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The potential of universal basic income schemes to mitigate shocks

Comparing the performance of universal basic income in Uganda and Zambia during COVID-19

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Abstract: The debate over universal basic income (UBI) has gained traction in the developing world in recent years. We analyse the effects of four UBI schemes on poverty and inequality measures during normal times and times of crisis in Uganda and Zambia. We use static microsimulation models and nationally representative household surveys for each country. Our results show that in Zambia, where the existing social protection benefits have more extensive coverage, the least generous UBI benefit leads to higher poverty and inequality compared to existing benefits. By contrast, in Uganda, a country with only one notable social protection programme, all UBI scenarios reduce poverty and inequality. Differences between welfare estimates for the existing systems and UBI scenarios whether in normal or crisis times are not large though when UBI policies are revenue neutral or expenditures calibrated to the regional average. In normal times and in times of crisis, poverty reduction increases with the generosity of the UBI benefit amount in both countries. UBI schemes clearly outperform existing systems only with UBI benefit amounts that result in unrealistic expenditure levels.

Key words: universal basic income, COVID-19, microsimulation, poverty, inequality

JEL classification: D31, H55, I32

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1 Introduction

In recent years, the debate on universal basic income (UBI) has attracted significant attention in the developing as in the developed world. Many academics and policymakers have questioned whether UBI policies can be an effective and long-term solution to reduce poverty and inequality in low- and middle-income countries (Banerjee et al. 2019). The COVID-19 crisis has negatively affected societies' welfare in the developing world (Bundervoet et al. 2021). The COVID crisis fuelled the debate about the advantages and disadvantages of UBI further. The debate reflects the need to rethink how to structure (more) inclusive social system and how to best provide a basic social protection floor to all. According to Almenfi et al. (2020), low-income countries have spent in per capita terms 90 times less than high-income countries on social protection and labour, and they had the least number of programmes during the pandemic (Gentilini et al. 2020a). Previous literature also shows that these policy responses, often in the form of social transfers, have been insufficient to mitigate the COVID-19 shock; see for example, Lastunen et al. (2023); Jara et al. (2022), and Rodriguez et al. (2022).

In this study, we analyse four potential UBI schemes in terms of their potential to mitigate poverty and inequality in Uganda and Zambia during pre-crisis and crisis times. We use detailed, cross-country comparative tax-benefit microsimulation models based on representative household survey data and estimate welfare outcomes with and without implementing COVID-19 shocks to the underpinning data. Our approach allows us to compare the poverty and inequality under different UBI schemes in normal times and during crisis to the existing systems in each countries. Specifically, the simulated UBI schemes are (1) a fiscally neutral UBI, i.e. the budget for the UBI is equal to government spending on social protection, (2) similar to (1) but the budget is the regional average for public spending on social protection in sub-Saharan Africa, (3) the UBI benefit amount is 50 per cent of the international poverty line (IPL) of US$1.90 a day (2011 PPP) and (4) is 100 per cent of the IPL.

For Uganda, we find that all four UBI schemes reduce poverty and inequality in pre-crisis and crisis scenarios compared to the baseline social protection, which includes only one social protection programme for the elderly. The poverty reducing power of the different UBI scenarios increases with the generosity of the benefit amount. In Zambia, we find that the existing targeted benefits, which are quite generous, decrease the poverty and inequality more than the least generous UBI benefit in pre-crisis and crisis scenarios. We also estimate the government expenditure associated with each UBI schemes to illustrate the fiscal effort required for each: as per design the first two schemes do not require a significant increase in public expenditure. But the third and the fourth UBI scheme require unrealistically high amounts of spending. Uganda would need to spend 15 per cent of its GDP in the third UBI scenario and Zambia 10 per cent. In the fourth UBI scenario, this would even need to double in both countries.

This paper contributes to the literature on UBI in various aspects. First, our paper contributes to the debate on the potential of UBI to reduce poverty and inequality compared to targeted benefits in a low-income country context. We find that UBI schemes may lead to lower poverty and inequality.

Second, we explore the UBI's fiscal sustainability, by estimating the share of GDP and tax revenue required to finance the different scenarios, which has been little done to date and for different, mostly better-off developing countries (Jara and Palacio Ludena 2024; Shahir et al. 2023; Almenfi

et al. 2020; Lustig et al. 2021). To outperform the current, targeted systems and provide a sizable reduction of poverty and inequality, UBI levels would need to be set unrealistically high in both, Uganda and Zambia. These findings are consistent with Shahir et al. (2023) and Almenfi et al. (2020), who show that a large share of GDP for developing countries is required for an effective UBI in reducing poverty.

Third, we add to the literature on the trade-offs between benefit adequacy, coverage and costs, of universal versus targeted benefits. Our findings are based on highly detailed, cross-country comparative modelling for two low-income countries and underline the importance of carefully modelling each country's existing tax-benefit policies and the fiscal characteristics of each country. While not analysed here, further country-specific characteristics such as political economy considerations and complexity of programme implementation of social protection policies, need to shape any meaningful discussion on UBI in each country as discussed in previous literature; see e.g. Francese and Prady (2018), and Hanna and Olken (2018).

Last but not least, our paper contributes to the scarce literature on the potential of UBI policies to mitigate poverty and inequality in a crisis setting as compared to existing systems through a cross-country comparative lens.

The remainder of this paper is organised as follows. Section 2 discusses the literature related to UBI. Section 3 describes the methodology, introduces four UBI schemes and provides an overview of the data. Section 4 reports the results. Section 5 discusses the results and concludes.

2 Universal basic income: concept and literature review

Even though the understanding of what a universal basic income is varies across political ideologies and disciplines, it can be broadly defined as 'a cash transfer given to all members of a community on a recurrent basis regardless of income level and with no strings attached' (Hasdell 2020: 3). For a policy to be considered a UBI it must be universal (it must target all of the population), unconditional (it does not require any criteria for receiving the benefit), individual (it is paid at the individual level), periodic (it is paid at regular intervals) and a cash payment (the benefit is in cash) (Hasdell 2020).

Currently no country has implemented a full-scale universal basic income. Historically, a large-scale nationwide UBI programme has only been implemented in Mongolia and Iran (Gentilini et al. 2020b). In Mongolia, the UBI lasted for three years and in Iran for one year. Another larger scale UBI programme on the state and thus sub-national level is implemented in Alaska. Other smaller-scale UBI variants have been implemented in Kuwait (Amiri grant), Italy (Reddito di Cittadinanza), China (Macau SAR), and India (Telangana and Odisha). Kenya is currently implementing a pilot programme of a UBI (Gentilini et al. 2020b), providing the benefit to selected villages with two different amounts of monthly payments calculated for the short- and long-term.

Given the few cases of actually implemented UBI policies, there is limited evidence on their effectiveness based on canonical ex-post evaluations. The academic debate on UBI is therefore primarily centred on modelling hypothetical UBI policy schemes and their potential impacts, and discussing the pros and cons of UBI and modelling (see section 3.2 for the modelling choices made in this study). Previous literature has discussed a myriad of different aspects of UBI, reflecting a very broad discourse on the topic.

The literature, for example, covers topics such as UBI's potential to lead to full benefit coverage, fairness in social contracts, power relations in labour markets, gender equity, targeting issues, etc. For example, a UBI may symbolise to some people an opportunity to achieve social justice by reducing the inequalities in societies (Stern 2016). Other academics put forward that a UBI may help to mitigate the effects of alleged massive unemployment due to the development of digital economies (Pulkka 2017; Caputo and Lewis 2016; Devarajan 2019; Yang 2019). Haagh (2019) states that UBI can contribute firstly to more stable and democratic societies and secondly to greater stability and equality in social relations. Given the UBI's universality, it would eliminate inclusion and exclusion errors that might affect targeted programmes (Gentilini et al. 2020b). In addition, UBI would reduce administrative costs and could eliminate any stigma that affects the beneficiaries. UBI policies could also lead to lower stress levels for recipients and fewer transaction costs according to some authors (Gentilini et al. 2020b).

2.1 UBI in developing countries

The literature on UBI in a developing country context is limited. Banerjee et al. (2019) summarizes the recent literature on UBI in developing countries focusing on the effects of UBI on household spending, education, health outcomes, labour force participation, gender issues, among others. Banerjee et al. (2019) also discuss in-depth how UBI schemes perform compared to different targeting methods, and limitations of both universal and targeted in a developing country setting. They argue that UBI might not be the most cost-effective policy to increasing incomes of the poor, especially, if countries have limited resources for social protection.

The debate on UBI in a developing country context usually centres on the question whether a universal cash transfer would more efficiently reduce poverty and inequality than the existing social policies in contexts where the current social protection system struggles to target and cover all vulnerable people. A smaller share of the literature discusses the question of how such policies could be financed in a sustainable manner. Broadly speaking, the key takeaways from the literature on UBI in developing countries vary with country choice, modelling choices, in how far potential UBI policies are designed as revenue-neutral and/or assumptions on the financing of UBI policies but some common takeaways emerge looking across the literature.

