

After the lockdown:

Macroeconomic adjustment to the Covid-19 pandemic in sub-Saharan Africa

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Abstract

The Covid-19 pandemic is ripping around most of the world, but not in Africa; at least, not yet. At the same time, the policy response is remarkably uniform: most of sub-Saharan Africa went into lockdown from the second week in March. What happens next for the pandemic across Africa is uncertain, but the March lockdowns are unlikely to have contained the epidemic by themselves.

What is clear is that the combination of domestic lockdowns and the spill-over from the global recession means immediate and severe hardship. This paper looks beyond the public health aspects of the pandemic to examine the medium-term macroeconomic adjustment challenge confronting domestic policy-makers and international donors. We combine epidemiological and macroeconomic models to calibrate the scale of the combined shock to a representative low-income African economy and to show how alternative policy options for slowing transmission of Covid-19 impact on public revenue, and on GDP in the short run, and hence shape the path to recovery. Noting that the first lockdown, however costly, does not by itself eliminate the likelihood of a re-emergence of the epidemic, we then frame the agenda for key macroeconomic and public finance policies to sustain recovery, growth, and poverty reduction in sub-Saharan Africa.

The initial hit to consumption will be up to one third. All the public policy options are grim. International donor finance of US\$40-50 billion, together with domestic reform to accelerate recovery, would make a significant difference to the outlook for poverty.

Keywords: COVID-19, macroeconomic adjustment, sub-Saharan Africa, development assistance, simulation models.

JEL Codes: E27, E61, J11, O11, O55

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1. Introduction

The Covid-19 pandemic is ripping around most of the world, but not in Africa; at least, not yet. Estimates to early June 2020 suggested that among one billion people there were well over 140,000 confirmed cases with about 3,500 deaths.² However, the public policy response is uniform: most of sub-Saharan Africa went into lockdown from the second week in March.

Lockdowns have been costly—in terms of stopping the economic activity that sustains livelihoods, and in terms of the hit to public finances from reduced revenue and increased spending on health and social protection. Equally clear is that the legacy of lockdowns and the effects of the unfolding global recession mean severe hardship for an extended period. Low-income countries in Africa are suffering from a domestic supply shock and an international demand shock, which together put at risk the economic and developmental gains posted by African countries over the last 20 years.³

Managing recovery from these impacts will present an immense challenge for public policy. In this paper, we look through the pandemic and the short-run immediate hit to focus on the medium-term policy agenda in response to this challenge—in particular for national fiscal policy and for official development assistance (ODA).

The scale of the policy challenge will depend on three things. First, how lockdowns are released and economies re-started, especially noting that the first lockdown, however costly, does not eliminate the likelihood of a re-emergence of the epidemic. Second, the domestic policy choices between balancing current consumption and sustaining public and private investment for future recovery; and third, the response of the international community, when donors face their own domestic pressures from recession and tighter public finances.

Governments in Africa cannot ‘do whatever it takes’. The economic reach of the state is constrained by limited revenue mobilization, while low savings rates and thin financial markets limit potential domestic sovereign borrowing. With fiscal positions already highly constrained in many countries in the region, restoring fiscal balance on domestic measures alone risks prolonging a slow recovery in output and consumption.

There will be a sharply increased need for external finance, but with access to market-based sovereign borrowing extremely limited, the focus must be on official financing. Many countries have accessed emergency International Monetary Fund (IMF) finance, but this can be catalytic at best: what is required is a significant short-term increase in ODA—from governments, multilateral development banks, and development finance institutions—to alleviate exceptionally difficult public finance and policy trade-offs and accelerate recovery.

Section 2 sets out the context for policy choices, highlighting the uncertainties faced as lockdowns are eased, and an international recession looms. While countries in the region differ very substantially -- in terms of income levels, the structure of production, sources of government revenue and borrowing capacity -- the uniformity of initial national public health responses to the crisis and the scale of the

² Based on WHO-Africa daily situation reports for sub-Saharan Africa.

³ See Sumner *et al.* (2020).

global recession means that the policy challenges facing many low-income sub-Saharan African countries are very similar.

Section 3 uses epidemiological and macroeconomic models to quantify the public health and macroeconomic dimension of the pandemic and to frame possible policy options for releasing lockdowns and the domestic policy choices for a recovery.. We first use a standard epidemiological model combined with a simple economic model to illustrate the impact of alternative options for slowing transmission of Covid-19 on public revenue and GDP in the short-run. In the remainder of the section, we use a dynamic general equilibrium model to examine medium-term paths for economic recovery in more detail. To make the analysis concrete, both models are calibrated on Uganda, which has a fiscal position which is largely representative of other low-income sub-Saharan African economies (see Table 1). Given the enormous uncertainties involved, however, these simulations do not represent forecasts, either for Uganda or more generally, but they do frame key macroeconomic policy issues for governments, and for donors, to meet the challenge of recovery and poverty reduction post-pandemic.

This paper speaks as much to the imperative for domestic reform as it does to international donors: Reform will be key to accelerating recovery. In addition, an increase in net ODA flows to low-income African countries of the order of US\$40–50 billion may be required to support adjustment over the next few of years. This is substantial—equivalent to double current flows—but the case for increased ODA in these exceptional times rests as much on the national interests of donors as it does on traditional developmental considerations, and on collective international action: the benefits of conquering the Covid-19 pandemic globally, so that it does not rip through the OECD again, accrue as much to donor nations as to aid recipients.

2. Macroeconomics and policy choices at the outbreak of the Covid-19 pandemic

Most countries across sub-Saharan Africa have relatively few cases of or deaths from Covid-19, yet have implemented wide-ranging and often mandatory measures (Hale et al., 2020) (Figure 1, left-hand panel).⁴ Taking decisive measures early in the path of the pandemic might have contributed to low rates of infection and death, but what happens next for the pandemic across Africa is uncertain.⁵

The purpose of a lockdown is to limit transmission of the virus by stopping mixing and social contact. The right-hand panel in Figure 1 illustrates the extent to which people did not go to work and stayed

⁴ The eight elements of lockdown tracked by the data on lockdowns by the team at the Blavatnik School of Government are: (i) schools closing; (ii) work-places closing; (iii) public events cancelled; (iv) restrictions on gatherings; (v) public transport closed; (vi) requirements to stay at home; (vii) limits on domestic travel; (viii) limits on international travel

⁵ In May 2020 the World Health Organization estimates 83,000–190,000 deaths across sub-Saharan Africa from an uncontained epidemic (WHO, 2020). There are, however, still unresolved debates around the effects of youthful demographics, lower population densities, and the generally warmer climate on susceptibility and transmission, as well as about the reliability of epidemiological data, especially against the background of generally higher morbidity.

at home during the lockdown in Uganda.⁶ In the absence of broad population-based testing for infection or for anti-bodies, the effectiveness of these strategies for public health is unclear and will only be revealed in data on 'excess' death rates. Few low-income countries compile regular data on causes of deaths to allow for such an analysis.⁷

There is a risk that the lockdowns only postpone transmission of a highly infectious virus, rather than prevent it, and if the virus does spread with the virulence seen elsewhere, the prospects are grim. Acute care capacity in public health systems across the continent is severely limited; keeping a physical distance is hard in urban and peri-urban areas where the density of habitation is high and economic activity occurs on an intimate scale; and soap and clean-enough water for hand-washing is scarce.⁸

However, at the time of writing, the lockdowns are being eased. The next challenge is putting domestic economic activity back together while still limiting the transmission of the virus. This entails balancing the human needs to make a living with the human costs of a pandemic. This policy challenge is framed in section 3.

