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Exploring options for a universal old age pension in Tanzania Mainland

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Abstract: The provision of a universal old age pension is increasingly recognized as an important instrument for strengthening and extending social protection. A growing number of emerging economies, including East African countries, are introducing universal old age pensions to guarantee at least a basic level of social security. However, such a benefit has not been established in Tanzania Mainland, and a lack of adequate financing is viewed as one of the main constraints. This paper employs a data set from Tanzania—the Household Budget Surveys—and applies a tax-benefit microsimulation model for Tanzania (TAZMOD) to explore possible options for designing and financing a universal old age pension in Tanzania Mainland. The findings of this paper present evidence on reform scenarios and financing options that could be adopted by Tanzania Mainland to establish and sustain a universal old age pension.

Key words: microsimulation, old age, public pensions, social security, Tanzania

JEL classification: H55, I38, J14

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1 Introduction

Social protection comprises a set of policies and programmes designed to reduce and prevent poverty and vulnerability throughout the life cycle. Minimum benefit types provided under social protection include children and families, maternity, unemployment, employment injury, sickness, old age, disability, survivors, and health protection (ILO Convention No. 102 of 1952). Based on these benefit types, each country can set nationally defined basic social security guarantees to ensure, as a minimum, that over the life cycle all in need have access to essential healthcare and basic income security.¹ Worldwide, social protection systems address these policy areas through a mix of contributory schemes (social insurance) and non-contributory tax-financed benefits including, in some countries, a universal old age pension (ILO 2017).

Social protection policies are vital elements of national development strategies: they reduce poverty, inequality, and vulnerability across the life cycle and support inclusive and sustainable growth by raising household incomes. They foster productivity and human development, boost domestic demand, facilitate structural transformation of the economy, and promote decent work. It is within this context that countries around the world have come a long way in strengthening and extending social protection to guarantee at least a basic level of social security to all, now encapsulated by the Agenda 2030 goals.

Despite the extension of social protection in many parts of the world, the human right to social security is not yet a reality for the majority of the world's population. According to International Labour Organization (ILO) estimates, only 45 per cent of the global population is covered by at least one social protection benefit, while the remaining 55 per cent—as many as 4 billion people—is left unprotected (ILO 2017). Of all regions of the world, the proportion of people who are covered by at least one social protection benefit is lowest in Africa where, despite significant progress in the extension of social protection coverage, only 17.8 per cent of the population receives at least one social protection cash benefit, with significant variation across countries.

The old age pension is the most widespread form of social protection in the world, where about 68 per cent of people above retirement age worldwide receive an old age pension (ILO 2018). This is associated with the expansion of both non-contributory and contributory pensions in many middle- and low-income countries, but there are notable regional differences: Europe and Asia have about 95.2 per cent and Americas have about 86.2 per cent of its older people covered by old age pensions, which is far higher than the global average. In contrast, only 29.6 per cent of Africa's older population receives a pension (ILO 2017).

The low social security coverage in Africa is perplexing given that many countries in the continent have encountered impressive macroeconomic performance with sustained high economic growth as the result of economic reforms pursued from the mid-1980s (1987–91) to address the economic crisis of the early 1980s (1980–86). For most of the last two decades, the region has been attaining growth rates between 4 and 5 per cent annually from negative and very low growth in the 1980s, with some economies growing 6 to 7 per cent (World Bank 2017). More remarkably, 6 of the

¹ Social Protection Floors Recommendation No. 202, adopted in 2012.

world's 10 fastest growing economies during 2001–10 were in Sub-Saharan Africa (SSA) (The Economist 2011; IMF 2011).²

Despite this impressive macroeconomic performance, one main concern has remained unabated that high economic growth has not translated into poverty reduction. Thus, the benefits of growth have been slow to reach the broader population in the region. Recent evidence shows that about one-third of the world's poor live in SSA, and inequality poses a more significant challenge in SSA than in other parts of the developing world (UNDP 2018).

In addition to high levels of poverty and inequality amidst high economic growth, informality remains a pervasive challenge for most African countries. On average, 7 in 10 non-farm workers in African countries work in the informal economy. Many workers in the informal economy are in a highly precarious economic situation, and without any social protection they are vulnerable and sensitive to any small socio-economic shock (Stuart et al. 2018).

Underinvestment and lack of financing are other crucial reasons for low social protection coverage in SSA countries (Jouste and Rattenhuber 2019). An inability to access social protection leaves people vulnerable to poverty, inequality, and social exclusion across the life cycle, thereby constituting a major obstacle to economic transformation and social development. Furthermore, benefit levels are often low and not sufficient to lift older persons out of poverty, and the adequacy of pension benefits remains a challenge in many African countries (ILO 2017).

It is within this context that most countries in the developing world and international organizations are emphasizing the importance of social protection, not only as a means of shielding the poorest and most vulnerable people from the worst impacts of a sudden shock to the economy but also as a means of making the growth process stronger and more inclusive. For example, social protection lies at the heart of Africa's development strategy. In the African Union's Agenda 2063 framework document, 'The Africa We Want', social protection is recognized as both an economic and a social necessity, capable of promoting inclusive, people-driven, and sustainable economic growth, eradicating poverty, reducing inequality, and generating resilience to future shocks. Furthermore, the Sustainable Development Goals (SDGs) adopted at the United Nations General Assembly in 2015 reflect the joint commitment of countries to 'implement nationally appropriate social protection systems for all, including floors for reducing and preventing poverty (SDG 1.3). Much evidence suggests that, when properly designed and implemented, social protection not only protects the vulnerable but is also an investment in future growth and prosperity (e.g., Conceição and Levine 2015).

In common with other countries in the region, the issue of social protection is critical for contemporary Tanzania Mainland. After more than three decades of reforms that have seen impressive macroeconomic performance and high rates of economic growth—at approximately 7 per cent since 2000—the high national economic growth rates have not translated into poverty reduction. Income inequality has also remained pervasive in the country. According to the Tanzania Household Budget Surveys (HBS), poverty, as measured in terms of consumption poverty rates, has fallen only marginally. Between 1991 and 2012, basic needs poverty fell from 38.6 per cent in 1991–92, to 35.6 per cent in 2000–01, to 33.4 per cent in 2007, and then further to 28.2 per cent in 2011–12 (NBS 2014) and 26.4 per cent in 2017–18 (NBS 2019). Inequality, as

² The fastest growing economy in Africa between 2001 and 2010 was Angola, followed by Nigeria, Ethiopia, Chad, Mozambique, Rwanda, and Equatorial Guinea.

measured by the Gini coefficient, declined slightly from 0.35 in 2007 to 0.34 in 2011–12 (URT 2014), rising to 0.38 in 2017–19 (NBS 2019).