The International Labour Organization published a report on UBI proposals (Ortiz et al. 2018) that provided, based on a variety of countries, an overview on various aspects of UBI such as the adequacy and predictability of UBI benefits to ensure income security, set at least at the national poverty line; social inclusion, including persons in the informal economy; social dialogue and consultation with stakeholders; enactment of national laws regulating UBI entitlements, including benefit indexation; and co-operation. Ortiz et al. (2018) also put forward some fiscal reforms to financially support a UBI, such as (i) increasing tax revenues by improving compliance and raising new taxes, (ii) eliminating illicit financial flows, such as tax evasion, money laundering, and corruption, and (iii) managing or restructuring existing debt. However, they also admit that the UBI would not be financially feasible when the benefit amount would be sufficiently large.

Two years later, the World Bank published a comprehensive book that shed light on UBI in a developing country context from various angles (Gentilini et al. 2020b). Gentilini and co-authors report on the major Basic Income pilots that have run (or are currently running) around the world, their evidence, and a summary of the main literature on the topic. Gentilini et al. (2020b) simulate the hypothetical UBI scenarios and analyse those impacts in ten different countries, including three low-income countries (Haiti, Mozambique, Nepal) and two lower-middle-income countries (India, Indonesia). They find that a budget-neutral UBI would not reduce poverty and inequality compared to existing social protection programmes in low-income or low-middle-income

countries. With more generous UBI benefits, poverty reduction of UBI would exceed the poverty reduction of existing programmes.

Yet, Gentilini et al. (2020b) are also one of the few to estimate the costs of such policies and analyse whether such policy could be financially feasible. They conclude that a UBI would require an enormous increase in tax revenue in developing countries. Specifically, they show examples of how much direct taxes on the top decile of the distribution would need to rise to finance such policy. In Brazil, this would require a tax hike from 7.2 to 24.5 per cent; in Chile, from 5.4 to 38.4 per cent; in India, from 2.2 to 68.4 per cent; in South Africa, from 19.9 to 40.3 per cent.

Jara and Palacio Ludeña (2024) evaluate the potential impact of four counterfactual tax-benefit scenarios for Ecuador during 2020, moving with each scenario closer to a US$150 UBI given to everyone aged 15 and above. They largely preserve contributory systems as is and finance the additional expenditure mainly through increased social security contributions, and personal income tax take and by abolishing deductions for personal expenditures in personal income tax. They find that all schemes would produce better outcomes for poverty and inequality in Ecuador. The finely-tuned policy scenarios also document that such results need careful consideration of the mechanisms of the tax-benefit system as a whole.

Lustig et al. (2021) investigate whether a UBI would be fiscally feasible and effective in reducing poverty in twelve sub-Saharan countries. According to their estimates, only Botswana, Ghana, and Zambia meet the criteria.

A host of authors debate the usefulness of UBI in comparison to social protection benefits that rely on (different types of) targeting mechanisms and analyse whether a UBI would be more effective in reducing poverty than the current targeted transfers in developing countries; see for example, Hanna and Olken (2018); Majoka and Palacios (2019). A salient feature of UBI, its flat benefit structure, is also considered its greatest limiting factor in terms redistributive power. Unlike progressive, targeted programmes, UBI's impact on poverty and inequality will be limited with limited government budget.

Peruffo et al. (2021) find mixed macroeconomic and social effects of UBI when comparing with means-tested, conditional cash transfers calibrating their model to the case of Brazil. They find that a UBI would be more effective in alleviating poverty and inequality in the short run but would generate a downward spiral in which a reduction in human capital would cause a decline in economic activity in the medium term.

Another field in the literature dissects the challenges and costs of targeted policies and thereby makes a case for UBI. Coady and Le (2020) indicate a series of costs of targeting programmes such as incentive, administrative, private, social and political costs that can undermine the efficacy of a policy. In developing countries with high levels of informality, means-tested transfers are not feasible and universal coverage might represent an effective tool. Banerjee et al. (2019) point out that targeting methods can create opportunities for corruption and other abuses of power when the state's capacity to discipline front-line bureaucrats is limited.

UBI is also put forth as a means to support structural reforms in developing countries. Using the example of India, Coady and Prady (2018), illustrate how introducing a UBI by either replacing existing energy and food subsidies, or replacing inefficient energy subsidies, produce very different outcomes but area also subject to different political economy considerations.

2.2 UBI during crisis

COVID-19 further fuelled the debate about UBI and UBI's potential role in addressing the current and future crises. For example, in view of the crisis, the Economic Commission for Latin America and the Caribbean, ECLAC, reiterated its call for universal, redistributive policies (ECLAC 2020).

There is to date however very limited evidence on the performance of UBI in times of crisis. Much of the literature on this topic investigates people's or government's attitudes toward universal benefits in developed countries. According to Nettle et al. (2021) and Ash and Zimmermann (2020), for example, people show more support for UBI policies during times of crisis than during non-crisis times.

Going beyond the shift in public opinion Oppel (2022), analyses how the crisis has shaped social policy responses. She finds that in countries with a larger financing gap to achieve universal social protection, universal policies made up a relatively larger share of crisis response. This is partly driven by alternative forms of social protection such as business-oriented policies.

Shahir et al. (2023) are one of the few studies analysing specifically the question how different targeted benefit schemes mechanisms as opposed to universal benefits perform in normal as compared to times of crisis, starting from a theoretical point of view. They find that with strictly targeted transfers based on the distribution of incomes in normal times and a shock that affects relatively more those higher up in the distribution not covered by the targeted transfers, means that targeting loses its accuracy in such scenario. This case also illustrates the advantages of UBI. Shahir et al. (2023) then simulate different targeted systems and a UBI to the existing Proxy-Means-Test (PMT) system in Ethiopia and contrast the respective performance between crisis and non-crisis times. They find that the size and anatomy of the shock matters, and that with a rather limited shock such as the initial COVID-19 shock in 2020, the performance does not differ too much across systems. For a UBI to be meaningful and perform clearly better than alternatives it also requires a large, possibly unrealistic level of expenditure.

On a more general note, Gentilini et al. (2020b) also argue that the flat benefit structure of UBI does not respond to large and frequent short-run shocks such as unemployment, illness, or loss of livelihoods. This in turn means that the UBI may not be (the most) adequate to support income smoothing in such situations.

3 Methodology and data

In this section we first motivate our choice of hypothetical UBI schemes and the fiscal implications of each. We then provide background on the tax-benefit microsimulation models used, how the UBI schemes are implemented in the simulations, and the main distributional measures used in the results section. The section concludes with a brief overview of the data used and discussion of the main descriptive statistics of interest for both countries.

3.1 UBI schemes

Our analysis considers four different hypothetical UBI schemes with increasing levels of generosity. We assume that everyone receives the UBI, regardless of age:

1. The first is a fiscally neutral UBI scheme, converting government spending on social protection (as a share of GDP) into a UBI benefit.

2. The second follows the same logic as the first but proposes a UBI level that results in an overall expenditure reflecting the regional average for public spending on social protection in sub-Saharan Africa.
3. The third scheme proposes a benefit amount of 50 per cent of the IPL of US$1.90 a day (2011 PPP).
4. Finally, the fourth scheme proposes a benefit amount of 100 per cent of the IPL of US$1.90 a day (2011 PPP).

Table 1 shows the amount of each UBI benefit per month and the share of GDP and share[1] of tax revenue required to finance each UBI scheme.[2, 3] The generosity of the benefit increases with the UBI schemes, with the fourth option giving nearly 29 times more than the first to each individual in Uganda and almost 25 times more to each individual in Zambia.

The expenditure on the UBI schemes as a share of GDP and tax revenue increases substantially as benefit amounts rise in both countries. The first, fiscally-neutral UBI scheme is the most affordable and would require only 4 and 5 per cent of tax revenues in Uganda and Zambia, respectively. Already the second UBI scheme that proposes spending commensurate with the regional average, entails a large increase in spending in either country, more than doubling spending in terms of GDP. In the extreme case of the fourth UBI scheme, expenditure is more than 30 times higher in terms of GDP share in Uganda and 20 times higher in Zambia than the fiscally-neutral option (1st UBI). Uganda would need 214 per cent of tax revenues to finance the fourth UBI scheme and Zambia 106 per cent.

Table 1: Simulated UBI schemes

	1st UBI	2nd UBI	3rd UBI	4th UBI
Uganda				
Benefit in NCU per month	1,837	4,887	38,525	77,050
Benefit in USD per month	0.49	1.21	10.36	20.72
Expenditure as share of GDP (%)	0.7	1.71	15	30
Expenditure as share of tax revenue (%)	5	12	107	214
Zambia				
Benefit in NCU per month	11.7	25	151.45	302.90
Benefit in USD per month	0.64	1.36	8.26	16.51
Expenditure as share of GDP (%)	0.8	1.71	10	20
Expenditure as share of tax revenue (%)	4	10	58	106

Notes: the benefit amounts of each UBI scheme are in National Currency (NCU) and US dollar (USD). The national currency of Uganda is the Ugandan shilling (UGX). The national currency of Zambia is the Zambian kwacha (ZMW). The exchange rate of UGX to USD is 3,718.25, and ZMW to USD is 18.344 (World Bank, 2022d).