The economic and social consequences of lockdowns are clear. Domestic economic activity stops: people can't work, production drops, jobs are lost, supply chains unravel, welfare and livelihoods deteriorate, and poverty and vulnerability to risk increases. This domestic supply shock is augmented by an international demand shock, with a severe impact on the small open economies in sub-Saharan Africa. Even if the drop in domestic output is modest, the first-order economic effects of the pandemic will be felt through a dramatic contraction in countries' import capacity. Declines in primary commodity prices (perhaps with the exception of gold) and the loss of non-traditional exports, including tourism and horticulture, will depress the income terms of trade. At the same time, reductions in remittance flows, the reduction or reversal of foreign direct investment (FDI) and private capital flows will further tighten external constraints, forcing more adjustment on to domestic absorption.

Countries across Africa are confronting this challenge when macroeconomic conditions are already difficult. Although there are important exceptions, most notably in East Africa and also Senegal and Côte d'Ivoire in the west, most countries have seen their growth rates slow and current account deficits widen since the end of the commodity super-cycle in 2015.⁹ A corollary of this was a weakening of fiscal balances and a reversal in recent trends in public debt. On the back of widespread debt relief, low real interest rates, and rapid export-led growth, public debt declined from around 100 per cent of GDP in the mid-1990s to 40 per cent in 2013. By 2018, this was back towards 60 per cent of GDP, accompanied by increased numbers of countries facing external debt servicing problems. By late 2019, 16 of the 36 low-income countries in sub-Saharan Africa were classified by the World Bank and IMF as being in debt distress or at high risk of debt distress, and others are close to prudential

⁶ The data on mobility show time spent at home or work relative to the average for the (baseline) first week of data. Source: Google: <https://www.google.com/covid19/mobility/>

⁷ FT reporting (<https://on.ft.com/2xMKWR9>) and Office for National Statistics data/analysis in the UK.

⁸ Two-thirds of people in sub-Saharan Africa do not have access to facilities to wash their hands with soap (World Development Indicators).

⁹ IMF (2019a). This *Outlook* was prophetically entitled 'Navigating Uncertainty'.

external debt limits.¹⁰ With still-limited domestic tax capacity and thin domestic asset markets, fiscal policy options are limited.

2.1 Short-run fiscal impacts and fiscal policy responses

Table 1 summarizes the impact on fiscal space of the pandemic and the lockdown for a selection of countries across sub-Saharan Africa. This is an eclectic array of countries, and across the continent there is variety in a range of economic characteristics, such as the scale of tourism or airfreighted exports, which will be hit by the aftermath of the pandemic. But there are common themes on fiscal space for the countries shown in Table 1, comparable to other sub-Saharan African low-income countries. The mean of the baseline revenue and grants before the hit from the pandemic and the lockdown is equivalent to 16 per cent of GDP and the mean for baseline spending is 22 per cent of GDP.¹¹ In calibrating our models to Uganda, we capture reasonably representative features of other low-income countries.

The estimates made in IMF Staff Reports supporting the use of Fund resources in recent months show a mean hit to revenue of 2.0 per cent of GDP and an increase in spending of 0.5 per cent GDP: a fiscal deterioration of 2.5 per cent GDP; averaging over US\$1.1 billion each for Ethiopia, Ghana, Kenya, and Uganda. Those same countries have accessed US\$663m of IMF financing in the last few months.

These estimates of short-term fiscal degradation may be on the low side. The IMF sharply reduced its growth forecasts for Africa in advance of its Spring Meetings in April 2020,¹² but may have been too cautious. Sandefur and Subramanian (2020) suggest the contraction in GDP may be twice as large as the Fund is projecting. If they are correct, then fiscal positions across low-income countries in sub-Saharan Africa will deteriorate by more than is shown in the IMF Staff Reports.

2.2 Monetary and exchange rate options

The simultaneous real shocks to the supply-side and the demand-side of the economy will entail some combination of real exchange rate depreciation and a squeeze on absorption. While managing this adjustment will fall primarily on real or fiscal policy measures, there will be an important role for monetary and exchange rate policy. Depreciation is unlikely to trigger a rapid export supply response—in a global shock few individual countries can export their way out—but will be important in supporting the demand switch from imports towards domestic production in a manner that eases some of the pressure on internal devaluation.

¹⁰ IMF (2019b).

¹¹ This mean includes Nigeria and South Africa as outliers. Although tax capacity has improved across Africa since the 1990s it remains low compared with other regions of the world: the revenue-to-GDP ratio for all emerging markets is around 24 per cent.

¹² IMF *World Economic Outlook* (January 2020 and April 2020). Projected constant-price GDP growth for sub-Saharan Africa for 2020 was adjusted from 3.5 per cent (January forecast) to –1.6 per cent (April forecast).

As Table 1 shows, nominal exchange rates have already started to absorb some of the pressure of adjustment. As we see in section 3, however, depreciation will add to fiscal pressures where external debt service requirements are high (and where the tax base is predominantly non-traded).

The primary challenges facing the monetary authorities in the short run, however, are to support the banking system in the provision of domestic liquidity, to provide working capital in the formal economy and for domestic agriculture, and to support the balance sheets of the banking system during the severe phase of lockdown and recession. Central banks, particularly those where inflation is well-anchored, have already loosened monetary policy by cutting rates, reducing reserve requirements on banks, and exercising a degree of regulatory forbearance. The challenge will be to calibrate the move towards tightening when demand recovers, especially if this occurs more rapidly than supply.¹³

3. From lockdown to recovery

In this section we simulate the macroeconomic effects of the global Covid-19 pandemic and public policy responses for low-income African countries. We proceed in two steps. We first focus on the cost-effectiveness of alternative public health strategies for reducing the spread of the disease as lockdowns get released. This analysis is based on a standard ‘susceptible-exposed-infectious-recovered/dead (SEIRD)’ model for viral outbreaks augmented with a set of basic economic relations describing the first-round implications for GDP and public finances (Lee, 2020).

In the second stage, we use a dynamic macroeconomic simulation model that combines the effects of the domestic lockdown with the spill-over effects from the global recession. This allows us to examine the potential macroeconomic trajectory of this combined economic shock and provides a basis for considering alternative mitigation and adjustment strategies designed to bring the economy back to its pre-Covid-19 trend. This model is a simple modification of the ‘debt-investment-growth’ (DIG) model developed by the IMF to examine public investment and debt sustainability (see Zanna *et al.*, 2019).¹⁴

Both models are calibrated to an initial pre-Covid-19 situation based on the national accounts and public finance data from Uganda, a representative small, open, low-income country.¹⁵ Table 2 summarizes the key elements of the initial economic calibration, along with the key epidemiological parameters of the SEIRD model. While the core economic and demographic calibration is well-grounded in high-quality data, our characterization of the epidemiological and macroeconomic shocks is necessarily more speculative.

¹³ This repressed inflation problem may, however, be less severe in low-income countries where governments have been unable to provide the large-scale income support scheme provided in advanced economies.

