into services. This is at the heart of all LDC graduation processes.

Table 5 presents a typology of the links between the speed of structural transformation and institutional capabilities, and the quality of economic growth it might produce. Low institutional capabilities and a slow speed of structural transformation results in stagnant growth, as is the case of LDCs. Latin American countries are mainly of middle-income status, and have acquired decent institutional capabilities over decades, but the speed of structural transformation has been slow, producing slow growth, particularly in comparison to East Asian countries, whose rapid catch-up went hand-in-hand with the notable transformation of agrarian economies into globally integrated manufacturing powerhouses.

Foster and Verspagen (2016) find that structural transformation largely depends on labour productivity and the rise in incomes. The agricultural sector does not need to reduce its workforce or resources in the process of structural transformation.

Countries that have chosen and managed industries amenable to adopting sophisticated technologies, such as electronics, have experienced higher productivity growth than others.

Table 4. Typology of structural transformation and growth

<table>
<thead>
<tr>
<th>Institutional capabilities</th>
<th>Speed of structural transformation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Slow</td>
</tr>
<tr>
<td></td>
<td>Stagnant growth (LDCs)</td>
</tr>
<tr>
<td></td>
<td>Episodic growth (Group of 83)</td>
</tr>
<tr>
<td>High</td>
<td>Slow growth (Latin American countries)</td>
</tr>
</tbody>
</table>

Note: Authors’ sketch based on Rodrik (2013) and Hausmann and Rodrik (2004).
Drawing on CDP (2018), LDCs have been seen to follow three pathways to graduation: rapid economic growth based on primary commodities; economic specialization complemented by human capital investment, entailing an increase in income and human assets; and structural transformation that stimulates economic diversification resulting in improvements in all three graduation criteria: higher income per capita, augmented human assets and low economic and environmental vulnerability. These pathways are heavily influenced by country size, history, resource endowment, international engagement and domestic policy choices.

Equatorial Guinea graduated under the income-only threshold based on natural resource extraction. This resulted in high income per capita but a low level of human assets. However, income is subject to the vagaries of international price swings. Volatility does not lend itself to stability of macroeconomic fundamentals conducive to capital formation and job creation. If high incomes are not consciously converted into human assets and strong institutions, structural impediments cannot be overcome, which defeats the purpose of graduation.

Compared with Equatorial Guinea, Botswana and Cabo Verde were more successful in laying a stronger foundation for structural transformation and productive capacity. Resources shifted from low-productivity primary sectors such as small-scale fishing and agriculture to sectors with higher value added, such as tourism and fish processing. The graduating LDCs kept the process of structural transformation rolling by directing investment, ODA and FDI towards greater diversification and the social sector. This ensured a more equitable sharing of resource rents even though economic vulnerability remains high. These LDCs prioritized ‘soft industrial policies’ such as liberalization of trade and investment, creating a business-friendly environment and offering tax-based incentives; and the setting up of special economic zones.

More substantive than the above pathways, countries such as Ethiopia and Rwanda have sought to transform their economies against the backdrop of limited natural wealth and a high agrarian population (80 percent in Ethiopia and 71 percent in Rwanda). They have pushed for economic diversification through agricultural productivity, sizeable public investment in infrastructure, and development of productive capacity. In the last 15 years, Rwanda recorded the largest absolute increase in HAI in the world (see Figure 6 below).

**Figure 6. Rapid increase in human assets accumulation measured by the HAI: 2000–2019**

Source: UN DESA (2020).
Experiences of non-LDCs serve as a reminder that graduation from the LDC category is only the beginning of the process to achieve lasting transformation. There is no one pathway that fits all countries.

McMillan, Rodrik, and Verduzco-Gallo (2014) argue that structural change in Africa and Latin America since 1990 has tended to reduce economic growth, while this effect was found to be positive in the context of Asian economies. Much of the difference in overall labour productivity growth among the three developing regions is due to different patterns of structural change. In Asia, labour moved from low- to high-productivity sectors, the precise opposite to Latin America and Africa, with labour drawn towards the natural resource sector, which slowed growth, partly attributable to the ‘Dutch disease’.

The rapid transformation of East Asia relied on cheap labour being the foundation of competitive exports that propelled manufacturing productivity.

The standard shift-share analysis is inadequate to measure the contribution of sectors to accelerations in productivity, and growth accelerations are explained by productivity increases within sectors, not by reallocation of employment to more productive sectors (Timmer and de Vries, 2009). The country experiences also vary by income levels. Even among the largest developing countries, such as the BRICS, evidence is mixed: China, India and Russia benefited from increasing productivity from reallocation of labour sources, but this was not the case in Brazil (de Vries et al., 2012).

The implication of this section is that the traditional post-war understanding of structural transformation as a linear process of reallocating resources from agriculture to services, via manufacturing, has changed. The approach today is that it is the inherent enhancement of productivity that determines structural transformation. Augmenting intra-sectoral productivity is as important as intersectoral productivity.

**Figure 7. Structural transformation is a non-linear process**

![Graph showing structural transformation](chart.png)

Source: UNCTAD (2020).
d. Imperative need for manufacturing and pre-mature de-industrialization

Fragmentation of the production process across countries enabled by technological advances in communication and transportation, along with liberalization of trade and investment policies, have fostered the rise of global value chains (GVCs). Today, four-fifths of world trade – worth around $17 trillion – occurs along GVCs coordinated by multinational enterprises (MNEs). There is a strong positive correlation between GVC participation and the growth rate of economies.

Between 1990 and 2010, the developing countries with high rates of GVC participation (those in the upper quartile) had a mean growth rate of 3.3 percent, compared with 0.7 percent for countries that were in the bottom quartile (UNCTAD, 2013).