Source: authors' calculations.

[1] [(N/C)/P]x100=X; N=total annual public expenditure for the UBI in national currency; C = national currency amount per $1; P= country population.

[2] (N/G)x100= X; N= total annual public expenditure for the UBI in national currency; G = total annual public expenditure for social protection in national currency.

[3] Sources used for the calculations: Zambia Revenue Authority (2020); Uganda Revenue Authority (2021); World Bank (2022a); World Bank (2022b); World Bank (2022c); ILO (n.d.)

3.2 Microsimulation approach and distributional measures

For our analysis we use static tax-benefit SOUTHMOD microsimulation models for Uganda and Zambia.[4] These models allow us to calculate the effects of existing tax and benefit policies on individual incomes, poverty, and inequality. We can also investigate hypothetical policy scenarios, such as the four UBI schemes, and include income shocks. We restrict our analysis to static, first-round effects of such policies and abstract from second-round effects such as behavioural or general equilibrium effects. The modelling and underlying assumptions are coherent with the approach taken by Lastunen et al. (2023) and are described only briefly here.

For Uganda, we use UGAMOD v2.0, and for Zambia, MicroZAMOD v2.6. The models include COVID-19 shocks for 2020, as developed by Lastunen et al. (2021) and further improved in Lastunen et al. (2023). This allows us to simulate and assess the impact of the existing or a hypothetical tax-benefit system in a scenario without a major shock such as COVID (referred to as 'pre-crisis baseline') and then compare the performance of the same policies to a scenario with a major shock such as COVID (referred to as 'crisis baseline').

Both baseline datasets contain the same population and weights are adjusted to reflect demographic changes from the time of data collection to the outbreak of the pandemic and a standard uprating factor is applied to all monetary values to account for inflation. The two baseline data sets differ though in terms of income, employment, and policies. The pre-crisis baseline scenario reflects the population and policies in place just before COVID struck. By contrast, the crisis scenario randomly allocates industry-level GDP shocks across workers in each industry producing job and accordingly income loss at the individual level. In terms of policies, the crisis scenario includes COVID-related policies such as emergency income support measures and tax exemptions, as well as the suspension of existing social protection schemes as a result of lockdowns and social distancing policies; see Lastunen et al. (2023) for further details.

Table A1 in the Appendix shows the most important policies included in the respective baselines for Uganda and Zambia. For the crisis baseline only one policy is included: Zambia's COVID emergency cash transfer. For Uganda, no policies specific to the COVID crisis are simulated. While the Ugandan government enacted an array of tax deferrals and food relief to vulnerable households, no extensive social protection measures were implemented. For the purpose of the UBI simulations, we remove all social security policies depicted in the respective baseline as described in Table A1, and instead implement the UBI as defined in Table 1. All tax and social insurance contributions are kept the same as in the baseline. Tax deferrals are not considered as eventually these payments are still due to the government.

Furthermore, we make a number of assumptions regarding household income (disposable and post-fiscal) and how the UBI affects households' indirect tax load. First, we set negative incomes to zero and allocate at least the level of the respective UBI as income to each person. Second, we assume that the entire amount of UBI is spent, thus converted into consumption, and none of it is saved. Third, when spending the UBI and calculating post-fiscal income, we assume that households spend it on formal markets and are taxed at the standard VAT rate in the respective country. Fourth, post-fiscal income, thus household disposable income less indirect tax, is assumed to be at least zero.

[4] SOUTHMOD models are freely available from UNU-WIDER (https://www.wider.unu.edu/about/accessing-southmod-models).

For assessing the implications of the different policy schemes, we calculate different welfare measures based on the simulated incomes described above. In most developing countries expenditure is traditionally used to calculate poverty and inequality. We opt to use incomes instead as any UBI will first affect incomes before translating into a change in expenditure. The basic mechanisms of the tax-benefit system and the implications of different policy set-ups are thus captured already at the level of income. For the clarity of exposition, we therefore show the first-round effect of certain welfare measures based on income without having to make many further assumptions on the linkages between income and expenditures.

Specifically, we calculate for disposable and post-fiscal income the canonical Foster-Greer-Thorbecke (FGT) measures, FGT(0), FGT(1) and FGT(2) to measure the poverty rate, poverty gap and severity of poverty, and the Gini index, to measure inequality. We discuss welfare measures based on disposable income in section 4. While including indirect tax requires making further assumptions, the basic mechanisms at play do not change and the patterns, unless discussed in section 4 remain largely the same. Results for welfare measures based on post-fiscal income are therefore shown in the Appendix.

For a meaningful comparison of the different scenarios across countries, we apply the same parameters across countries when estimating poverty and inequality.[5] Specifically, we use the IPL of US$1.90 a day (2011 PPP). For sensitivity purposes we also estimate all results for half the IPL line to allow for greater sensitivity of results at the bottom of the distribution. These results are shown in the Appendix as the patterns of result do not change. Furthermore, we use a per capita equivalence scale rather than the nationally used equivalence scales; for a discussion on the varieties of equivalence scales used across countries, also see Gasior et al. (2018).

3.3 Data and descriptive statistics

All SOUTHMOD models are based on nationally representative household surveys. We use the most recent available survey wave for each country studied. For Uganda, we utilise UGAMOD_v2.0 which contains the Uganda National Household Survey (UNHS) (2016–17) (Waiswa et al. 2023), while for Zambia, we operate MicroZAMOD v2.6, which uses Zambia's Living Conditions Monitoring Survey (LCMS) (2015) (Kalikeka et al. 2023). The surveys include information on household incomes, including labour and non-labour income, as well as characteristics of individual household members and household characteristics. Furthermore, the survey reports detailed information on expenditures. Tables A2–A6 in the Appendix show summary statistics of data at the individual level.

Based on Lastunen et al. (2023), Uganda and Zambia both saw a reduction in GDP growth, with GDP in Zambia actually contracting in 2020. The services sector, specifically accommodation and food services, were amongst the hardest hit sectors in both countries. By contrast, agriculture was barely affected in Uganda, and it grew significantly in Zambia. As described above these shocks are converted into job and subsequent income losses in the data used by the microsimulation models in the crisis scenario. Out of the countries studied by Lastunen et al. (2023), Uganda and Zambia experienced the greatest reduction in mean disposable income at 42.6% and 60.8% respectively. The drop in disposable income is more pronounced in the upper half of the pre-crisis distribution of disposable household income, and the crisis policy measures in Zambia were well targeted at the lowest quartile of the distribution.

[5] We further make the same choices as Lastunen et al. (2023).

Table 2 displays the share of individuals out of the full population who live in households that receive benefits (column B), split by pre-crisis and crisis scenarios, and in a UBI scenario. The second and third column further break the benefits down into means-tested benefits (column MTB), and non-means-tested benefits (column NMTB). The difference in the share of the population that receives benefits is large in pre-crisis and crisis scenarios, with nearly seven times as many Zambians living in a household that receives a benefit compared to Uganda. In Uganda, the categorical benefit provided to the elderly did not change from pre-crisis to crisis. In Zambia, the Emergency Cash Transfer was increased for existing beneficiaries which accordingly does not translate into a greater share of recipients.[6]

Table 2: Share of individuals in households receiving benefits

Scenarios	B (%)	MTB (%)	NMTB (%)
Uganda			
Pre-crisis	5.5	0	5.5
Crisis	5.5	0	5.5
UBI	100	0	100
Zambia			
Pre-crisis	34.4	20	19.4
Crisis	34.4	20	19.4
UBI	100	0	100

Notes: B = all benefits (NMTB + MTB). MTB = means-tested benefits. NMTB = non-means-tested benefits.

Source: authors' calculations using MicroZAMOD_v2.6 and UGAMOD_v2.0 and household survey data for Uganda and Zambia.

4 Results

In this section we present the poverty and inequality results using disposable income as discussed in section 3.2 (microsimulation approach and distributional measures). First, we compare the results of the four UBI schemes with the baseline estimates in the pre-crisis and crisis scenario in Uganda and Zambia respectively. Second, we discuss the differences in pre-crisis and crisis scenarios and whether and if so by how much UBI manages to mitigate the income shocks triggered by the COVID-19 pandemic. All results shown in this section, use the IPL of US$1.90 a day (2011 PPP).

4.1 The welfare-enhancing potential across policy scenarios

Table 3 shows the poverty rate, FGT(0), in the baseline and the four different UBI schemes in the pre-crisis and crisis scenario for both countries (panels A and B respectively). In Uganda, the poverty rate across the population is lower in all four UBI schemes compared to the baseline. This holds for both scenarios, pre-crisis and crisis. Not surprisingly, poverty reduction is minor in the first two UBI schemes due to the relatively small benefit amounts. By contrast, the 4th UBI scheme produces the largest decline in the poverty rate. When looking at population subgroups, the group of the elderly stands out as the only group for which poverty increases under the 1st and 2nd UBI scheme. The UBI amounts in those two schemes are actually less generous than the existing old-age benefits for the elderly in Uganda and thus lead to an increase in poverty in these scenarios.