¹⁴ Full details of the models are provided in Lee (2020) and Adam, Henstridge and Lee (2020a).

¹⁵ An important aspect of the economic calibration is the historically high rate of public infrastructure investment. While this reflects the specific nature of Government of Uganda’s current structural transformation agenda, many other governments across Africa have recently increased their public investment to historically high levels.

3.1 First-round effects

The SEIRD model from Lee (2020) assumes two age-groups (those over 70 years and those under) with an initial infection rate $R_0 = 2.4$. Over-70s are not part of the labour supply and have much higher healthcare needs and higher expected mortality (Monnery, 2020; Verity *et al.*, 2020). The under 70s—the labour supply—are split between the agricultural and non-agricultural economy. Average labour productivity is significantly lower in agriculture than in the non-agricultural sector.¹⁶

As noted in Figure 1, lockdown measures were widely and consistently applied from mid-March 2020 across a large number of countries. Lockdowns impose social distance between individuals to reduce the susceptible population over the period of the lockdown, and hence dampen rates of exposure and subsequent infection. For Uganda, these initial lockdown measures—the ‘reflex response’, which lasted for 7 weeks—disproportionately affects the non-agricultural workforce, removing half of all employees from work, compared to 15 per cent of the agricultural workforce.¹⁷ The net effect of this reduction in the labour supply, given differential labour productivities, is a full-year equivalent reduction in output of 6.3 per cent compared to a no-pandemic baseline and a corresponding fall in public revenues of 1.7 per cent of GDP (equivalent to approximately 10 per cent of total revenues). Without further public action or external events such as the rapid discovery and distribution of a vaccine or effective treatment for COVID 19, this lockdown delays but does not reduce infections and deaths. A combination of follow-on public health measures including public health campaigns on hand-washing and masks, localised movement limitations and limits on particular types of economic activity could reduce the force of transmission by as much as 50 percent. As shown in Adam *et al* (2020a), this strategy postpones the re-emergence of the epidemic for a full year, at an additional output cost of approximately 1 percent of GDP, but with no additional net fiscal pressure.

This modelling is not sophisticated enough in its epidemiology to recommend detailed courses of action but the orders of magnitude indicate that lockdowns alone are a very costly way of delaying the emergence of the epidemic by roughly the amount of time the lockdown lasts.

Integrating the SEIRD model with the macroeconomic data for Uganda illustrates the short-run impact of the pandemic and associated policy responses. The lockdowns will need to be followed-up with other public health measures. But it is clear from the estimation of the full impacts of the first lockdown combined with the international recession, to which we now turn, that a second lockdown would be almost impossibly costly. To avoid the unwelcome trade-off between very severe mortality

¹⁶ Mugume and Anguyo (2019) estimate the share of labour in value added at 71 per cent. Output per worker is four times higher in non-agriculture, at the top end of the estimates by Gollin *et al.* (2014).

¹⁷ The first-round economic impact of both the disease and the public health measures stem from their impact on labour supply:

$$L = \sum_{i=1}^p l_i (S_i - D_i + (1 - \sigma_i)(E_i + I_i) + R_i)$$

where for each of the p population groups we assume a participation rate, l_i , applied to the population $S_i + E_i + I_i + R_i$, which excludes deaths, M_i , and is denuded by a proportion of infected people who are off sick, σ_i , and by D_i which is the share of the population temporarily removed from social and work-related circulation by lockdowns or other social distancing policies. Assuming capital stocks are fixed in the short run, changes in labour inputs fully determine aggregate output given the marginal product of labour.

and deep and lasting economic harm, the priority has to be on developing public health measure that can contain the epidemic without a second lockdown.

3.2 The macroeconomics of the pandemic in the medium term

We next integrate short-run direct effects of lockdown with the associated knock-on effects and the spill-over from the global economic slowdown, using a dynamic macroeconomic model built around a Salter–Swan dependent economy core, which describes a two-sector, two-household, small open economy facing exogenously determined global terms of trade. Firms produce both tradable and non-tradable goods and services under constant returns to private inputs but increasing returns in the presence of public infrastructure capital. There is an underlying exogenous trend rate of *per capita* growth and factor markets are competitive with full employment (real wages are fully flexible and will adjust to remove open unemployment). Public capital needs to be maintained through operations and maintenance (O&M), the retrenchment of which adversely affects private productivity.

On the demand side, there are two groups of private households. Approximately three-quarters of households depend entirely on net-of-tax labour income, remittances from abroad, and transfers from government, and have no access to asset markets.¹⁸ The second group are richer households who sell their labour primarily to the skill-intensive tradable goods sector and who own and maintain the private capital in the economy. They have access to asset markets, so are able to smooth consumption inter-temporally. Investment is driven by a simple Tobin’s *q* mechanism, where expected returns to private capital are a function of the provision of effective public capital services. Both household groups have the same preferences and consume an aggregate defined over tradable goods (manufactures and imported food) and non-tradables (domestically produced basic foods plus services).

The government invests in public infrastructure capital and spends on social protection, productive expenditures (O&M), and debt service. Expenditure is financed by a mixture of taxes (on consumption, wages, and profits) and debt (domestic and external) plus an exogenous volume of concessional lending and grants. The model can also consider a case where the government budget is supported by natural resource revenue.¹⁹ All taxes are distortionary and are characterized by incomplete collection—some combination of the prevalence of exemptions and/or corruption in tax collection—so that relatively high marginal tax rates co-exist with low revenue mobilization.

The government conducts policy through a set of simple expenditure and tax-and-borrowing fiscal rules, conditional on the flow of external development assistance (both grants and concessional lending which, we assume, are determined by donors and drawn down to the maximum available)

¹⁸ Some portion of this labour income is rental income from self-employment in small-holder traditional agriculture.

¹⁹ The natural resource sector in this model, were it to exist, is treated as an off-shore foreign-owned enclave sector where the only linkage to the domestic economy is via a revenue-sharing contract that sees government receive a fraction of the current value of production: in principle this can be taken as current revenue or managed through a sovereign wealth fund. While this model can simulate a post-pandemic policy challenge for such an economy, we don’t have space here, and the fiscal policy reform challenges would be similar to the Uganda-calibrated archetype we analyse in this paper.

and revenues from natural resources, if they exist. The government's debt position is initially sustainable but close to its desirable target level (which is reasonably close to its prudent maximum level). Thus, while it may choose to increase public indebtedness in response to a shock in the short run, the economy is anchored by a target long-run debt-to-GDP target equivalent to that in the initial equilibrium, so that debt accumulation is unwound over time.

When the economy is hit by a shock, the real exchange rate and real interest rate adjust to ensure that domestic absorption is consistent with simultaneous equilibrium in the tradable goods and services market (i.e. external balance) and the market for non-tradable goods and services (internal balance), given exogenous supplies of labour and external debt and remittance flows and the world terms of trade. At the same time, the fiscal balance is satisfied by adjustment in taxation and short-term domestic borrowing, conditional on exogenously determined levels of public investment, recurrent spending and external official flows.²⁰

The model does not, however, have a monetary dimension, so while it allows for real frictions in the economy, there are no nominal rigidities. It is thus silent on policy issues around inflation, liquidity management, and financial sector stability. Implicitly, therefore, the model assumes a flexible nominal exchange rate that facilitates necessary real exchange rate adjustment.