In Tanzania Mainland, the high economic growth has a core feature of ‘growth without jobs’: labour is attracted to urban areas because of increasing economic activity (suggesting a vibrant informal sector) rather than because of growing employment demand from the formal sector. The 2000–01 Integrated Labour Force Survey shows that 61 per cent of households in urban areas had informal activities, while the 2014 ILFS shows that employment in the informal sector in urban areas was around 45 per cent. The result is greater stress on the informal sector—effective unemployment rises and/or average earnings fall to accommodate the growing labour supply of young people (the working poor) (Leyaro et al. 2010).

The majority of people who are working in the informal and agricultural sectors in Tanzania Mainland are not covered by any social protection (FSDT 2017). As of July 2018, Tanzania Mainland had 1.35 million contributors to the mandatory defined benefit pension schemes, up from 1.0 million in 2003.³ Contributors are mainly in the formal sector, while most of those in the informal and agriculture sectors that constitute the largest share of the labour force are not covered. The ILO reports that just 3.6 per cent of those aged 15–64 were ‘active contributors to a pension scheme’ in Tanzania in 2015 (ILO 2017: 113).

Consequently, in an effort to address high levels of poverty and inequality, and to ensure inclusive and sustainable growth, many countries have more recently embarked on efforts to expand their social security coverage, in particular the old age pension benefit. Establishment of universal old age pensions has been gaining strong momentum among developing economies (ILO 2017; Dietrich et al. 2017).

The ILO reports that in 2013 the public social protection expenditure for older persons in Tanzania amounted to 2 per cent of gross domestic product (GDP), without health (ILO 2018: 125). This proportion is the highest of all 24 low-income countries profiled by the ILO and is similar—as a percentage of GDP—to the high-income country of the Bahamas (1.9 per cent) and the middle-income country of Grenada (2.0 per cent) (ILO 2018: 18). Nevertheless, the process of establishing an old age pension in Tanzania has been slow (Ulriksen 2016). An extensive study was undertaken in 2010 (MoLEYD and HelpAge International 2010), but major constraining factors include an apparent lack of current information concerning the cost of this programme, concerns around a lack of fiscal space, and insufficient information about its socio-economic effects.

It is rational therefore for Tanzania Mainland to view universal old age pension as an effective tool for old people to access social protection, mitigate extreme poverty, and reduce the necessity to work until death (ILO 2008). In this context, a universal old age pension might assist Tanzania Mainland in reducing income inequality in a similar manner to the positive outcome identified among developed countries in the European Union (Figari et al. 2011) and Australia (Tanton et al. 2009), although this would depend on the value of the pension. Beyond poverty reduction among beneficiaries, it is anticipated that the establishment of a universal old age pension will have a significant impact on improving access to healthcare protection and nutritional food as well as

³ Based on the data provided by Social Security Regulatory Authority (SSRA) and the National Social Security Policy of 2003.

participation in household decision-making processes (Kabairu et al. 2019; MoLEYD and HelpAge International 2010; World Bank Group and International Labour Organization 2016).

Employing the 2017–18 HBS data set and applying the tax-benefit microsimulation model for Tanzania (TAZMOD) (Leyaro et al. 2019), this study sets out to explore possible options for a universal old age pension, as well as selected financing options for the case of Tanzania Mainland. Importantly, unless otherwise specified, the pension is simulated for all older people in Tanzania Mainland, and so the term ‘universal’ is applied to emphasize the non-means-tested and non-contributory features of the pension. Even though the end result of legal and effective coverage might be the same, this use of the term ‘universal’ can be contrasted with an emphasis on the ‘universal coverage’ of older people, which in some contexts is achieved through a mixture of non-contributory and contributory pensions (ILO 2018). Section 2 presents empirical evidence on universal old age pensions for countries with economies that are similar to Tanzania Mainland, including Zanzibar, which is part of the United Republic of Tanzania and already has a universal old age pension. Section 3 introduces the reforms, issues, and performance of social security in Tanzania Mainland with a focus on old age pension. Section 4 provides an account of the model that was used, its underpinning data, and the scenarios that were explored. Section 5 presents results for the reform scenarios, and the results from the financing options are presented in section 6. Section 7 concludes and considers some policy implications.

2 Universal old age pension: some empirical evidence

As has been highlighted in the introduction, the old age pension is the most widespread form of social protection. Dietrich et al. (2017) have illustrated that the universal old age pension is becoming more popular and a preferred option for extending social security coverage in many developing countries. The main mechanisms for extending coverage for older people are through contributory pensions in terms of mandatory and supplementary pension arrangements and non-contributory pensions in the form of a social welfare benefit that may or may not be means-tested (ILO 2018).

Universal old age pensions that protect elderly people against detrimental impacts that are linked to low income at retirement have been a common practice for most countries with developed economies for many decades (Willmore 2007). More recently, the provision of universal old age pension is gaining remarkable attention amongst developing countries, African countries being no exception, that are striving to shield their old people against poverty and vulnerability associated with low income. It is plausible that one of the main reasons for the growing pattern of developing countries that are implementing universal old age pension is the realization that many of them have fiscal space to introduce social protection floors that fit their respective socio-economic priorities. In their estimates based on a sample of 57 lower-income countries, Ortiz et al. (2017) suggested that the cost of universal pension for people aged 65 or older at 100 per cent of the national poverty line on average stands at 1.6 per cent of GDP.

A key feature of universal old age pensions is that they have clear eligibility criteria, with an applicant’s age being the main qualifying condition for beneficiaries. As such, universal old age pensions do not have the numerous drawbacks that are commonly associated with means-tested benefits such as ambiguous conditions for eligibility, high administration costs (Slater 2011), and lack of transparency (Drucza 2016).

In a recent review of pension schemes, the ILO (2018) has highlighted examples of countries or territories in different parts of the world that have introduced a universal old age pension. The rest

of this section provides details about some of the universal old age pensions in Africa and two developing economies outside of Africa. The first example is Zanzibar, which is part of the United Republic of Tanzania and so of greatest relevance.

