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Coronavirus-Lockdowns, Secondary Effects and Sustainable Exit-Strategies for Sub-Saharan Africa

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Abstract

Pandemics and the reactions to pandemics increase the general problem of scarcity. Scarcity induced trade-offs are particularly relevant for countries in Sub-Saharan Africa as (1) the region suffers more than other regions from diseases whose death toll may increase substantially due to lockdowns, (2) economic effects of lockdowns affect the region more negatively because citizens in Sub-Saharan Africa have limited economic resources compared to more developed economies, and (3) weak institutions may increase the adverse societal impacts of the pandemic.

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1. Introduction

The coronavirus has brought about states of panic affecting both citizens and decisions makers. Numerous countries have quickly adopted stringent suppressing measures to curtail the spread. Among them, wide-reaching lockdowns have emerged as a standard approach. In Sub-Saharan Africa, the adoption of lockdowns requires critical evaluation, as they risk rolling back achievements on the Sustainable Development Goals (SDGs). Distinct structural *advantages* of the region may provide a less costly way out of the pandemic, thereby minimizing overall human welfare losses.

2. Lockdown Experiences in Sub-Saharan Africa

The first national lockdown among Sub-Saharan African countries was imposed by the Rwandan government on the 21st of March 2020, after recording 17 positive cases of COVID-19. As in other world regions, lockdown implementation and experiences in the African sub-region varied across countries (Haider et al., 2020). In some countries, lockdowns were limited to hotspots (e.g. Ghana and Nigeria), whereas others implemented nationwide "shutdowns" (e.g. Uganda and South Africa). While most other countries restricted "non-essential" business activity (e.g. restaurants and cafes), others like Sierra Leone or Tanzania decided against such closing. International travel was generally highly restricted, and this restriction was strictly enforced. Concerning the enforceability of measures within countries, structural peculiarities of the region made the implementation of lockdown measures challenging. Most people in Sub-Saharan Africa get food and daily supplies from open and crowded markets where social distancing is difficult to achieve. Widespread poverty, deprivation, the lack of social security and unemployment benefit system, and low trust ingovernment render it difficult for people to social-distance and follow recommendations (Broadbent & Smart, 2020). In light of these problems, some countries instituted basic protection measures, while others have sought to force compliance by bringing the police and military to the streets, which, when present, forced people to obey social-distancing. Egger, Jones, Justino, Manhique, and Santos (2020) estimate that only 6.8% of all households in the African sub-region meet the requirements necessary for upholding an effective lockdown. The effectiveness of lockdown measures in Sub-Saharan Africa has been questionned (Abdalla & Galea, 2020; Broadbent & Smart, 2020).

3. Direct Health Effects of COVID-19 in Sub-Saharan Africa

Evidence regarding the *direct* health effects shows that the high-risk group is comprised of mainly older people, and people with pre-existing medical conditions including obesity (CDC, 2020; Onder et al., 2020; Xie et al., 2020).[1] Due to their youthful populations, countries in Sub-Saharan Africa could end up with significantly lower fatality rates than ageing societies in the Global North. In Sub-Saharan Africa, half of the population is younger than 18.3 years (see also Figure A1 in the Appendix) compared to 29.3 years in other less developed economies (excluding least developed countries which are mainly located in Sub-Saharan Africa). Early projections from the Imperial College COVID-19 Response Team (Walker et al., 2020) suggested that the infection fatality rate (IFR) in an unmitigated scenario is about 0.24% in Sub-Saharan Africa, which is 3.85 times lower than the projected IFRs for North America or

[1] Evidence from hotspots in the U.S. (Ioannidis, Axfors, and Contopoulos-Ioannidis. 2020) suggests that the probability of dying of COVID-19 for under 65-year-old persons is very small.