Evidence shows that manufacturing as a sector is quite special: it exhibits unconditional convergence in labour productivity across countries, absorbs a large workforce and caters to demand that is not constrained by a small domestic market (Rodrik, 2013). However, developing countries are ‘de-industrializing’ at levels of income much lower than those attained by advanced industrialized countries when their share of employment in manufacturing peaked. While in the United States of America (USA) and the Republic of Korea, such a share previously reached nearly 30 percent, in India, manufacturing employment lost ground after reaching just 13 percent and in China after reaching 18 percent.

African countries also exhibit a similar characteristic: Rwanda’s share of manufacturing peaked at 18 percent (1990) to drop to 8 percent in 2019; in Mozambique, manufacturing value added (percentage of GDP) currently stands at 8 percent: in 1992 it was 14 percent. During the current period of the IPoA (2011–2020), manufacturing value added as a percentage of GDP for African LDCs barely improved, from 7.4 percent in 2011 to 8.1 percent in 2016 (UNECA, 2020).

There are three reasons why de-industrialization might hit Africa particularly hard (Ross, 2015):

- Poor infrastructure makes it costly to manufacture: the cost of electricity in Africa was found to be thrice as costly compared with South Asia. Congested ports and poor roads also make it more expensive to ship goods.
- Africa’s abundance of natural resources is a bane as much as it is a boon. Commodity price rises appreciate exchange rates, increase imports and make it dearer to export local goods.
- Unlike in South-east Asia, where the ‘flying geese’ paradigm – in which leading countries cede technologically less-advanced production processes to low-income countries while the latter catches up to the former – features geese like Japan and Korea, Africa does not seem to have the leading goose in close proximity. It, therefore, needs to invest in connectivity to get closer to the major GVC hubs: East Asia, Europe and the USA.

The ability of several developing countries to catch up industrially over the past few decades has depended on how well they integrated into GVCs. GVCs increase host economies’ value added, generate employment and transfer knowledge. Downsides to excessive dependence on external supply chains need to be hedged, however, as COVID-19 and other regional disruptions have shown.
The world is now on the brink of the fourth industrial revolution, characterized by a much more ubiquitous Internet; smaller, cheaper and more powerful sensors; artificial intelligence and machine learning. Together they create new production possibilities due to their speed and scope. In contrast to previous eras, the fourth industrial revolution is evolving at an exponential rather than a linear pace. New knowledge and technology take on a combinatoric feedback process to create ever more capable technology. Broad-based innovation is spreading much faster and more widely than in previous industrial revolutions. For example, automobile technology took 80 years to be adopted by 50 percent of Americans, and the telephone took 60 years, while cell phones took less than a decade.

The fourth industrial revolution depends and builds on the third industrial revolution by combining multiple technologies and changing the ‘what’, ‘how’ and ‘who’ we are as individuals and society. It is not only about smart and connected machines and systems but also about waves of breakthroughs in areas ranging from gene sequencing to nanotechnology, from renewable energy to quantum computing. It involves the transformation of entire systems across (and within) countries, industries and society. It is the fusion of technologies and their interaction across the physical, digital and biological domains that makes the fourth industrial revolution fundamentally different from previous revolutions.

The fourth industrial revolution is likely to change the way we live, work and communicate as a society. According to the World Economic Forum’s Global Competitiveness Index 4.0, over a dozen African LDCs rank among the lowest out of 141 economies. In another measure, the World Economic Forum’s Network Readiness Index, there are large gaps among African countries.

The proportion of the population using the Internet in sub-Saharan Africa (excluding high income countries) is merely 19 percent. Senegal has the highest share of population using the Internet (47 percent) while only 2 percent of Somalians use the Internet. Likewise, subscription to fixed broadband in the region is 0.44 percent (and 0.41 percent if we exclude high income countries) and less than 1.5 per 100 people in all African LDCs. This is low compared with Asian LDCs such as Bangladesh where 4.6 per 100 people have subscribed to broadband.

Table 5. Information and communications technology access

<table>
<thead>
<tr>
<th>Region</th>
<th>Fixed broadband subscriptions (per 100 people)</th>
<th>Individuals using the Internet (% of population)</th>
<th>Mobile phone subscriptions (per 100 people)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub-Saharan Africa (excluding high income)</td>
<td>0.4</td>
<td>18.7</td>
<td>82.3</td>
</tr>
<tr>
<td>South Asia</td>
<td>17</td>
<td>20.1</td>
<td>874</td>
</tr>
<tr>
<td>Middle East &amp; North Africa (excluding high income)</td>
<td>7.8</td>
<td>59.6</td>
<td>99.9</td>
</tr>
<tr>
<td>Latin America &amp; Caribbean (excluding high income)</td>
<td>12.9</td>
<td>65.8</td>
<td>103.0</td>
</tr>
<tr>
<td>Europe &amp; Central Asia (excluding high income)</td>
<td>18.2</td>
<td>73.2</td>
<td>126.1</td>
</tr>
<tr>
<td>East Asia &amp; Pacific (excluding high income)</td>
<td>21.4</td>
<td>51.0</td>
<td>120.2</td>
</tr>
</tbody>
</table>

Note: SSA and South Asia (Internet access) data source is World bank 2017.
As regards mobile phone subscriptions, there are 139 subscriptions per 100 people in the Gambia – the best performing country in the region when measured against this metric – which is significantly higher than the regional average of 82 per 100 people.