In Zanzibar, very few people of working age belong to a contributory pension scheme. However, in April 2016, Zanzibar became the first territory in East Africa to implement a government-financed universal pension. Beneficiaries of this universal pension are Zanzibar resident citizens (or those who have been Zanzibar residents for more than 10 years continuously after age 18) aged 70 years or older (ILO 2018). The universal pension is paid at the level of TZS20,000 per month (US\$9.2) (ILO 2018), and in August 2019 there were 28,117 recipients (HelpAge 2019). The benefit amount was set at around 50 per cent of the national food poverty line, and the government of Zanzibar budgeted TZS6.5 billion in 2016–17, equal to 0.24 per cent of Zanzibar's GDP for starting the scheme (Galvani and Knox-Vydmanov 2017). The benefit level is admittedly modest and unlikely to eradicate prevailing poverty among older people on its own, but it is an important step towards providing support for older people within Zanzibar.

Namibia is one of the few African countries with a universal pension in its pure form with a long-standing universal pension that has been in force since 1992. The scheme actually started as a race-based non-contributory pension before independence but was transformed into a universal pension following independence in 1992 (ILO 2018). The pension is assigned to all residents aged 60 and older, payable in 2018 as a monthly allowance of NAD1,200, which was equivalent to US\$87 (UNICEF 2018). Levine et al. (2011) have demonstrated that the presence of a universal old age pension lowers the probability of experiencing poverty in Namibia, but the effect of the universal old age pension on inequality is not significant. The total coverage is estimated to be very high, and the cost of the universal old age pension in 2015 was 1.2 per cent of GDP (ILO 2018).

Botswana introduced a universal old age pension in October 1996, and currently this programme reaches almost all citizens older than 65 years of age. The cost of implementing the universal old age pension in Botswana is about 0.3 per cent of GDP (ILO 2018). The universal old age pension is implemented through a monthly cash transfer of US\$30, which is just over one-third of the food poverty line (ILO 2018).

In Kenya, a universal pension was introduced in 2018 (HelpAge 2018). The universal old age pension covers all Kenyans who are aged 70 years and older, and it is funded by the government of Kenya. Beneficiaries of this universal pension receive KES2,000 (just under US\$20) per month, making it the largest social pension in the East African region (HelpAge 2018).

In Lesotho, citizens aged 70 years or older are entitled to a monthly old age pension of LSL550, or US\$40, reaching about 83,000 persons in 2015 (ILO 2018). The old age pension amounted to 1.3 per cent of GDP in 2015 and is financed by general taxation (ILO 2018).

Additionally, Mauritius has had a universal pension in place for older people since 1950. It is paid at the rate of US\$140.5 per month to those aged 60 and older (ILO 2018). More recently, the universal old age pension has been implemented in certain parts of Uganda (Dietrich et al. 2017).

Further afield, Bolivia has a non-contributory old age pension for all Bolivians aged 60 or older. This social pension, called *Renta Dignidad*, was established in 1997 and has very high take-up rates, with the highest coverage in Latin America (Arza 2017; ILO 2018). In 2015, the universal pension cost 1.2 per cent of GDP and is financed from a 'direct tax on hydrocarbons and dividends from state-owned companies' (ILO 2018: 12). The universal old age pension benefit in Bolivia is provided through two amounts: people who are eligible to receive a contributory pension get a lower universal pension (around US\$29) compared to those who do not receive a mandatory

pension (around US\$36). It has helped to reduce poverty and child labour across Bolivia, and is being associated with high levels of school enrolment (ILO 2018).

Lastly, Nepal began to disburse a universal old age pension in July 1995, retroactive to January 1995. Response to the programme was so large that Nepal in 1997 decided to abandon the universal pension and limit benefit access to people living below the poverty line, but this means the testing approach was difficult to implement fairly and effectively, and so the universal old age pension was quickly restored (Palacios and Rajan 2004: 21–22). The universal old age benefit in Nepal is paid to people aged 70 and older, or 60 or older for people who are Dalits or are residents of the Karnali Zone, and is paid at the rate of US\$18.7 per month (ILO 2018). In 2010–11 it was estimated to cost 0.7 per cent of the nation's GDP, reaching almost 80 per cent of the eligible population (ILO 2018).

3 Old age pension in Tanzania: reforms, issues, and performance

Article 11(1) of the Constitution of the United Republic of Tanzania makes a commitment *inter alia* to 'social welfare at times of old age' (United Republic of Tanzania 1977). Commitments to provide support for the elderly are also made in the Universal Declaration of Human Rights of 1948 and ILO Conventions. The National Social Security Policy (Ministry of Labour, Youth Development, and Sports 2003) states the importance of extending social welfare services to the elderly for accomplishing inclusive socio-economic development, poverty alleviation, and equitable social welfare in Tanzania Mainland. Furthermore, the country has established a social security extension strategy that aims to expand the coverage of social security to all people, especially marginalized people and workers in the informal economy.

Tanzania Mainland established the National Social Security Policy under the Ministry of Labour, Youth Development, and Sports in 2003 with the objective of expanding the coverage of social protection, particularly to workers in the informal economy. The policy specifies three areas as the focus for the development of an effective social protection sector, namely mandatory schemes, social assistance for the vulnerable, and voluntary market-based schemes. The voluntary market-based schemes are viewed as supplementary social security schemes that could provide an effective platform for extending social security coverage towards workers in the informal economy. However, in practice the supplementary social security schemes tend to cover people from the formal economy who are already covered by mandatory schemes.

The retirement age in Tanzania Mainland is 60. Extrapolating from the 2012 population census, it has been estimated that there were 1.28 million people aged 60 and older by the end of 2019 in Tanzania Mainland, comprising 4.4 per cent of the population. Just over half (52.4 per cent) of those aged 60 and older were female (NBS et al. 2018).

With respect to non-contributory social protection, for most of the last decade the United Republic of Tanzania has been providing social assistance via the Productive Social Safety Net (PSSN) programmes under the Tanzania Social Action Fund (TASAF), which is implemented across the country (TASAF 2017).

Regarding contributory pension schemes, Tanzania Mainland had two social security funds during the colonial era, which covered public servants: the Government Employees Pension Fund (GEPF), which was established in 1942, and the Local Authorities Pension Fund (LAPF), which was established in 1944. Post-independence, after the year 1961, Tanzania Mainland established three additional pension funds: the Parastatal Pension Fund (PPF), the National Social Security

Fund (NSSF), and the Public Service Pension Fund (PSPF). In many ways, the modality and design of these pension schemes has remained the same, mainly focusing on workers in the public service and formal private sector, as was the case during the colonial era. More notably, the increase in the number of pension schemes failed to induce a higher magnitude of social security coverage in Tanzania Mainland. Additionally, the pension schemes operated in a rather fragmented manner, especially given that different ministries supervised them, as has been noted in the National Social Security Policy of 2003.