[6] The Zambian government also decided to horizontally expand the Emergency Cash Transfer by adding new recipients. Yet, due to limitations in the available data and limited information on the exact allocation mechanism, this expansion could not be modelled in MicroZAMOD.

In Zambia, the poverty rate across the population declines in the 2nd through the 4th UBI scheme compared to the baseline in pre-crisis and crisis scenarios (panels A and B in Table 3). By contrast, the 1st UBI scheme, which in a revenue-neutral manner, shifts existing social protection expenditures into a UBI scheme, is estimated to increase poverty marginally. This result reflects how the rather well-targeted existing social protection schemes lead to higher overall poverty reduction than the 1st UBI scheme. In line with the generosity of its benefit amounts and findings for Uganda, the 4th UBI scheme produces the largest decline in the poverty rate. In absolute terms, children are estimated to benefit the most from the introduction of a UBI scheme, whether in pre-crisis and crisis scenarios. Also, children are the only sub-group to see marginally lower poverty in the 1st UBI scheme in pre-crisis scenario. Similar to the case of Uganda, poverty amongst the elderly is estimated to increase under the 1st and 2nd UBI scheme.

In relative terms, the overall reduction in poverty rates in all UBI schemes compared to the baseline scenarios (pre-crisis and crisis) are larger for Uganda compared to Zambia. The larger number of more targeted social protection programmes operating in Zambia is more effective in reducing poverty in times of crisis as well as in times of no crisis, compared to basically one categorical benefit to the elderly in Uganda.

Table 3: Poverty rate, FGT(0), in pre-crisis and crisis scenario using disposable income and the international poverty line of US$1.90 a day (2011 PPP) in Uganda and Zambia.

	Baseline	1st UBI	2nd UBI	3rd UBI	4th UBI
A. Pre-crisis scenario					
Uganda					
All	0.7140	0.7091	0.7006	0.5347	0.0360
Male adult	0.6351	0.6295	0.6199	0.4651	0.0438
Female adult	0.6729	0.6677	0.6598	0.4964	0.0345
Child	0.7663	0.7618	0.7534	0.5816	0.0333
Elderly	0.7960	0.8010	0.7985	0.6385	0.0347
Zambia					
All	0.7037	0.7041	0.6941	0.5831	0.1131
Male adult	0.6475	0.6483	0.6386	0.5284	0.1082
Female adult	0.6650	0.6684	0.6570	0.5438	0.1148
Child	0.7493	0.7481	0.7386	0.6283	0.1145
Elderly	0.7562	0.7880	0.7767	0.6606	0.1837
B. Crisis scenario					
Uganda					
All	0.7323	0.7266	0.7181	0.5558	0.0446
Male adult	0.6558	0.6489	0.6403	0.4863	0.0545
Female adult	0.6934	0.6876	0.6798	0.5207	0.0437
Child	0.7824	0.7773	0.7686	0.6012	0.0408
Elderly	0.8005	0.8050	0.8026	0.6428	0.0351
Zambia					
All	0.7160	0.7198	0.7107	0.5995	0.1215
Male adult	0.6610	0.6649	0.6557	0.5460	0.1187
Female adult	0.6789	0.6866	0.6758	0.5631	0.1247
Child	0.7602	0.7621	0.7539	0.6427	0.1213
Elderly	0.7466	0.7966	0.7852	0.6706	0.1886

Source: authors' calculations using MicroZAMOD_v2.6 and UGAMOD_v2.0 and household survey data for Uganda and Zambia.

Table 4 presents the poverty gap, FGT(1), in the baseline and all UBI schemes in pre-crisis and crisis scenarios for both countries. In Uganda, all UBI schemes reduce the poverty gap across the population in both pre-crisis and crisis scenarios. The poverty gap results follow the pattern of poverty rate results discussed above; the poverty gap decreases more as the generosity of UBI benefits increases from the first to fourth scheme. Looking across the different population

subgroups in Uganda, the poverty gap decreases for all other subgroups except for the elderly in the 1st UBI scheme for the reasons explained for the poverty rate above.

In Zambia, across the population the 2nd through 4th UBI schemes reduce the poverty gap while the 1st UBI increases the poverty gap in both pre-crisis and crisis scenarios. Amongst the different population subgroups, we find that the poverty gap amongst the elderly increases in the 1st and 2nd UBI scheme whereas it reduces for all other groups in the 2nd UBI. In relative terms, the reduction in the poverty gap is smaller for Zambia compared to Uganda, given Zambia's more targeted and more generous policies in first place.

In both countries and pre-crisis and crisis scenarios, the 4th UBI closes the poverty gap fully because the benefit amount is set exactly at the IPL of US$1.90 a day (2011 PPP). This means that all poor individuals' incomes are lifted to at least the level of the poverty line, and those with initially zero disposable income will end up right at the poverty line. Although the poverty gap is zero, this will still lead to a poverty rate greater than zero. By definition of FGT(0), the poor are those who have income less or equal to the poverty line. This in turn means that the poverty rate we find for the 4th UBI scheme, represents the estimated share of population that is lifted from zero income to exactly US$1.90 a day (2011 PPP). The same logic applies in Table 5 because poverty severity, FGT(2), is defined as the squared poverty gap index. We therefore do not report zero results for the 4th UBI in Tables 4 and 5.

Table 4: Poverty gap, FGT(1), in pre-crisis and crisis scenario using disposable income and the international poverty line of US$1.90 a day (2011 PPP) in Uganda and Zambia.

	Baseline	1st UBI	2nd UBI	3rd UBI
A. Pre-crisis scenario				
Uganda				
All	0.4870	0.4730	0.4488	0.1725
Male adult	0.4285	0.4160	0.3946	0.1518
Female adult	0.4516	0.4398	0.4170	0.1586
Child	0.5280	0.5123	0.4863	0.1876
Elderly	0.5397	0.5640	0.5365	0.2116
Zambia				
All	0.5051	0.5214	0.4907	0.2211
Male adult	0.4595	0.4740	0.4458	0.1993
Female adult	0.4672	0.4887	0.4596	0.2059
Child	0.5454	0.5599	0.5273	0.2389
Elderly	0.5019	0.5922	0.5578	0.2535
B. Crisis scenario				
Uganda				
All	0.5061	0.4917	0.4669	0.1820
Male adult	0.4483	0.4354	0.4133	0.1613
Female adult	0.4729	0.4607	0.4372	0.1689
Child	0.5458	0.5297	0.5031	0.1967
Elderly	0.5442	0.5683	0.5407	0.2142
Zambia				
All	0.5118	0.5366	0.5052	0.2289
Male adult	0.4687	0.4900	0.4610	0.2074
Female adult	0.4743	0.5060	0.4761	0.2146
Child	0.5507	0.5736	0.5404	0.2460
Elderly	0.4635	0.6015	0.5668	0.2587

Source: authors' calculations using MicroZAMOD_v2.6 and UGAMOD_v2.0 and household survey data for Uganda and Zambia. Zero results for the 4th UBI not included in the table for clarity of exposition.

In Table 5, we show the results of poverty severity index, FGT(2), similarly as for the poverty rate and gap in Tables 3 and 4. All results follow the same pattern as the poverty gap results in both

countries and pre-crisis and crisis scenarios. However, in relative terms, the reduction (increase) in FGT(2) in UBI schemes relative to baseline scenarios is larger compared to FGT(1). This finding highlights how a potential UBI scheme affects inequality amongst the poor and the extremely poor; with a UBI inequality amongst the poorest is reduced or even levelled out which is reflected in the poverty severity index that allocates more weight to the poorest individuals. By contrast, the poverty gap, FGT(1), simply averages the distance to the poverty line for all those below the poverty line, and does not attribute greater weight to the extremely poor.

Table 5: Poverty severity index, FGT(2), in pre-crisis and crisis scenario using disposable income and the international poverty line of US$1.90 a day (2011 PPP) in Uganda and Zambia.

	Baseline	1st UBI	2nd UBI	3rd UBI
A. Pre-crisis scenario				
Uganda				
All	0.3866	0.3677	0.3360	0.0669
Male adult	0.3406	0.3239	0.2961	0.0597
Female adult	0.3556	0.3397	0.3102	0.0613
Child	0.4202	0.3990	0.3646	0.0726
Elderly	0.4177	0.4449	0.4071	0.0818
Zambia				
All	0.4116	0.4335	0.3890	0.0951
Male adult	0.3737	0.3922	0.3519	0.0857
Female adult	0.3764	0.4048	0.3632	0.0887
Child	0.4469	0.4671	0.4194	0.1028
Elderly	0.3801	0.4957	0.4452	0.1099
B. Crisis scenario				
Uganda				
All	0.4056	0.3857	0.3528	0.0714
Male adult	0.3599	0.3423	0.3131	0.0642
Female adult	0.3764	0.3595	0.3287	0.0660
Child	0.4382	0.4161	0.3806	0.0769
Elderly	0.4224	0.4495	0.4114	0.0831
Zambia				
All	0.4159	0.4478	0.4021	0.0989
Male adult	0.3810	0.4073	0.3656	0.0897
Female adult	0.3810	0.4210	0.3779	0.0928
Child	0.4496	0.4801	0.4312	0.1062
Elderly	0.3389	0.5049	0.4536	0.1124

Source: authors' calculations using MicroZAMOD_v2.6 and UGAMOD_v2.0 and household survey data for Uganda and Zambia. Zero results for the 4th UBI not included in the table for clarity of exposition.

Table 6 shows estimates of the Gini index in the different scenarios and schemes. In Uganda, UBI schemes reduce inequality compared to baseline in pre-crisis and crisis scenarios, whereas in Zambia, inequality declines only in the 2nd through the 4th UBI scheme. In all cases, the magnitude of the reduction follows the generosity of UBI benefits with the 4th UBI producing clearly the largest decline. Similar to poverty measures, the decline is relatively larger in Uganda compared to Zambia.

Table 6: Gini index in pre-crisis and crisis scenario using disposable income and the international poverty line of US$1.90 a day (2011 PPP) in Uganda and Zambia.

	Baseline	1st UBI	2nd UBI	3rd UBI	4th UBI
A. Pre-crisis scenario					
Uganda					
All	0.6654	0.6534	0.6335	0.4552	0.3452
Zambia					
All	0.7207	0.7301	0.7072	0.5446	0.4270
B. Crisis scenario					
Uganda					
All	0.6722	0.6592	0.6380	0.4512	0.3389
Zambia					
All	0.7170	0.7319	0.7072	0.5353	0.4147

Source: authors' calculations using MicroZAMOD_v2.6 and UGAMOD_v2.0 and household survey data for Uganda and Zambia.

4.2 The welfare-enhancing potential of policy scenarios with and without crisis

In this subsection we focus on comparing how a specific policy scheme performs in a pre-crisis compared to a crisis scenario. This helps answer the question whether the different UBI schemes might be more powerful at decreasing poverty and inequality as compared to governments' actual choice of policies before and during the pandemic.

In absolute terms, across the population, the poverty rate is higher in the baseline and all UBI schemes in the crisis scenario compared to the pre-crisis scenario in both countries. In Uganda, this is least prominent for the elderly, for which poverty rates barely change between pre-crisis and crisis scenarios. In Zambia, the poverty rate amongst elderly is slightly lower in the crisis baseline compared to the pre-crisis baseline.

In relative terms, we observe that the 4th UBI scheme produces the largest reduction of the poverty rate compared to all other UBI schemes or baseline in both countries. In Uganda, it is a 24 per cent decline and in Zambia, a 7.5 per cent decline. Other UBI schemes provide minor reduction when comparing pre-crisis to crisis scenario — in Uganda, less than 4 per cent reduction in poverty rate and in Zambia, only 2.8 per cent. This highlights that UBI would not change the performance of the social protection systems massively unless with extreme fiscal efforts such as under the 4th UBI scheme.

The findings of poverty gap and poverty severity are similar to the poverty rate results discussed above. However, the Gini index is slightly lower in the crisis scenario compared to the pre-crisis scenario in the 3rd and 4th UBI scheme in both countries, and also in the baseline in Zambia.

5 Discussion and conclusion

Our results show that a UBI scheme can perform slightly better in reducing poverty and inequality compared to the existing social protection system in a country such as Uganda, where only a small part of the population is covered by of the existing social protection programmes. We show that all UBI schemes reduce poverty and inequality in Uganda, in normal times and in times of crises, compared to the narrow social protection coverage captured in the baseline scenario. By contrast, in Zambia, where the existing social protection programmes are more generous and well targeted

to the poor, the less generous UBI schemes do not reduce poverty and inequality compared to the existing social protection programmes.

In both countries, as expected, the generosity of UBI matters greatly. The reduction in poverty and inequality is more substantial when the benefit amounts increase. The larger UBI benefits considered here would need unrealistically high amounts of financing. For example, the 4th UBI scheme which fully eradicates the poverty, would require government expenditure of 30 per cent of GDP in Uganda, and 20 per cent of GDP in Zambia. These simulated levels of government expenditures are even more striking through the lens tax revenues: In Uganda, the 4th UBI scheme would cost 214 per cent of tax revenues and in Zambia, 106 per cent. Our estimates are close to estimates in Gentilini et al. (2020b) who find that a UBI equal to the IPL of US$1.90 a day in other low-income countries such as Haiti, Mozambique and Nepal would require government expenditure of 36–48 per cent of GDP. Our results also fall in step with the analysis by Shahir et al. (2023).

UBI schemes have the advantage of ensuring that everyone always meets the income floor, and if the benefit amount is high enough, also in the times of crisis. UBI schemes also have advantages over targeted systems, particularly when people move in and out of poverty on a regular basis and to help people tackle systemic shocks, particularly in countries with few or no formal social protection programmes. However, if the existing social protection programmes are progressive and well-targeted, these programmes may also during the crisis lead to larger poverty and inequality reduction than a financially feasible UBI scheme – as we can see from our results in Zambia and as also shown for Ethiopia in case of the COVID-19 shock by Shahir et al (2023). In a similar vein Gentilini et al. (2020b) argue that in a setting with low levels of expenditure on social protection the flat structure of the UBI may not be as responsive to short-run shocks like illness, unemployment and loss of livelihoods due to natural shocks as more progressive social protection programmes.

Our analysis strictly focuses on the ex-ante impacts of a UBI on poverty and inequality. However, there are other important aspects to consider when evaluating the effectiveness and feasibility of (different) UBI (schemes) that are beyond the scope of our analysis. The feasibility of a specific UBI schemes will depend on a host of factors such as implications for the government's budget, financial sustainability, successful delivery of the benefit and last but not least political feasibility (Gentilini et al. 2020b). In addition, beneficiaries' behaviour may change in response to the introduction of a UBI, i.e. as work incentives may have changed, a general concern in developed countries yet less further have implications for the effectiveness of such UBI. Unless the UBI amounts are unrealistically high, the latter should be of more limited concern in a low-income country setting though and we therefore turn to discuss the most salient of the aforementioned issues below.

First, it is evident that the more generous UBI benefits simulated here cannot be financially sustainable in a low-income country context given the low levels of domestic revenues and spending on social protection. Even in the face of less generous UBI schemes, countries would need to consider various reforms to raise domestic resources and cut spending on the existing social protection. Gentilini et al. (2020b) argue that such UBI reforms would be only feasible with additional taxation and reduction of regressive subsidies. Also, Ortiz et al. (2018) mark the need for non-regressive sources of funding and list different options to finance a potential UBI such as reallocation of the public expenditure (e.g. energy subsidies), tax reform, eliminating illicit financial flows, managing the existing debt, and development aid. However, the different financing option may have undesirable impacts on poverty and inequality that are difficult to predict, and not all of them are sustainable in the long-run.

Second, political feasibility of a UBI scheme is pivotal. Gentilini et al. (2020b) highlight that the political economy of the UBI is understudied. When designing a UBI, policymakers need to decide, for example, who should receive the UBI, the level of the benefit amount, how to finance its costs and how the UBI would sit in relationship to existing social protection policies. All of these aspects sit in the larger scale political economy considerations and require careful discussions with various stakeholders each with their own interest and incentives (Gentilini et al. 2020b).

Third, our analysis does not take into account the quality and costs of administrative implementation, neither of the existing social protection programmes nor of the prospective UBI schemes. In our analysis, we assume full delivery and coverage, and disregard the associated costs. In reality, the implementation of social protection programmes could be challenging and imperfect in low-income country setting where benefit roll-out often is limited due to funding constraints and challenges in delivery. Targeting programmes in developing countries may face difficulties due to untrustworthy data, inadequate information systems, and a lack of administrative capacity in poor countries (Brown et al. 2018). UBI schemes are usually considered simpler and cheaper to implement administratively than complex targeting mechanisms. Yet, it is unclear and highly case-specific whether and if so by how much a UBI scheme requires less administrative cost than (existing) targeted benefit systems (Gentilini et al. 2020b).

In a nutshell, our analysis contributes to the debate of the effectiveness and feasibility of the UBI by providing evidence on how well the UBI performs during normal times and times of crisis in low-income countries. The two countries chosen for this analysis, Uganda and Zambia, represent two low-income countries, marked by differences in the coverage and generosity of existing social protection programmes in pre-crisis and crisis scenario. Therefore, our results, implications and caveats can serve as a reference point for other low-income sub-Saharan African countries with similar levels of social protection programmes and tax-benefit systems.

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Appendix

Table A1: Summary of policies in the models (2020)

	Uganda (baseline)	Zambia (baseline)	Uganda (UBI)	Zambia (UBI)
Cash benefits	Senior citizen grant	Social cash transfer, Supporting women's livelihood, Keeping girls in school, Home grown school feeding programme, Electronic-farmer input support programme, Food security pack Crisis: COVID emergency cash transfer	Universal basic income	Universal basic income
SIC	Employee contribution, Employer contribution	Employee pension contributions, Employer pension contributions, National health insurance contributions – employer, National health insurance contributions – employee	Employee contribution, Employer contribution	Employee pension contributions, Employer pension contributions, National health insurance contributions – employer, National health insurance contributions – employee
Direct taxes	Local service tax, Rental income tax, Presumptive income tax, Income tax	Turnover tax, Income tax	Local service tax, Rental income tax, Presumptive income tax, Income tax	Turnover tax, Income tax
Indirect taxes	Value-added tax, Excise duty and VAT on selected excise items	Value-added tax, Excise duty and VAT on selected excise items	Value-added tax, Excise duty and VAT on selected excise items	Value-added tax, Excise duty and VAT on selected excise items

Note: SIC = social insurance contributions, VAT= Value-added tax.

Source: elaboration based on Kalikeka et al. (2023) and Waiswa et al. (2023).

Table A2: Descriptive statistics for UGAMOD

Variable	Obs	Mean	Std. Dev.	Min	Max
Age	74422	20.563	17.984	-1	115
gender (male 1, female 0)	74422	.483	.5	0	1
income from employment	74422	22208.654	186593.9	0	8126784
income from agriculture	74422	9734.015	51775.992	0	856436.5
income self-employment	74422	35564.88	207745.42	0	3578509

Source: elaboration using UGAMOD v1.6

Table A3: Descriptive statistics from MicroZAMOD

Variable	Obs	Mean	Std. Dev.	Min	Max
Age	62879	21.94	17.288	0	90
Gender (male 1, female 0)	62879	.486	.5	0	1
income from employment	62879	339.441	1727.893	0	26210.619
income from agriculture	62879	26.294	622.938	0	87462.039
income self-employment	62879	125.76	620.725	0	15244.63

Source: elaboration using MicroZAMOD v2.6

Table A4: Economic status distribution (in %) from UGAMOD and MicroZAMOD

	UGAMOD	MicroZAMOD
Not applicable	10.95	0.01
Farmer	35.21	26.05
Employer/self	15.08	10.40
Employee	20.23	11.50
Pensioner	1.89	2.02
Unemployed	4.19	10.35
Student	5.95	10.68
Inactive	4.09	19.91
Sick/disabled	2.42	4.15
Other	N/A	4.92
Total	100.00	100.00

Source: elaboration using UGAMOD v1.6 and MicroZAMOD v2.6.

Table A5: Occupation distribution (%) from UGAMOD and MicroZAMOD

	UGAMOD	MicroZAMOD
Not applicable	23.12	41.38
Armed forces	0.19	0.06
Senior officials/managers	0.36	0.97
Professionals	2.78	2.77
Technicians	0.89	0.93
Clerks	0.39	0.51
Services and sales workers	12.86	9.30
Agricultural	41.36	31.72
Craft and trade workers	3.40	3.84
Plant/machine operators	2.22	2.00
Elementary occupations	12.43	6.52
Total	100.00	100.00

Source: elaboration using UGAMOD v1.6 and MicroZAMOD v2.6.

Table A6: Distribution of current status of education (%) from UGAMOD and MicroZAMOD

	UGAMOD	MicroZAMOD
Not specified/applicable	25.06	29.91
Early child./pre-primary	35.48	29.30
Primary	11.63	28.83
Lower and or upper secondary	19.56	7.81
Post-secondary non-tertiary and/or short cycle tertiary	6.02	3.01
Bachelor or equivalent	2.25	0.91
Master and or equivalent	N/A	0.21
Doctoral or equivalent	N/A	0.02
Total	100.00	100.00

Source: elaboration using UGAMOD v1.6 and MicroZAMOD v2.6.

Results using the US$1.90 (2011 PPP) poverty line, taking into account indirect taxes (post-fiscal income)

Table A7: Poverty rate (FGT0) in Uganda and Zambia, pre-crisis scenario, US$1.90 (2011 PPP) poverty line, post-fiscal income

	Baseline	1st UBI	2nd UBI	3rd UBI	4th UBI
Uganda					
All	0.7524	0.7492	0.7448	0.6683	0.5100
Male adult	0.6992	0.6980	0.6943	0.6493	0.5888
Female adult	0.7151	0.7122	0.7090	0.6584	0.5827
Child	0.7919	0.7877	0.7825	0.6808	0.4435
Elderly	0.8502	0.8565	0.8546	0.8172	0.7346
Zambia					
All	0.7323	0.7351	0.7310	0.6772	0.5460
Male adult	0.6986	0.7024	0.6997	0.6698	0.6180
Female adult	0.7019	0.7094	0.7065	0.6679	0.6053
Child	0.7633	0.7633	0.7579	0.6853	0.4827
Elderly	0.8215	0.8487	0.8466	0.8125	0.7192

Source: authors' calculations using MicroZAMOD_v2.6 and UGAMOD_v2.0 and household survey data for Uganda and Zambia.

Table A8*:* Poverty gap (FGT1) in Uganda and Zambia, pre-crisis scenario, US$1.90 (2011 PPP) poverty line, post-fiscal income

	Baseline	1st UBI	2nd UBI	3rd UBI	4th UBI
Uganda					
All	0.5388	0.5331	0.5212	0.3541	0.2044
Male adult	0.5035	0.5013	0.4951	0.4132	0.3286
Female adult	0.5070	0.5052	0.4974	0.3907	0.2844
Child	0.5683	0.5592	0.5430	0.3123	0.1153
Elderly	0.6386	0.6731	0.6639	0.5335	0.4039
Zambia					
All	0.5399	0.5673	0.5521	0.3893	0.2237
Male adult	0.5145	0.5461	0.5367	0.4535	0.3591
Female adult	0.5096	0.5464	0.5353	0.4304	0.3132
Child	0.5669	0.5877	0.5676	0.3386	0.1156
Elderly	0.5874	0.6949	0.6800	0.5429	0.3929

Source: authors' calculations using MicroZAMOD_v2.6 and UGAMOD_v2.0 and household survey data for Uganda and Zambia.

Table A9: Poverty severity (FGT2) in Uganda and Zambia in pre-crisis scenario, US$1.90 (2011 PPP) poverty line, post-fiscal income

	Baseline	1st UBI	2nd UBI	3rd UBI	4th UBI
Uganda					
All	0.4449	0.4370	0.4206	0.2288	0.1165
Male adult	0.4215	0.4185	0.4102	0.3115	0.2256
Female adult	0.4172	0.4148	0.4042	0.2746	0.1723
Child	0.4675	0.4549	0.4324	0.1729	0.0447
Elderly	0.5329	0.5782	0.5646	0.3981	0.2734
Zambia					
All	0.4484	0.4881	0.4648	0.2619	0.1320
Male adult	0.4295	0.4757	0.4612	0.3510	0.2514
Female adult	0.4205	0.4733	0.4564	0.3173	0.1965
Child	0.4711	0.5013	0.4707	0.1925	0.0438
Elderly	0.4731	0.6199	0.5959	0.4137	0.2762

Source: authors' calculations using MicroZAMOD_v2.6 and UGAMOD_v2.0 and household survey data for Uganda and Zambia.

Table A10*:* Inequality levels in Uganda and Zambia, pre-crisis scenario, post-fiscal income

Gini index	Baseline	1st UBI	2nd UBI	3rd UBI	4th UBI
Uganda					
All	0.6908	0.6854	0.6746	0.5533	0.4720
Zambia					
All	0.7294	0.7495	0.7366	0.6284	0.5435

Source: authors' calculations using MicroZAMOD_v2.6 and UGAMOD_v2.0 and household survey data for Uganda and Zambia.

Table A11: Poverty rate (FGT0) in Uganda and Zambia, crisis scenario, US$1.90 (2011 PPP) poverty line, post-fiscal income (with indirect taxes)

	Baseline	1st UBI	2nd UBI	3rd UBI	4th UBI
Uganda					
All	0.7678	0.7651	0.7609	0.6869	0.5294
Male adult	0.7161	0.7153	0.7116	0.6677	0.6076
Female adult	0.7331	0.7305	0.7271	0.6791	0.6044
Child	0.8055	0.8019	0.7972	0.6987	0.4621
Elderly	0.8530	0.8598	0.8574	0.8210	0.7383
Zambia					
All	0.7437	0.7499	0.7462	0.6933	0.5621
Male adult	0.7122	0.7181	0.7157	0.6867	0.6355
Female adult	0.7143	0.7260	0.7230	0.6854	0.6238
Child	0.7731	0.7768	0.7721	0.7003	0.4970
Elderly	0.8135	0.8565	0.8531	0.8195	0.7278

Source: authors' calculations using MicroZAMOD_v2.6 and UGAMOD_v2.0 and household survey data for Uganda and Zambia.

Table A12: Poverty gap (FGT1) in Uganda and Zambia, crisis scenario, US$1.90 (2011 PPP) poverty line, post-fiscal income (with indirect taxes)

	Baseline	1st UBI	2nd UBI	3rd UBI	4th UBI
Uganda					
All	0.5587	0.5528	0.5406	0.3700	0.2148
Male adult	0.5252	0.5229	0.5164	0.4332	0.3452
Female adult	0.5290	0.5271	0.5190	0.4094	0.2981
Child	0.5864	0.5771	0.5607	0.3253	0.1214
Elderly	0.6426	0.6771	0.6678	0.5368	0.4060
Zambia					
All	0.5478	0.5835	0.5678	0.4022	0.2322
Male adult	0.5258	0.5641	0.5543	0.4701	0.3728
Female adult	0.5175	0.5644	0.5529	0.4459	0.3247
Child	0.5732	0.6021	0.5816	0.3487	0.1201
Elderly	0.5449	0.7022	0.6870	0.5477	0.3947

Source: authors' calculations using MicroZAMOD_v2.6 and UGAMOD_v2.0 and household survey data for Uganda and Zambia.

Table A13: Poverty severity (FGT2) in Uganda and Zambia, crisis scenario, US$1.90 (2011 PPP) poverty line, post-fiscal income (with indirect taxes)

	Baseline	1st UBI	2nd UBI	3rd UBI	4th UBI
Uganda					
All	0.4656	0.4572	0.4402	0.2419	0.1236
Male adult	0.4443	0.4410	0.4322	0.3308	0.2401
Female adult	0.4398	0.4370	0.4259	0.2906	0.1822
Child	0.4864	0.4733	0.4501	0.1819	0.0475
Elderly	0.5372	0.5825	0.5687	0.4008	0.2754
Zambia					
All	0.4541	0.5042	0.4800	0.2725	0.1379
Male adult	0.4397	0.4941	0.4787	0.3667	0.2632
Female adult	0.4260	0.4912	0.4734	0.3305	0.2047
Child	0.4748	0.5154	0.4839	0.1995	0.0458
Elderly	0.4236	0.6274	0.6029	0.4171	0.2771

Source: elaboration using MicroZAMOD_v2.6 and UGAMOD_v2.0

Table A14*:* Inequality levels in Uganda and Zambia, crisis scenario, post-fiscal income (with indirect taxes)

Gini index	Baseline	1st UBI	2nd UBI	3rd UBI	4th UBI
Uganda					
All	0.6995	0.6936	0.6821	0.5552	0.4713
Zambia					
All	0.7263	0.7530	0.7389	0.6249	0.5369

Source: authors' calculations using MicroZAMOD_v2.6 and UGAMOD_v2.0 and household survey data for Uganda and Zambia.

Results using half of the US$1.90 (2011 PPP) poverty line

Pre-crisis scenario, disposable income

Table A15: Poverty rate (FGT0) in Uganda and Zambia, pre-crisis scenario, half of US$1.90 (2011 PPP) poverty line, disposable income

	Baseline	1st UBI	2nd UBI	3rd UBI	4th UBI
Uganda					
All	0.5321	0.5213	0.5034	0.0000	0.0000
Male adult	0.4625	0.4522	0.4369	0.0000	0.0000
Female adult	0.4922	0.4829	0.4654	0.0000	0.0000
Child	0.5798	0.5681	0.5489	0.0000	0.0000
Elderly	0.6006	0.6260	0.6113	0.0000	0.0000
Zambia					
All	0.5579	0.5702	0.5557	0.1131	0.0000
Male adult	0.5036	0.5156	0.5016	0.1082	0.0000
Female adult	0.5137	0.5309	0.5167	0.1148	0.0000
Child	0.6053	0.6153	0.6005	0.1145	0.0000
Elderly	0.5775	0.6493	0.6330	0.1837	0.0000

Source: authors' calculations using MicroZAMOD_v2.6 and UGAMOD_v2.0 and household survey data for Uganda and Zambia.

Table A16: Poverty gap (FGT1) in Uganda and, pre-crisis scenario, half of US$1.90 (2011 PPP) poverty line, disposable income

	Baseline	1st UBI	2nd UBI	3rd UBI	4th UBI
Uganda					
All	0.3404	0.3198	0.2845	0.0000	0.0000
Male adult	0.2997	0.2818	0.2511	0.0000	0.0000
Female adult	0.3110	0.2938	0.2611	0.0000	0.0000
Child	0.3711	0.3478	0.3093	0.0000	0.0000
Elderly	0.3619	0.3930	0.3504	0.0000	0.0000
Zambia					
All	0.3698	0.3977	0.3482	0.0000	0.0000
Male adult	0.3346	0.3583	0.3136	0.0000	0.0000
Female adult	0.3350	0.3703	0.3243	0.0000	0.0000
Child	0.4035	0.4298	0.3764	0.0000	0.0000
Elderly	0.3238	0.4565	0.4003	0.0000	0.0000

Source: authors' calculations using MicroZAMOD_v2.6 and UGAMOD_v2.0 and household survey data for Uganda and Zambia.

Table A17: Poverty severity (FGT2) in Uganda and Zambia, pre-crisis scenario, half of US$1.90 (2011 PPP) poverty line, disposable income

	Baseline	1st UBI	2nd UBI	3rd UBI	4th UBI
Uganda					
All	0.2624	0.2360	0.1945	0.0000	0.0000
Male adult	0.2343	0.2109	0.1742	0.0000	0.0000
Female adult	0.2384	0.2160	0.1778	0.0000	0.0000
Child	0.2853	0.2559	0.2107	0.0000	0.0000
Elderly	0.2615	0.2882	0.2371	0.0000	0.0000
Zambia					
All	0.2905	0.3157	0.2502	0.0000	0.0000
Male adult	0.2649	0.2845	0.2255	0.0000	0.0000
Female adult	0.2611	0.2942	0.2332	0.0000	0.0000
Child	0.3170	0.3409	0.2702	0.0000	0.0000
Elderly	0.2223	0.3651	0.2899	0.0000	0.0000

Source: authors' calculations using MicroZAMOD_v2.6 and UGAMOD_v2.0 and household survey data for Uganda and Zambia.

Table A18: Inequality levels in Uganda and Zambia, pre-crisis scenario, disposable income

Gini index	Baseline	1st UBI	2nd UBI	3rd UBI	4th UBI
Uganda					
All	0.6654	0.6534	0.6335	0.4552	0.3452
Zambia					
All	0.7207	0.7301	0.7072	0.5446	0.4270

Source: authors' calculations using MicroZAMOD_v2.6 and UGAMOD_v2.0 and household survey data for Uganda and Zambia.

Crisis scenario, disposable income

Table A19: Poverty rate (FGT0) in Uganda and Zambia, crisis scenario, half of US$1.90 (2011 PPP) poverty line, disposable income

	Baseline	1st UBI	2nd UBI	3rd UBI	4th UBI
Uganda					
All	0.5532	0.5425	0.5230	0.0000	0.0000
Male adult	0.4837	0.4734	0.4569	0.0000	0.0000
Female adult	0.5165	0.5069	0.4877	0.0000	0.0000
Child	0.5994	0.5882	0.5672	0.0000	0.0000
Elderly	0.6050	0.6302	0.6157	0.0000	0.0000
Zambia					
All	0.5667	0.5861	0.5719	0.1215	0.0000
Male adult	0.5139	0.5322	0.5188	0.1187	0.0000
Female adult	0.5236	0.5496	0.5355	0.1247	0.0000
Child	0.6129	0.6295	0.6150	0.1213	0.0000
Elderly	0.5208	0.6597	0.6441	0.1886	0.0000

Source: authors' calculations using MicroZAMOD_v2.6 and UGAMOD_v2.0 and household survey data for Uganda and Zambia.

Table A20: Poverty gap (FGT1) in Uganda and Zambia, crisis scenario, half of US$1.90 (2011 PPP) poverty line, disposable income

	Baseline	1st UBI	2nd UBI	3rd UBI	4th UBI
Uganda					
All	0.3594	0.3378	0.3010	0.0000	0.0000
Male adult	0.3187	0.2998	0.2677	0.0000	0.0000
Female adult	0.3317	0.3133	0.2790	0.0000	0.0000
Child	0.3893	0.3650	0.3252	0.0000	0.0000
Elderly	0.3670	0.3981	0.3552	0.0000	0.0000
Zambia					
All	0.3724	0.4119	0.3610	0.0000	0.0000
Male adult	0.3406	0.3732	0.3271	0.0000	0.0000
Female adult	0.3377	0.3862	0.3386	0.0000	0.0000
Child	0.4047	0.4428	0.3881	0.0000	0.0000
Elderly	0.2781	0.4660	0.4088	0.0000	0.0000

Source: authors' calculations using MicroZAMOD_v2.6 and UGAMOD_v2.0 and household survey data for Uganda and Zambia.

Table A21: Poverty severity (FGT2) in Uganda and Zambia, crisis scenario, half of US$1.90 (2011 PPP) poverty line, disposable income

	Baseline	1st UBI	2nd UBI	3rd UBI	4th UBI
Uganda					
All	0.2802	0.2521	0.2082	0.0000	0.0000
Male adult	0.2523	0.2271	0.1881	0.0000	0.0000
Female adult	0.2574	0.2331	0.1924	0.0000	0.0000
Child	0.3025	0.2714	0.2239	0.0000	0.0000
Elderly	0.2663	0.2928	0.2410	0.0000	0.0000
Zambia					
All	0.2922	0.3284	0.2606	0.0000	0.0000
Male adult	0.2702	0.2980	0.2365	0.0000	0.0000
Female adult	0.2634	0.3084	0.2448	0.0000	0.0000
Child	0.3168	0.3527	0.2797	0.0000	0.0000
Elderly	0.1871	0.3735	0.2967	0.0000	0.0000

Source: authors' calculations using MicroZAMOD_v2.6 and UGAMOD_v2.0 and household survey data for Uganda and Zambia.

Table A22: Inequality levels in Uganda and Zambia, crisis scenario, disposable income

Gini index	Baseline	1st UBI	2nd UBI	3rd UBI	4th UBI
Uganda					
All	0.6722	0.6592	0.6380	0.4512	0.3389
Zambia					
All	0.7170	0.7319	0.7072	0.5353	0.4147

Source: authors' calculations using MicroZAMOD_v2.6 and UGAMOD_v2.0 and household survey data for Uganda and Zambia.

Pre-crisis scenarios, post-fiscal income (with indirect taxes)

Table A23*:* Poverty rate (FGT0) in Uganda and Zambia, pre-crisis scenario, half of US$1.90 (2011 PPP) poverty line, post-fiscal income

	Baseline	1st UBI	2nd UBI	3rd UBI	4th UBI
Uganda					
All	0.5784	0.5748	0.5661	0.3827	0.1853
Male adult	0.5346	0.5333	0.5282	0.4543	0.3587
Female adult	0.5432	0.5421	0.5349	0.4414	0.3083
Child	0.6130	0.6072	0.5964	0.3255	0.0556
Elderly	0.7001	0.7272	0.7207	0.6097	0.4603
Zambia					
All	0.5932	0.6103	0.6036	0.4526	0.2170
Male adult	0.5624	0.5821	0.5776	0.5175	0.4064
Female adult	0.5563	0.5799	0.5760	0.5053	0.3635
Child	0.6259	0.6387	0.6295	0.3959	0.0553
Elderly	0.6662	0.7351	0.7289	0.6329	0.4627

Source: authors' calculations using MicroZAMOD_v2.6 and UGAMOD_v2.0 and household survey data for Uganda and Zambia.

Table A24: Poverty gap (FGT1) in Uganda and Zambia, pre-crisis scenario, half of US$1.90 (2011 PPP) poverty line, post-fiscal income

	Baseline	1st UBI	2nd UBI	3rd UBI	4th UBI
Uganda					
All	0.4013	0.3928	0.3750	0.1591	0.0712
Male adult	0.3828	0.3798	0.3709	0.2628	0.1740
Female adult	0.3754	0.3730	0.3616	0.2178	0.1101
Child	0.4209	0.4074	0.3828	0.0884	0.0099
Elderly	0.4864	0.5372	0.5224	0.3328	0.2073
Zambia					
All	0.4081	0.4551	0.4298	0.1898	0.0851
Male adult	0.3920	0.4454	0.4298	0.3037	0.1983
Female adult	0.3807	0.4421	0.4242	0.2648	0.1319
Child	0.4292	0.4661	0.4325	0.0991	0.0085
Elderly	0.4234	0.5898	0.5642	0.3485	0.2177

Source: authors' calculations using MicroZAMOD_v2.6 and UGAMOD_v2.0 and household survey data for Uganda and Zambia.

Table A25*:* Poverty severity (FGT2) in Uganda and Zambia, pre-crisis scenario, half of US$1.90 (2011 PPP) poverty line, post-fiscal income

	Baseline	1st UBI	2nd UBI	3rd UBI	4th UBI
Uganda					
All	0.3293	0.3176	0.2944	0.0942	0.0394
Male adult	0.3228	0.3185	0.3067	0.1889	0.1089
Female adult	0.3076	0.3036	0.2888	0.1349	0.0547
Child	0.3418	0.3235	0.2918	0.0354	0.0028
Elderly	0.3924	0.4504	0.4303	0.2255	0.1210
Zambia					
All	0.3286	0.3836	0.3467	0.1145	0.0475
Male adult	0.3201	0.3855	0.3618	0.2177	0.1236
Female adult	0.3058	0.3798	0.3525	0.1698	0.0663
Child	0.3439	0.3845	0.3368	0.0386	0.0023
Elderly	0.3198	0.5193	0.4791	0.2497	0.1365

Source: authors' calculations using MicroZAMOD_v2.6 and UGAMOD_v2.0 and household survey data for Uganda and Zambia.

Table A26: Inequality levels in Uganda and Zambia, pre-crisis scenario, post-fiscal income

Gini index	Baseline	1st UBI	2nd UBI	3rd UBI	4th UBI
Uganda					
All	0.6908	0.6854	0.6746	0.5533	0.4720
Zambia					
All	0.7294	0.7495	0.7366	0.6284	0.5435

Source: authors' calculations using MicroZAMOD_v2.6 and UGAMOD_v2.0 and household survey data for Uganda and Zambia.

Crisis scenario, post-fiscal income (indirect taxes)

Table A27: Poverty rate (FGT0) in Uganda and Zambia, crisis scenario, half of US$1.90 (2011 PPP) poverty line, post-fiscal income

	Baseline	1st UBI	2nd UBI	3rd UBI	4th UBI
Uganda					
All	0.5996	0.5960	0.5871	0.4033	0.1956
Male adult	0.5577	0.5566	0.5516	0.4767	0.3773
Female adult	0.5667	0.5656	0.5579	0.4639	0.3248
Child	0.6324	0.6265	0.6155	0.3446	0.0597
Elderly	0.7042	0.7311	0.7253	0.6135	0.4627
Zambia					
All	0.6026	0.6269	0.6202	0.4691	0.2256
Male adult	0.5758	0.6006	0.5960	0.5357	0.4213
Female adult	0.5668	0.5987	0.5948	0.5232	0.3769
Child	0.6330	0.6533	0.6442	0.4109	0.0586
Elderly	0.6194	0.7420	0.7358	0.6401	0.4639

Source: authors' calculations using MicroZAMOD_v2.6 and UGAMOD_v2.0 and household survey data for Uganda and Zambia.

Table A28. Poverty gap (FGT1) in Uganda and Zambia, crisis scenario, half of US$1.90 (2011 PPP) poverty line, post-fiscal income

	Baseline	1st UBI	2nd UBI	3rd UBI	4th UBI
Uganda					
All	0.4225	0.4136	0.3951	0.1707	0.0768
Male adult	0.4063	0.4030	0.3935	0.2819	0.1879
Female adult	0.3983	0.3956	0.3836	0.2330	0.1181
Child	0.4403	0.4262	0.4009	0.0950	0.0108
Elderly	0.4910	0.5417	0.5268	0.3352	0.2092
Zambia					
All	0.4124	0.4712	0.4450	0.1993	0.0897
Male adult	0.4011	0.4639	0.4475	0.3191	0.2094
Female adult	0.3847	0.4600	0.4411	0.2774	0.1387
Child	0.4314	0.4802	0.4457	0.1042	0.0091
Elderly	0.3686	0.5974	0.5714	0.3507	0.2185

Source: authors' calculations using MicroZAMOD_v2.6 and UGAMOD_v2.0 and household survey data for Uganda and Zambia.

Table A29: Poverty severity (FGT2) in Uganda and Zambia, crisis scenario, half of US$1.90 (2011 PPP) poverty line, post-fiscal income

	Baseline	1st UBI	2nd UBI	3rd UBI	4th UBI
Uganda					
All	0.3501	0.3375	0.3132	0.1024	0.0432
Male adult	0.3461	0.3412	0.3285	0.2063	0.1200
Female adult	0.3300	0.3253	0.3094	0.1461	0.0595
Child	0.3609	0.3416	0.3083	0.0385	0.0031
Elderly	0.3968	0.4547	0.4344	0.2275	0.1226
Zambia					
All	0.3318	0.3992	0.3607	0.1214	0.0508
Male adult	0.3287	0.4040	0.3786	0.2317	0.1328
Female adult	0.3088	0.3972	0.3682	0.1793	0.0704
Child	0.3446	0.3980	0.3485	0.0409	0.0025
Elderly	0.2687	0.5269	0.4859	0.2509	0.1369

Source: authors' calculations using MicroZAMOD_v2.6 and UGAMOD_v2.0 and household survey data for Uganda and Zambia.

Table A30*:* Inequality levels in Uganda and Zambia, crisis scenario, post-fiscal income

Gini index	Baseline	1st UBI	2nd UBI	3rd UBI	4th UBI
Uganda					
All	0.6995	0.6936	0.6821	0.5552	0.4713
Zambia					
All	0.7263	0.7530	0.7389	0.6249	0.5369

Source: authors' calculations using MicroZAMOD_v2.6 and UGAMOD_v2.0 and household survey data for Uganda and Zambia.