Europe. New evidence suggests even lower IRFs for young populations (e.g. Ioannidis, 2020; Perez-Saez et al., 2020)

The virus affects younger persons also, especially as pre-existing medical conditions matter. Serious morbidities such as malaria, HIV/AIDS, as well as diarrhoeal, and respiratory diseases are highly prevalent in Sub-Saharan Africa (IHME, 2018).[2] However, the most serious co-morbidities related to COVID-19 are obesity, hypertension, diabetes and ischemic heart disease (Xie et al., 2020), which are less common in Sub-Saharan Africa.

Regarding COVID-19, the number of confirmed cases depends heavily on testing, and as such, on testing capacity. Testing shortages are likely to matter comparatively more in Sub-Saharan Africa, due to a general scarcity of resources in the health system. And given the high population densities in many African cities, combined with low testing capacities[3], it can be expected that the number of *unreported* infections is substantial.[4]

While the *direct* health consequences of COVID-19 and the *absolute* number of fatalities may still turn out to be severe in Sub-Saharan Africa, they are likely to be less severe than in Western countries when accounting for the expected total number of (reported and unreported) infected people and other structural differences.

4. Secondary effects of Lockdown Measures

While many hope for a vaccine or an effective treatment, societies in Sub-Saharan Africa must select appropriate measures to minimize both the *direct* burden of the disease and the *secondary effects* of the combating measures. Nationwide lockdowns are not a one-size-fits-all approach, and COVID-19 is not the only problem affecting countries in Sub-Saharan Africa.

4.1. Secondary Health Effects

The effectiveness of lockdowns has been questioned from a broad health perspective (Giesecke, 2020). Negative secondary consequences were felt early and the WHO has warned of a breakdown in the supply of essential health services with severe human costs due to other diseases.[5] Table 1 provides an overview of the annual death toll of prevalent communicable diseases in Sub-Saharan Africa and the predicted excess deaths, which may be caused by wide-reaching lockdown measures.

Jewell et al. (2020) estimate that a three- to six-month disruption of antiretroviral therapy could cause an excess of about 300,000 to 520,000 HIV/AIDS-related deaths in the next year alone. Similar developments can be expected for other illnesses. Currently, HIV/AIDS, malaria and tuberculosis cost close to 1.7 million lives annually and over 800,000 additional deaths are expected if health service provisions are disrupted. While these illnesses loom large in other developing regions too, the problem is especially pronounced in countries of the sub-region, as they make up over 75% and 88% of HIV and Malaria induced deaths, respectively.

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[2] Besides respiratory ailments, there is no conclusive evidence that such diseases have an aggravating effect on the course of COVID-19 patients (https://daignet.de/site-content/news/stellungnahmen/stellungnahme-der-daig-zur-gefaehrdung-von-menschen-mit-hiv-durch-covid-19-21-03.2020, accessed May 20, 2020).

[3] E.g. Nigeria has 197 Mio. inhabitants has tested fewer than 179,000 samples by July 11, 2020 (https://ourworldindata.org/grapher/full-list-total-tests-for-covid-19, accessed July 13, 2020).

[4] Uyoga et al. (2020) estimate that 1 in 20 adults in Kenya had SARS-CoV-2 antibodies by mid-June while only 2093 cases were reported. Supposing that the number of deaths (71 by mid-June) is more reliable, this would suggest a very low IFR.

[5] See https://www.who.int/news-room/detail/11-05-2020-the-cost-of-inaction-covid-19-related-service-disruptions-could-cause-hundreds-of-thousands-of-extra-deaths-from-hiv (accessed May 13, 2020).

Table 1: Annual Death Toll
from Prevalent Communicable Diseases in Sub-Saharan Africa.

Disease	Annual Deaths	Excess Deaths[6] (due to Lockdown)	Expected Total Deaths
HIV/AIDS	711,943 (IHME, 2018)	+ 520,000 (Jewell et al., 2020)	1,231,943
Malaria	543,289 (IHME, 2018)	+ 225,711 (WHO, 2020)	769,000
Tuberculosis	401,164 (IHME, 2018)	+ 104,303 (Glaziou, 2020)	505,467
Total	**1,656,396**	**+ 850,014**	**2,506,410**

(Sources: Given in parenthesis below respective figures)

Early projections in March by Walker et al. (2020) suggest an upper bound of 2,483,000 COVID-19 related deaths in an unmitigated scenario where 1.045 billion people in Sub-Saharan Africa are assumed infected, while a stringent lockdown (a 75% decrease in interpersonal contact rates), is suggested reduce the death toll down to between 298,000 and 1,204,000, depending on how early such measures are taken.[7] Comparing projections, the expected annual excess deaths of three other diseases due lockdowns (see Table 1) is within this range of predicted total death reductions due to the very same measures, i.e. the predicted COVID-19 related deaths avoided due to mitigating measures could be offset by the rise in mortality from only three major other diseases.[8] While there is still uncertainty regarding COVID-19, the knowledge of the relevance of other diseases is well established. Therefore, from a broad health perspective, the implementation of sustained lockdowns should be a matter of carefully weighing its costs and benefits.

4.2. Secondary Economic Effects

Lockdowns in the developed world are estimated to have caused a global economic downturn comparable to the Great Depression (IMF, 2020a). Worse adverse economic effects can be expected for fragile economies in Sub-Saharan Africa (IMF, 2020b).[9] Hence, lockdowns might push the already poor into extreme poverty and threaten the livelihood of the most vulnerable. Such effects are worsened by the lack of reliable social security. For people who have little or no savings and who depend on their daily earnings, the inability to work, together with increasing food prices, can ultimately mean the difference between poverty and starvation.

Threats regarding food supply lead to warnings of malnutrition and hunger.[10] African farmers have troubles in supplying regional markets due to financial and logistical

[6] The figures taken from the respective sources are the upper bounds of those predictions.

[7] Evidence from empirical studies would now suggest substantially lower IFR for young populations (Perez-Saez et al. 2020, Ioannidis 2020, Uyoga et al. 2020) and by August actual numbers of deaths are far below Walker et al. (2020)'s projections.

[8] There are other illnesses in Sub-Saharan Africa, like diarrhoeal diseases from which over 500,000 people die annually. Sustained and wide-reaching lockdowns may affect the prevention and treatment of such illnesses too.

[9] South Africa has reported an annualized economic downturn of 51% in the second quarter of 2020. See https://www.bloomberg.com/news/articles/2020-09-08/south-african-recession-enters-fourth-quarter-with-51-gdp-drop (accessed September 8, 2020).

[10] See https://www.afro.who.int/news/covid-19-could-deepen-food-insecurity-malnutrition-africa (accessed May 20, 2020).

constraints.[11] Such developments have compounding adverse effects for the poorest and may lead to adverse intergenerational consequences (Frempong & Stadelmann, 2019; Fung & Ha, 2009). These precarious issues are especially relevant for Sub-Saharan Africa, where about 23% of the population is undernourished.

A healthy population has a high value. A strong economy has been closely linked to the health of its citizens and their life expectancy (Jetter et al., 2019; Pritchett & Summers, 1996) and maintaining health systems requires substantial economic resources. Transferring the estimates of Jetter et al. (2019) to Sub-Saharan Africa suggests that only a 5% reduction in income per capita decreases life expectancy in the region by 0.39% (or 0.24 years) on average, and particularly poor countries such as Mali could experience reductions in life expectancy by 0.44% (or 0.26 years).[12] As victims of COVID-19 tend to be comparatively old, the implied decrease in life-expectancy due to the virus could be similar to the decrease in life expectancy due to an economic contraction.