As a reflection of the low coverage, beneficiaries of all five pension schemes in Tanzania Mainland (GEPF, LAPF, PPF, PSPF, and NSSF), which are mandatory for workers in the formal economy, consisted of only 72,749 pensioners and 1,318,416 contributors by the end of June 2012. This rose to 150,775 pensioners and 1,351,517 contributors by the end of June 2018.⁴ A key contributing factor for such low pension coverage is the prevailing arrangements of contributory pension schemes that primarily focus on workers in the formal economy, while paying little attention to the workers in the informal sector.

Private pensions are not common in Tanzania Mainland and are implemented through two main approaches. Firstly, they can be provided through supplementary schemes established and managed by mandatory pension schemes to provide either additional social security benefits to workers in the formal economy or primary benefits to workers in the informal economy. Secondly, they can be provided on an occupational basis, and these are run by employers, private companies, professional bodies, and community-based organizations.

The vast majority of older people do not receive any old age pension income, simply because they either failed to attain the vesting period of 15 years, which is the minimum contribution period required to qualify for a pension under the mandatory pension scheme, or because they were not members of a mandatory scheme during their working lives. As illustrated by Ackson and Masebo (2013), around 91 per cent of workers in Tanzania Mainland are constrained from accessing the available social protection instruments mainly because they work in the informal economy. Under the current setup, in Tanzania Mainland most old people are therefore prone to poverty and financial vulnerability as they do not receive any old age pension benefit. For example, households in Tanzania Mainland that are headed by someone aged 65 or older have been found to have 'the lowest mean per capita consumption levels' (World Bank 2015: 16). As a consequence, most old people have to remain economically active, typically working in the small-scale agriculture industry (ILO 2008). This challenge is likely to intensify in the future because most of the current workforce in the informal economy does not contribute to pension schemes because of low and irregular income, despite being allowed to join voluntarily in the national mandatory pension scheme.

A study by Larsson et al. (2019) considers an alternative way in which to include those in the informal and agricultural sectors in the coverage of social protection. Rather than expanding the existing mandatory defined benefit schemes, the study proposes the establishment of a nonfinancial defined contribution (NDC) scheme to help Tanzania in attaining a rapid extension of old age pension coverage. Under the NDC arrangement, Tanzania could create a sustainable pension system by ensuring that the projected double demographic dividend is transformed into a growth motor through domestically invested NDC bond financing. NDC pension saving, which gives contributors personal rights to future GDP, is channelled into investments in physical and human capital, while also providing pensions for the relatively few elderly in the population.

⁴ According to the data provided by SSRA.

Tanzania Mainland has made many significant reforms during the last decade with the view of creating more coherent inter-sectorial coordination, enhancing the benefit adequacy and extending social security coverage. Among significant prominent reforms in the social security sector was the establishment of SSRA under the SSRA Act 5 in 2012, which was amended in 2012 and 2018. As a regulator, SSRA has pioneered implementation of various reforms to increase coordination in the sector, protect the interest of pension schemes' members, and extend coverage to all people. In particular, the implemented reforms included issuance of numerous guidelines covering investment practices, governance, reduction in administrative expenses, and harmonization of pension formulae. In another new development, Tanzania Mainland has set a ceiling for minimum pension, established a social security extension strategy, and merged five mandatory pension schemes into two. However, the SSRA was dismantled in September 2019, and afterwards all of its core functions and responsibilities have been moved to the Ministry of Labour, Youth, Employment, and Persons with Disability (MoLEYD).

Tanzania Mainland has overhauled its social protection system with the reforms introduced in the Public Service Social Security Fund Act No 2 of 2018 with respect to the merging of the mandatory pension schemes from five schemes to two. The act aims to expand pension coverage to as many citizens as possible and to eliminate the fragmentation in the sector.⁵ Following the merging of social security schemes, the remaining mandatory pension schemes in Tanzania Mainland are the NSSF to cater for private sector and the Public Servant Social Security Fund (PSSSF) for the public sector. Apart from income benefits for children and families, members of contributory social security schemes have access to all the remaining social security benefits stipulated in the ILO Convention 102 such as maternity, unemployment, employment injury, sickness, old age, disability, survivors, and health insurance.

Despite the implementation of various important reforms and initiatives to enhance the coverage and adequacy of the social protection sector, the coverage of social security in Tanzania Mainland has remained relatively low, as in many other developing countries. Additionally, the percentage of the current workforce joining the pension schemes has been growing rather slowly from 1 million contributors representing 5.4 per cent of the whole labour force of over 16 million as shown in the national policy of 2003 to the coverage of 1.35 million contributors in 2018.⁶ Such a sluggish growth is likely caused by the inability of workers in the informal economy to contribute or a low compliancy rate by workers in the formal economy.

⁵ In addition to reducing the number of funds, the act has given the NSSF an exclusive mandate to cover the informal economy after the merging.

⁶ According to the administrative data provided by the SSRA.

4 Methodology

The analysis undertaken in this paper uses a static tax-benefit microsimulation model called TAZMOD (Leyaro et al. 2019), which is one of a suite of country models that have been produced as part of the SOUTHMOD programme (UNU-WIDER 2019) using the EUROMOD software (Sutherland and Figari 2013). The TAZMOD model was developed as a collaboration between members of the University of Dar es Salaam, UNU-WIDER, SASPRI, and the University of Essex (Decoster et al. 2019; UNU-WIDER 2019). Like the HelpAge model, TAZMOD generates a ‘static’ analysis and does not model the behavioural effects of the introduction of a pension and, like the HelpAge model, is therefore likely to underestimate the long-term benefits of the change (MoLEYD and HelpAge International 2010). However, in contrast to the HelpAge model, TAZMOD models the entire transfer system including direct and indirect taxation, which means that it is possible to estimate the combined effects of the introduction of an old age benefit and raising the revenue to fund it using the tax system. TAZMOD also uses a much more up-to-date data set and policy timepoint.⁷

TAZMOD version 2.0 was used, which contains tax-benefit ‘systems’ (i.e. the set of tax and benefit rules) for the years 2012 and 2015–19. TAZMOD 2.0 is underpinned by both the 2011–12 HBS (NBS 2014) and the 2017–18 HBS (NBS 2019). For simulations for 2018 and 2019, the underpinning data set derived from HBS 2017–18 is used. For the purpose of this paper the 2018 system was used.

