

WIDER Working Paper 2019/19

Financing the Zambia social cash transfer scale-up

A tax benefit microsimulation analysis based on MicroZAMOD

Remmy Kampamba,¹ Luca Pellerano,² Charles Banda,³ and
Obbie Musama⁴

March 2019

Abstract: This paper assesses the effects on poverty and inequality of the alternative targeting approaches that Zambia’s Social Cash Transfer programme could take as its expansion continues during the period of the country’s Seventh National Development Plan (2017–21). It further assesses the domestic financing needs associated with alternative approaches. The Zambian government introduced support based on giving actual cash through social cash transfers aimed at reducing poverty and vulnerability in a sustainable and cost-effective way. Using data from the 2015 Living Conditions Monitoring Survey, we simulate static effects of the alternative social cash transfer design options and their total cost using MicroZAMOD. In the absence of social cash transfers, nationwide extreme poverty would be 1.6 percentage points higher than otherwise. The results show that the combination of alternative options, particularly the inclusion of children and increased transfer financed from increased domestic taxes levels, yields higher impacts on poverty reduction.

Keywords: inequality, microsimulation, MicroZAMOD, poverty reduction, social protection, unconditional social cash transfer, Zambia

JEL classification: C53, I31, I38

Acknowledgements: The research team are members of the Technical Working Group on Economic Modelling for Poverty and Inequality Reduction constituted to inform implementation of the 7NDP. We thank Southern African Social Policy Research Insights (SASPRI) for training in MicroZAMOD and the International Labour Organization (ILO) for logistical support. We also thank Pia Rattenhuber, Jukka Pirttilä, David McLennan (SASPRI) and the Zambia Institute for Policy Analysis and Research (ZIPAR) for their support. Preliminary findings were presented at a work-in-progress workshop on Tax Benefit Microsimulation Analysis on 14 June 2018 and presented at the Think Development—Think WIDER conference from 13 to 15 September 2018, both convened by UNU-WIDER and held in Helsinki, Finland.

Our results are based on MicroZAMOD v2.3. MicroZAMOD is developed, maintained, and managed by UNU-WIDER in collaboration with the EUROMOD team at ISER (University of Essex), SASPRI, and local partners in selected developing countries in the scope of the [SOUTHMOD project](#). The local partner for MicroZAMOD is ZIPAR. The results and their interpretation presented in this publication are solely the author’s/s’ responsibility.

¹Economic Management Department, Ministry of Finance, Lusaka, Zambia, corresponding author email remmyk75@yahoo.co.uk;

² International Labour Organization, Country Office for Zambia, Malawi and Mozambique; ³ Economics Department, The University of Zambia, Lusaka, Zambia; ⁴ Policy, Planning and Information Department, Ministry of Community Development and Social Services, Lusaka, Zambia.

This study has been prepared within the UNU-WIDER project on ‘[SOUTHMOD – Simulating Tax and Benefit Policies for Development](#)’ which is part of the Institute’s larger research project on ‘[The economics and politics of taxation and social protection](#)’.

Copyright © UNU-WIDER 2019

Information and requests: publications@wider.unu.edu

ISSN 1798-7237 ISBN 978-92-9256-653-1 <https://doi.org/10.35188/UNU-WIDER/2019/653-1>

Typescript prepared by Lesley Ellen.

The United Nations University World Institute for Development Economics Research provides economic analysis and policy advice with the aim of promoting sustainable and equitable development. The Institute began operations in 1985 in Helsinki, Finland, as the first research and training centre of the United Nations University. Today it is a unique blend of think tank, research institute, and UN agency—providing a range of services from policy advice to governments as well as freely available original research.

The Institute is funded through income from an endowment fund with additional contributions to its work programme from Finland, Sweden, and the United Kingdom as well as earmarked contributions for specific projects from a variety of donors.

Katajanokanlaituri 6 B, 00160 Helsinki, Finland

The views expressed in this paper are those of the author(s), and do not necessarily reflect the views of the Institute or the United Nations University, nor the programme/project donors.

1 Introduction

Over the past decade, Zambia has achieved macroeconomic stability and has recorded an average annual growth rate of 6.4 per cent. It is now classified as a lower-middle-income country. However, growth has been primarily driven by capital-intensive sectors in urban areas (mining, construction, and transport). This limits the participation of the active population in growth sectors such as agriculture and tourism which have potential for job creation. As a result, there has only been a marginal decline in poverty while inequality has increased. The 2015 Living Conditions Monitoring Survey (LCMS) shows that 54.4 per cent of the population were living below the national poverty line (76.6 per cent in rural areas and 23.4 per cent in urban areas). The survey further shows that 40.8 per cent of the population were extremely poor (60.8 per cent in rural areas and 12.8 per cent in urban areas). Further, the level of income inequality estimated by the Gini coefficient was very high at 0.69 (0.60 for rural areas and 0.61 for urban areas).

The poor remain vulnerable, facing challenges including food insecurity and inadequate access to basic services such as education, safe drinking water, and healthcare. The most vulnerable include women, children, the elderly, people with disabilities, vulnerable migrants, refugees, internally displaced persons, and minorities. The 2014 Zambia National Social Protection Policy established dedicated efforts by the government to ensure that the role of social protection in pro-poor growth remains central and increases systemic efficiency. The ultimate goal of social protection in this framework is to effectively promote and provide sustainable security against deprivation and extreme vulnerability. This intent is further mirrored in the country's Vision 2030 and the 2030 Agenda for Sustainable Development.

In the past, the provision of social assistance in Zambia was made primarily through in-kind support such as food aid, clothes, and other material items. Programmes were run on an ad hoc basis and had limited coverage and funding. The primary objective of such interventions was to provide emergency relief and protect households from extreme levels of destitution, based on the assumption that those implementing the interventions knew what the poor needed. However, in-kind transfers proved to be problematic, with high logistical costs for example for transport and storage, including pilferage, which had the potential to compromise effective service delivery. In addition, some beneficiaries tended to sell whatever material support they were receiving.

In a quest to reduce poverty and vulnerability in a more sustainable and cost-effective way in the country, the government introduced support based on giving actual cash through the Social Cash Transfer (SCT) Scheme in 2003. The SCT programme has been operating in Zambia since 2003 and is one of the flagship interventions of Zambia's social protection system. The programme aims at reducing extreme poverty and the inter-generational transfer of poverty by providing regular cash transfers to vulnerable households, which are those that include persons with a disability, the elderly (those above the age of 65 years), the chronically ill in palliative care, households headed by females with three or more children, and child-headed households. The SCT programme pays monthly grants of ZMW90 (approximately US\$9) per household and bi-monthly grants of ZMW180 (approximately US\$18) for households with persons with disabilities.