Described below are the several opportunities the fourth industrial revolution provides for lagging LDCs.

i. **New fluidity**, due to the adoption of easier means of technology and to weight and distance mattering less. Components of the fourth industrial revolution, such as the Internet of things, blockchain and artificial intelligence (AI), are instantly transferable like off-the-shelf technology.

ii. The adoption of **new production paradigms** such as fragmentation that allow quicker catch-up through GVCs. As technologically advanced countries cede their less technologically advanced tasks to low-income countries, the ‘flying geese’ paradigm is still a relevant development model. This is even more pertinent for services trade where weight and distance does not matter.

iii. **New jobs** for young people in both mainstream and in niche areas can be anticipated. For example, AI relies on big data, which requires labour. This is likely to occur at the higher end of the AI chain, in rich countries, but data input and processing can be carried out with low wages.

iv. **New business models**, such as those of the sharing economy and of business that revolve around software and applications, among others, transcend the traditional boundaries of entrepreneurship. For example, ‘Journey’ a ride-sharing platform like Uber, operates in a number of countries in Africa but owns no cars. Additionally, with software companies that can be established with just a few computers and an office floor, starting a business is becoming cheaper. The low cost of starting a business alleviates the problem of access to finance.

v. Finally, **new technologies** such as blockchain can be used to record, track and trace products throughout the value chain – from local farmers all the way up to the retailer – improving consumers’ confidence about the products’ source and authenticity.

Export quality often dilutes after initial years of success, making traceability and quality assurance important for Geographical Indications. LDCs in Africa could leverage these technologies in products such as coffee beans (as harnessed by Ethiopia) or handicrafts which command premia. Blockchain technologies are not restricted to the private sector: they could be used in government contracts, such as blockchain-enabled ‘smart contracts’. The decentralized servers would ensure greater transparency and reduce leakages.

f. The learning crisis

Schooling has expanded across the globe in recent decades: in 1970, the gross primary enrolment rate in sub-Saharan Africa was 68 percent; today it is near universal. The years of schooling completed by students in the developing world increased threefold – from 2 years to 7.2 years between 1950 and 2010. Today, girls outnumber boys in secondary schools in 38 developing countries. But schooling is not the same as learning. Even after years of schooling, millions of students in LDCs lack basic literacy and numeracy skills. Three quarters of Grade 3 students in Kenya, Tanzania and Uganda could not read and understand simple sentences. Likewise, only half of the Grade 3 students in Nicaragua could add the numbers five and six. Similarly, less than 55 percent of Grade 6 students in West and Central Africa could not divide 130 by 26 (World Bank, 2018).

The causes of the learning crisis are threefold (ibid.).

Firstly, children do not arrive ready to learn because of poor nourishment. Shortcomings in the early years, starting with brain formation, accumulate over time and can translate into lifelong mental and physical development concerns that may be impossible to overcome at later stages of life.

Furthermore, teachers lack the necessary skills and motivation to teach. In a number of sub-Saharan African countries, the average teacher does not perform much better than the highest performing Grade 6 students in reading tests. Lack of motivation has exacerbated learning outcomes: students receive merely two and half hours of teaching time which is less than half of what is scheduled. Poor school management practices and lack of autonomy also hinder service delivery.
Lastly, students’ family backgrounds such as parental education levels and conditions at home remain the largest predictor of learning outcomes for children. For instance, a case study of Grade 3 students in South Sudan found that children from the poorest households were three years’ worth of learning behind children from the richest households. Likewise, more educated families are two to six times more likely to have their mother engage with them and three to 14 times more likely to have their fathers engage with them in activities that promote learning (World Bank, 2017). Children of mothers who have completed secondary education are six times more likely to attend early childhood education, compared with children of uneducated mothers.

The implication is that unless schooling is revamped to dramatically improve learning outcomes, the children of today’s Africa will not be equipped to acquire the skills necessary to thrive in the technology-driven era of tomorrow.

g. Vulnerability and risk reduction

The discourse on vulnerability is shifting from ‘weaknesses’ and ‘defenselessness’ exhibited by vulnerable groups (such as the elderly, the landless, or informal workers) to an expanded notion of reducing the exposure to risks and uncertainty such that the likelihood that a shock will result in a sharp decline in well-being is lessened. Vulnerability today relates to a sense of insecurity where shocks may lead to destitution (Dercon, 2005).

This broadened notion is what has given rise to greater acceptability of universal social protection frameworks that combine both redistributive programmes (such as cash transfers, old-age pensions, nutrition vouchers, minimum guaranteed employment) and social insurance schemes (such as insurance of human health, crops, livestock, accidents and unemployment). During the COVID-19 pandemic, UNDP estimated that a temporary minimum guaranteed income above the poverty line for vulnerable people in developing countries would cost between 0.27 and 0.63 percent of combined GDPs across 132 developing countries (UNDP, 2020). The idea of universal basic income gained traction even in countries like the USA, which sent a one-time check of $1,200 to all non-wealthy Americans in the midst of the COVID-19 pandemic.

Elsewhere, countries have expanded existing social protection programmes horizontally or introduced new schemes altogether. As at the end of May 2020, 190 countries planned, introduced or adapted 937 social protection measures in response to COVID-19, 559 measures (or 60 percent) of which belong to the social assistance category and 392 new programmes have been announced by governments across the world (Gentilini et al., 2020).

Even responses to catastrophic disasters to which poor people in LDCs are most vulnerable are being thought of differently. Do extreme events – from earthquakes and typhoons to droughts and climate change – always need to inflict huge loss of life and property? Can disasters be ‘dulled’ through better risk-reduction strategies?

An emerging consensus on effective response to disasters is that you need a coordinated plan, nimble decision making and flexible financing on standby. Pre-agreed, pre-financed, rules-based arrangements work best in routinizing disaster response. In 2016, at least 30 African countries had adopted or were implementing national disaster risk-reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015–2030 (UNeca, 2020). Having plans on paper, however, is not enough.

There needs to be better balance between preparation (ex-ante risk management) and coping (ex-post risk management) struck through greater knowledge about risks, protection to lower the probabilities of risks, and insurance when protection cannot eliminate risks such as the catastrophe risk insurance schemes currently operational in the Caucasus, the Caribbean and the Pacific.
5. Sustaining graduation
5. Sustaining graduation

While the IPoA goal of “enabling half the number of LDCs to meet the criteria for graduation by 2020” has failed, several African LDCs will be on their way to graduating by 2030.