The tax and benefit policies that are simulated in the 2018 system in TAZMOD version 2.0 have a timepoint of 1 July 2018. This is consistent with the timepoint for the HBS 2017–18 data.⁸

TAZMOD has been found to reflect the Tanzanian government’s administrative data about tax revenue and benefit expenditures fairly well, although there are some important assumptions and caveats. First, the model assumes full compliance with the tax and benefit arrangements, whereas this may not be the case. For example, the simulated revenue from personal income tax (comprising pay-as-you-earn, accounts, and presumptive tax) in 2018 was 111% of the Tanzania Revenue Authority’s recorded revenue for that year (own calculations using TAZMOD v2.0). Second, and as is the case internationally, high-income households may be under-represented in the survey. Third, TAZMOD contains a simplified version of the PSSN fixed basic cash transfer by, for example, eliminating the area selection criteria (Wright et al. 2019), and the simulations presented here retain the means-tested PSSN, with the universal old age pension being payable in addition to any PSSN received by the household. Lastly, the model does not consider potential behavioural responses to a new benefit.

Using TAZMOD, it is possible not only to simulate the current tax and benefit arrangements but also to test various reform scenarios to explore the first order effect of the reforms compared to the actual tax and benefit arrangements that were in place in July 2018. As such, it builds on the comparative paper by Joste and Rattenhuber (2019), in which several universal pensions are simulated for Ecuador, Ghana, Tanzania Mainland, and South Africa, and on a paper by Wright

⁷ Because of the different data sets and timepoints used by MoLEYD and HelpAge International (2010), direct comparisons of results cannot be meaningfully undertaken.

⁸ The HBS 2017–18 was collected between December 2017 and November 2018 inclusive. In the TAZMOD data preparation stage, all income and expenditure amounts were deflated to July 2018.

et al. (2019), in which a universal old age benefit was simulated for Tanzania Mainland that replaced the current PSSN benefits.

The next section presents results for various options for a universal old age pension, with respect to several different age brackets and values of the benefit payment. The simulated additional cost to government, number of beneficiaries, and distributional impact of the modelled reform scenarios are reported. The following section then provides examples of how one of these universal old age pensions could be financed by simulating reforms to the tax system to generate additional revenue for the pension. Results are presented that take into account the combined impact of a new benefit and the adjustments to the tax system to cover the costs.

5 Results—modelled reforms

This section presents simulation results of different reform scenarios using TAZMOD version 2.0. As indicated in the previous section, TAZMOD contains systems from 2012 as the baseline, through to 2019. The simulation results discussed here refer to the 2018 system and focus on the fiscal implication to the government budget, as well as on the impact on poverty and inequality of introducing the universal old age programme in Tanzania Mainland. The selection of 2018 as the timepoint is because it matches the date of the survey and so uprating indices is not required. Notably, the simulation results are the first-round effect of the reforms.

There are two main features to consider in the design of a universal old age programme: first is the determination of the age threshold to be applied, and second is the benefit amount to ensure that it is affordable. Considering that the official retirement age in Tanzania is 60 years, three different age groups were explored. Reforms were tested for all people aged 60 years and older to be able to accommodate all people beyond retirement age. In addition, reforms for two subsets of this age group were explored: those aged 65 and older, and those aged 70 and older.

In terms of the benefit amount, variants of two different thresholds were used. The first threshold is the GDP per capita amount, which was TZS2,461,900 in 2018 (Bank of Tanzania 2019a: 15). Four different fractions of this amount were applied: 15 per cent, 20 per cent, 25 per cent, and 30 per cent of the GDP per capita amount. The objective of exploring these options is to try to establish a feasible programme that might appeal to policy makers. The selection of a fraction of the GDP per capita amount is used in many developed countries (Willmore 2007). While the GDP per capita thresholds applied in this study may not be sufficient, experience in Africa and Asia shows that establishment of social pensions, even small ones such as 10 per cent of per capita GDP, makes a difference in the living standards of the elderly (e.g., World Bank 2017).

The second threshold that was applied was the food poverty line, which was TZS33,748 per adult per month in 2018 (NBS 2019). This follows the general approach taken in Zanzibar, which first established its universal old age pension amount at approximately 50 per cent of the food poverty line.

These amounts are higher than used by Jouste and Rattenhuber (2019) for their simulations of an almost-universal old age pension for Tanzania Mainland. Using a 2012 timepoint, they tested benefits that were pegged at the value of 50 per cent of three thresholds (the basic needs poverty line, the food poverty line, and the World Bank US\$3.1 per day threshold) and assigned the benefits to older people who were not already in receipt of pension income.

Table 1 (and Appendix A) presents the budgetary implication of introducing the universal old age programme for different reform scenarios. Table 1 shows the most affordable option, which considers just those aged 70 and older, and Appendix A contains the results for broader age bands. As can be seen below, the most affordable option for those aged 70 and older is the benefit that is paid at the level of 15 per cent of the per capita GDP, which equates to TZS30,774 per month. This benefit amount would cost the government an estimated TZS606.8 billion per year and would be payable to 1.64 million individuals aged 70 years and older.

Clearly, the cost will be impacted by the actual number of individuals within the age group. The figure of 1.64 million individuals aged 70 and older that is derived from HBS 2017–18 is higher than previous estimates for this age group. For example, the National Bureau of Statistics estimated that there were 1.04 million people aged 70 and older in Tanzania Mainland in 2018 (NBS et al. 2018: 70). With improvement in health services in the country and other social services, it is likely that the number of old people will increase, *ceteris paribus*, as it is observed in developed countries, and this would increase the costs of the programme. The life expectancy at birth for people born in Tanzania Mainland has been estimated to rise from 65.4 in 2019 to 77.3 by 2035 (NBS et al. 2018: 21).

Table 2 shows the impact of introducing a universal old age pension on poverty and inequality in Tanzania. Using the basic needs poverty line, the baseline shows that 26.4 per cent of households are basic needs poor and 30.4 per cent of households with older people are basic needs poor. When the universal old age programme is introduced to people aged 70 years and older and paid at the monthly amount of 15 per cent of GDP per capita, it reduces poverty from 26.4 per cent to 25.2 per cent—a 1.2 percentage point fall. Considerably more impact is observed for households containing older persons where poverty declines from 30.4 per cent to 23.8 per cent—a reduction of 6.5 percentage points. Introducing the pension at higher monthly amounts results in greater poverty alleviation, particularly for households containing older people. The results indicate that the introduction of a universal old age pension in Tanzania would be an important policy intervention for poverty reduction. However, the important question is how such a programme could be funded, without undermining or compromising resources devoted to other sectors. The next section considers potential options for how the government might raise finances for the programme through personal income tax.