Since 2003, the SCT programme has grown very significantly in terms of coverage and domestic allocation of resources, now representing the core government strategy for poverty and inequality reduction in the country. The programme has been shown to reduce poverty, hunger, and income inequality, therefore promoting inclusive growth. Across the region, SCTs have also been found to promote human development through improved nutrition, health, education, and gender equality.

The Seventh National Development Plan (7NDP) recognizes and highlights the inherent potential of social protection in reducing poverty and vulnerability. The plan includes a strong commitment to the extension of social protection, including the expansion of SCT coverage. It recognizes the challenges inherent in the current non-contributory programme, including limited coverage and coherence, low financing, and fragmented implementation of programmes. It calls for more integrated implementation of the SCT with other social assistance programmes, social insurance/social security, livelihood, and empowerment interventions. The 7NDP envisages that the expansion of a comprehensive package of social protection interventions will be one of the key factors contributing to the overall objectives of reducing both poverty and extreme poverty by 20 per cent by 2021.

As the government commits to ambitious poverty reduction targets during the period of the implementation of the 7NDP, there are expectations that the SCT will make a significant contribution to such targets. It is therefore critical to assess whether in its current form the SCT is geared towards making a significant dent in poverty reduction and to discuss possible design reforms that would increase its impact on poverty and inequality. At the same time, it is critical to assess the financing gap that the government will face as the programme expands to facilitate the attainment of the 7NDP goals, and to consider possible financing sources that could be utilized to generate the necessary resources for expansion of the project.

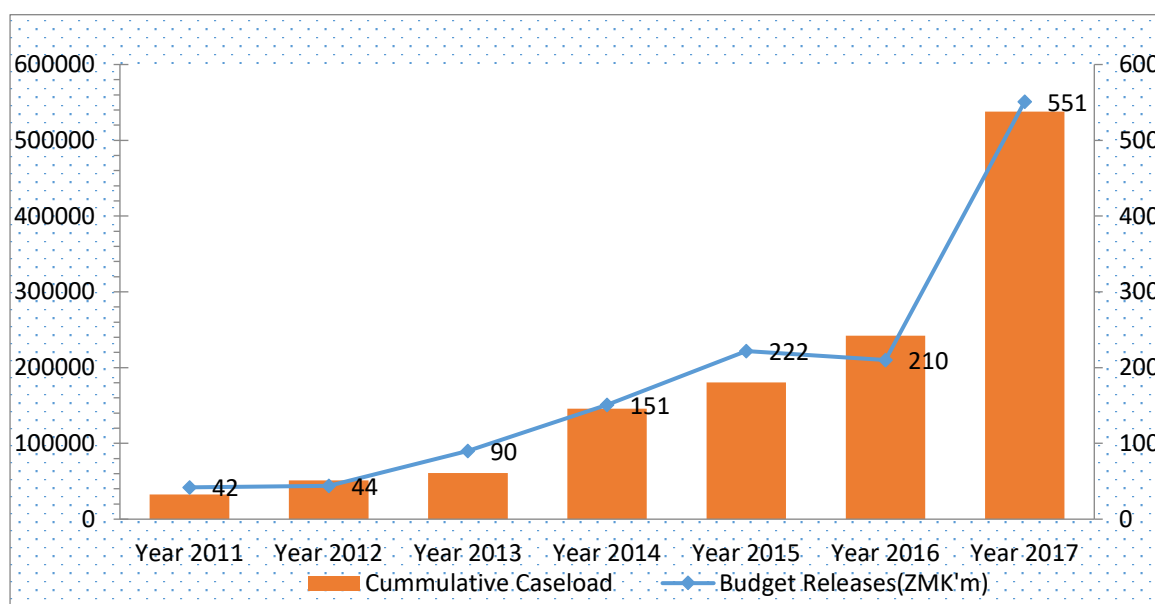
This paper uses the MicroZAMOD tax benefit microsimulation model and explores the following two questions:

- (i) What would be the effects on poverty and inequality of alternative targeting approaches that the SCT could take as its expansion continues during the period of the Zambia 7NDP (2018–21), with a view to meeting the 7NDP overall goals of poverty and inequality reduction?
- (ii) What domestic financing needs would be associated with the expansion of the programme and what would be the effects on poverty and inequality of alternative approaches to financing the SCT?

2 Overview of and motivation for the SCT programme in Zambia

The SCT programme has been operating in Zambia since 2003 and is implemented by the Ministry of Community Development and Social Services. It aims at reducing extreme poverty and the inter-generational transfer of poverty, focusing on non-productive groups of the population. Following successive reforms to the selection and identification approach since 2017, as stated in Arruda and Dubois (2018), the programme targets vulnerable households which include: (i) persons with a disability; (ii) the elderly (65+); (iii) the chronically ill in palliative care; (iv) female-headed households with three or more children; and (v) child-headed households. The benefit level has been increasing and rose in 2017 to ZMW90 and ZMW180 per month, for households without persons with disabilities and households with person with disabilities, respectively.

Figure 1: Cumulative caseload vs budgetary releases



Source: Authors' own estimates based on administrative data (Ministry of Community Development and Social Services, unpublished).

American Institutes for Research (2016) evaluated the impact of the SCT programme for the multiple-category targeting grant in two districts of Zambia, Serenje and Luwingu, and found that for every Kwacha transferred, beneficiary households generated an additional 68 Ngwee through productive impacts. The evaluation revealed that the cash transfers did not create dependency but rather empowered households and strengthened their resilience to withstand shocks. Three years into implementation, it was found that the programme had had a strong impact on extreme poverty, which had reduced by 9 percentage points, and on the poverty gap, which had reduced by 12 percentage points amongst direct beneficiaries. The evaluation also revealed that the cash transfers had helped households to be more food secure throughout the year while also increasing the number of children who had all their material needs met. The study also found that children aged 11–14 and 15–17 who lived in a beneficiary household were more likely to be enrolled in school and less likely to drop out than their peers in control households.

In recent years the Government of Zambia has made a strong commitment to scaling up the SCT programme. In 2011, the programme started with a caseload of 32,643 beneficiary households, growing to the current caseload of 537,766 by the end of 2017, as shown in Figure 1. The programme is currently operating in all districts of the country. The SCT has become the flagship non-contributory social protection programme in Zambia. Since 2011, budgetary releases have been steadily rising, from ZMW42 million to ZMW551 million in 2017 (see Figure 1). Domestic financing of the SCT has also significantly increased during the past five years. More than 80 per cent of the total SCT budget was financed with resources from the general budget in 2017, with the remainder being financed by cooperating partners.

Despite recent progress, the government allocation to social assistance remains low in Zambia. The World Bank (2018) calculates that in 2016 the allocation to non-contributory social protection (excluding fee waivers and subsidies)¹ stood at 0.25 per cent of gross domestic product (GDP) (see World Bank 2018: Figure 2.3). Taking into account the rapid scale-up of the SCT that took

¹ The Farmer Input Support Programme, which is financed with an allocation in excess of 1 per cent of GDP per year, is not included in the calculation of the social protection programme allocation.

place between 2016 and 2017, the allocation to non-contributory social protection rose to 0.4 per cent of GDP in 2017 but is still far from the regional average of 1.5 per cent. The 7NDP envisages increasing the proportion of GDP allocated to basic social protection programmes to 1.7 per cent by 2021.

The 7NDP sets out ambitious targets for the expansion of non-contributory social protection schemes, and hence there is an expectation that SCT coverage will continue to grow in 2018 and beyond. The implementation plan for the 7NDP also includes indicators such as increasing coverage of social assistance from 40 per cent to 70 per cent of the poor; increasing the average value of per capita social assistance benefits as a percentage of the poverty line from 6.5 per cent to 20 per cent; and increasing the proportion of beneficiaries receiving both social assistance and livelihood and support programmes from 27 per cent to 41 per cent.² The government announced the intention to further scale up the project to reach 700,000 households in 2018, and reforms regarding the expansion and streamlining of the programme are anticipated over the 7NDP 2017–21 period.

The SCT has undergone a number of targeting reforms during the past four years. It is expected that the targeting approach will be further refined as the programme's coverage expands during the period of implementation of the 7NDP, with a view to addressing the current limitations and coverage gaps highlighted above. However, no comprehensive analysis has been undertaken to assess the relative impact of alternative programme design options (e.g. in relation to targeting, coverage, and transfer value) on the overall poverty and inequality reduction goals that are stated in the 7NDP.

As the SCT matures into a nationally scaled-up and fully nationally financed programme, there has also been very limited consideration of financing trade-offs and virtually no consideration of the distributional implications that certain financing choices may have.

In this paper we test the realism of poverty reduction expectations reflected in the 7NDP and explore possible design reform and financing options using MicroZAMOD. This will allow policy makers to assess the combined effects on poverty and inequality of combined tax and benefit strategy, as well as the risk that certain financing options may partly offset the social gains associated with social protection expansion.

3 Data and methodology

As part of the SOUTHMOD initiative, MicroZAMOD, the tax benefit microsimulation model for Zambia, has been developed with support from UNU-WIDER in cooperation with the Zambia Institute for Policy Analysis and Research (ZIPAR) and Southern African Social Policy Research Insights (SASPRI) (Nakamba-Kabaso et al. 2017). The newest available version of MicroZAMOD has been updated by ZIPAR to run on the LCMS 2015, allowing for representative results at the national and sub-national levels and for analysis of the tax benefits of alternative policy reform scenarios.

² From a broader policy angle, the 7NDP also provides a strong commitment to enhancing complementarities between different social security programmes, by promoting the 'cash-plus' agenda. The combined provision of income support and productivity enhancement interventions to poor and vulnerable households is expected to achieve more lasting and sustainable effects on poverty and inequality reduction.

MicroZAMOD provides an opportunity to model reform scenarios so as to adjust the design of the SCT to meet the ambitions of the 7NDP poverty and inequality reduction goals. We assume that it would be desirable for a flagship programme such as the SCT to contribute approximately half of the 7NDP's 20 per cent expected poverty reduction target, which translates into approximately 4 percentage points. We use MicroZAMOD to test which alternative reforms to the SCT design would give the expected poverty reduction impacts.

The model also provides an opportunity to test alternative financing scenarios for the SCT by analysing the trade-off between poverty and inequality reduction goals and the budget envelope required to finance the programme expansion in the context of the 7NDP. Finally, MicroZAMOD enables an assessment of the impact of the tax policy reform options that would be necessary to finance an SCT expansion, and their complementary role in reducing poverty and inequality.

Tax and social protection benefit policy-making processes have been largely disjointed in Zambia. The participation of both the Ministry of Finance (responsible for overall economic, budget, and tax policy) and the Ministry of Community Development and Social Services (responsible for social protection policy) in the research team provided a good opportunity to bridge this gap, with a view to building a stronger understanding of linkages across the two policy areas.

We simulate the impact of the current SCT to assess the effect on poverty levels to provide the basis for comparison of the policy options and their impact on poverty. To this effect, we further explore a range of policy options which include, but are not limited to, changing the targeting approach by extending the coverage by: (i) including children aged 0–2 years (to cover the most critical 1,000 days for child development); (ii) revising the eligibility criteria from the household level to the individual level by introducing the old-age grant and disability grant; (iii) removing the means test and residency test and introducing universal coverage in both rural and urban areas; (iv) changing the transfer levels to improve adequacy; and (v) accounting for household size in determination of transfer levels (1–2 members—ZMW90; 3–5 members—ZMW150; 6+ members—ZMW225); and (vi) increase transfer levels (double the amount—ZMW180).

A recent review of coherence and gaps in Zambia's social assistance system revealed that the coverage of vulnerable groups is insufficient, particularly for vulnerable women during pregnancy, infants, and school-going children (Government of the Republic of Zambia, 2017). This is particularly worrying as it limits the capacity of Zambia's social protection system to contribute to human capital development from the early stages of life. Additional concerns have been raised with regard to the low transfer level and the fact that it does not reflect households' needs as represented by household composition. For certain categories of beneficiaries, civil society groups have been advocating for a gradual transition from a household-targeting to an individual-targeting model. Further discussions have also taken place with regard to the opportunity to revisit the approach to identifying persons with severe disabilities in a bid to make the programme more disability inclusive.

The first policy reform, which included children aged 0–2 years, will enhance the coverage of children aged 0–2 years who are not covered in the current programme. The programme currently targets households that have female heads with three or more children, which means that a subset of children, including some who are aged 0–2 years, are captured by the programme. However, this means that those children aged 0–2 years who are not in a female-headed household and who do not meet the other eligibility criteria are being left out. Thus, the policy reform scenario proposes universal coverage of households with children aged 0–2 years meeting the Proxy Means Test (PMT) or the welfare estimation cut-off point.

The second policy reform proposes universal coverage of the elderly and persons with disabilities, as individuals. The current targeting model includes the elderly and persons with disabilities who are in households that meet the other selection criteria. In addition, the model only includes those households that have persons with disabilities who are certified as having a severe disability, meaning that those with a moderate disability are left out. With this proposed reform, however, it is expected that both the elderly and persons with disabilities will be included on a universal basis. This will increase coverage and reduce design exclusion errors.

The third proposed policy reform involves removing the means test and residency test and introducing universal coverage in both rural and urban areas. The programme is currently designed to select households which meet the residency test and the welfare estimation test. This has the potential of leaving out certain households that do not meet this criterion. The proposed reform will reduce the administrative cost and enhance the coverage of the SCT programme by covering more households who otherwise may not have been eligible as a result of the residency and the welfare estimation tests.

The last proposed policy reform involves accounting for household size in determining transfer levels. The current level of transfer is a flat rate which is determined by a household having a member with a disability or none irrespective of the composition of the household size. The proposed reform will allow the household size to be considered when determining the transfers, meaning that households with a higher number of household members will receive a relatively higher level of transfers.

We further explore the distributional effects of financing additional SCT expenditure through the different income revenue streams captured in MicroZAMOD, with a particular focus on determining the relative impact on poverty and inequality of financing the SCT scale-up via an increase in indirect taxes versus direct taxes. We simulate the effects of three alternative reform packages: (i) reform of the income tax regime; (ii) the introduction of a sin tax on alcohol and tobacco; and (iii) reform of the VAT regime.

4 Main results and discussions

Using data from the 2015 LCMS data set (Central Statistical Office 2016), the model simulates static effects of the alternative programme design options on three different areas: poverty, inequality, and the total cost of the programme. Different programme reform options can be modelled with regard to the targeting approach and coverage, as well as the value of the benefits provided under each of the programmes.

In this paper, we utilize the microsimulation model to estimate the effects of the SCT programme in Zambia on poverty and inequality, and discuss selected simulation scenarios reflecting possible alternative policy options for SCT scale-up.

4.1 Analysing the status quo

Using the MicroZAMOD model, we first estimate the impact on poverty and inequality of the current SCT model, which assumes full scale-up of the 2017 eligibility rules and transfer amounts. We refer to this as the ‘status quo’ scenario.

Table 1: Impact of the current SCT model on poverty in overall population using MicroZAMOD and 2015 LCMS

	No SCT	SCT	Difference
Share of poor population, in %			
Poverty headcount (all)	41.87	40.32	-1.55
Poor households out of:			
male-headed households	41.36	40.37	-0.99
female-headed households	43.97	40.14	-3.83
households with children	43.15	41.73	-1.43
households with older persons	50.08	44.77	-5.31
Poverty gap	18.15	16.51	-1.63
Gini (household income)	0.55	0.54	-0.01

Source: Authors' own estimates based on 2015 LCMS (Central Statistical Office 2016).

As can be seen from Table 1, MicroZAMOD shows that the SCT in its current model has contributed to a relatively small though not negligible reduction in the national extreme poverty rate (1.55 percentage points).³ The effect of the scale-up of the SCT is more concentrated in households with older persons (a 5.31 percentage point reduction in extreme poverty headcount) and female-headed households (a 3.83 percentage point reduction in extreme poverty headcount). For households with children, extreme poverty is estimated to have reduced by 1.43 percentage points. The SCT is also shown to have reduced the extreme poverty gap by 1.63 percentage points but has had a small effect on the national inequality as calculated by the Gini coefficient.

The results seem to suggest that households with older persons are more vulnerable compared to other types of households. These households are usually labour-constrained, and a cash transfer intervention plays a pivotal role in improving their wellbeing. With regard to the overall impact of the 1.56 percentage point reduction in poverty, it is evident that more needs to be done in order to optimize the potential impacts from such a flagship national programme as the SCT.⁴

³ The baseline extreme poverty rate for 2017 derived from MicroZAMOD is 41.87 per cent.

⁴ Previous analysis using a randomized control trial for three districts showed that the programme reduced poverty by 10 percentage point (e.g. Handa et al. 2016; Handa et al. 2018). The sample in the study by Handa et al. (2016) was drawn from households selected using category targeting, particularly the child grant, and reports the impact on beneficiary households only, whereas the simulation reports the impact on the total population (in the respective demographic groups).

Table 2: Projected versus real SCT coverage by region

	Projected SCT coverage (status quo)	Real SCT coverage (2017)	% difference between projected and real coverage	Estimated rate of relative over/under coverage
	Number of households			
Central	69,441	46,525	-33	-17%
Copperbelt	82,238	45,108	-45	-29%
Eastern	99,294	69,062	-30	-14%
Luapula	65,695	84,828	29	45%
Lusaka	49,616	23,530	-53	-36%
Muchinga	41,177	38,320	-6.9	9%
Northern	60,202	70,353	17	33%
North Western	41,740	33,585	-19.5	-3%
Southern	69,559	62,394	-10	6%
Western	62,525	64,061	2.5	19%
Total	641,487	537,766	-16	0%

Source: Authors' own estimates based on 2015 LCMS (Central Statistical Office 2016) and on administrative data (Ministry of Community Development and Social Services, unpublished).

MicroZAMOD simulates a total of 641,000 households for the SCT programme, compared to the actual coverage of 537,766 registered by the programme at the end of 2017. Differences between the projected and real coverage are not unsurprising with this type of simulation and can be related to a number of factors: (i) the difference in timing between the simulation year (2015) and the time when the SCT effectively reached full national coverage (end of 2017), which is when simulated and real figures can be compared;⁵ (ii) the fact that it is not possible to simulate exactly all the SCT eligibility rules in the LCMS data (e.g. disability characteristics are recorded differently in the LCMS survey to how they are administratively assessed in the SCT), meaning that the simulated coverage is not a perfect reflection of the theoretical coverage; and (iii) the fact that the simulation assumes perfect targeting, meaning that all theoretically eligible households should receive the grant, while in practice challenges and deviations in the implementation of the targeting process lead to inclusion and exclusion errors.

With the caveats mentioned above in mind, Table 2 reveals a wide variation in coverage across different provinces in Zambia. Luapula, Northern, and, to a lesser extent, Western provinces display coverage rates greatly in excess of what was predicted by the model (+45 per cent, +33 per cent, and +19 per cent, respectively). Conversely, the coverage rate appears to be lower than predicted in the Lusaka (-36 per cent), Copperbelt (-29 per cent), and Central (-17 per cent) provinces.

The differences observed may be partially due to the fact that, despite being scaled up nationally in 2017, the programme did not implement the eligibility criteria based on the 2017 targeting model in all districts, as some districts were still operating under previous targeting models and had not

⁵ It is also worth noting that in 2017, despite the programme being scaled up nationally it did not implement the eligibility criteria based on the 2017 targeting model in all districts, as some districts were still operating under previous targeting modalities and had not undergone a retargeting exercise. Instead, the MicroZAMOD simulates the application of the 2017 targeting model rules countrywide.

undergone a retargeting exercise. Moreover, not all the target groups had been enrolled in urban areas. Instead, the MicroZAMOD simulates the application of the 2017 targeting model rules countrywide.

Nevertheless, the analysis still reveals large differences in targeting performance across geographical areas, suggesting that the targeting criteria and selection process may not have been implemented uniformly across districts. The simulated cost of the SCT is ZMW977 million, excluding administrative costs. This is more than the 2018 budget estimated at ZMW721 million, which instead includes administrative costs.

4.2 How to maximize the SCT impact on poverty reduction?

We begin by simulating the first policy option, which is the introduction of a child grant for children aged 0–2 years. The current SCT programme includes households with three children or more. However, it does not categorically target households with children below the age of two years and that do not meet other criteria. This introduces a design exclusion error into the programme and would need to be addressed for the programme to be more child sensitive. We extend the coverage by including children aged 0–2 years in order to cover the 1,000 most critical days for child development. The simulation shows that this would lead to poverty levels decreasing by 2.64 percentage points, approximately 1 percentage point more than the status quo.

The second policy option simulated is changing the eligibility criteria from the household to the individual level by introducing universal old-age and disability grants. These two categories usually suffer extreme poverty and vulnerability. In addition, there has been concern about the effectiveness of the transfers when targeting households as opposed to individual household members. In that regard, the study simulates delivering the grant to individuals aged over 65 years and those who are disabled, while still maintaining the current means test. We find that with this policy option, poverty levels would reduce by 2.11 percentage points, half a percentage point more than in the status quo scenario.

The third and fourth policy options simulated as an alternative targeting approach are the removal of the means test and residency test, thereby introducing universal coverage in rural and in both rural and urban areas. The residency test was initially introduced as a criterion at the time when the SCT programme did not have national coverage and was meant to limit internal migration from areas where the programme had not been implemented to areas where it had been implemented. In this regard, the residency test has ceased to serve its initial purpose. On the other hand, the PMT was introduced to sift the number of potential beneficiaries by conducting a welfare assessment and setting a cut-off point. However, a recent study by Oxford Policy Management (2018) finds that only a very small share of eligible households are screened out by the PMT in rural areas, as the PMT is designed as an affluence test to exclude wealthy families. There are concerns that the PMT is ineffective and suggestions that a universal category approach may be more appropriate to the programme.⁶

The simulation shows that making the programme universal in rural areas would only marginally increase the impact on poverty (from 1.56 to 1.66 percentage points). This is because the means test is designed to exclude from the SCT better-off households (in the top quintile), of which there

⁶ These findings are also consistent with the findings of the World Bank (2018) on the Girls' Education, Women Empowerment, and Livelihoods project under the Supporting Women Livelihood project, which reveals that the PMT constituted 80 per cent of the cost of the targeting process yet only accounted for the removal of 13 per cent of the ineligible potential beneficiaries in the process.

are few in rural areas, and hence the shift to universal coverage brings only marginal coverage gains but possibly significant cost reductions. The impact on poverty would be larger by making the programme universal for both rural and urban areas, with a reduction of 2.17 percentage points. This is because in urban areas the means test is a reason for the exclusion of a larger number of households, and hence removing it would contribute to a greater expansion of coverage. However, all the options considered still fall short of the change needed to meet the aspirations of the 7NDP.

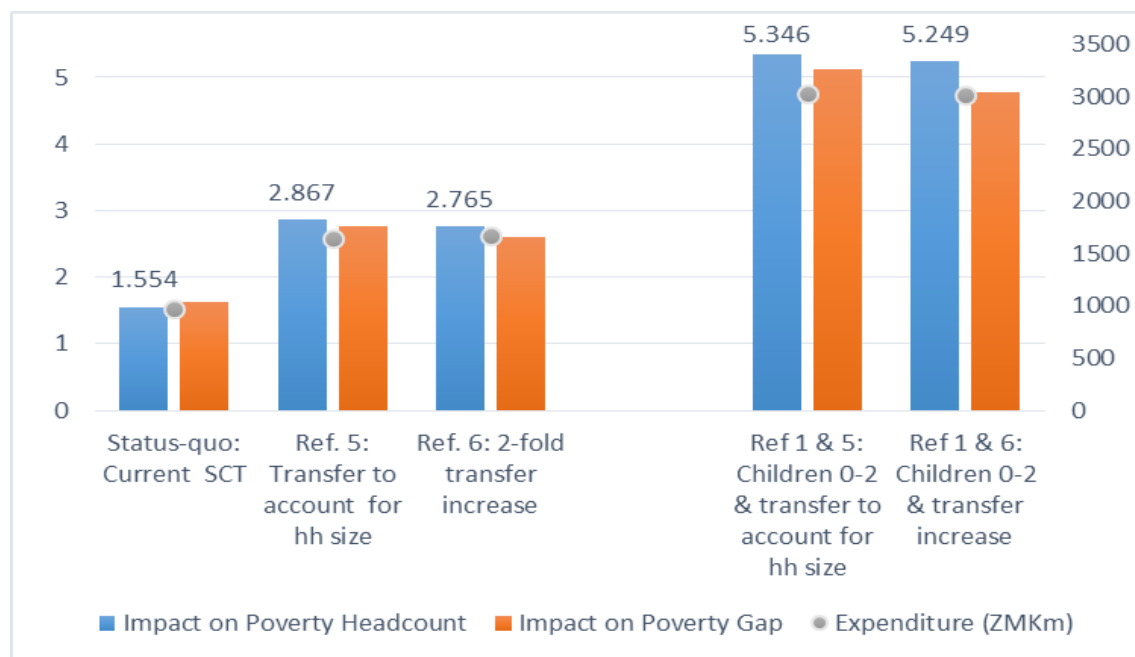
The fifth and sixth policy options simulated involve changing the transfer levels to improve adequacy by accounting for household size in determining transfer levels (1–2 members—ZMW90; 3–5 members—ZMW150; 6+ members—ZMW225) as well as increasing the transfer levels by doubling the base amounts from ZMW90 to ZMW180. Increasing the per capita transfer level is important and has been found to have a strong correlation with cash transfer impacts in the region. It is particularly important for the SCT as this is one of the few programmes where the transfer value is a flat rate per household and there is no consideration of household size in the determination of the transfer amount. This, therefore, creates inequities between smaller and larger households.

The results in Figure 2 show that increasing the transfer levels has a higher impact on poverty, as we observe poverty reduction of 2.76 percentage points when accounting for household size and 2.69 percentage points when doubling the transfer level. Yet, none of the six policy options considered so far yields the desired result of reducing poverty by 4 percentage points, which is considered to be an appropriate SCT contribution to realizing the poverty reduction target for the 7NDP.

In seeking to meet the 7NDP target, the study considers simulating the combination of options which could maximize impacts on poverty. In this regard, two sets of policy combinations are considered. The first set includes the combination of the inclusion of children aged 0–2 years option with the alternative transfer levels by accounting for household sizes. The second set considers the inclusion of children aged 0–2 years and doubling the transfer levels. The simulations result in reducing poverty substantially, by 5.08 and 5.05 percentage points respectively, more than a three-fold increase.

The combination of coverage expansion and increase in transfer levels provides a more solid basis for SCT to significantly contribute to the poverty reduction target of the 7NDP.

Figure 2: Impact on extreme poverty—alternative transfer levels

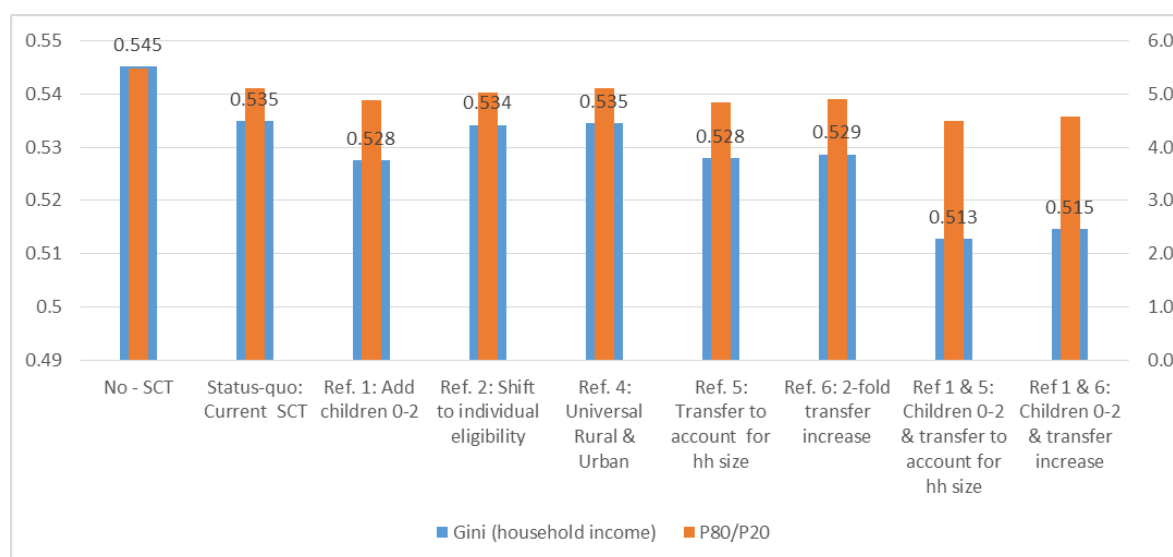


Source: Authors' own estimates based on 2015 LCMS (Central Statistical Office 2016).

4.3 Social cash transfer and inequality

Figure 3 shows the impact of different policy options on inequality as measured by the Gini coefficient as well as the P80/P20. Both measures reveal that the reduction in inequality remains minimal. The current SCT reduces inequality from 0.545 to 0.535 using the Gini coefficient measure. Our results show that if we include children aged 0–2 years, inequality reduces to 0.528, while, when shifting from the household to the individual level, inequality reduces to 0.534. When we simulate for the universal programme, both rural and urban, inequality reduces to 0.535. The policy option of adjusting the transfer levels by accounting for household size or doubling the transfer reduces inequality to 0.528 and 0.529, respectively. Large effects on inequality are found with the policy option which combines the inclusion of children aged 0–2 years and the change of transfer levels accounting for household size or doubling the transfer level, respectively contributing to a drop in the Gini coefficient to 0.513 and 0.515.

Figure 3: Impact on inequality



Source: Authors own estimates based on 2015 LCMS (Central Statistical Office 2016).

The policy options that have a higher impact on reducing poverty also have a higher impact on reducing inequality. The results show that the reduction in inequality is low, and this low impact on inequality could suggest that inequality is deep rooted in the country as reported by the 2015 LCMS, which estimates inequality to stand at about 0.69.

4.3 Financing the SCT scale-up

The combination of the two policy options, i.e. the inclusion of children aged 0–2 years and the adjustment of the alternative transfer levels, gives hope to realizing the target of the 7NDP. However, this comes at an additional cost and raises questions of how to finance the additional costs, as shown in Table 3.

The simulated cost of the status quo SCT programme is ZMW977 million. The combined set of policy options which yield the higher impact on poverty reduction result in an estimated cost of ZMW3,021 million with a budget variance of ZMW2,043, translating to a 209 per cent increase in the simulated expenditure.

Various financing options are explored to bridge this gap. Increasing the necessary resources to implement the proposed SCT reforms could be achieved through alternative and complementary strategies, ranging from increasing efficiency in social protection expenditure as well as taxation, to reprioritizing expenditure, and to increasing the resource base through tax reforms, external debt, and donor financing (Ortiz et al. 2015).

Efficiency gains in the implementation of social protection programmes can be achieved by reducing fragmentation across social assistance interventions and streamlining existing operational procedures (e.g. selection and payment) to achieve economies of scale across programmes. In addition to the SCT, there are currently a large number of tax-funded social assistance, livelihood support, and empowerment programmes which operate at small scale. Systems and institutional consolidation can lead to efficiency gains, in turn freeing resources to expand coverage and increase transfer levels. Designing SCT reforms could also contribute to reducing the administrative costs associated with the current implementation model. For instance, the adoption of simpler targeting approaches based on categorical eligibility could contribute to reducing the high administrative costs currently associated with the PMT-based poverty targeting mechanism.

A second strategy would involve re-prioritizing expenditure across sectors or within the social protection sector. The targeted increased expenditure of ZMW2 billion represents approximately 2.8 per cent of government expenditure in 2018, and it is reasonable to believe that resources could be re-allocated to the SCT through rationalization and reprioritization from non-productive and/or non-pro-poor expenditure in other sectors. Reprioritization is also possible across government expenditure areas within the social protection sector. The largest share of the government's annual allocation to the social protection sector is dedicated to covering the financing deficit of the pension system for civil servants through transfers to the Public Service Pension Fund. A broad reform of the social security system in Zambia, currently under debate, should ensure the long-term financial sustainability of contributory schemes, reducing the drain on resources from the general budget financing and freeing fiscal space for increased expenditure on non-contributory programmes such as the SCT.

A third strategy involves increasing the revenue base through enhanced efficiency in tax compliance, tax reform, or external financing. The prospect of generating additional resources for the SCT through external borrowing appears to be limited in the current macroeconomic context, due to general concerns of debt sustainability, and donor funding to the project has progressively reduced relative to the total SCT financing needs. There are clearly broad margins for enhancing the efficiency of the tax system in Zambia, by facilitating compliance and enhancing enforcement, broadening the tax base, including the informal economy, closing tax loopholes and reducing room for exemptions, fighting illicit flows, etc. However, this is not the focus of this paper. The simulation focuses on generating these resources domestically by considering various tax reforms.

In the remainder of this section we focus instead on possible approaches for increasing SCT financing by increasing tax revenue through tax reforms. The range of tax reform that it is possible to model within MicroZAMOD is limited by the fact that the 2015 LCMS data capture consumption and income information at the household level and do not capture firm-level data. Therefore, while MicroZAMOD provides a basis for simulating the effects of reforms of income- and consumption-based taxes, it is not possible to consider options associated with business/corporate tax regimes or wealth-based taxation.

We consider three main options for financing the SCT: (i) reform of the income tax regime; (ii) the introduction of a sin tax on alcohol and tobacco; and (iii) reform of the VAT regime. We are particularly interested in the distributional effects these alternative financing mechanisms would have through increased taxation and the extent to which they could offset the poverty reduction gains achieved by the proposed SCT reforms. Table 3 summarizes the key tax reform parameters considered, the simulated additional revenue, and the projected additional revenue of the options considered.

Table 3: Financing SCT via tax reform—three financing scenarios

Tax reform options	Simulated additional tax revenue (million ZMW)	Estimated per cent of revenue captured ⁸	Projected additional tax revenue (million ZMW)
Change in income tax bands and rates (low band @ 10% rate, 3% increase in all bands and higher band @ 40% rate)	1,405	68%	2,066
Sin tax (30% VAT rate on alcohol and tobacco; increase in excise duties on alcohol and tobacco)	318 (171 VAT; 147 excise duty)	18% (VAT) 5% (excise duty)	approx. 2,000
VAT reform (increase of general VAT rate from 16% to 19%)	343	18%	1,904

Source: Authors' own estimates based on 2015 LCMS (Central Statistical Office 2016) and under-estimation parameter reported in Nakamba-Kabaso et al. (2017).

Nakamba-Kabaso et al. (2017) calculate the percentage of revenue captured by the model for different types of taxes by benchmarking the simulated revenue with the actual revenue reported in administrative records.⁷ As it does not include firm-level information and a range of possible measurement and modelling limitations, MicroZAMOD only captures approximately 70 per cent of the personal income tax revenue, approximately 20 per cent of VAT revenue, and 5 per cent of excise duty revenues (see Table 3).

We assume that the actual revenue generated by the different tax reform options considered would be higher in effect than the revenue simulated in the model, by adjusting the simulated revenue for the under-estimation rates calculated by Nakamba-Kabaso et al. (2017).⁸ As a result, although the simulated revenue differs across scenarios, for all scenarios the projected revenue would broadly cover the estimated SCT financing gap of ZMW2 billion.

The first scenario considers a possible reform of the income tax regime by introducing: a change in the higher marginal income tax rate from 37.5 per cent to 40 per cent for income above ZMW120,000 per annum; a 3 per cent increase in the rates for all other income brackets; and the introduction of a 10 per cent income tax rate for those in the low-income bracket (between ZMW24,000 and ZMW40,000 per annum), which is currently not taxed. The second scenario envisages the introduction of a 'sin' VAT rate of 30 per cent on alcohol and tobacco, as well as an increase in the excise duties on alcohol and tobacco. The third scenario considers an increase in the general VAT rate from 16 per cent to 19 per cent.

The whole package of tax reforms would generate sufficient revenues to finance the proposed SCT reforms. We are interested in considering their different effects on poverty and inequality. The results are reported in Table 4.

⁷ See Table A7 on Tax and Benefit Instruments Simulated in MicroZAMOD—Annual Amounts (ZMW), 2015 in Nakamba-Kabaso et al. (2017).

⁸ This is a strong assumption. It is not necessarily a given that the factors that explain revenue under-estimation in MicroZAMOD as a whole can be applied linearly to the specific tax reforms considered. For example, the level of model under-estimation for revenue generated from VAT on tobacco and alcohol may be different to the level of model under-estimation for the general VAT rate. Because of a lack of disaggregated administrative data on tax revenue it is impossible, however, to further refine this assumption.

Table 4: Combined impact on poverty and inequality of tax and benefit reforms

	Status quo	SCT reform	SCT reform + Income tax reform	SCT reform + VAT reform	SCT reform + sin tax reform
Extreme poverty headcount (%)	40.3	36.5	36.8	36.7	36.7
Extreme poverty gap (%)	16.51	13.02	13.18	13.10	13.11
Moderate poverty headcount (%)	53.88	51.22	51.84	51.50	51.55
Moderate poverty gap (%)	25.47	22.07	22.31	22.17	22.18
Gini (household income)	0.535	0.513	0.51	0.512	0.513
P80/P20	5.11	4.49	4.37	4.48	4.45

Source: Authors' own estimates based on 2015 LCMS (Central Statistical Office 2016).

All the tax reforms considered contribute to a small increase in the poverty headcount and poverty gap, which, however, is almost negligible and significantly smaller than the poverty reduction effect associated with the proposed SCT reform. The budget-neutral combination of tax and benefit reforms would contribute to an approximate 3.5 per cent net reduction in the poverty headcount compared to the status quo.

All the tax reform options considered are progressive in the sense that they contribute to a small reduction in inequality (though the overall effect on the Gini is still small and more strongly driven by SCT reforms than by tax reforms). Of the different financing options considered, the income tax reform has a stronger effect on inequality, contributing to a reduction in the gap in real consumption between the 80th and 20th percentile by 0.12, which is approximately the same effect size associated with the proposed SCT reforms.

There are a number of key limitations in the modelling approach that need to be taken into consideration when analysing the results. First, the simulations are based on a static model that does not account for any behavioural response to changes in policy. Labour supply and demand for goods and services is completely inelastic to changes in prices in the model. This is a highly simplified assumption and it is reasonable to expect that, for instance, increasing the rate of personal income tax from the current levels could be a disincentive to the supply of labour, hence partially offsetting the increase in revenue from personal income tax, or that a large increase in VAT for certain goods would depress consumption, hence partially offsetting the increase in VAT revenue.

Second, the model assumes perfect compliance with tax policy changes. This may not be the case in Zambia, particularly because a large share of workers and firms operate in the informal economy, posing significant challenges to the enforcement of tax obligations. Tax policy proposals such as those in this study may not raise the revenues projected by the model but may lead to behavioural responses such as tax avoidance and/or tax evasion, particularly in the informal economy, as argued by authors such as McKay et. al. (2018).

5 Conclusion

Our study has shown that the SCT programme makes a significant contribution to the reduction of extreme poverty. Without the programme, nationwide extreme poverty would be 1.6 percentage points higher. Targeting is crucial to social benefit programmes, and exploring alternative targeting approaches yielded higher impacts on poverty, by an average of 2.13 percentage points, particularly

when coverage was extended to families with children aged 0–2 years (a 2.8 per cent reduction in the poverty headcount). Similarly, increasing transfer levels yielded higher impacts on poverty as they only reduced poverty by an average of 2.8 percentage points.

However, all options fall below the desired target of a 4 percentage point reduction in extreme poverty, which would be in line with the aspirations of the 7NDP. The combination of increased coverage and higher transfer levels has a greater impact on poverty reduction. The combined inclusion of children and an increase in the transfer levels to account for household composition produced a 5.3 percentage point impact on extreme poverty reduction and a sizeable reduction in the poverty gap.

Such an increase in poverty impacts would come with an associated additional cost for the SCT, estimated to be approximately ZMW2 billion. Given the financing gap arising from the alternative targeting approaches, financing remains a challenge in scaling up the SCT programme to have the desired impact on poverty levels. Of the different financing options, achieving efficiency and allocation gains in social protection as well as general expenditure is an important avenue to continue pursuing. Using the MicroZAMOD capabilities, tax reforms such as an increase in the general VAT rate, the introduction of a ‘sin’ VAT rate on alcohol and tobacco, an increase in excise duties on alcohol and tobacco, and a revision of the income tax schedule are considered. All options are found to not have significant negative effects on the poorest, and to be neutral or only marginally progressive from a distributional standpoint.

The results of the study point to the need to include children aged 0–2 years in the SCT selection criteria as well as the need to significantly increase the transfer level to account for household and individual needs. In addition, there is a need to make the programme universal, based on the categories used in the selection process. The PMT or enumeration process could be done away with as it has had little impact on the programme. This would also significantly reduce the administrative costs, as the PMT tends to be expensive.

With such reforms in place, the SCT could make a more meaningful and significant contribution to poverty reduction in Zambia, and financing options are available. It is important, however, to note that the combination of the tax and benefit reforms considered would not make a significant contribution to reduction in inequality, which continues to be a concern for policy makers in Zambia. Policy options beyond the social benefits need to be employed. More significant gains in reducing inequality can be achieved by improving the progressivity of the tax system, for example by considering the role of corporate- or wealth-based tax, which has not been simulated here. Other policies, such as infrastructure in rural areas to improve accessibility or access to education and health are also critical for structural inequality reduction.

References

- American Institutes for Research (2016). *The Child Grant Programme—A Comprehensive Summary of Impacts (2010–2014)*. Washington, DC: American Institutes for Research.
- Arruda, P., and L. Dubois (2018). ‘A Brief History of Zambia’s Social Cash Transfer Programme’. Policy Research Brief 62. Brasília, DF: International Policy Centre for Inclusive Growth. Available at: <https://www.ipcundp.org/pub/eng/PRB62> (accessed 24 October 2018).
- Central Statistical Office (2016). *2015 Living Conditions and Monitoring Survey (LCMS) Reports*. Lusaka: Central Statistical Office.
- Government of the Republic of Zambia (2017). *Integrated Framework of Basic Social Protection Programmes*. Lusaka: Government of the Republic of Zambia.
- Handa, D.B., S. Hypher, N. Rossi, N.W. Winters, and J. Yablonski (2016). *From Evidence to Action: The Story of Cash Transfers and Impact Evaluation in Sub-Saharan Africa*. Oxford: Oxford University Press.
- Handa, S., L. Natali, D. Seidenfeld, G. Tembo, and B. Davis (2018). Can Unconditional Cash Transfers Raise Long-term Living Standards? Evidence from Zambia. *Journal of Development Economics*, 133: 42–65.
- Nakamba-Kabaso, P., S. Nalishebo, D. McLennan, M. Kangasniemi, M. Noble, and G. Wright (2017). SOUTHMOD Country Report: Zambia MicroZAMOD v1.0, 2010, 2015. Helsinki: UNU-WIDER. Available at: <https://www.wider.unu.edu/sites/default/files/Publications/Report/PDF/SOUTHMOD-Zambia-21062017.pdf> (accessed 24 October 2018).
- McKay, A., J. Pirttilä, and C. Schimanski (2018). ‘The Elasticity of Formal Work in African Countries’. Tampere Economic Working Papers, Working Paper 120. Helsinki: University of Tampere.
- Ortiz, I., M Cummins, and K. Karunanethy (2015). ‘Fiscal Space for Social Protection: Options to Expand Social Investments in 187 Countries’. ESS Working Paper 48. Geneva: International Labour Organization.
- Oxford Policy Management (2018). *Reflections on SCT 2017 Scale-up and Way Forward. Review of PMT: Inclusion and Exclusion Errors*. Oxford: Oxford Policy Management.
- World Bank (2018). *The State of Social Safety Nets 2018*. Washington DC: World Bank.