4.3. Secondary Societal Effects

General societal effects of lockdowns and recessions could be vast: Already, there have been reports regarding a significant rise in domestic violence (Chandan et al., 2020), which disproportionately affects societies' most vulnerable – women and children. Also, partially arbitrary enforcement of lockdown measures has led to fatal clashes between law enforcement officers and citizens in several countries in the sub-region.[13] This could escalate the security problem in some West African countries where the activities of militants have been a security concern over the years (Onuoha, 2010).

Risks to political stability, institutions and democracy have emanated in younger democracies.[14] In some Sub-Saharan African states, leaders have instrumented the pandemic in restricting freedom of speech and even in prolonging their term.[15] This threatens further achievements of the SDGs which ask for the provision of accountable and inclusive institutions. Functioning inclusive institutions have been strongly linked to economic and human development. Extractive institutions, once established, have been shown to persist in the long-run and to dampen development (Acemoglu et al., 2019).

5. Policy Recommendations and a Sustainable Exit Strategy

Pandemics and the reactions to them increase the general problem of scarcity. It is therefore essential to take all trade-offs into account. Sub-Saharan Africa suffers more than other regions from diseases such as malaria and HIV/AIDS, and reactions to the pandemic risk could increase the death toll associated with them. While citizens in rich economies tend to have some savings or social safety nets, citizens in Sub-Saharan Africa are less endowed. Weak institutions are threatened more by societal impacts of the pandemic than institutions of established democracies with many checks and balances. Thus, the secondary effects of the pandemic are

[11] See https://www.weforum.org/agenda/2020/04/africa-coronavirus-covid19-imports-exports-food-supply-chains (accessed May 13, 2020).

[12] A 5% reduction of Sub-Saharan Africa's combined GDP per capita (PPP) of 3,794 USD corresponds to 190 USD which is used to predict reductions of life expectancy.

[13] By April 16, 2020 the number of fatalities as a result of police violence was higher than that of COVID-19 deaths in Nigeria (https://www.bbc.com/news/world-africa-52317196, accessed May 17, 2020).

[14] See https://www.opendemocracy.net/en/democracywatch-global-pandemic-power-grabs/ (accessed May 25, 2020).

[15] See https://www.bbc.com/news/world-africa-52214740 (accessed May 13, 2020).

likely to be relatively more important in Sub-Saharan Africa than in other countries, and the side effects will delay the achievements of many SDGs if trade-offs are not realized.

5.1. Sustainability and Certification

While scarcity is general problem in developing countries, there is one resource which is growing: People who have recovered from COVID-19 and have developed antibodies. Current medical evidence suggests that antibodies are likely to confer immunity against reinfection, at least temporarily (Kirkcaldy et al., 2020; Wajnberg et al., 2020).[16] Gudbjartsson et al. (2020) find that antibodies against SARS-CoV-2 last more than four months after infection. Such people should be searched for, identified and also certified of their status (see Eichenberger et al., 2020).[17]

A certificate stating the expected duration of immunity in the light of current medical science could be issued to people who have undergone the disease and acquired antibodies against it. Such people can then benefit from their usual freedoms and return to their regular professions without undue restrictions. Immune people are a valuable resource in maintaining functioning health systems, food supply and constrained infrastructures. Hence, antibodies and the associated immunity potentially represent a sustainable exit strategy until a vaccine has been developed and distributed globally.

Clustered, dense and informal living arrangements in Sub-Saharan Africa may imply that virus could have already infected a significant amount of people in the region than reported (see Uyoga et al. 2020, Chibwana et al., 2020). Immunity would confer to these people and the region a comparative *advantage*, possibly allowing them to move freely across the globe.

5.2. Taking a Comparative Perspective Regarding Certification

Some advocates argue that immunity to COVID-19 is not *yet* certain. This is correct, but immunity need not be certain for it to make a substantial difference.[18] In general, certificates can never fully guarantee certainty.[19] *Uncertainty always exists,* and certificates are not a way to eliminate uncertainty but to reduce it substantially.