Table 1: Simulated reforms—budgetary implications and number of beneficiaries, 2018

Age	Basis for monthly UOAP amount	Monthly UOAP amount (TZS)	Total annual cost (TZS million)	Number of beneficiaries of UOAP
70+	15% GDP	30,774	606,821	1,643,220
70+	20% GDP	41,032	809,095	1,643,220
70+	25% GDP	51,290	1,011,369	1,643,220
70+	30% GDP	61,548	1,213,643	1,643,220
70+	Food poverty line	33,748	665,465	1,643,220

Notes: GDP: GDP per capita. UOAP: Universal old age pension. These costs do not include estimates of the cost of administering the benefits—see footnote⁹ and discussion in Section 7.

Source: authors' compilation using TAZMOD v2.0 and HBS 2017–18 data set.

Table 2: Simulated reforms—poverty and inequality, 2018

Age	Basis for monthly UOAP amount	All households basic needs poverty (P0) %	Households containing older persons basic needs poverty (P0) %	All households basic needs poverty gap (P1) %	Households containing older persons basic needs poverty gap (P1) %	Gini
Baseline	0	26.4	30.4	6.2	7.1	0.380
70+	15% GDP	25.2	23.8	5.7	4.8	0.377
70+	20% GDP	24.7	21.3	5.6	4.3	0.376
70+	25% GDP	24.4	19.6	5.6	3.9	0.376
70+	30% GDP	24.2	18.7	5.5	3.6	0.376
70+	Food poverty line	25.1	23.3	5.7	4.7	0.377

Notes: GDP: GDP per capita. UOAP: Universal old age pension.

Source: authors' compilation using TAZMOD v2.0 and HBS 2017–18 data set.

6 Results—incorporating a financing element using personal income tax reforms

The section above presented several different options for a universal old age pension. As we have seen, the cost of the new benefit varies considerably depending on the age group of older people that is selected and the value of the benefit, ranging from TZS606.8 billion per year (for a benefit pegged at 15 per cent of GDP per capita for those aged 70 and older, as seen in Table 1) to TZS2,578.6 billion per year (for a benefit pegged at 30 per cent of GDP per capita for those aged 60 and older, as seen in Table A1).

In this section, we explore options for financing one of these examples: a universal old age pension for people aged 70 and older, paid at the amount of TZS41,032 per month, which is 25 per cent of the GDP per capita amount. This section provides an example of ways in which financing a new

⁹ Annual administrative costs in respect of the Zanzibar universal old age programme and TASAF programmes range between 2 and 3 per cent of the total annual benefit amount. Experience from other countries in terms of administrative costs for social pensions in Botswana, Mauritius, and South Africa have been 4.5 per cent, 2 to 3 per cent, and 6 per cent, respectively (Fultz and Pieris 1999).

universal old age pension could be accomplished. In practice, such analysis could be repeated for each of the pension amounts presented in Table 1 (and any other amount selected by policy makers) and so this section is illustrative only. The cost of such a pension designed in this way, excluding implementation costs, would be TZS809.1 billion. In Table 3, the cost of the pension is shown as a proportion of GDP (0.63 per cent) and of total tax revenue (5.26 per cent).

Table 3: An example of the annual cost of a universal old age pension expressed as a proportion of key national statistics, 2018

	Amount TZS billion	UOAP as % of amount
UOAP	809.1	/
GDP	129,364	0.63
Tax revenue	15,387.9	5.26
Government expenditure	22,265.4	3.63

Notes: UOAP: Universal old age pension paid at TZS41,032 per month to people aged 70 and older. Government expenditure comprises recurrent expenditure and development projects.

Source: authors' compilation using Bank of Tanzania (2019b: 11, 17, 211); UOAP annual cost calculated using TAZMOD v2.0 and the HBS 2017–18 data set.

There are many ways in which revenue can be generated for social security (Ortiz et al. 2017). Here, we explore adjustments to the personal income tax rules. In an attempt to identify ways in which the government can raise money to finance the universal old age pension, four options are considered relating to the personal income tax policy: a simple modification of the current Tanzania income tax bands and applying the personal income tax rules of Zanzibar and of two neighbouring countries (Kenya and Uganda). These four financing scenarios were introduced to the model to explore how much the government would gain in revenue and the impact on poverty and inequality.

Table 4 summarizes the four financing reform scenarios that were tested. The table shows the tax rates for each tax band and the income level at which they apply. The options tested were: (A) a minor adjustment of the current Tanzania income tax rates for individuals by adding an extra tax band; (B) applying Zanzibar's personal income tax bands and rates; (C) applying Kenya's personal income tax bands and rates; and (D) applying Uganda's personal income tax bands and rates.

Table 4: Financing scenarios for July 2018, in Tanzanian shillings

	Band	Tanzania (status quo)	A Tanzania reform (increasing rate for band 5 plus extra tax band)	B Applying Zanzibar's PIT rules	C Applying Kenya's PIT rules	D Applying Uganda's PIT rules
Band's lower threshold	1	0	0	0	0	0
Band rate	1	0	0	0	0.1	0
Band's lower threshold	2	2,040,001	2,040,001	2,160,001	3,328,103	1,658,467
Band rate	2	0.09	0.09	0.09	0.15	0.1
Band's lower threshold	3	4,320,001	4,320,001	4,320,001	6,463,665	2,364,197
Band rate	3	0.2	0.2	0.2	0.2	0.2
Band's lower threshold	4	6,480,001	6,480,001	6,480,001	9,599,249	2,893,495
Band rate	4	0.25	0.25	0.25	0.25	0.3
Band's lower threshold	5	8,640,001	8,640,001	8,640,001	12,734,811	70,573,041
Band rate	5	0.3	0.35	0.3	0.3	0.4
Band's lower threshold	6	n/a	10,000,001	n/a	n/a	n/a
Band rate	6	n/a	0.4	n/a	n/a	n/a

Notes: (1) band's lower threshold is the income level at which that tax band comes into force, and the amounts shown are annual incomes. Band rate is the tax rate for that tax band. (2) For Uganda and Kenya, the income is converted to Tanzania shillings using the exchange rates on 2 July 2018 taken from www.xe.com. PIT: personal income tax.

Source: authors' compilation from reform scenarios tested in TAZMOD v2.0. Tax rules: for Kenya,¹⁰ Uganda,¹¹ and Zanzibar.¹²

When these four reform scenarios were tested within TAZMOD version 2.0, it was found that options C and D were both effective in raising sufficient government revenue to finance the selected universal old age pension (Table 5). The addition of a sixth tax band to the current Tanzania income tax rates for individuals (Option A) raises extra government revenue of TZS531.6 billion, which is insufficient to fund any option, as even a grant paid at 15 per cent per capita GDP costs TZS606.8 billion (Table 1). The Zanzibar rules (Option B) made a loss of TZS20.4 billion because of the higher income level at which personal income tax is first paid in Zanzibar. Implementing the Kenyan rules (Option C) raised the largest additional amount—TZS1,458.5 billion—and would fund any of the options detailed in Table 1. Replacing the current Tanzania personal income tax schedule with Uganda's schedule (Option D) generates TZS1,015.9

¹⁰ <https://amcham.co.ke/sites/default/files/report-documents/Grant%20Thornton%20Alert%20-%202018%20PAYE%20rates%201018.pdf>.

¹¹ <http://taxsummaries.pwc.com/ID/Uganda-Individual-Taxes-on-personal-income>.

¹² <http://taxsummaries.pwc.com/ID/Tanzania-Individual-Taxes-on-personal-income>.

billion in extra revenue for the government. This would fund all the options in Table 1 except the option to pay the benefit at 30 per cent of per capita GDP.

Table 5: Revenue generated by financing scenarios for July 2018, in TZS billion

Reform system	Revenue from direct taxes	Extra revenue generated or lost compared to 2018 baseline	Cost of pension at 20 per cent GDP for those aged 70 and older	Net revenue impact	Costs covered?
A: Tanzania plus	3,413.5	531.6	809.1	-277.5	No
B: Zanzibar tax bands	2,861.5	-20.4	809.1	-829.5	No
C: Kenya tax bands	4,340.5	1,458.6	809.1	649.5	Yes
D: Uganda tax bands	3,897.8	1,015.9	809.1	206.8	Yes

Notes: UOAP: Universal old age pension. UOAP paid at TZS41,032 per month in 2018 prices to people aged 70 and older. Simulated revenue from direct taxes in the baseline for 2018 (with no reforms) is TZS2,881.9 billion.

Source: authors' compilation using TAZMOD v2.0 and HBS 2017–18 data set.

Further analysis was conducted to examine the impact of the two successful financing options (options C and D) with respect to overall poverty and inequality, and poverty and inequality of households with older persons, so that this could be compared with an 'unfinanced' or 'non-tax financed' scenario (i.e. where financing for the new universal old age pension is not sourced from personal income tax but from some other external source). The results in Table 5 show that an unfinanced universal old age pension would result in a 1.66 percentage point decline in overall poverty compared to the baseline position of no universal old age pension. In the case of financing option D (applying Uganda's tax bands), poverty also falls when compared to the baseline (by 1.08 percentage points), though by not quite as much as the unfinanced scenario. Option C (the Kenyan tax band) is interesting. Despite generating the highest revenue of all the options, we see that overall poverty actually increases. This is because in the Kenyan tax system taxable income in the first band of the tax schedule is taxed at 10 per cent, whereas in Tanzania and Uganda this is not the case—the tax rate for the lowest band is zero.

Financing the universal old age pension using Uganda's tax bands (option D) results in an 8.86 percentage point reduction in poverty in households containing older people—a smaller reduction when compared to the poverty reduction for households with older people in an unfunded situation. Although applying Kenyan tax bands (option C) results in an increase of overall poverty, for households with older persons there is a reduction of nearly 6 percentage points. This is almost certainly because older people have little or no other income and so are not affected by the first tax band.

As can be seen in Table 6, the introduction of a universal old age pension does not have much of an impact on inequality as measured by the Gini coefficient. There is a slight reduction in the Gini from 0.38 to 0.376 compared to the case where there is no universal old age pension. Introducing option D (the Ugandan tax bands) coupled with the universal old age pension yields a further small reduction in the Gini to 0.372. Financing using option C (the Kenyan tax bands) results in an increase in the Gini coefficient to 0.387.

There is no decrease in inequality resulting from the introduction of a universal old age pension without funding it through direct taxes, if inequality is measured using the P80/P20 ratio. However, if funding option D (the Ugandan tax bands) is used, there is a small reduction in the P80/P20 ratio to 2.61 from 2.68. As was the case with the Gini, funding option C (the Kenyan tax bands) results in an increase of inequality using this measure from 2.68 to 2.75. Again, people being brought into taxation lower down the distribution explains why option C results in an increase in inequality.

Table 6: Poverty after taxes and transfers for baseline, an unfinanced universal old age pension, and two options for financing the universal old age pension, 2018

	Current state (base)	Unfinanced UOAP	Difference to base	Using Uganda income tax schedule plus UOAP	Difference to base	Using Kenya income tax schedule plus UOAP	Difference to base
Share of poor population, in %							
All	26.38	24.72	-1.66	25.31	-1.08	28.24	1.86
Poor households out of ...							
... male-headed households	26.07	24.66	-1.41	25.38	-0.68	28.65	2.58
... female-headed households	27.39	24.93	-2.45	25.07	-2.31	26.94	-0.45
... households with children	28.01	26.39	-1.62	27.01	-1.00	30.22	2.20
... households with older persons	30.36	21.29	-9.08	21.50	-8.86	24.43	-5.93
Poverty gap [average normalized poverty gap, FGT(1)]							
All	6.16	5.65	-0.52	5.86	-0.30	7.20	1.04
Poor households out of ...							
... male-headed households	6.17	5.73	-0.44	5.98	-0.19	7.47	1.30
... female-headed households	6.14	5.38	-0.76	5.48	-0.66	6.38	0.23
... households with children	6.57	6.04	-0.53	6.27	-0.31	7.72	1.15
... households with older persons	7.14	4.32	-2.82	4.47	-2.66	5.74	-1.40
Basic needs poverty line (TZS) annual	591,842	591,842	0	591,842	0	591,842	0

Notes: UOAP: Universal old age pension. UOAP paid at TZS41,032 per month in 2018 prices to people aged 70 and older. Basic needs poverty line is used in 2018 prices. FGT(1): A Foster Greer and Thorbecke poverty measure.

Source: authors' compilation using TAZMOD v2.0 and the HBS 2017–18 data set.

Table 7: Inequality and household income distribution for baseline, an unfinanced universal old age pension, and two options for financing the universal old age pension, 2018

	Current state (base)	Unfinanced UOAP	Difference to base	Using Uganda income tax schedule plus UOAP	Difference to base	Using Kenya income tax schedule plus UOAP	Difference to base
Gini (household income)	0.3800	0.3762	-0.0038	0.3723	-0.0078	0.3874	0.0074
P80/P20	2.68	2.68	0.00	2.61	-0.07	2.75	0.07
	0	0	0	0	0	0	0
Quantiles of distribution and median	533,349.29	546,435.88	13,086.59	541,899.92	8,550.63	517,222.26	-16,127.03
20th	719,147.78	737,447.37	18,299.59	730,298.04	11,150.26	705,373.33	-13,774.44
40th	836,177.26	857,886.89	21,709.63	849,841.48	13,664.22	822,345.26	-13,832.00
50th	966,720.45	984,968.37	18,247.92	972,892.60	6,172.16	955,914.74	-10,805.71
60th	1,428,841.91	1,462,010.91	33,168.99	1,415,296.36	-13,545.55	1,420,709.66	-8,132.25
80th	0.3800	0.3762	-0.0038	0.3723	-0.0078	0.3874	0.0074

Notes: UOAP: universal old age pension. UOAP paid at TZS41,032 per month in 2018 prices to people aged 70 and older.

Source: authors' compilation using TAZMOD v2.0 and the HBS 2017–18 data set.

7 Discussion

In this paper, several options have been explored for a universal pension in Tanzania Mainland. It was found that a universal pension paid at the level of TZS30,774 per person per month (15 per cent of the per capita GDP amount), payable to people aged 70 and older, would cost TZS608.8 billion per year if there was full take-up.¹³ This would increase to TZS2,579 billion per year if paid at the higher level of TZS61,548 per person per month (30 per cent of the per capita GDP amount) to a larger age bracket of older people—those aged 60 and older.

Without taking into account the effect of funding options through direct taxation, the impact of a monthly benefit of TZS30,774 being paid to those aged 70 and older would be a fall in basic needs poverty levels from 30.4 per cent to 23.8 per cent for households containing one or more elderly persons. For higher levels of pension there are greater reductions in poverty.

Four financing options were explored, all based on adjusting the tax bands in the income tax schedule in various ways. One option considered was to add an additional band to the Tanzania Mainland schedule of 40 per cent for those with annual earnings of more than TZS100 million. Another involved applying the tax bands applicable to Zanzibar—thereby introducing a higher threshold before tax becomes payable. The other two options were applying the tax bands and schedule applicable to taxable income in Uganda and Kenya in 2018. The financing options were considered for a universal pension for those 70 and older, paid at the level of TZS41,032 per person per month (which represents 20 per cent of GDP per capita in 2018). This would cost TZS809.1 billion per year if paid to all those aged 70 and older.

It was found that only by applying the tax bands applicable in Uganda and Kenya could sufficient revenue be raised to cover the costs of the pension. However, the impact on poverty was quite different in these two cases. By applying the Ugandan tax schedule, the overall basic needs poverty rate was reduced, and there was a significant further reduction in basic needs poverty in households containing older people. However, because the Kenyan tax schedule taxes further down the income distribution, overall basic needs poverty actually increases. Although there is a reduction in basic needs poverty in households containing older people, this is less than the situation when applying the Ugandan income tax rules. Of course, these first order effects assume full take-up of the benefits and full tax compliance.

In line with the simulations of a Tanzanian universal old age pension that were conducted recently by Jousté and Rattenhuber (2019) and Wright et al. (2019), the estimates presented here exclude the cost of implementation. In general, Ortiz et al. (2017) estimate that there would be an additional administrative cost of 3 per cent of the total benefit payout for universal benefits. Based on this benchmark, with the universal pension paid at TZS41,032 per person per month, this could amount to an implementation cost of around TZS24.3 billion. However, this additional cost can perhaps be counterbalanced by the fact that the weighted HBS 2018–19 (and therefore the TAZMOD simulations) contain rather more people aged 70 and older than recent estimates of people in this age group for 2018 (NBS et al. 2018). Additionally, the cost of implementing a universal old age pension in Tanzania Mainland could be significantly lower than the amount

¹³ There is some evidence that, even for means-tested benefits directed at older people, take-up rates of over 80 per cent are possible (Wright et al. 2018). It is generally accepted that for universal benefits (provided effective administrative systems are in place), take-up rates would be much higher (World Bank Group and International Labour Organization 2016).

estimated based on the benchmark suggested by Ortiz et al. (2017), largely because the programme could be implemented through TASAF's existing infrastructures for registration and administration that have been established throughout the country.

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Appendix A

Table A1: Simulation results—budgetary implication and potential number of beneficiaries for two age bands, 2018

Age	Basis for monthly UOAP amount	Monthly UOAP amount (TZS) 2018 prices	Total annual cost (TZS million)	Number of beneficiaries of UOAP
60+	15% GDP	30,774	1,289,279	3,491,256
60+	20% GDP	41,032	1,719,038	3,491,256
60+	25% GDP	51,290	2,148,798	3,491,256
60+	30% GDP	61,548	2,578,558	3,491,256
60+	Food poverty line	33,748	1,413,875	3,491,256
65+	15% GDP	30,774	883,572	2,392,637
65+	20% GDP	41,032	1,178,096	2,392,637
65+	25% GDP	51,290	1,472,620	2,392,637
65+	30% GDP	61,548	1,767,144	2,392,637
65+	Food poverty line	33,748	968,961	2,392,637

Notes: UOAP: universal old age pension. GDP: GDP per capita. Food poverty line amount is in 2018 prices.

Source: authors' calculations using TAZMOD v2.0 and the HBS 2017–18 data set.

Table A2: Simulation results—poverty and inequality for two age bands, 2018

Age	Basis for monthly UOAP amount	All households basic needs poverty (P0) %	Older households basic needs poverty (P0) %	All households basic needs poverty gap (P1) %	Older households basic needs poverty gap (P1) %	Gini
Baseline	0	26.38	30.36	6.16	6.57	0.38
60+	15% GDP	23.85	20.10	5.37	5.77	0.37
60+	20% GDP	23.17	17.09	5.21	5.59	0.37
60+	25% GDP	22.53	14.51	5.08	5.45	0.37
60+	30% GDP	22.07	13.09	4.97	5.34	0.37
60+	Food poverty line	23.69	19.32	5.32	5.72	0.37
65+	15% GDP	24.67	21.0	5.58	5.98	0.38
65+	20% GDP	24.08	17.78	5.45	5.85	0.38
65+	25% GDP	23.67	15.56	5.35	5.73	0.37
65+	30% GDP	23.41	14.13	5.26	5.64	0.37
65+	Food poverty line	24.52	20.19	5.54	5.94	0.38

Notes: UOAP: universal old age pension. GDP: GDP per capita. Food poverty line amount is in 2018 prices.

Source: authors' calculations using TAZMOD v2.0 and HBS 2017–18 data set.