3.3 Calibrating the shock and policy responses

Building on the short-run analysis earlier in this section, we define the economic impact of the Covid-19 shock in terms of six key elements. On the domestic side, the economy experiences: (i) a temporary withdrawal of labour across the economy; (ii) a temporary reduction in total factor productivity, reflecting the economic consequences of social distancing and other public health measures that disrupt the availability of intermediate inputs of goods and services; and (iii) the temporary loss of private capital—a hysteresis effect—as shops and factories closed during lockdown do not re-open when the lockdown ends.²¹ The domestic shock may also include some increase in the public healthcare and social protection spending, although in practice, however, much of the 'hardware' of the health care response—such as ventilators or personal protective equipment (PPE)—will be externally funded. Increased social protection spending and related public health measures are therefore treated as an increase in recurrent transfers to the private sector.

On the external side, the effects of the global lockdown are transmitted as an external demand shock through three further channels: (iv) the contraction in global economic demand via a decline in the income terms of trade, reflecting the decline in commodity prices and the contraction in other export sectors such as tourism; (v) a substantial fall in remittance flows from migrants and the diaspora resident in developed countries; and (iii) a 'sudden-stop' in net FDI and portfolio private capital inflows as international investors retreat to safe-haven locations. Official financing flows, both grants and concessional loans, are treated as policy choices by donors (see below).

²⁰ The balance between tax adjustment and short-term borrowing is determined exogenously (see Adam *et al* 2020a).

²¹ This may be because social distancing restrictions make it impossible to operate at minimum efficient scale, or because whole sub-sectors, such as international tourism, are eliminated over the medium term.

We organize the simulation runs in two steps. First, we examine how local and global responses to the Covid-19 pandemic shape medium-term economic and public finance prospects, while holding both the fiscal policy stance and any purposive donor response at their pre-shock configuration. This generates a measure of the latent fiscal pressures generated by the pandemic, *ceteris paribus*. In the second stage we consider a set of domestic and international policy responses designed to mitigate the adverse short- to medium-term effects of the shock. In doing so we focus primarily on the paths for output and aggregate demand, as well as the paths for the real exchange rate, the fiscal balance, taxation, and public debt. The simulation runs are described in detail in Table 3 and the summary results in Table 4.

3.4 Lockdown and global recession

Taken in isolation, and consistent with the short-term results presented earlier in this section, the short-term labour supply shock has a relatively modest impact on the economy and is short-lived (Table 4, panel A). Output contracts in both sectors, by around 4 per cent in aggregate over the first year, and consumption shrinks by a similar amount. The overall fiscal hit from this aspect of the lockdown is mild—the incipient fiscal gap increases by around 1.0 per cent of initial GDP.²²

But this does not fully reflect the disruptive nature of a lockdown. Panel B introduces the additional effects of the lockdown (the temporary slowdown in productivity in both sectors, the associated loss of private capital in both sectors;²³ and a 6-month increase of 1 per cent of GDP per quarter in recurrent spending on social protection initiatives. This dramatically changes the picture. Aggregate output and consumption fall by around 15 per cent in the first year and, crucially, remain below trend well beyond the end of the lockdown, reflecting both the persistent effects of the short-term loss of productivity and the impact of the hit on savings and investment (which both fall as households seek to protect current consumption). In the short run, the incomes of skilled households fall by less so that income distribution moves slightly in their favour. The contraction in the tax base combined with increased spending on social protection translates into substantially higher fiscal pressures, with the incipient fiscal deficit rising by almost 5 per cent of initial GDP over the first year.

Finally, in panel C we introduce the external component shock which is transmitted both through the current account and the capital account. On the current account, the contraction in global aggregate demand is represented by an adverse movement in the country's income terms of trade as commodity prices fall, and markets such as tourism and hospitality atrophy.²⁴ On the capital account, the

²² We refer to this as 'incipient' as it measures the adjustment required to bring about fiscal balance, *before* we consider purposive fiscal policy responses chosen by the authorities. By default, at this stage, the incipient fiscal gap is filled by a mixture of domestic borrowing and adjustment to tax rates on a pro-rated basis. Later, in section 3.5, we consider specific fiscal responses.

²³ There is no reliable evidence on which to calibrate either of these effects: here, *faute de mieux*, we assume that total factor productivity declines by 10 per cent relative to the pre-pandemic level for three quarters (effectively April–December 2020) before recovering in the first two quarters of 2020. The loss of private capital is assumed to be 5 per cent in the first quarter and a further 2.5 per cent in the second quarter of lockdown.

²⁴ It is less obvious what is likely to happen on the import side. Global import prices have not risen sharply (and have indeed fallen for net energy importers), but the drift towards protectionism in key sectors, reduced availability of trade financing, and the (temporary) disruption of global supply chains arguably put upward

slowdown and potential reversal of net private capital inflows are combined with the precipitous decline in remittance flows and a ‘sudden stop’ in gross private capital inflows.²⁵

Adding these external elements generates a picture that describes a set of economic and fiscal pressures that are potentially more severe than anything most of the low-income countries of sub-Saharan Africa have confronted outside of conflict (Figures 2 and 3).²⁶ Over the first two quarters following lockdown, while domestic output measured in constant prices falls by only slightly more than before, the effects of the global slowdown sharply constricts the current account and transmits a much larger recessionary impulse to aggregate demand. This reduction is spread between aggregate consumption, which contracts by about one-third in the first year (equivalent to 21 per cent of initial GDP) while the private investment falls by a further 5 percentage points of GDP as the private sector seeks to restore the balance between aggregate savings and investment in the face of the shrinkage in foreign savings. The contraction in investment is a central mechanism that extends the short-term crisis into the future. As we discuss below, the effect of public policy choices that undercut private returns to investment further attenuates the negative effects of the crisis.

Accompanying the private-sector adjustment, an equally large fiscal adjustment is required in order to sustain government spending, including on debt service, in the face of a sharply reduced tax base. Absent any other fiscal mitigation methods, to which we return below, restoration of macroeconomic balance would require an enormous fiscal adjustment, around 10 per cent of initial GDP in the first year post-lockdown and a further 7 per cent in the second year. Even assuming an aggressive level of domestic borrowing in the short run this would, if financed from domestic taxation alone, require tax rates to rise by as much as 50–75 per cent above their pre-pandemic rates. Total public debt as a share of GDP would rise sharply, in part because of new domestic borrowing of around 8 percentage points of GDP in the first year, but also because of revaluation effects on external debt as a result of the real exchange rate depreciation required to restore external and internal balance.

Domestic fiscal adjustments of these magnitudes are not only historically unprecedented but are both technically and politically infeasible in the circumstances of the pandemic. But this simulation provides a basis against which to assess a range of mitigation strategies, to which we now turn.

3.5 Domestic and International policy responses

We examine only three of many possible policy responses. In the first, we consider a case where the authorities seek to make the required fiscal adjustment by a mixture of public expenditure cuts, both recurrent and capital, tax rises, and short-term domestic borrowing. The second examines the extent to which enhanced external development finance can substitute for domestic adjustment, mitigating

pressure on the shadow price of importables, exacerbating the deterioration in the terms of trade for developing countries. See Baldwin and Tomiura (2020).