In a development landscape that is increasingly characterized by shifts described in the preceding section, what factors can serve as tailwind or headwind? A set of opportunities and risks are discussed in the next sections.

Opportunities

a. Young demography

Ten of the world’s youngest population groups are in Africa, with Niger having a mere median age of 14 years, which is half the global median age of 29. Other young countries include Chad, Somalia, Uganda and Zambia, among others, with a median age of 15 to 17 years (World Economic Forum, 2016).\(^{23}\) While the share of the working age population in sub-Saharan Africa is 34 percent, below other regions, it is expected to grow by the 2080s to over 45 percent, surpassing all other regions except Oceania (see Figure 8). While the youth represent 40 percent of the working age population, 60 percent of them are unemployed.

To harness the demographic dividend, Africa must create additional jobs that can absorb the new cohorts of workers.

Drummond, Thakoor and Yu (2014) point out several features of a demographic dividend:

- A 1 percent change in the working age population is associated with a GDP growth of 0.5 percentage points.

- The magnitude and speed of the demographic dividend rests on the country’s initial share of working age population, rate of change and income levels.

- Investment in human capital is imperative (ibid.).

In a situation where the development gains made by African countries continue, the World Bank (2014) projects that the demographic dividend can potentially account for 11 to 15 percent of GDP by 2030 and reduce the number of poor people by 40 to 60 million. If development gains catch up to other developing countries along with a doubling of Africa’s skill set as a result of a rise in educational attainment, their GDP can grow by 25 to 50 percent between 2011 and 2030 and reduce poverty by 110 million.

\(^{23}\) The low median age is driven by the high fertility rate along with low life expectancy (76 and 58 years in Niger).
Figure 8. Global trends in working age population, 1990–2010

Figure 9. The rise of the South

Source: UN DESA (2019).

Note 1: BRICMAITS refers to Brazil, Russia, India, China, Mexico, Argentina, Indonesia, Turkey and South Africa.
Note 2: Markers represent each year after 1966; Russia included after 1988.
Note 3: GDP is measured in nominal United States Dollars.
b. The rise of the South

The 21st Century is already seeing a profound structural shift in the centre of economic gravity. The rise of the South reshapes the redistribution of global power, voice and influence and will only be hastened by the COVID-19 pandemic. The story of catch-up by the South is dramatic when gross domestic output is measured in market exchange rates (and not just purchasing power parity which magnifies the influence of countries with lower costs of living). Take Figure 2, where the combined (nominal) GDP of nine large developing countries that are members of the G20 is contrasted with that of the USA, the world’s dominant economy. In 1965, the ratio of their relative national incomes was 0.2. Unchanged, this trajectory of economic development would have followed the lower range. In 2008, the year of the Great Recession, the ratio equaled unity (reflected by the upper trajectory) and exceeded it in recent years. The ‘action’ in the cone, of increasing distance between successive data points, represents the pace of faster economic change.

The expansion of trade and FDI, and the flow of people as tourists or temporary migrants after 1990, are both well-documented phenomena. While policy liberalization and advancement in transport and communication account for the initial burst in interconnected commerce, it is the new technologies that will deepen the flows. Digitalization has lowered the cost of participation in the global marketplace. Today, four fifths of global exports are linked to the production networks of transnational corporations that span dozens of countries. More than 3.5 billion people now use the Internet, seamlessly engaging with people across borders.

In 2019, almost as much FDI went to developing countries ($685 billion) as to developed countries ($855 billion); the former have now become the source of about one third of outgoing FDI. In sub-Saharan Africa, the biggest recipients of FDI include Congo, Ethiopia and South Africa.

The rise of the South will also diversify access to concessional finance to fund critical deficits in infrastructure. Importantly, Southern models of trade, investment and technology transfer have already found ready applications at home and abroad. An example of this would be the transformative power of business models where companies produce a large number of low-income customers with small profit margins: single-chip mobile handsets and low-power desktops for Internet connectivity have propelled innovations such as cheap mobile banking, empowered access to market information and supported the production of affordable generic medicines, seeds and crop varieties.

In 2015, 250 million people lived in countries other than their place of birth, an increase of nearly 100 million from the baseline in 1990. As a share of national income, remittances account for a larger proportion in the South. South-South migration accounts for more than half of global migration. In Africa, a significant share of the remittances received by the top four countries (LDCs) that receive large amounts of them originates from developing countries. For instance, 80 percent of remittances received by Benin originates from Nigeria, while in Tanzania 20 percent originates from China, 24 percent from India and 23 percent from Kenya. Likewise, 45 percent of remittances in Burkina Faso originates from Côte d’Ivoire, while in Niger 71 percent of remittances come from Nigeria (World Bank, 2017).

Remittance received by LDCs (%)

<table>
<thead>
<tr>
<th>Benin</th>
<th>Tanzania</th>
<th>Burkina Faso</th>
<th>Niger</th>
</tr>
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<tbody>
<tr>
<td>80% from Nigeria</td>
<td>24% from India</td>
<td>45% from Côte d’Ivoire</td>
<td>71% from Nigeria</td>
</tr>
<tr>
<td>23% from Kenya</td>
<td>20% from China</td>
<td></td>
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</tbody>
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c. Interconnectedness

This rise of the South requires countries to connect with each other. There has to be a concerted investment in ‘soft’ and ‘hard’ forms of connectivity. ‘Soft’ connectivity involves providing a legal platform for denser economic interactions through preferential trade agreements, bilateral investment treaties and liquidity arrangements. ‘Hard’ connectivity entails building modern roads, railways, ports and airlinks to reduce distance so that information and communications technology (ICT)-enabled activities in tourism, education, health and energy amplify different facets of welfare.

At low levels of development, capital formation propels growth. Investments in transport, energy and telecommunications infrastructure can have a direct impact on GDP growth, with some analysis suggesting that, on average, a 1 percent increase in the stock of infrastructure lifts GDP by 0.08 percent. Additionally, the importance of connectivity within and across borders is even more pertinent for landlocked countries, as evidence suggests that if neighbouring countries grow by 1 percent, they themselves grow by 0.7 percent; for non-landlocked countries it is 0.4 percent. For sub-Saharan Africa, narrowing the infrastructure gap is estimated to increase GDP per capita by 1.7 percentage points per year (World Bank, 2017).25

Both airports and seaports are poorly equipped and uneconomically operated. Across Africa, runway accidents accounted for a quarter of accidents in aviation between 2006 and 2010. At seaports, delays are common due to long processing times and poor shipment handling rates, averaging 50 percent more than other parts of the world.

These trends of cross-border connectedness will magnify as emerging industries mature over the next decade. According to Ross (2016), one industry of the future will involve the codification of money and markets where the application of computer code to commerce will enable anyone in the North or the South to “receive, hold, spend and transfer” money. Another future industry – of gathering actionable business and social solutions by mining big data – also holds great promise because the barriers to entry for the educated professionals from the South will be much lower. Unlike land and minerals in the agro-industrial ages, data in the information era will level the playing field for borderless collaboration. An analysis of 300 million LinkedIn users in 52 cities showed that five of the top 10 destinations for new talent in technology are in India, followed by the USA and Australia (Dutta, 2014).

The three shifts due to structural transformation:

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25 There are also externalities associated with connectivity, which include reduced spatial imbalances, price volatility, agglomeration effects and denser integration across sectors and markets. Likewise, Donaldson (2018) finds railroads reduced the cost of trading and also reduced inter-regional price gaps, as well as increasing trade volumes. Real agricultural income in the districts (with railways) grew by almost 16 percent. Similarly, in the 20 years from 1972 to 1992, the growth of road and electricity-generation capacity seems to have accounted for nearly half the growth of the productivity residual of India’s registered manufacturing.
Figure 10. Human Assets Index (HAI) vs population with electricity (%)

Sources: UN DESA (2020); World Bank (2020).
d. The middle class in large cities

At an estimated rate of 3.9 percent per year over the period 2015–2020, African LDCs are urbanizing at a rate higher than the continental average of about 3.5 percent. By 2015, almost 40 percent of the African LDC population lived in urban areas (UNECA, 2020). This is consistent with global projections: by 2050, 68 percent of the world will live in urban areas, with close to 90 percent of the increase in the urban population up to that point taking place in Asia and Africa (see Figure 11 below).

The biggest city in the world has a name not yet widely known. In 2015, China endorsed a plan to create the megalopolis of Jing-Jin-Ji, with 130 million inhabitants, amalgamating Beijing, Tianjin and Hebei. While national boundaries will continue to define the political identity of states, the megacities of the South will emerge as the new economic juggernauts of the world, inhabited by a growing middle class. In 1990, there were only 10 megacities with more than 10 million people; that number has now tripled. Of the 20 largest megacities in the world, 15 are in the South. By 2030, more than 40 megacities will house nearly one tenth of the world’s population; only about five of them will be in the North (UN DESA, 2018b).

Well-governed megacities, connected to each other by efficient transportation, digital infrastructure and power grids, could provide a source of future endogenous growth. As Glaeser (2011) argues, cities are one of the greatest inventions of the human species, since proximity makes people more inventive, as talented minds interact; more productive, as economies of scale lead to specialization; and more environmentally friendly, as city-dwellers live in smaller houses and use public transportation, thus reducing carbon emissions.

At the same time, the rise of the South presents a new paradox: while the larger developing countries have become richer in the aggregate, they also house three quarters of the world’s 1.3 billion poor.

More poor people live in middle-income countries than in LDCs, but yesterday’s poor become tomorrow’s middle class (Sumner, 2012).

By 2030, barring an unforeseen global shock or downturn over the next decade, more than 80 percent of the world’s middle class will live in the megacities of the South. They will account for 70 percent of total consumption expenditure (Kharas and Gertz, 2010). According to the McKinsey Global Institute (Dobbs et al., 2012), by 2025, annual consumption in emerging market economies will rise to an estimated $30 trillion from $12 trillion in 2010, with the South accounting for three fifths of the one billion households earning more than $20,000 a year. The expansion of the middle class, and their location in megacities connected with peers around the world, will profoundly alter the development map of the world. It will also concentrate the greatest body of knowledge about large-scale development concerns in the Southern countries that house those megacities, a reservoir of knowledge with profound implications for future geopolitical alignments, as well as for South-South cooperation.

Figure 11. Urban population growth (%): 1990–2019


26 With calculations based on data from the Brookings Institution. The middle class includes people earning or spending between $10 and $100 per person per day (2005 PPP in USD).
Risks

a. The resource 'curse'

Despite its abundance of natural resources – Africa is home to about 30 percent of Earth’s mineral reserves – the continent has the largest share of population living below the poverty line (Mulwa and Mariara, 2016). This ‘resource curse’ is a paradox that is argued to manifest in three ways:

- Economies with substantial natural resources had slower rates of economic growth and consistently underperformed compared with their less natural resource-rich counterparts in the late 20th Century.
- Countries rich in natural resources were more prone to civil wars and political unrest.
- Oil and mineral abundance is associated with less democracy (Sachs and Warner, 1995, 1999; Fearon and Laitin, 2003; Ross, 2001; Jensen and Wantchekon, 2004; Horiuchi and Waglé, 2008).

The IPoA calls for diversification in the economies of the LDCs to increase the resilience of their economies and allow them to develop a greater range of production capabilities. The concentration index in African LDCs has declined from a high of 0.65 in 2008 to 0.36 in 2017 (UNECA, 2020). But larger challenges remain. Ross (2001) draws on political science literature to explain three possible channels through which oil-rich countries may stay non-democratic. The first is the ‘rentier effect’ which argues that states that derive a large share of revenues from external rents need not tax their citizens highly. Citizens who do not feel the burden of taxes, and whom the state patronizes with generous funding, are less motivated to demand accountability and transparency in the conduct of public policy. The second channel is the ‘repression effect’. Resource-rich countries tend to have large armies or internal security apparatus that can easily be deployed to crush dissent or rebellion. The third channel is the ‘modernization effect’ that argues that oil wealth puts governments in a position to undertake wide-scale expenditure and crowd out civic initiatives.

Resource booms are also often accompanied by the ‘Dutch disease’ which adversely affects the competitiveness of the tradable sector. This occurs when following a natural resource boom, the price of non-tradable items increases, causing appreciation of the real exchange rate (ratio of the price of tradable to non-tradable items), rendering the non-booming tradable sector uncompetitive, and forcing it to contract (or de-industrialize). The typical process is that the inflow of foreign exchange revenues requires the non-tradable sector to expand and the aggregate tradable sector to contract. The booming sector typically creates a ‘resource movement’ effect and a ‘spending’ effect.27

As already emphasized, and supported by Gill et al. (2014), heavy export concentration needs to give way to diversification; not just of products, but also of assets combining natural capital, built capital and economic institutions which need to accomplish three objectives. Firstly, institutions must discipline government spending by keeping the long-term fiscal deficit close to zero. Then, conditions must be created for enterprises to become more productive. Lastly, stabilization funds can be created to save resource rents, thereby moderating output fluctuations (booms and busts).

A good way to transfer wealth to future generations would be to invest in the education and health of the young, and to build durable infrastructure in the right places.

Countries need to manage resource rents well by providing high-quality public services and regulating production in ways that promote competition and encourage entrepreneurship.

b. Pandemics

Throughout history, the spread of diseases across borders has caused severe human capital depletion and economic collapse. In recent decades, Africa has experienced a heavy disease burden and outbreaks, from HIV, AIDS, malaria and tuberculosis to H1N1, Ebola and Zika. In 2020, the SARS-CoV-2 virus that causes COVID-19 has spread to over 187 countries. As at 10 August 2020, there were over 1 million confirmed cases and over 23,000 deaths in sub-Saharan Africa. COVID-19 has further triggered a setback in controlling diseases like HIV, AIDS, malaria and tuberculosis. Between 2011 and 2017, access to antiretroviral therapy more than doubled from about 22 percent to almost 47 percent of people living with HIV (UNECA, 2020); however, because of COVID-19, one in four people living with HIV have reported problems with gaining access to medication. It has diverted scientific attention, and the lockdowns have become barriers to patients who must travel to access diagnoses or drugs (Mandavilli, 2020).

27 The first effect is caused when mobile factors are sucked into the booming sector and wages are bid up, causing other tradable sectors to contract. If the booming sector is an enclave-type natural resource discovery (for example, mining), exploited with the help of foreign labour and capital, this effect could be minimal. The second effect is a result of extra revenue flowing into the economy that creates extra demand for labour in the non-tradable sector. Because demand for non-traded goods increases, their prices go up. Prices of traded goods, however, are set internationally, so they do not rise. This, by definition, is an appreciation of the real exchange rate.
Measures to ‘flatten the curve’ through lockdowns and social distancing guidelines have restricted the flow of goods, capital and labour, disrupted global supply chains and resulted in losses of jobs and income, defaults and bankruptcies. Efforts to flatten the ‘infection curve’ have triggered a macroeconomic ‘recession curve’ (Gourinchas, 2020). The world economy is projected to contract by almost 5 percent in 2020, with sub-Saharan Africa estimated to shrink by 3.2 percent, according to the International Monetary Fund, and is likely to worsen under pessimistic scenarios.

World Bank (2020a) estimates that if Africa’s GDP per capita declines by 3 percent, this would push 13 million sub-Saharan Africans into poverty ($1.90, 2011 PPP); if GDP per capita falls by 5 percent, it could push an additional 37 million people into poverty. Likewise, income losses and business closures caused by the lockdown have been significant: 45 percent of urban households and 55 percent of rural households have faced income losses in Ethiopia. Similarly, in Nigeria, 79 percent of workers reported income losses while 42 percent found themselves out of jobs (ibid.).

Cross-border flows such as trade, capital flows and remittances also are expected to shrink in 2020. Likewise, logistics restrictions have prompted multinational firms to either diversify supplies over efficiency gains or turn inward. This will hit developing countries that heavily depend on cross-border interactions (such as FDI, remittances) by lowering growth and leading to loss of livelihoods.

Unlike successful countries that have tamed the spread of COVID-19 through widespread testing and contact tracing; early preparedness; and harnessing of technology — often a result of sustained public investments in health infrastructure and leadership that believes in accountability — African LDCs lag behind on all these fronts, exposing them further to the virus along with the economic consequences.

c. Climate change

Climate change in most LDCs has two causes: long-lived greenhouse gases that are largely emitted in far-away industrial hotspots but that are globally well-mixed, and short-lived climate pollutants (SLCPs), including black carbon. Through incentives to switch to cleaner energy, SLCP mitigation is often cost effective based on the improvements it yields in terms of air quality, health, crop yields, visibility and tourism without even considering the climate impacts. A complete switch to clean cooking, clean brick production, clean electricity generation and clean transportation is realistic by 2030.

Climate change affects Africa differently than other continents for three reasons (BBC, 2019):

- Given that the majority of Africans depend on rainfall to grow food, droughts have time and time again caused food deficits in several parts of Africa.\(^\text{28}\)
- Africa remains the least studied continent in terms of climate change, making it unprepared for any kind of disaster.
- The ability of its people to adapt to climate change is low due to high levels of poverty along with failure of the government to prioritize climate change in its policy discourse.

Air pollution is also a growing menace, responsible not only for lung diseases, but also for an increasing number of heart attacks. It also keeps away tourists and degrades the visibility needed for aviation safety. Cities and villages across Africa need to become more connected and liveable, with clean air, clean water, proper garbage management and sufficient green space. Air pollution kills more Africans than any other major risk factor such as unsafe water and sanitation along with child malnutrition. Increasing by almost 60 percent over the last three decades from 164,000 to almost 260,000 in 2017, it has caused GDP losses of over $215 billion (annually).

The level of air pollution in Africa exceeds the level recommended by the World Health Organization (WHO). Onitsha — one of Nigeria’s economic hubs — recorded a particulate matter (PM2.5) concentration 30 times higher than the WHO recommended level, and 64,000 people died due to air pollution in 2017 in the country. Likewise, in Kenya, over 18,000 people have died due to air pollution, surpassing the death toll of malaria, the country’s number one killer (Earth.org, 2019).

While in many of the African LDCs, the proportion of renewable energy in the overall energy mix has not increased much, Ethiopia and Togo appear to be making notable progress with increases from 0.6 to 7.3 percent, and 3.9 to 6.2 percent, respectively, between 2011 and 2015 (United Nations Environment Programme, n.d.).

\(\text{The level of air pollution in Africa exceeds the level recommended by the World Health Organization (WHO).}\)

\(^{28}\) The 2011 East Africa drought that occurred between 2011 and 2012 was claimed to be the worst drought in 60 years, affecting Ethiopia, Somalia and other parts of Africa including Sudan, South Sudan and Uganda through food shortages.
Between 75 to 250 million people in Africa are estimated to be exposed to increased water stress caused by climate change. With the region relying on rain-fed agriculture, yields from a number of countries are expected to fall by 50 percent. Likewise, a 2°C temperature increase is projected to put half of the population at risk of undernourishment. Additionally, global warming is expected to result in an annual loss of 2–4 percent of GDP in the region by 2040 (ibid.).

d. Shifting production paradigms

The IPoA calls for a doubling of the share of LDCs’ exports in total world exports over the decade 2011–2020. However, the share of LDCs’ exports in world trade remained steady at about 1 percent, and African LDCs saw their share of world exports fall from 0.7 percent in 2010 to 0.6 percent in 2017 (UNECA, 2016). While landlocked countries like Lesotho and Malawi have brought down export costs, others such as Chad, the Central African Republic and Zambia have the highest cost to export in Africa. LDCs must now look to new models and patterns. ICT, for example, has made coordination costs less expensive and has enabled the splitting of production across countries geographically (offshoring) and organizationally (outsourcing) engendering GVCs. Compounded by ubiquitous Internet; smaller, cheaper and more powerful sensors; AI and machine learning, the fourth industrial revolution has changed production and trade paradigms.

A scenario for low-income countries is that as capital becomes cheaper and more productive than labour, the fourth industrial revolution could lead to significant ‘reshoring’ of global manufacturing to advanced economies as they substitute labour for capital. The service sector, which has been growing in sub-Saharan Africa, is no exception. Robot process automation equally poses a threat to workers in the service sector that contributes to almost half of the GDP.

However, this does not mean the fourth industrial revolution will only take away jobs, or that only the rich countries will benefit from it. The increase of electric wire components in Mexico serves as an example. In the past, car manufacturers in the USA outsourced production of car engines to Mexico, but in recent years, they have switched to automating the production of engines, ‘in-sourcing’ this using robots. While it destroyed jobs for engine manufacturers, automation resulted in increased productivity in the USA and increased demand for intermediate and consumer products from Mexico. This, in turn, created new jobs for Mexicans, as data show that about 70 percent of electrical wire components are produced in Mexico and imported by car manufacturers in the USA. In other words, technologies also increase productivity and create more jobs through the scale effect (World Bank, 2019).

Additionally, as new technologies open new avenues for employment, job losses could well be compensated by job gains. The app economy provides an example of a new job ecosystem. It only opened up in 2008, when Apple allowed outside developers to create applications for the iPhone. By mid-2015, the global app economy was expected to generate over $100 billion in revenue and services offered, surpassing a 100-year old film industry. However, a concerted investment in information technology literacy should be made.

Frey and Osborne (2013) estimate that 47 percent of total employment in the USA is at risk of automation.

However, as demand for skills shifts from routine jobs to those requiring cognitive abilities, complex problem solving, social skills and empathy, new jobs are likely to emerge. In Africa, this entails tailoring the curricula to future needs.

Another important consideration is the digital divide between countries. As the adoption of technologies grows, the digital divide between countries can widen and reinforce existing inequities. Additionally, new technologies will still be unable to create jobs in large numbers, necessitating viable social protection schemes in societies that are aging.
6. The way forward
6. The way forward

Graduation should, ideally, mark a transformative change in the economic development of African LDCs. It ought to be regarded as a means to achieving structural change and a diversified economy, thereby contributing to poverty reduction and accelerating the attainment of other SDGs.

These expectations demand bold but deliberate actions.

The preconditions for sound graduation are eligibility and timing. Statistical thresholds confer eligibility, but timing is set by the country situation. Countries seeking to graduate in 2024 or 2027 should not, however, delay preparation of a transition strategy to operationalize that goal by engaging stakeholders, development partners and international organizations in collective actions to achieve an effective graduation.

The strategy should ensure that African LDCs make full use of their LDC status before giving it up. If graduation is to mark a new start, LDCs need to build up fresh momentum for self-sustainable growth supported by far-reaching reforms.

This section pulls together major messages from discussion in the preceding sections to offer recommendations for policy action aimed at the following three audiences.

a. United Nations and developing partners

There are two United Nations General Assembly resolutions dated 2004 and 2012 that affirm the international community’s willingness to ensure a “smooth transition” (67/221 and 59/209) for graduating and graduated LDCs. All development partners are urged to support the implementation of the transition strategy and to avoid any abrupt reductions in either ODA or technical assistance. Trading partners are requested to extend trade preferences previously made available as a result of LDC status or reduce them in a phased manner. WTO is asked to consider providing the S&DT and exemptions available to LDCs.

In 2012, the United Nations reiterated the importance of ensuring that the graduation of a country from LDC status does not cause disruption in the development progress. It urged all development and trading partners to continue providing technical assistance and benefits for a “maximum of three years” from the date of graduation.

b. United Nations resolutions are non-binding, and whether and how graduating LDCs avail of these provisions depend on their negotiating ability. The MDBs and many large donors do not recognize the category of LDC, choosing instead their own income thresholds for lending purposes. In this regard development partners must:

i. Continue to provide funds directly or through ‘blended’ concessional finance critical deficits in physical, human and institutional infrastructure across LDCs even after they graduate.

ii. Ensure ‘policy coherence’. The developing world has long seen a paradox where rich countries provide aid to promote development but have trade (or debt) policies that obstruct that objective. A bold proposal to promote export diversification in African LDCs could involve a firm commitment to duty-free-quota-free market access to OECD markets with flexible rules of origin that permits regional cumulation for at least 10 years.

iii. The United Nations must also undertake a rigorous review of the eligibility criteria for LDC graduation. The list of indicators appears to be built on an atheoretical basis. The way they are chosen, weighted and aggregated must pass the scientific test of robustness. The sub-indexes currently in use are simple and transparent but they must also be scientifically vetted using the framework described in this paper.

iv. S&DT for LDCs at the WTO also deserve a case-by-case extension. During the COVID-19 pandemic, the dynamic yet low-cost pharmaceutical competencies of Bangladesh – the most populous LDC – were recognized as a ‘success’ of domestic prioritization that was also supported by a special WTO transition period allowing the country not to enforce patents by departing from the Trade Related Aspects of Intellectual Property Rights (TRIPS) agreement until 2033 (Gay and Gallagher, 2020). A graduation in 2024 will likely foreshorten that transition period for compliance, imperiling the success of this vital industry.
b. Think tanks and researchers

Many issues flagged and discussed in this paper deserve to be part of a concerted research agenda that is backed by systematic cross-country evidence. Researchers in academic institutions, think tanks, non-governmental organizations and international institutions need to probe the shifts that are occurring in development thinking and provide a firmer backing of evidence.

Difficulties in advancing economic diversification and ‘atypical’ structural transformation are linked to the emerging processes of technological change, new modes of manufacturing and pre-mature deindustrialization. The learning crisis in Africa’s schools and its relation to the intersecting conceptions of intergenerational inequalities and vulnerabilities also need to be better understood.

There are risks ahead, from the persistent perversion of incentives arising from mismanaged natural resource abundance to climate change and the contagion of pandemics. But there are also opportunities in leveraging young demography, investing in it to leapfrog into taking advantage of new technologies that lead to the construction of vibrant, interconnected urban hubs.

Ways to mitigate the risks and amplify the opportunities in the African context can only be informed by credible research. This, then, needs to be discussed, distilled, synthesized and understood by the broader population with the help of the media and think tanks.

c. African governments

In LDCs rife with institutional and infrastructural deficiencies, the role of the ‘entrepreneurial state’ remains crucial to resolve coordination failures and undertake public investments in human and physical capital. States need to foster new sources of economic growth in a post-COVID-19 context through a big push in digitalization, adoption of clean energy, diversification of tourism and high-value agriculture. In addition:

i. LDCs need to provide policy and infrastructural impetus to encourage shared production through regional and global value chains. This, however, is not old-school ‘industrial policy’. Following Harrison and Rodriguez-Clare (2009), ‘hard interventions’ to distort prices in order to deal with Marshallian externalities do not work, but ‘soft’ industrial policies that help resolve coordination failures in sectors where comparative advantage exists must be encouraged.

ii. Through cross-country assessments, benchmarked against peers, LDCs must work to reduce policy barriers (tariffs and non-tariff barriers) to cut the cost of trade and business, invest in connectivity and become connected to international markets. As has been known since the time of Adam Smith, wealth creation is a result of productivity gains through specialization. Specialization requires division of labour, but division of labour is limited by the extent of the market. Integration of markets (of increased sizes) requires connectivity which then allows firms to exhibit increasing returns to scale. Connectivity cuts costs, spurs growth and fosters externalities.

iii. Finally, while African LDCs have had a negligible role in contributing to climate change, they will be among the first to bear its adverse consequences. Because complex Earthly ecosystems exhibit non-linear responses to shocks, LDC governments must work to harness low-carbon pathways, invest in mitigation, and help strike a better balance between preparation (ex-ante risk management) and coping (ex-post risk management). This requires international cooperation to garner knowledge about risks, lower their probabilities and insure against catastrophes.
References
References


BBC (2019). How Africa will be affected by climate change?, 15 December.


Earth.org (2019). Air pollution is starting to choke Africa, 27 August.


Saptarishi Dutta (2014). More techies move to India’s Silicon Valley than the real Silicon Valley. Quartz India, 25 June.


__________ (2017). Why we need to close the infrastructure gap in Sub-Saharan Africa, 19 April.


__________ (2020a). How severe will the poverty impacts of COVID-19 be in Africa?, 5 August.


World Economic Forum (2016). The world’s 10 youngest populations are all in Africa, 9 May.
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