There have been ethical concerns against certificates for antibodies. Such ethical concerns have been agued against with support (Persad & Emanuel, 2020). The holder of a certificate has an advantage over those without immunity. The advantage may be as undeserved as a unique talent. However, unlike talent, immunity is not a lasting advantage which will vanish as soon as a vaccine is available. The non-negligible point is that the non-immune population also benefit from the increased employment of recovered people with antibodies: through their work performance, their contribution to a working economy, and their tax payments. Finally, we should not underestimate that convalescents from COVID-19 were ill, suffered, and may face future health consequences. To deny these people a certificate that they have recovered from the illness and have some immunity to it is questionable form a comparative point of view. For once, particularly the poor, suffering and the vulnerable in Sub-Saharan Africa could benefit.

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[16] On April 24, the WHO still suggested that there is not *yet* enough evidence about the effectiveness of antibody-mediated immunity (see https://www.who.int/news-room/commentaries/detail/immunity-passports-in-the-context-of-covid-19, accessed April 25, 2020).

[17] Recently approved antibody tests appear to be reliable with a specificity higher than 99.8% and sensitivity of 100% (https://www.roche.com/media/releases/med-cor-2020-05-03.htm, accessed May 25, 2020).

[18] Immunity conferred by a future vaccine is highly unlikely to be 100% certain. The German Robert-Koch-Institut highlights that to common flu vaccine protects 40 to 75% of people vaccinated (https://www.rki.de/DE/Content/Infekt/Impfen/Bedeutung/Schutzimpfungen_20_Einwaende.html, accessed May 05, 2020).

[19] E.g., it is not guaranteed that all people holding driver license are capable of driving. However, most of them will be better drivers than those who do not have a driver license.

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7. Appendix

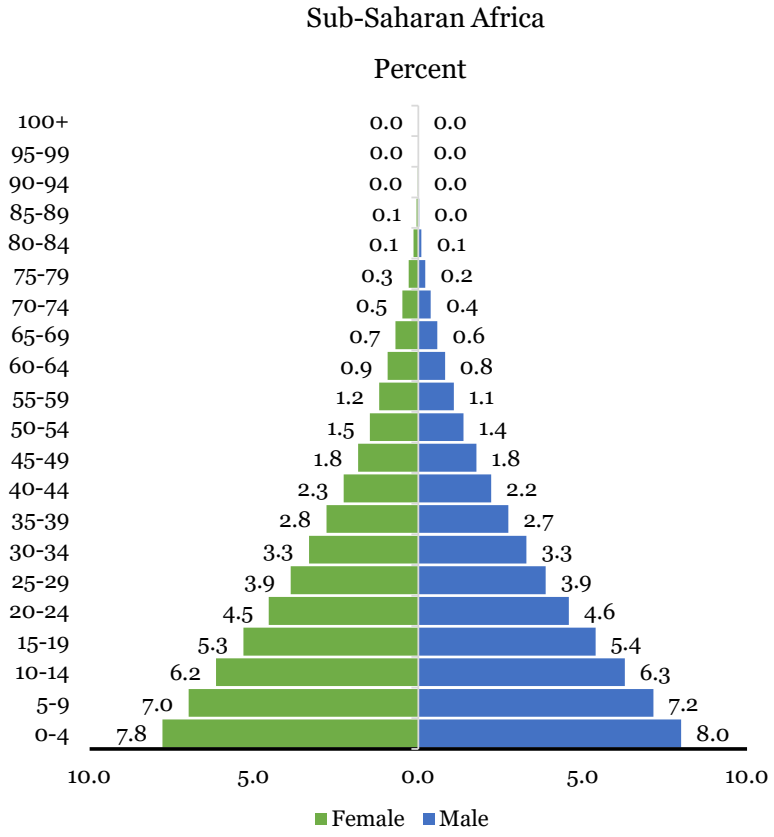

Figure A1: Population Structure of Sub-Saharan Africa.
(Source: Own illustration using data from www.populationpyramid.net.)