²⁵ World Bank (2020) predicts remittances to fall by around 25 per cent in 2020, while Bolton *et al.* (2020) document the rapid fall in net flows of private capital to emerging and developing countries.

²⁶ Note that in the panel of Figure 3 showing fiscal adjustment, it appears that the adjustment which includes ODA is close to that without that international finance: the difference is in the accelerated path of recovery illustrated in Figure 2.

the depth of the domestic recession and accelerating the return to trend, and the third illustrates the potential gains to combining external finance with domestic fiscal reforms.

Panel D in Table 4 illustrates the case where the authorities seek to address the economic imbalance through drastic cuts in public investment, from 12 to 4 per cent of initial GDP in the short run, rising back to the original level over the next 2 years, and at the same time reallocate a further 0.75 per cent of GDP in recurrent expenditure from O&M expenditures towards enhanced spending on social protection. As part of this strategy, residual deficit financing is tilted from taxation and revenue measures towards domestic borrowing.²⁷

Compared to the unmitigated shock, this programme evidently reduces the tax adjustments required to close the fiscal gap, but the costs of doing so are substantial. The contraction in consumption is ameliorated in the short run—aggregate consumption falls by around 5 per cent less (because the tax-inclusive price of real consumption is lower) but it remains depressed for an extended period of time and beyond the end of the lockdown. This is a corollary of the impact of the cut in new public investment and the neglect of O&M of the existing public capital stock: a slight amelioration of the short-run costs of adjustment has come at the cost of a much more protracted recession.

It is tempting to argue that committed effective governments would avoid policy programmes of this character. But it is difficult to construct alternative responses that do not have similar properties. Ring-fencing public investment—which is the key to a sustained post-pandemic recovery—can only be achieved at the cost of either unpalatable squeezes on private incomes and consumption in the short run, or by reductions in public health spending which raises the risks that lockdown measures do not gain purchase against the pandemic.

The implication is clear: given the nature of the shock, any and all responses financed from domestic resources alone entail very substantial costs either in the short or medium term. Hence, only by accessing enhanced external resources are countries going to be able to navigate a path through the crisis. The ability of low-income countries to access private capital markets at this time of heightened risk, through Eurobond issues for example, is likely to be either impossible or prohibitively expensive. The only option is concessional official finance from members of the OECD Development Assistance Committee (DAC), the multilateral development banks, or the new non-DAC donors such as China. For convenience we refer to the totality of such financing as ‘net ODA’.

Panels E & F in Table 4 show how a substantial inflow of net ODA allows government to engineer such an adjustment path: one which protects infrastructure investment and public service delivery while maintaining tax and domestic debt financing within plausible limits in the short to medium term.

Panel E illustrates the case where the donor community provides sufficient funding to allow the draconian cutbacks in public investment to be softened (the cut is from 12 to 10 per cent of GDP), O&M expenditures to be ring-fenced, and social protection and public health spending to be held at elevated levels over the period of the pandemic. Some domestic fiscal adjustment is still required, but

²⁷ Domestic borrowing is in terms of real (i.e. indexed) bonds either sold directly to households or intermediated through the banking system. Increased government borrowing drives up the domestic interest rate in the short run, directly crowding out private investment.

this is kept within feasible margins, while domestic debt increases by only 2 percentage points of initial GDP on a full-year basis (compared to around 4 percentage points in the previous case). Net ODA in this case is split equally between concessional debt and pure grants.²⁸

The protection of public capital, along with the moderation of tax rates and the reduced crowding out of private investment, substantially moderates the squeeze on consumption over the medium term—aggregate consumption falls by approximately 10 percentage points of initial GDP per annum less than in Panel D over the first 5 years. Nonetheless, the private-sector recession is still deep. As elsewhere in Africa, even if donors provide substantial support to governments, the state cannot provide more than very partial protection to private incomes and welfare.

Achieving even this outcome, however, entails a substantial cumulative inflow of foreign resources—the equivalent of a gross inflow of 8 per cent of recipients' initial GDP in the first 12 months after lockdown and a further 1.2 per cent of initial GDP over the subsequent year. Under this calibration, this increase is approximately twice the level of net ODA in the pre-pandemic setting.

These are indicative numbers for just one country, but other countries' experiences of lockdown are similar, and recognizing similarities in structure, we can use these to assess the broader implications for net ODA. As at the end of 2018 (the last year for which comprehensive data exist), net ODA to all recipients was approximately US\$165 billion, of which about 25 per cent flowed to countries in Africa. Excluding the large oil-exporting countries and South Africa, net ODA flows averaged between 6 and 8 per cent of recipient GNI (albeit with a standard deviation of the same magnitude). On this basis, net ODA inflows to Africa would need to roughly double—in other words, an increase in the order of \$40–\$50 billion of net ODA flows over the next few years to replicate the post-lockdown path illustrated here for all of Africa's low-income countries.²⁹

The scale of this requirement is clearly large and beyond the capacity of any single donor government's budget. International cooperation and coordination is therefore required to meet the financing challenge. In addition to their own direct budget support lending, donor governments need to use their role as shareholders to strengthen the lending capacity of the multilateral development banks, including the World Bank and African Development Bank. On the global stage, there may be opportunities for DAC donors to encourage expanded concessional budget support lending from China, while on the domestic front they may be able to reinforce the balance sheets of development finance institutions, such as the CDC in the UK, to ensure low-cost long-term finance continues to flow

²⁸ Concessional debt is assumed to be contracted on World Bank International Development Association (IDA) terms with a 40-year maturity after a 10-year grace period and interest rates at just under 2 per cent per annum.

²⁹ Although not reported here, we also solve the model for the case where aggregate private consumption is fully stabilized by net ODA. An inflow of this scale over such a short horizon would be difficult to model with confidence under the assumption that other aspects of fiscal policy and the underlying political economy remain unaltered. Nonetheless, this would require a short-run increase in aid flows at least twice as large as the case examined in Panel E, in the order of 20% of recipients' pre-pandemic GDP.

to private sector firms in developing countries. Finally, there may still be opportunities for an expanded global SDR allocations by the IMF.³⁰

This would be a very substantial increase in net flows but not unprecedented. Between 2001 and 2005, DAC donors alone committed to large-scale debt relief measures and net ODA flows increased from around US\$50 billion to over US\$100 billion. Moreover, when measured in simple cost–benefit terms, an aid flow of this magnitude has a high return. Measured in terms of the increase in private consumption over the 5 years from the onset of the crisis relative to the domestic adjustment case in Panel D, the internal rate of return to the aid flow is as high as 25 per cent.³¹

The final scenario considers what the outcomes might look like if this aid-supported adjustment programme was matched by government with accelerated public financial management (PFM) and economic policy reforms. The initial calibration of our model embodies two familiar PFM inefficiencies: (i) inefficiently low expenditure on the O&M of public capital, and (ii) leakages in domestic revenue collection. The latter assumed that only 80 per cent of notional revenues were collected, with the remaining 20 per cent (equivalent to around 3 per cent of GDP) leaking back to the private sector by way of exemptions, other loopholes, and corruption, resulting in larger growth-reducing distortions in the tax system than in a second-best tax regime.³²

We compute the gains that would accrue if donor flows were accompanied both by reforms to revenue mobilization and a strengthening of budget management that protected essential O&M of the public capital stock. Three features stand out. First, from a narrow fiscal perspective, reforms can pay for themselves. Even though O&M expenditures themselves rise from 3.2 per cent of GDP to more than 4 per cent, the payoff from a more effective public capital stock, combined with lower required taxes on factors and consumption, actually expands fiscal space. This additional fiscal headroom could be allocated to even higher social protection, or preventative public health measures, as well as lowering marginal tax rates. The second result is that not only do output and consumption recover from the lockdown shock more rapidly, but long-run output and employment growth takes the economy back above trend post-recovery. Finally, reflecting the well-known feature of many low-income economies, the distributional effects of fiscal reforms are progressive: the recovery is associated with a permanent improvement in the aggregate income distribution. Consumption recovers for all groups but more so for the unskilled groups.

That reforms can strengthen growth when they remove economic distortions is obvious. Whether such reform can be implemented in practice partly depends on whether this crisis creates the domestic political space for such reforms, or whether the crisis just allows the elite to consolidate their control of rents and resist reforms. The track record of donors engaging with the political economy of reform is undistinguished. Nonetheless, how the political economy plays out will also depend on how

³⁰ A proposal for a universal SDR increase was tabled at the 2020 Spring Meetings but was blocked by the US (see <https://www.ft.com/content/2691bfa2-799e-11ea-af44-daa3def9ae03>). Other countries could, in principle, make their existing SDR allocations available to low-income countries.

³¹ This calculation is clearly an upper-bound for two reasons: it ignores costs associated with transferring donor resources to the private sector through the government budget; and it assumes the resource flow is exclusively in terms of grants.

³² This figure is consistent with estimates reported in IMF (2018, chapter 2).

the aid transfer is structured. These issues matter a great deal, but they are beyond the scope of this paper.

4. Conclusion

The Covid-19 pandemic and policy responses to it, both nationally and globally confronts the low-income countries of Africa with an economic crisis which is potentially bigger than anything most have ever had to deal with outside of war or civil conflict. The disruption of domestic economic activity from early and stringent lockdowns is augmented by the global economic slowdown, which has reduced countries' import capacity, and which means a severe squeeze on domestic absorption.

African governments are being confronted by grim policy choices. To balance competing demands in a manner that protects the economically vulnerable without jeopardizing recovery and growth will depend on development partners' willingness to support domestic spending during the crisis and recovery.

We conclude with three key observations. First: uncertainty. Our simulations are disciplined by coherent epidemiological and macroeconomic models, but calibrated under uncertainty; our central assumptions about depth of the global recession, the effect of domestic lockdown measures, and the capacity of the government to respond coherently are all highly contingent. It would be most welcome if our assumptions were too pessimistic and the adjustment problem less severe. But it is possible that reality turns out to be even worse: on the difficulties of re-starting economies, on the impact of the global recession, and on the risks that lockdown measures just delay rather than suppress the virus. A second-wave lockdown would dramatically increase the burden of adjusting to a second economic shock just as economies seek to exit the present one.

The second observation follows directly. However configured, adjustment is going to be painful and risks destroying the development gains achieved in Africa over the last quarter-century. In these exceptional circumstances the case for a substantial temporary increase in net ODA to support adjustment is overwhelming. Our preliminary estimates of what is required to support feasible and progressive adjustment programmes suggest a doubling of net ODA flows—possibly in the order of an additional US\$50 billion per annum for 2–3 years—representing a significant challenge to donors at a time when domestic pressures on funding are substantial. This a significant increase, but not unprecedented, either in the context of sub-Saharan Africa, being comparable to the HIPC (heavily indebted poor countries) debt relief programme in the mid-2000s, or in comparison to the US\$9 trillion that advanced economy governments have deployed to protect their own economies.³³ In addition, the returns to packages of international budget support, in these exceptional times, are high; especially if there are also reforms to systems for taxation and public service delivery.

The case for increased support can be based as much on national self-interest as on the developmental arguments that hinge on growth and poverty reduction, especially at the bottom of the income distribution. There is a clear imperative to conquer the Covid-19 pandemic at a global scale so that it

³³ See IMF Blog (May 20, 2020).

does not rip through the OCED again, and there is a powerful case in terms of the projection of soft power that this is an economic and social crisis which will reveal who is a reliable friend in a time of need. Moreover there is potential scope to ‘build back better’ with public investment that contributes to reduced carbon emissions, and supports economies make the most of the potential demographic dividend offered by a youthful labour force across sub-Saharan Africa.

Finally, it is clear from our coherent modelling that serious reform which releases growth from the binding constraints of weak revenue systems and inefficient public expenditure management—especially sustaining operations and maintenance of public capital—pays off with an accelerated recovery, and a faster subsequent trend growth. There is a particular challenge for policy reform across low-income African countries to mobilize that potential, and for international donors to support any such commitment.

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Table 1

IMF estimates of fiscal impact of Covid-19 and lockdowns, and IMF support, to selected countries to mid-May 2020

	Ethiopia	Ghana	Kenya	Nigeria	Sierra Leone ^{2/}	South Africa	Tanzania ^{3/}	Uganda	Mean ^{4/}
<i>(as a percentage of GDP in current fiscal years, except as otherwise indicated)</i>									
Baseline revenue and grants	12.5	13.5	18.6	4.9	18.9	29.1	16.2	13.6	15.9
Tax revenue	10.1	11.9	13.9	3.5	12.6	28.7	10.4	11.6	12.8
Direct taxes: income, profits, capital gains	4.3	5.8	7.1	0.9	5.1	17.5	3.6	4.2	6.1
Indirect taxes: sales tax, VAT, Excise duty	2.9	4.5	4.2	0.6	4.8	10.2	5.9	6.3	4.9
Taxes on international trade	2.9	1.5	2.6	1.9	2.7	1.0	0.9	1.3	1.9
Nontax revenue	1.5	1.3	4.3	1.5	2.3	0.4	5.0	1.3	2.2
Grants	0.9	0.4	0.4	0.1	4.0	0.0	0.8	0.6	0.9
Changes in revenue and grants	-0.2	-2.2	-1.3	-3.6	...	...	...	-2.8	-2.0
Baseline spending	15.0	23.0	26.3	11.7	21.5	35.4	20.0	20.6	21.7
Current spending	8.6	20.8	20.2	10.6	14.9	30.9	11.4	11.3	16.1
Capital spending ^{5/}	6.5	2.2	6.1	1.1	6.6	4.5	8.7	9.3	5.6
Changes in spending	1.3	-0.3	1.0	-1.4	...	...	...	1.7	0.5
Estimated overall change in fiscal position ^{6/}	-1.5	-1.9	-2.3	-2.2	-0.2	-0.2	0.0	-4.5	-2.5
<i>Memorandum items:</i>									
Post-shock projection of GDP growth (percent)	3.7	1.5	0.8	-3.6	...	...	...	3.7	1.2
Change in GDP growth projection (percentage points)	-2.4	-4.3	-5.0	-5.9	...	...	...	...	...
Overall change in fiscal position (US\$m) ^{1/}	-1,265	-1,246	-2,013	-8,740	-7.5	-737	0.0	-1,236	-1,153.5 ^{7/}
Approximate nominal depreciation in 2020	3%	1%	6%	7%	23%	24%	1%	3%	9%
Estimated financing gap (US\$m)	-1,667	-1,377	-2,145	14,100	...	...	...	-1,319	...
Official international reserves (US\$ billion)	3.1	5.3	8.9	36.7	0.6	51.5	5.8	2.5	4.4
Public debt (% GDP) ^{8/ 9/}	56.7	68.7	64.7	34.8	66.6	65.2	39.4	45.7	55.2
IMF financing in 2020 (US\$m.)	423	1,000	739	3,400.0	21	0	0	492	663 ^{7/}

Notes:

1/ Estimated using 2018 current GDP from World Development Indicators (WDI)

2/ Sierra Leone fiscal data from 2019 Article IV Staff Report

3/ The Tanzanian authorities have declined permission to publish the latest Article IV Staff Report; fiscal data compiled from FSSA Staff Report and WDI

4/ These are simple means, excluding South Africa (RSA) and Nigeria for data in US\$, and excluding Tanzania where there is no IMF estimate of the fiscal impact of the pandemic

5/ In the case of Ghana, capital expenditure is proxied by the line 'net acquisition of non-financial assets' in the most recent IMF staff report

6/ The estimated overall change in fiscal position for Sierra Leone, South Africa, and Tanzania is taken from Elgin et al

7/ The mean for the overall change in fiscal position and IMF financing excludes South Africa and Nigeria for having different orders of magnitude numbers, and Tanzania for no data on fiscal impact

8/ The threshold for a "high" risk level of debt in the IMF Debt Sustainability Analysis (DSA) is 70% of GDP. South Africa is current projected to go above that threshold in 2022

9/ The ratio for Sierra Leone is against non-iron ore GDP, not total GDP, but for 2020 these two denominators are much the same.

Sources:

Data compiled from latest IMF Staff Reports and tabulation of policy responses to Covid-19: www.imf.org

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Elgin et al: http://web.boun.edu.tr/elgin/CESI_5.xlsx

Table 2:

Uganda Model: Stylized Baseline Model Calibration (FY 2019/20)

1. Economic Calibration							
Output		Balance of Payments (as share of GDP)		Public Debt (as share of GDP)		Fiscal Accounts (as share of GDP)	
Tradable (%)	41.4%	Balance of trade deficit	11.4%	External ^{2/}		Revenue	16.8%
Non-Tradable (%)	58.9%	External Interest payment	2.8%	Non-concessional	15%	Direct taxes	8.9%
		Current Account Deficit	14.2%	Concessional	15%	Indirect taxes ^{4/}	7.9%
Aggregate Demand (as share of GDP)		Financing		Domestic ^{3/}	16%	Expenditure	19.8%
Consumption		Grants	1.7%	Total	46%	Recurrent	5.3%
Private	71.2%	Remittances	8.5%			Development	12.0%
Public	5.3%	Net Debt	4.0%			Debt Service	2.5%
Investment ^{1/}						Balance (before financing)	-3.0%
Private	22.9%					Grants	1.7%
Public	12.0%					Debt financing ^{5/}	1.3%
Net exports	-11.4%						

Memorandum Items:

Data are based on 2019/20 projections reported in Uganda: 2019 Article IV Staff Report (IMF Country Report No. 19/125).

Adjustments and re-classifications have been made by authors to reflect model structure.

GDP per capita 2019/20 (proj) US\$ 784 (Current US\$).

GDP per capita 2018 US\$2,038 (current US\$, PPP adjusted).

Notes:

1/ Gross investment; depreciation of public and private capital estimated to be 5% per annum.

2/ Split between concessional and non-concessional is authors' estimate.

3/ Domestic debt assumed to be short-term (1 year) government paper.

4/ Indirect taxes include excise, trade taxes, domestic sales taxes/VAT as well as non-tax revenues.

5/ Debt financing is a combination of external and domestic borrowing which is pro-rated to outstanding stocks of debt in initial calibration.

2. Epidemiology

Population and Demography:	Uganda	OECD
Share of Population		
Over 70	2%	15%
Under 70	98%	85%
Age-specific mortality (baseline)		
Over 70	8.8%	7.9%
Under 70	1.3%	1.0%
Health Care		
ICU per million population	2	150
Cost of soft public health measures (\$ per capita)	\$2	
Infection Rate [R]		
Baseline	2.4	
with blanket lockdown	1.2	50%
with soft public health measures	1.6	33%
Combined (during lockdown)	0.8	

Table 3:

Simulation experiments	
Simulation	Notes
Domestic Lockdown	Two-quarter contraction in effect labour supply (contraction in skilled labour supply twice that of unskilled); productivity disruption in both sectors, persists for three quarters before returning to trend over next six quarters; 4.5% loss of capital stock in both sectors. Social protection and other recurrent health expenditures increased by 1% per annum over four quarters.
Lockdown with External Spillover	Domestic Lockdown with: (i) contraction in world prices of exports (initial negative 25% shock in first two quarters, recovering to trend over following two years); (ii) remittances fall by 25% from second to fourth quarter, recovering to trend after 10 quarters; (iii) net private capital inflows reverse over first two quarters (gross inflows halt and amortization continues, equivalent to 3% of initial GDP over first two quarters);
Mitigation from Domestic Resources	Public investment expenditure reduced by 67% over first two quarters, recovering to trend over following two years; productive O&M expenditures reduced by 25% from trend; increased domestic borrowing.
Enhanced Net ODA support	Public investment reduced by 16% and O&M expenditures ring-fenced; public health expenditure increased; short-term domestic borrowing reduced; net ODA inflows calibrated to keep required domestic tax requirement below 3% of initial GDP. Net ODA balanced between concessional debt and grants.
Net ODA support with domestic fiscal reforms	As simulation D with domestic fiscal reforms restoring O&M to efficient levels and reduction in tax leakages by 10%

Table 4:

Summary Macroeconomic Effects of Lockdown and Responses

	Macroeconomic outturns at the end of:			5 Year Average ^{6/}
	Year 1	Year 2	Year 3	
[A] Domestic Lockdown (labour supply contraction only)				
Aggregate Output ^{1/}	-6.1%	-0.4%	-0.3%	-1.4%
Aggregate Consumption ^{1/}	-6.7%	-0.9%	-0.2%	-1.6%
Real exchange rate depreciation ^{2/}	1.7%	0.6%	0.3%	
Skilled Household share in income ^{3/}	0.1%	0.0%	0.0%	
Incipient excess fiscal pressure ^{4/}	1.8%	1.1%	0.8%	1.0%
Domestic Borrowing ^{4/}	1.6%	1.1%	0.8%	0.9%
Net ODA	0	0	0	
[B] Full Domestic Lockdown				
Aggregate Output	-16.4%	-4.5%	-1.9%	-5.1%
Aggregate Consumption	-17.3%	-6.0%	-1.8%	-5.4%
Real exchange rate depreciation	3.6%	4.0%	2.2%	
Skilled Household share in income	0.3%	-0.1%	-0.2%	
Incipient excess fiscal pressure	5.3%	3.9%	2.8%	3.2%
Domestic Borrowing	4.3%	3.7%	2.6%	2.8%
Net ODA	0	0	0	
[C] Lockdown with External Spillover				
Aggregate Output	-16.7%	-5.2%	-2.5%	-5.8%
Aggregate Consumption	-31.8%	-13.8%	-6.0%	-12.3%
Real exchange rate depreciation	29.5%	17.6%	14.7%	
Skilled Household share in income	-1.7%	-1.8%	-2.1%	
Incipient excess fiscal pressure	11.5%	8.0%	5.5%	6.5%
Domestic Borrowing	9.0%	6.3%	3.4%	4.2%
Net ODA	0	0	0	
[D] Mitigation from own resources				
Aggregate Output	-23.7%	-18.1%	-16.1%	-17.6%
Aggregate Consumption	-23.3%	-21.7%	-18.5%	-19.6%
Real exchange rate depreciation	23.4%	15.7%	14.1%	
Skilled Household share in income	-3.5%	-2.3%	-2.1%	
Incipient excess fiscal pressure	3.1%	2.8%	2.5%	2.6%
Domestic Borrowing	4.9%	5.5%	5.4%	5.2%
Net ODA	0	0	0	
[E] Net ODA resource inflow				
Aggregate Output	-17.0%	-6.4%	-3.8%	-6.7%
Aggregate Consumption	-22.0%	-10.9%	-7.9%	-10.8%
Real exchange rate depreciation	21.7%	15.7%	16.0%	
Skilled Household share in income	-3.2%	-2.2%	-2.0%	
Incipient excess fiscal pressure	3.1%	2.3%	2.4%	2.4%
Domestic Borrowing	2.4%	2.1%	2.0%	2.0%
Net ODA ^{5/}	8.0%	1.2%	0.7%	
[F] Net ODA resource inflow with domestic reforms				
Aggregate Output	-12.5%	-5.2%	1.2%	-2.1%
Aggregate Consumption	-18.0%	-4.1%	-0.3%	-3.6%
Real exchange rate depreciation	23.1%	16.5%	16.4%	
Skilled Household share in income	-3.4%	-2.4%	-2.2%	
Incipient excess fiscal pressure	1.9%	0.6%	0.5%	0.6%
Domestic Borrowing	2.6%	2.0%	1.7%	1.7%
Net ODA ^{5/}	8.0%	1.2%	0.7%	

Notes:

1/ Average annual percentage shortfall in constant-price output and aggregate real consumption relative to pre-pandemic level.

2/ Percentage depreciation in consumption real exchange rate (pc/pm).

3/ Percentage point gain in share of household income accruing to skilled households.

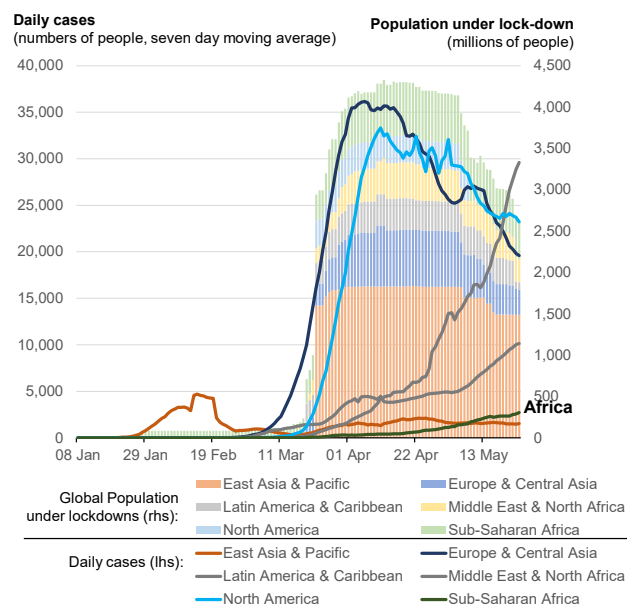
4/ Fiscal gap before purpose fiscal and domestic borrowing as percentage of pre-pandemic GDP.

5/ Increase in total net ODA inflow as percent of initial GDP (split equally between grants and loans secured on IDA terms).

6/ Average annual deviation from pre-pandemic values as percent of initial GDP.

Figure 1:

Global cases and population under lockdown



Uganda: mobility and population under lockdown

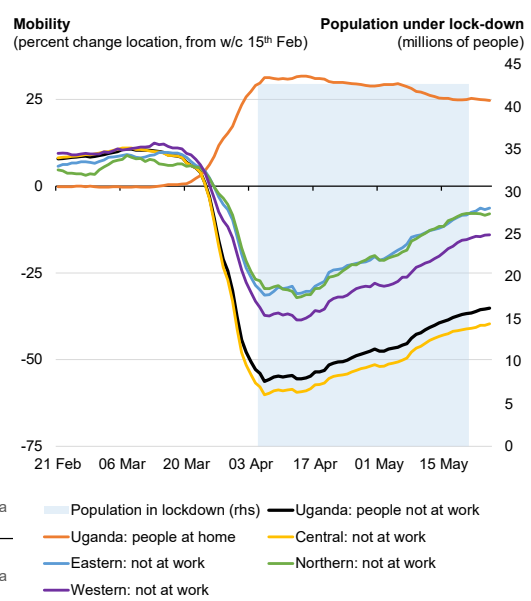


Figure 2:

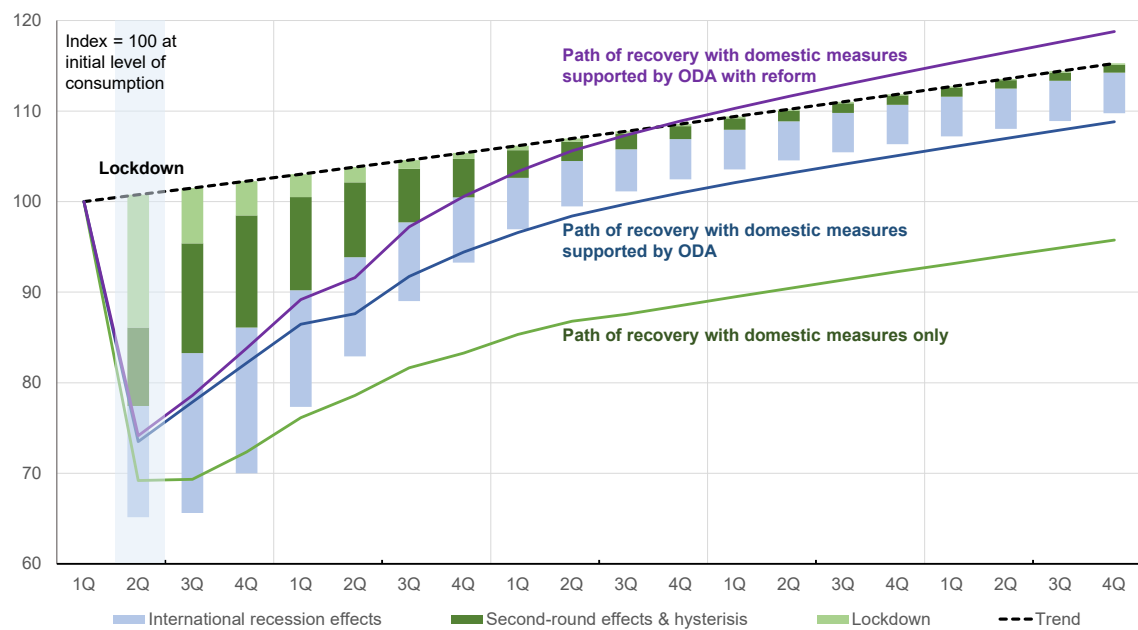


Figure 3:

