SOUTHMOD

Country report

Uganda

UGAMOD v1.8

2016–20

Ronald Waiswa, Joseph Okello Ayo, Michael Noble, Susan Kavuma, and Gemma Wright

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About the project

SOUTHMOD – simulating tax and benefit policies for development

SOUTHMOD is a joint project between the United Nations University World Institute for Development Economics Research (UNU-WIDER), the Centre for Microsimulation and Policy Analysis (CeMPA) at the Institute for Social and Economic Research (ISER) at the University of Essex, and Southern African Social Policy Research Insights (SASPRI) in which tax–benefit microsimulation models for selected developing countries are being built. These models enable researchers and policy analysts to calculate, in a comparable manner, the effects of taxes and benefits on household incomes and work incentives for the population of each country.

SOUTHMOD models are currently available for Ecuador (ECUAMOD), Ethiopia (ETMOD), Ghana (GHAMOD), Mozambique (MOZMOD), Namibia (NAMOD), Viet Nam (VNMOD), South Africa (SAMOD), Tanzania (TAZMOD), Uganda (UGAMOD), and Zambia (MicroZAMOD). SOUTHMOD models are updated to recent policy systems using national household survey data. This report documents UGAMOD, the SOUTHMOD model developed for Uganda. This work was carried out by Uganda Revenue Authority (URA) and Makerere University in collaboration with the project partners.

The results presented in this report are derived using UGAMOD version 1.8 running on EUROMOD software version 3.1.8. The report describes the different tax–benefit policies in place, how the microsimulation model picks up these different provisions, and the database on which the model runs. It concludes with a validation of UGAMOD results against external data sources. For further information on access to UGAMOD and other SOUTHMOD models see the SOUTHMOD page.

The UGAMOD model and its documentation in this country report has been prepared within the UNU-WIDER project on 'SOUTHMOD—simulating tax and benefit policies for development'. For more information, see the SOUTHMOD project page.

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Acronyms

CPI	Consumer price index
EUROMOD	European Union Tax–Benefit Microsimulation Model
ITA	Income Tax Act
LST	Local service tax
MoFPED	Ministry of Finance, Planning and Economic Development
MoGLSD	Ministry of Gender, Labour and Social Development
NSSF	National Social Security Fund
PAYE	Pay-as-you-earn
UBOS	Uganda Bureau of Statistics
UGX	Ugandan shillings
URA	Uganda Revenue Authority
VAT	Value-added tax

1 Basic information

1.1 Country context and basic information for UGAMOD

Uganda is a landlocked country located in East-Central Africa with a population of about 42.8 million as of 2017 (World Bank 2019), and its capital Kampala is the largest city with a population of 1.5 million. Uganda's economic performance generally remained strong despite the recent slowdown in real gross domestic product growth, which was projected to reach 5.9 per cent in 2018, up from 4.8 per cent in 2017 and 2.3 per cent in 2016 (Africa Development Bank 2018). The increase in economic growth in 2018 was expected to be driven mainly by public infrastructure investment; recovery in manufacturing and construction; and improvements in the services sector, particularly financial and banking, trade, transport, and information and communication technology services.

A household is defined as a group of persons who normally live and eat together (UBOS 2017). According to the 2017 Uganda Bureau of Statistics (UBOS) report, there are a total of 7.3 million households in the country. Of these, 1.8 million are headed by women and 5.5 million by men. Households headed by women are generally smaller than those headed by men (see UBOS 2017). The median age at marriage in 2011 was approximately 18 years for women and that for men approximately 22 years. Over the period 1995–2011, women married at an earlier age (17–18 years) than men (22–23 years).

The legal minimum working age in Uganda is 18 years; work below that age is referred to as child labour. Dependent children are defined as those aged less than 18 years.

Children start primary school at 6 years of age. The National Education System has seven years of primary education and six years of secondary education. The Government of Uganda introduced universal primary education in January 1997 and universal secondary education in 2007, making primary and secondary (up to senior four) education free.

The majority of the population have attained primary school-level education. Female literacy is lower (68 per cent) than that for males (77 per cent) (UBOS 2017). More women own a house (64 per cent) or land (59 per cent) individually than men (39 and 43 per cent, respectively); on the other hand, more men own a house (40 per cent) or land (37 per cent) jointly than women.

The Public Service Retirement Benefits Act 1999 defines the voluntary retirement age as 55 years and statutory retirement age as 60 years.

In Uganda, tax policies are divided between central and local government, although central government collects most of the tax revenue. The Ministry of Finance, Planning and Economic Development (MoFPED) through the Uganda Revenue Authority (URA) is the custodian of the design, oversight, administration, and implementation of the tax policies for central government. The fiscal year runs from 1 July to 30 June, and amendments to tax rules and other related financing policies are usually submitted by MoFPED to Parliament at the start of the financial year following the Public Finance Bill. Upon approval by Parliament and signature by the President, the amended Public Finance Bill becomes the law known as the Public Finance Act. At the local government level, the Local Government Finance Act guides local government authorities on sources of revenue and management of funds and resources. The municipal and district councils introduce the taxes using bylaws, and although the rates may differ from one local government to another, the taxes are the same, including property taxes, fees, and levies. Other fees, fines, and charges assessed by ministries, departments, and agencies of the government are collected by the URA.

All tax laws are made and passed through the Acts of Parliament of Uganda. The main tax laws for the purpose of this report include the Income Tax Act (ITA), Value-Added Tax (VAT) Act, Excise Duty Act, and Local Service Tax (LST) Act (see Okuja 2018; LGFC 2008); all are defined by common laws at the national level. Municipalities are empowered under the Local Government Act to collect all taxes for local governments.

The ITA defines a taxpayer as any person who derives an amount subject to tax under the ITA. Ugandan tax residents are subject to income tax on their worldwide income, whereas non-residents are subject to tax on income accrued in or derived from Uganda.

A resident is defined as an individual who:

- Has a permanent home in Uganda;
- Is present in Uganda
    - for a period of, or periods amounting in aggregate to, 183 days or more in any 12-month period that commences or ends during the year of income; or
    - during the year of income and in each of the two preceding years of income for periods averaging more than 122 days in each such year of income;
- is an employee or official of the Government of Uganda posted abroad during the year of income.

Employers are obliged to contribute on a monthly basis to the National Social Security Fund (NSSF) 15 per cent of an employee's monthly salary, wages, and cash allowances, but 5 per cent is deducted from the employee's wage as his/her share of the contribution.

The following social regimes exist in Uganda: Public Service Pension Scheme, NSSF for the formal private sector and non-governmental organizations, and private schemes such as occupational pensions/saving schemes run by particular institutions and companies. Social security was created to cover old age, disability, and survivors. The first social security law was set in 1967, and currently the laws applicable are the Pensions Act, the 1985 NSSF Act, and the 2011 National Retirement Benefit Authority Act. Social security is a constitutional right and a right enshrined in the United Nations Universal Declaration of Human Rights (UDHR 1948). Article 22 of the UDHR provides the right to social security, highlighting the fact that every member of society should be entitled to social security. The same right is reiterated in the International Labour Organization Convention No. 102, which sets the minimum standards of social security benefits for old age, invalidity, sickness, Medicare, unemployment, employment injury, and family and maternal benefits.

1.2 Social benefits

The social assistance grants were introduced as government and non-governmental organization programmes whose aim was to achieve the overall government objective of enabling poor households to increase incomes and opportunities while improving consumption. Some of these grants are summarized below.

Benefit 1 (*Senior Citizens' Grant*): This is an old-age grant that was initially targeted to benefit older persons of 65 years and above in selected districts (but lowered to 60 years in the case of the more vulnerable Karamoja region). On 1 July 2020, the grant was rolled out nationwide to all persons above the age of 80. However, previous beneficiaries below the age of 80 years are still eligible.

Benefit 2 (*Extremely Vulnerable Households Programme*): This gives food and cash handouts to children under 5 years of age, children aged 5–18 years, and adults (18 years and above) for food-insecure households in Karamoja. This programme is implemented under the World Food Programme's SCOPE beneficiary system and the Government of Uganda's social protection registry coordinated by the Prime Minister's office. It is not a national programme. In 2018/19 the programme reached 215,185 households in Karamoja. This policy is not simulated in UGAMOD.

1.2.1 Not strictly benefits

Not strictly benefit 1 (*Youth Livelihood Programme*): Project eligibility criteria include the following:

- The beneficiaries should fall within the youth age bracket (18–30 years).
- All the members of the Youth Interest Group should be bona fide residents of the location (village) under which the project is being approved.
- All the Youth Interest Groups are transparently selected in a community participatory process based on the selection criteria set by the programme.
- Evidence that members of the Youth Interest Group fully participated in the identification and planning processes for the project and group formulation shall be voluntary. There should be evidence that the enterprise selected has undergone adequate viability and sustainability analyses guided by technical experts, with clear business and repayment plans for the revolving fund.
- There should be evidence that the enterprise selected has undergone the full generation process, including appraisal and approval by the sub-county and district local governments, respectively, based on the programme guidelines.
- The enterprise must have a clear physical address/location. Where the enterprise requires land, the ownership and legal status of the land should be established through a valid land agreement or land title.
- The enterprise should have a reasonable maturity period that permits repayment of the interest-free revolving fund within a time period of 1 year. A service fee of 5 per cent shall be levied on all repayments that exceed 1 year.
- The enterprise should have a good implementation and sustainability plan.
- At least 80 per cent of the budget for the enterprise should go into the core inputs of the enterprise as opposed to essential and non-core inputs and administration expenses.

This policy is not simulated in UGAMOD.

Not strictly benefit 2 (*Disability Support Grant*): Individuals eligible for the disability grant are considered to be those with a physical and/or mental limitation that supposedly interferes with both activities at work and daily tasks. Disabled people are defined as those who express some difficulty in seeing, hearing, walking, concentrating, and self-care. This is a national programme for persons with disability who are in well-organized groups. It started in 2009/10 to support income generating activities that provide employment and improve income status of people with disabilities. In 2009/10, 48 districts benefited with each district getting UGX 30 million to support the programme. In 2010/11 it was scaled up to cover all districts in Uganda. The government allocates UGX 3 bn annually to all the districts. The money is allocated to districts according to number of sub-counties, i.e the district with more sub-counties receives more money than one with few sub-counties (National Council for Disability 2018). This policy is not simulated in UGAMOD.

Not strictly benefit 3 *(The Uganda Women's Entrepreneurship Programme (UWEP))*: This is a five-year programme which started in 2015/16. It is aimed at improving access to financial services for women and equipping them with skills for enterprise growth, value addition and marketing of their products and services. It provides support in the form of soft loans and skills training to groups of women entrepreneurs especially those with disabilities, victims of gender-based violence, women with HIV, and those living in hard-to-reach areas. The programme was initiated in 19 district local governments and Kampala Capital City Authority (KCCA) in the financial year 2015/16. The districts included Moroto, Katakwi, Kaliro, Mayuge, Kamuli, Kalangala, Kayunga, Wakiso, Kibaale, Bundibugyo, Kiruhura, Koboko, Nebbi, Kitgum, Ntungamo, Otuke, Kole, Nakasongola, and Kisoro. In 2016/17, the programme was rolled out to the entire country (MGLSD 2019a). This policy is not simulated in UGAMOD.

Not strictly benefit 4 *(Operation Wealth Creation*[1] *(OWC)):* The Operation Wealth Creation is a government programme launched in 2013 with the aim of transforming the agriculture sector from being dominated by subsistence farmers to a dominance of commercial farmers. The OWC programme is implemented under the National Agricultural Advisory Development Services (NAADS) in the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) with the mandate to provide agricultural inputs. These inputs include seedlings and planting materials for priority crops such as maize, beans, mango, apple, cocoa, cassava, Irish potatoes, banana plantlets, pineapple suckers. Special interest groups for women and youth groups are eligible to receive seedlings for ginger, passion fruit, grapes, depending on the availability of resources. On the other hand, OWC provides livestock farmers with young animals such as dairy heifers, beef cattle, piglets, poultry birds and feeds, fish fingerlings (Tilapia, catfish, mirror carp) and fish feeds, goats, artificial insemination kits, Pasteur seeds for seed multiplication. The programme also supports value-addition activities such as providing maize milling equipment, milk coolers with matching generators, fruit processing equipment (small, medium, and large scale) to viable organized farmer groups. Furthermore, OWC intends to provide agricultural production implements, for example tractors and matching implements, solar water pumping systems on selected demonstration farms to support strategic interventions in the agriculture sector. Lastly, OWC plans to revitalize the role of farmer groups in the implementation of the NAADS and OWC programmes. This policy is not simulated in UGAMOD.

1.3 Social contributions

Social (insurance) contribution 1 (*NSSF*): NSSF Uganda is a national saving scheme mandated by the government through the NSSF Act, Cap 222 (Laws of Uganda) to provide social security services to employees in Uganda. NSSF Uganda is a provident fund and covers employees in the private sector. It is a contributory scheme and is funded by contributions from employees and employers, of 5 and 10 per cent, respectively, of the employee's gross monthly wage. Since 2012, the fund is regulated by the Uganda Retirement Benefits Regulatory Authority while MoFPED is responsible for overseeing policy.

As per the Act, NSSF administers and pays qualified contributing persons the following benefits as a matter of right:

Age benefit: This is paid to persons who have reached the retirement age of 55 years. Age benefit can also be claimed on attaining the age of 50 years, provided the claimant has retired from employment.

Survivors' benefit: This is paid to the immediate surviving family (spouse and children) of the deceased person. In case the individual did not have a spouse or children, the benefit is paid to parents if they solely depended upon the deceased person.

Exempted employment: This is paid to persons who join exempted employment categories that have their own social protection schemes (e.g. public service, army, police, etc.).

Emigration grant: This is paid to foreign[2] or Ugandan nationals who are leaving the country permanently.

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[1] Source for this section: Ministry of Agriculture, Animal Industry and Fisheries (MAAIF 2019).

[2] From the National Social Security Fund (NSSF) Act, foreign nationals in this context refer to non-Ugandans who have been working in Uganda and contributing to the NSSF.

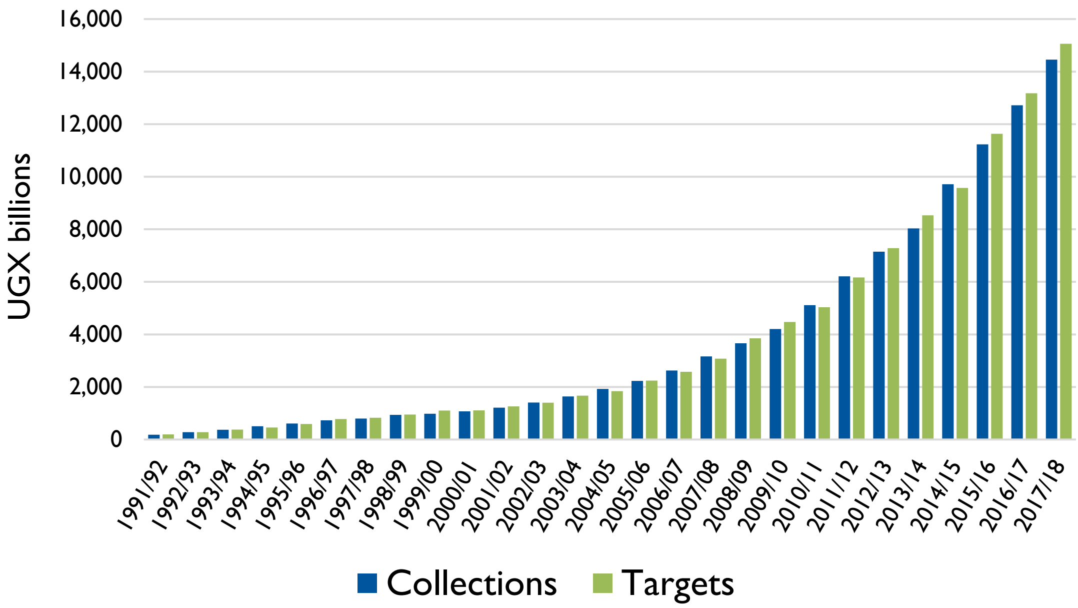
Invalidity benefit: This is paid to persons who can no longer be gainfully employed because of physical or mental incapacitation.

Withdrawal benefit: This is paid to a person if s/he attains the age of 50 years and if s/he has not been employed under a contract of service for a period of 1 year immediately preceding his or her claim

1.4 Taxes

The URA was established by an Act of Parliament in September 1991 as a central body for the assessment, collection, and accounting of government revenue. In fulfilling this obligation, the URA administers and enforces laws relating to such revenue and advises government on tax policy matters. Before the establishment of the URA, central government taxes were collected by the Ministry of Finance. The government hoped to achieve two main objectives when it established the URA (Kangave 2005). First, by removing tax collection obligation from the Ministry of Finance, it was anticipated that the newly established revenue authority would operate with limited political interference. Second, creating the URA as an autonomous statutory body not part of civil service would provide an opportunity to offer better remuneration and thereby attract and retain competent staff. These reforms, along with the introduction of VAT in 1996 and the enactment of a new income tax law in 1997, registered success in terms of revenue collection over time (Figure 1.1).

Figure 1.1: Tax revenue performance, 1991/92–2017/18 (UGX billions)



Source: Authors' compilation based on URA annual revenue data.

The URA collects both tax and non-tax revenues. Tax revenues include domestic taxes and international trade taxes. Domestic taxes consist of income tax (corporation tax, individual income tax, pay-as-you-earn (PAYE), presumptive tax, rental income tax), withholding tax, tax on bank interest, casino tax, excise duty, and VAT. International trade taxes include petroleum duty, import duty, excise duty, VAT on imports, withholding taxes on imports, and levies among others. Non-tax revenue includes fees and licences.

During the financial year 2017/18, domestic taxes contributed 59.4 per cent and international trade taxes 40.6 per cent of the gross revenues. The major contributing tax heads were PAYE (16.6 per cent), VAT (15.1 per cent), VAT on imports (15.7 per cent), and petroleum duty (12.2 per cent), as seen in Table 1.1.

Table 1.1: Tax revenue collections for financial year 2017/18

	Collections (UGX billions)	Percentage share
Gross revenues (includes all NTR)	14,659.8	100.00
Domestic taxes	8,448.9	59.40
Taxes on international trade	6,210.8	40.60
Direct domestic taxes	4,670.7	32.50
PAYE	2,396.1	16.60
Corporate tax	884.8	6.90
Other corporate tax	101.6	0.40
Presumptive tax	5.3	0.00
Withholding tax	754.3	5.00
Rental income tax	88.7	0.70
Casino tax	29.2	0.20
Other	55.2	0.30
Indirect domestic taxes	3,188.7	22.80
Excise duty	953.9	7.80
VAT	2,234.8	15.10
Taxes on international trade	6,210.8	40.60
Petroleum duty	1,811.8	12.00
Import duty	1,223.8	8.00
Excise duty	196.9	1.30
VAT on imports	2,416.6	15.70
Withholding taxes	179.6	1.10
Infrastructure levy	87.7	0.50
Hides and skins levy	12.4	0.10
Fees and licenses	209.5	1.40
Total NTR	380.0	2.70

Note: NTR, non-tax revenue; VAT, value-added tax.

Source: Authors' compilation based on URA revenue data.

Tax 1 (*PAYE*): Employers are required by law to deduct income tax from an employee's taxable salary via PAYE. For PAYE, a withholding tax approach is used.

Tax 2 (*Individual income tax*): This is applicable to individuals earning business income (self-employment) or those with both employment income and business income

Tax 3 (*Rental income tax*): This is charged separately from income tax for persons earning rental income for a year of income. (Rent is not included under the gross income of an individual.) For individual taxpayers, an allowable deduction of 20 per cent of the rental income as expenditures and losses incurred by individual in the production of income is given. It is charged as 20 per cent of the chargeable income in excess of UGX 2,820,000 per year.

Tax 4 (*Presumptive tax—income tax on small businesses*): This is applied to resident persons (individuals and non-individuals) with businesses that have an annual turnover of less than UGX 150 million (see Waiswa et al. 2021). No deductions or tax credits are allowed. This is treated as the final tax.

Tax 5 (*VAT—on supply and imports of domestic goods and services*): VAT registration is required when taxable turnover exceeds UGX 150 million per year. The standard rate is 18 per cent (see the VAT Act in Okuja 2018).

Tax 6 (*Excise—domestic and international trade*): Different commodities have different tax rates. It includes a mix of specific rates and ad valorem rates (see Kavuma et al. 2020).

Tax 7 (*LST*): This is levied on the wealth and income of the following categories of people, and the assessment is fair, equitable, and non-regressive: persons in gainful employment, self-employed and practising professionals, self-employed artisans, businessmen, and businesswomen.

2 Simulation of taxes and benefits in UGAMOD

2.1 Scope of simulation

Table 2.1 shows the benefit policies that are simulated in UGAMOD. Table 2.2 lists the main taxes and social contributions and specifies which ones are simulated within UGAMOD.

Table 2.1: Simulation of benefits in UGAMOD

	Variable name	Treatment in UGAMOD					Why not simulated?
		2016	2017	2018	2019	2020	
Pension benefits (Senior Citizens' Grant) (*boa_ug)*	*boa_s*	S	S	S	S	S	N/A
Extremely Vulnerable Households Programme	/	E	E	E	E	E	Insufficient policy details
Youth Livelihood Programme	/	E	E	E	E	E	Insufficient information in dataset
Disability Support Grant	/	E	E	E	E	E	Insufficient information in dataset
Uganda Women's Entrepreneurship Programme	/	E	E	E	E	E	Insufficient information in dataset
Operation Wealth Creation	/	E	E	E	E	E	Requires further investigation

Notes: 'S' policy is simulated although some minor or very specific rules may not be simulated. 'E' policy is not simulated.

Source: Authors' compilation.

Table 2.2: Simulation of taxes and social contributions in UGAMOD

	Variable name	Treatment in UGAMOD				
		2016	2017	2018	2019	2020
Taxes						
Personal income tax (*tin_ug)*	*tin_s*	S	S	S	S	S
Presumptive turnover tax *(ttn_ug)*	*ttn_ss*	S	S	S	S	S
LST *(tgv_ug)*	*tgv_s*	S	S	S	S	S
Rental income tax *(tpr_ug)*	*tpr_s*	S	S	S	S	S
VAT *(tva_ug)*	*tva_s*	S	S	S	S	S
Excise duty (*tex_ug)*	*tex_s*	S	S	S	S	S
Social contributions						
Employee pension contribution *(tscee_ug)*	*tscee_s*	S	S	S	S	S
Employer pension contribution *(tscer_ug)*	*tscer_s*	S	S	S	S	S

Notes: LST, local service tax. 'S' policy is simulated although some minor or very specific rules may not be simulated.

Source: Authors' compilation.

2.2 Order of simulation and interdependencies

Table 2.3 presents the order of the main elements of the Ugandan system for 2016–20 for simulations.

Table 2.3: UGAMOD spine: Order of simulation

Policy	2016	2017	2018	2019	2020
uprate_ug	On	On	On	On	On
lma_ug	Off	Off	Off	Off	On
ildef_std_ug	On	On	On	On	On
Ildef_non_std_ug	On	On	On	On	On
Ildef_stats_ug	On	On	On	On	On
Ildef_exp_ug	On	On	On	On	On
tudef_ug	On	On	On	On	On
constdef_ug	On	On	On	On	On
random_ug	N/A	N/A	N/A	N/A	On
spl_ug	On	On	On	On	On
ses_ug	On	On	On	On	On
tscee_ug	On	On	On	On	On
tscer_ug	On	On	On	On	On
tgv_ug	On	On	On	On	On
tpr_ug	On	On	On	On	On
ttn_ug	On	On	On	On	On
tin_ug	On	On	On	On	On
boa_ug	On	On	On	On	On
tva_ug	On	On	On	On	On
tex_ug	On	On	On	On	On
xhhadj_ug	On	On	On	On	On
output_std_ug	On	On	On	On	On
output_std_hh_ug	Off	Off	Off	Off	Off

Source: Authors' compilation based on the UGAMOD model.

2.3 Switches

There are two extensions (switches) in UGAMOD, both of which occur in the presumptive tax policy (ttn_ug). They only apply to the 2020 system and are explained below in the section on this policy.

2.4 Social benefits

2.4.1 Basic social assistance (Senior Citizens' Grant) (boa_ug)

Definitions

For the purposes of this benefit, a senior citizen is defined as aged 60 and above, but the eligibility conditions vary by age (see below).

Eligibility conditions

The eligibility criteria have changed over time for this benefit. It was initially targeted at older persons of 65 years and above in selected districts. The age threshold was then lowered to 60 years in the case of people living in the more vulnerable Karamoja region. The benefit was extended to an increasing number of districts for those aged 65 and above. From 1 July 2020, the grant was rolled out nationwide to all persons above the age of 80. However, previous beneficiaries below the age of 80 years are still eligible.

Income test

There is no income test.

Benefit amount and duration

The amount payable is 25,000 Ugandan shillings (UGX) (US$8) per month.

UGAMOD notes

The universal benefit for those aged 80 and above is included in UGAMOD's 2020 and 2021 systems. Individuals aged 60 and above in the Karamoja region and aged 65 and above in the other districts that were included in the scheme in 2019 are treated as eligible for the benefit in 2020 and 2021, with appropriate adjustments to the ages in the policy.

2.5 Social insurance

2.5.1 Social insurance contributions (National Social Security Fund, NSSF) (tscee_ug, tscer_ug)

Liability to contributions

NSSF Uganda is a national saving scheme mandated by the government through the NSSF Act, Cap 222 (Laws of Uganda) to provide social security services to employees in Uganda.

Income base used to calculate contributions

The employee's gross monthly wage.

Contribution rates

The employee and employer contribute 5 per cent and 10 per cent of gross earnings per month, respectively.

UGAMOD notes

This is simulated for individuals who work in the formal sector.

2.6 Direct taxes

2.6.1 Personal income tax (tin_ug)

Tax unit

The tax unit is at the level of the individual.

Exemptions

The following incomes are exempted from personal income tax (PIT): employment income of the police and armed forces, pensions, allowances for members of parliament.

Tax allowances

We define tax allowances as any amount subtracted from pre-tax income (including social insurance contributions). Differently from Verbist (2004), there is no distinction between those that are fixed amounts (tax allowances) and those whose level is a function of pre-tax income (deductions). Tax rebates are deductions from tax payable (as distinct from tax allowances that are deductions from pre-tax income).

In Uganda, contributions by employees to NSSF are treated as tax allowances.

Tax base

Personal income tax: Income from employment, agriculture, 'other income'. In addition, self-employment income is included for those whose turnover is less than 10 million per year but who also have other types of taxable income; and the self-employment income of those with turnover greater than 150 million per year (see UGAMOD notes below for presumptive tax). Income tax rates for individuals are shown in Table 2.4.

Tax schedule

Table 2.4: Income tax rates for individuals, 2019

Chargeable income	Rate of tax
≤2,820,000 per year (or 235,000 per month)	Nil
>2,820,000≤4,020,000 per year (or 335,000 per month)	10% on amount in excess of 2,820,000 (or 235,000 per month)
>4,020,000≤4,920,000 per year (or 410,000 per month)	120,000 (10,000 per month)+20% on amount in excess of 4,020,000 (or 335,000 per month)
>4,920,000≤120,000,000 per year	300,000 (25,000 per month)+30% on amount in excess of 4,920,000 (or 410,000 per month).
>120,000,000 per year (or 10,000,000 per month)	Where income exceeds 120,000,000 (10,000,000 per month) 40% is charged on the amount in excess of 120,000,000 (10,000,000 per month)

Source: Authors' compilation from the Ugandan ITA (see Okuja 2018).

UGAMOD notes

For employed persons, simulation of personal income tax is restricted to those in the formal sector.

For further details see Income Tax Act (of 1 July 1997, Cap 340 of the Laws of Uganda 2000).

2.6.2 Presumptive tax (ttn_ug)

Tax unit

The tax unit is the individual.

Tax base

The tax base is the individual's turnover.

Exemptions

This tax does not apply to a resident taxpayer who is in the business of providing medical, dental, architectural, engineering, accounting, legal, or other professional services; public entertainment services; public utility services; or construction services.

Tax schedule

Tables 2.5 and 2.6 show the tax schedule for the years 2016–19 inclusive.

Table 2.5: Small business taxpayers' tax rates for all areas in Uganda, 2019

Gross turnover	Tax
Where the gross turnover of the taxpayer exceeds UGX 50 million but does not exceed UGX 75 million per annum	UGX 937,500 or 1.5% of the gross turnover, whichever is lower
Where the gross turnover of the taxpayer exceeds UGX 75 million but does not exceed UGX 100 million per annum	UGX 1,312,500 or 1.5% of the gross turnover, whichever is lower
Where the gross turnover of the taxpayer exceeds UGX 100 million but does not exceed UGX 125 million per annum	UGX 1,687,500 or 1.5% of the gross turnover, whichever is lower
Where the gross turnover of the taxpayer exceeds UGX 125 million but does not exceed UGX 150 million per annum	UGX 2,062,500 or 1.5% of the gross turnover, whichever is lower

Note: See Table 2.6 for the tax rates for small business taxpayers with turnover of less than UGX 50 million per annum.

Source: Authors' compilation from the Ugandan ITA (see Okuja 2018).

Table 2.6: Tax rates for different trades in Kampala City divisions, municipalities, and towns and trading centres, 2019

Business trade	Where the gross turnover exceeds UGX 35 million but does not exceed UGX 50 million	Where the gross turnover exceeds UGX 20 million but does not exceed UGX 35 million	Where the gross turnover exceeds UGX 10 million but does not exceed UGX 20 million
Kampala City divisions			
General trade	500,000	400,000	250,000
Carpentry/metal workshops	500,000	400,000	250,000
Garages (motor vehicle repair)	550,000	450,000	300,000
Hair and beauty/salons	550,000	400,000	300,000
Restaurants or bars	550,000	450,000	300,000
Drug shops	500,000	350,000	250,000
Others	450,000	300,000	200,000
Municipalities			
General trade	400,000	300,000	150,000
Carpentry/metal workshops	400,000	300,000	150,000
Garages (motor vehicle repair)	450,000	350,000	200,000
Hair and beauty/salons	450,000	350,000	200,000
Restaurants or bars	450,000	350,000	200,000
Drug shops	400,000	300,000	150,000
Others	400,000	350,000	150,000
Towns and trading centres			
General trade	300,000	200,000	100,000
Carpentry/metal workshops	300,000	200,000	100,000
Garages (motor vehicle repair)	350,000	250,000	100,000
Hair and beauty/salons	350,000	250,000	100,000
Restaurants or bars	350,000	250,000	100,000
Drug shops	300,000	200,000	100,000
Others	300,000	250,000	100,000

Source: Authors' compilation from the Ugandan ITA (see Okuja 2018).

Significant changes were made to this policy in 2020. Table 2.7 shows the new tax rates for presumptive tax, and how they differ depending on whether the individual does not keep records or does keep records.

Table 2.7: Presumptive tax rates, 2020

Effective 2020/21	Turnover (Million shillings)	Without records: tax payable per year	With records
	0–10	0%	0%
	10–30	80,000	0.4 % of the annual turnover in excess of 10M
	30–50	200,000	80,000+ 0.5% of the annual turnover in excess of 30M
	50–80	400,000	180,000+ 0.6% of the annual turnover in excess of 50M
	80–150	900,000	360,000+ 0.7% of the annual turnover in excess of 80M

Source: Authors' interpretation of the Income Tax Act Amendment of 1 July 2020.

UGAMOD notes

UGAMOD's 2020 system contains two switches for presumptive tax. The first switch ('pt_wr' or 'Presumptive Tax with records') enables the assumption to be applied that no-one keeps records ('off'), which is the default, or that everyone keeps records ('on'). Results for both extreme scenarios are shown in the validation section.

The simulated results for both scenarios greatly exceed the reported presumptive tax revenue, and so a further switch was incorporated into the model for the scenario where everyone keeps records, to adjust the simulated tax downwards to match actual reported presumptive tax revenue for 2020. This second switch is called 'pt_wr_adj' or 'Presumptive Tax with records downwards adjustment'; the default for the switch is that it is 'off' (i.e. the simulated tax is not downwards adjusted). The correct use of this second switch requires the first switch 'pt_wr' to be set 'on' as well as the second switch 'pt_wr_adj' to be set 'on'.

The user should note that presumptive tax is over-simulated for all years, but the downwards adjustment is only applied in the 2020 system.

The user should also note that, although the 2020 presumptive tax rules were introduced in 2020 (and are included in the 2020 system of UGAMOD v1.8), in practice these revised rules were not implemented until a year later (see Waiswa et al. 2021 for more details).

Three mutually exclusive scenarios are modelled in UGAMOD with respect to presumptive tax:

1 If turnover is above 150m per year, then that individual will not pay presumptive tax. Instead, they will pay income tax on their profit, according to the PIT schedule.
2 If turnover is between 10m per year and less than 150m per year (irrespective of the size of their profit), they will pay presumptive tax on that turnover, according to the presumptive tax schedule.
3 If turnover is less than 10m per year, then the individual is not subject to presumptive tax. That turnover can be wholly disregarded within UGAMOD.

For the individuals in scenario (3), some will have a turnover less than 10m per year, yet will still have a profit after deductions (e.g. 7m per year). There are two possible outcomes for such individuals in terms of how they are then treated in the PIT policy:

a If the person has no other sources of income, then the 7m profit is ignored. The 7m profit **is not** incorporated into the PIT calculation.
b If the person has one or more other sources of income (for example, the person has a job and runs the business at weekends), then the 7m profit **is** included within PIT in addition to their income from their employment (yem).

For further details, see Income Tax Act (of 1 July 1997, Cap 340 of the Laws of Uganda 2000) and Waiswa et al. (2021).

2.6.3 Local service tax (tgv_ug)

Tax unit

The tax unit is the individual.

Tax base

Local service tax is applied to employment earnings for those in the formal sector, and to self-employed earnings for self-employed professionals and artisans, and to the turnover of business men and women including commercial farmers (LGFC 2008).

Exemptions

The salaries of the following categories of people are exempted from LST: members of the police force, prison services, Uganda Peoples' Defence Force, unemployed persons, peasants (people living in poverty and unable to earn a minimum income to access basic necessities of life), and individuals on diplomatic missions accredited to Uganda.

Tax schedule

The tax schedule for local service tax is shown in Table 2.8.

Table 2.8: Tax schedule for local service tax, 2016–21

Occupation and taxable income	Range of taxable income UGX (monthly)	Annual tax payment UGX
People in formal employment excluding the defense force and police. Salaries and wages (*yem*).	100,001-200,000	5,000
	200,001-300,000	10,000
	300,001-400,000	20,000
	400,001-500,000	30,000
	500,001-600,000	40,000
	600,001-700,000	60,000
	700,001-800,000	70,000
	800,001-900,000	80,000
	900,001-1,000,000	90,000
	1,000,000 and above	100,000
Self-employed professionals Earnings from self-employment (*yse)*	599,001-999,999	50,000
	1,000,000 and above	100,000
Self-employed artisans Earnings from self-employment (*yse)*	100,001-200,000	50,000
	200,001-300,000	10,000
	300,000 and above	20,000
Business people Turnover (*ytn)*	500,001-1,000,000	5,000
	1,000,001-2,000,000	10,000
	2,000,001-3,000,000	20,000
	3,000,001-4,000,000	30,000
	4,000,001-5,000,000	40,000
	5,000,001-6,000,000	50,000
	6,000,001-7,000,000	60,000
	7,000,001-8,000,000	70,000
	8,000,001-9,000,000	80,000
	9,000,001-10,000,000	90,000
	10,000,000 and above	100,000

Source: Authors' interpretation of LGFC (2008).

UGAMOD notes

None.

2.6.4 Rental income tax (tpr_ug)

Tax unit

The tax unit is the individual.

Tax base

Rental tax is payable on income from property (*ypr)* and land *(yprld)* above the threshold of UGX 2,820,000 per year, so long as 80 per cent of the overall revenue also exceeds the threshold UGX 2,820,000 per year (Okuja 2018).

Tax schedule

The rental income tax is calculated at 20 per cent of balance of 80 per cent of the annual revenue minus the threshold of UGX 2,820,000 per year.

UGAMOD notes

None.

2.7 Indirect taxes

2.7.1 VAT (tva_ug)

Tax unit

The tax unit is the household. VAT is simulated based on household purchases of goods and services.

Exemptions

VAT-exempted items include certain food items (e.g., rice, fruit, and vegetables), types of medicines and healthcare provision, postal services, day care facilities and types of insurance (The Value Added Tax (Amendment) Act 2015, of 1 July).

Tax base

VAT is applied to transactions of certain goods and services (Value Added Tax Act (of 1 July 1996, Cap 349 of the Laws of Uganda 2000)

Tax schedule

The standard rate of VAT is 18 per cent (The Value Added Tax (Rate of Tax) Order 2006, of 1 July 2005).

UGAMOD notes

A total of 185 purchasable items are listed in the income list 'il_exp_vat01' in the policy tva_ug, with zero-rated or VAT-exempt items shown as 'n/a'.

2.7.2 Excise duty (tex_ug)

Tax unit

The tax unit is the household. Excise duty is simulated based on household purchases of certain goods and services.

Tax base

Excise duty is payable on selected items and is administered under the Excise Act of 2014.

Tax schedule

The rates of duty are listed in the Second Schedule of the Excise Duty Act (Amended) of 2014. See also the appendix of Kavuma et al. (2020).

UGAMOD notes

Excise duty is simulated for 15 items in UGAMOD (sugar, mineral water, soft drinks, fruit juices, other juices, domestic beer, gin (*waragi*), cigarettes, vehicle fuel (petrol and diesel), engine gear and different oil/petroleum jelly, kerosene/paraffin, mobile phone airtime, mobile payments, and furniture).

During the preparation of the underpinning dataset, expenditure items which are subject to excise were stripped of excise taxes. As VAT is charged in addition to excise in Uganda, this was also stripped off during the data preparation stage. This enabled the expenditure items to be brought into the model net of excise and VAT.

Given that VAT is payable on the cost of these items *after* excise duty, a decision was made to simulate excise and VAT for these items in the same UGAMOD policy.

3 Data

3.1 General description

The UGAMOD model used data from the 2016/17 Uganda National Household Survey (UNHS), which is the sixth national household cross-section survey conducted by UBOS. The UNHS is an integrated household survey with data collected using four modules: socio-economic, labour force, community, and market price. The data used to generate the UGAMOD database were obtained from two modules: the socio-economic and labour force modules that include data on the demographic and socio-economic characteristics of households, such as educational attainment, health status, household income, expenditure and assets, and labour market characteristics. Data were collected for a period of 12 months from a total of 15,721 households. Table 3.1 describes the database.

Table 3.1: UGAMOD database

Characteristic	Description
Name	Uganda National Household Survey
Provider	Uganda National Bureau of Statistics
Year of collection	2016/17
Period of collection	June 2016 to June 2017
Income reference period	Monthly
Sample size	74,422 individuals and 15,721 households
Response rate	91%

Source: 2016/17 UNHS (see UBOS 2018).

3.2 Data adjustment

3.2.1 General data adjustments

The UNHS data are stored in separate files for each of the sections of the questionnaire. Consequently, the data compilation process involved the merging of 17 separate files on the various dimensions of household and individual demographic and socio-economic characteristics using both the household identifier (*hhid*) and the person identifier (*pid*) to create an individual-level database. The database excluded a total of 2,341 individuals who were not permanent members of the household because of being guests (1,743), having left the household more than 6 months ago (202), having left permanently (277), or having died (119).

3.2.2 Income shocks resulting from the COVID-19 pandemic

Policy systems for years 2016–20 in UGAMOD v1.8 use data from the 2016/17 Uganda National Household Survey (UNHS). This means that incomes and consumption expenditures in the 2020 policy system are not adjusted downwards automatically despite the economic shock resulting from the COVID-19 pandemic.

For the courtesy of the user, UGAMOD v1.8 includes a new definitional policy, 'lma_ug', that applies relevant shocks to incomes 'on-model' in 2020. When the policy is set 'on' (default in the 2020 policy system), a portion of workers in each industry transitions from paid employment to unemployment with zero market income. Household consumption expenditures are adjusted downwards accordingly based on absolute reductions in disposable income.

The adjustment is achieved by applying the 'transition shares' listed in Table 3.2 to randomly selected workers in each sector. The transition shares are derived from changes in each industry's GDP from its counterfactual value for 2020, computed based on the pre-pandemic, 2017–19 linear trend (see Lastunen 2022 for detailed information on the methodology). The GDP shocks are used as a proxy for average losses of market income in each sector. Specifically, it is assumed that the size of the proportional GDP shock in a given sector is equivalent to the share of workers who transition to unemployment with zero market income.

Note that the GDP shocks capture not just the pandemic but also other industry-level economic developments that took place in 2020 and deviated from pre-pandemic trends. Accordingly, the related labour market transitions and shocks apply to the entire year of 2020.

Additional details of the derivation of the GDP shocks (sectoral transition shares) and the modelling of income and consumption shocks are available in a separate technical note by Lastunen (2022). It is useful to emphasize that this particular method to modelling on-model shocks in UGAMOD is based on several assumptions, equivalent in all SOUTHMOD models, that the user is free to amend.[3]

Finally, subject to the availability of sectoral GDP data, future versions of UGAMOD will also introduce on-model shocks for the 2021 system year. Individual-level survey data will eventually become available that can be used to underpin the model, making it possible to account for the pandemic without separate on-model adjustments.

Table 3.2: Transition shares from paid employment to unemployment with no market income

Industry no. (lindi00)	Industry	Transition share
1	Agriculture	0.0025
2	Forestry	0.0610
3	Fishing	0.1599
4	Mining and quarrying	0.1421
5	Manufacturing	0.0692
6	Electricity, gas, and water	0
7	Construction	0.0817
8	Trade and repairs	0.0195
9	Transportation and storage	0.0720
10	Accommodation and food service activities	0.2541
11	Information and communication	0
12	Financial and insurance activities	0.0117
13	Real estate activities	0.0247
14	Professional, scientific, and technical activities	0.5312
15	Administrative and support services	0.1429
16	Public administration	0
17	Education	0.2881
18	Human health and social work activities	0
19	Other service activities	0.0499
20	Activities of households as employers	0

Source: Authors' compilation.

3.3 Imputations and assumptions

In order to generate relevant variables for the UGAMOD model, where applicable, we imputed missing values from existing variables using plausible assumptions. For instance, there were nine missing ages (*dag*) of which it was possible to impute one value using the month and year of birth.

The *idpartner* variable was created from the variable capturing the relationship of the household member to the household head. Specifically, we used the response of spouse to generate the *idpartner* variable. The *idfather* and *idmother* variables were constructed from responses to three questions: Is the biological father (mother) of (name) alive? Is he (she) living in this household? And what is the ID/name of the father (mother)? There were 239 cases with no father other than dead or absent from the household and only 86 cases with no mother other than dead or absent from the household. The missing values for *idfather* and *idmother* were identified and replaced using the gender variable and variable capturing the relationship of the household member to the household head. The *idfather* and *idmother* were used to generate the *idparent* variable.

[3] Among other assumptions made in the current implementation of on-model shocks, only market income ('yem', 'yse', and 'yag', items that make up the 'earnings' income list) is reduced. Furthermore, farm income ('yag') is only reduced for formal workers in the agricultural sector who have other sources of earnings ('yem' or 'yse'). The user can change the related parameters or rely on alternative assumptions. Lastly, any sector-level positive shocks are not taken into account.

In order to compute the LST and presumptive tax, it was necessary to create a number of flags, such as the municipality flag (*drgn3*), town council flag (*drgn4*), and trades flag (*tcl*). The variables *drgn3* and *drgn4* were generated using information on location variables on districts, municipalities, and town councils. The *tcl* variable was constructed using the occupation variable (*loc*) data and responses to the following question: What kind of work do you usually do in the main job/activity that you had last week or from which you were absent? The aim was to identify different trades that are provided for in the presumptive tax policy.

The income of an employee (*yem*) was computed on the basis of earnings from the main job using reported earnings for a specified period of time, including hourly, daily, weekly, every 2 weeks, twice monthly, monthly, annually, and other (specify). Given that majority (63.61 per cent) of the workers reported monthly income, the rest of the earnings were converted into monthly earnings as a measure of standardizing the earnings. To convert hourly earnings into monthly earnings, the reported earnings were multiplied with the reported weekly hours worked and by 4. The daily earnings were converted by multiplying the earnings with 20 days (it was assumed the employee works 5 days a week). The weekly earnings were multiplied by 52/12 weeks. The bi-monthly earnings were multiplied by 2, while annual earnings were divided by 12. The data had a few outliers at the top of the income distribution and were capped at 99 per cent of the income distribution. The computed *yem* is gross income.

Income for the self-employed (*yse*) was constructed from individual responses on monthly net profit in the raw data. Other types of income were reported on a household level for a period of 12 months, such as income from agricultural activities (*yag*), building rent (*ypr*), land lease (*yprld*), private transfers (*ypt*), interest earned (*yiyit*), dividends (*yiydv*), and other sources (*yot*). These were converted to monthly earnings by dividing the income with 12 months in reference to the household variable (*dhh*) to attribute the income to the household head and data were capped at 99 per cent to remove outliers at the top of the income distribution.

A new methodology for modelling VAT and excise duties was introduced into SOUTHMOD models in 2017. This involves removing VAT and excise duty (where applicable) from expenditure items at the point of preparation of the data so that expenditure is brought into the model ex-VAT and excise. This simplifies the modelling of indirect taxes on the model. The VAT and excise duty removed are carried into the model as the variables for imputed VAT (*tvaiv)* and imputed excise duty (*texiv)*.

For the correct functioning of estimates of consumption poverty using the Statistics Presenter application within the model, variables for imputed direct taxes (*tis* and *ttn*) were created as well as a number of other variables (see DRD[4] for details of the other variables). Imputed direct taxes are required because direct tax information is not collected by the survey instrument. Because of the complexity of direct taxes in Uganda, an innovative method was employed for the imputation process. First, the input dataset was completed without direct tax imputation. Second, the model (which was also complete) was run in order to generate modelled taxes and employee social security contributions for 2016. Third, these modelled taxes (personal income tax, presumptive tax, rental income tax, LST, and employee social insurance contributions) were brought back into the input dataset to create the imputed variables *tis* and *ttn*. This methodology is more straightforward than trying to simulate the imputed taxes using STATA code.

There are two main poverty lines in the UNHS data: the basic needs poverty line and the food poverty line. The former is the most widely used and so is used in UGAMOD. The basic needs poverty line is reported in the data in the variable *spline*. There are eight values for the basic needs poverty line, ranging from UGX 40,558.76 to UGX 46,233.65 based on the region where the household is located. It was possible to incorporate the eight values for the basic needs poverty line in the model. With regard

[4] Data Requirement Document is an Excel file that shows how all variables in the model were constructed from the original dataset. This is available on request from the authors.

to household monthly consumption (*xhh*) in the model, the basic needs poverty line uses the variable *cpexp30* (monthly household expenditures in constant prices after adjusting for regional prices).

3.3.1 Time period

The survey data were collected between June 2016 and June 2017. Income data were gathered in relation to the previous week or month or year before the first date of interview.

3.3.2 Gross incomes

Gross incomes are reported in the 2016/17 UNHS.

3.3.3 Disaggregation of harmonized variables

It was not necessary to disaggregate composite variables for the UGAMOD dataset.

3.4 Updating

To account for any time inconsistencies between the input dataset and the policy year, uprating factors are used. Each monetary variable (i.e. each income component) is updated to account for changes in the non-simulated variables that have taken place between the year of the data and the year of the simulated tax–benefit system. Uprating factors are generally based on changes in the average value of an income component between the year of the data and the policy year.

The list of uprating factors as well as the sources used to derive them can be found in Table 3.3.

Given that the financial year in Uganda runs from 1 July to 30 June, a decision was made to uprate the model to a time point of 1 July in each year and the uprating indices have been adjusted accordingly.

Table 3.3: Raw Indices for deriving UGAMOD uprating factors

	Constant name	2015	2016	2017	2018	2019	2020
Overall CPI (base October 2009=100)	$f_CPI_Overall	150.3	158.1	167.1	172.2	176.5	184.64
Food CPI (base October 2009=100)	$f_CPI_Food	159.2	166.8	184.9	180	184.7	189.85
Non-food CPI (base October 2009=100)	$f_CPI_Non_Food	146.9	154.7	160.2	169.6	173.7	182.74
Alcohol CPI (base October 2009=100)	$f_CPI_Alcohol	144.9	153.1	153.9	158.5	160.4	161.93
Tobacco CPI (base October 2009=100)	$f_CPI_Tobacco	144.9	153.1	153.9	158.5	160.4	161.93
Fuel CPI (base October 2009=100)	$f_CPI_Fuel	162.8	167.6	180.7	209.6	207.0	207.62

Note: CPI, consumer price index.

Source: Authors' compilation based on UBOS annual statistical abstracts.

3.5 Consumption levels

Consumption levels are based on the original reported consumption levels in the input data (xhh). These levels are uprated from the base year to the policy year and adjusted by absolute changes in disposable income from the base year to the policy year.

The change in disposable income takes into account changes in market incomes (e.g. COVID-related decreases in earnings) as well as changes in benefits and contributions. The underlying assumption is that changes in disposable incomes lead to the same changes in consumption levels. In recognition of the fact that there may be some consumption of own-account produced food, in cases where the base year disposable income is higher than the disposable income in the policy year, a proportion of the original consumption is assumed to be unaffected. This proportion is assumed to be 25 per cent of the original consumption following Tschirley et al. (2015).

4 Validation

4.1 Aggregate validation

UGAMOD results have been validated against external benchmarks where feasible. The main discrepancies between UGAMOD results and external benchmarks are discussed in the following sub-sections. Factors that may explain the observed differences are also discussed.

4.1.1 Validation of outputted (simulated) taxes

Table A1 in the Annex compares the UGAMOD-simulated taxpayers with figures from the URA. With respect to personal income tax, the 2019 system simulates 1.57 million payers, falling to 1.47 million in 2020. The UGAMOD-simulated number of PIT payers is just over double the number of taxpayers from administrative sources in 2019, and just under double the number of taxpayers in 2020 (if defined as number of employees declared by employers in PAYE returns plus number of individuals that actually paid income tax excluding employees). The discrepancy could be largely attributed to the high non-compliance levels of individual taxpayers generally (Kangave et al. 2018; Moore and Prichard 2017). However, the 2019 UGAMOD-simulated number of PIT payers almost equals the number of taxpayers from administrative sources if defined in another way (as the number of registered taxpayers with employment as a source of income plus number of registered individual income taxpayers, excluding employees and rental taxpayers). Table A2 shows that with respect to the simulated amount of PIT, UGAMOD simulates 74 per cent of reported PIT revenue for 2019 and 67 per cent for 2020 (defined as income tax paid by employees and non-employee individuals).

Drilling down to just the PAYE element of PIT, the 2019 system simulates 675,914 PAYE payers (not shown in table), compared with 693,947 (URA figure for number of employees declared by employers in PAYE returns), so UGAMOD simulates 97 per cent of recorded PAYE payers. However, simulated PAYE tax revenue (not shown in table) is only 45 per cent of URA's recorded PAYE receipt: this implies that high income earners are under-represented in the survey, which is a common issue in surveys internationally due to high-income earners' tendency to refuse to participate in surveys.

UGAMOD simulates 970,964 presumptive taxpayers for 2019, which is 60 times larger than the URA reported number of individual presumptive taxpayers for that year (16,245) (Table A1). The simulated revenue from presumptive tax also exceeds reported receipt: in 2019, UGAMOD simulates almost 60 times more revenue from this tax than was received by URA. (see Table A2). It is likely that there are significant issues with non-compliance. As mentioned earlier, the rules for this tax were changed significantly (and greatly simplified) in 2020. The simulated revenue from this tax for 2020 is therefore much lower than for previous years, although the simulation still far exceeds reported revenue. Results for 2020 are presented for two extreme options: first, assuming that individual payers of this tax do not keep records (UGX 167.7 billion in 2020), and second, assuming that they do keep records (UGX 90.3

billion in 2020). In practice, neither extreme scenario will occur as some individuals will keep records and some not (see Waiswa et al. 2021).[5]

UGAMOD over-simulates rental income tax when compared with the external validation data. Furthermore, in 2021 the rules changed for this tax, resulting in many more simulated payers of this tax (not shown).

4.1.2 Validation of outputted (simulated) social security contributions

Tables A1 and A2 in the Annex compare the UGAMOD estimates of the social security contributors and contributions respectively, with the figures reported by the NSSF.

Most of the contributors to the NSSF are those in formal employment. Also, there are a number of organizations that do not comply: for example, compliance grew by a meagre 1 percentage point, from 80 per cent in 2017 to 81 per cent in 2018. In the financial year 2016/17, the compliance level was 78 per cent. As seen in Table A1, UGAMOD simulates only about half the number of contributors compared with NSSF's reports, which might imply that the ILO definition of formality applied in this policy in the model is too narrow for the Ugandan context, and yet the revenue simulated from contributions is 92 per cent of reported contributions for 2019 and 74 per cent for 2020 (Table A2).

4.1.3 Validation of outputted (simulated) Senior Citizens' Grant expenditures and number of beneficiaries

UGAMOD estimates have been compared with those reported by the Ministry of Gender, Labour and Social Development (MGLSD 2019b). For the year 2019, UGAMOD simulates 2.5 times the number of eligible beneficiaries than are recorded by MGLSD (Table A1), and 1.7 times the cost (Table A2). The number of simulated beneficiaries rose in 2020, compared to 2019, due to changes in the eligibility criteria.

4.2 Income distribution

4.2.1 Income inequality

Analysis of the UGAMOD output data for 2016/17 yields a Gini coefficient of 0.40, whereas that reported by UBOS (2018) is 0.42, as seen in Table A3 in the Annex.

4.2.2 Poverty rates

The UGAMOD estimated poverty rate for 2016 was 21.66 per cent whereas that reported by UBOS (2018) for 2016/17 was 21.4 per cent, as seen in Table A4 in the Annex.

[5] In fact, the 2020 rules were not implemented in practice until the following year (see Waiswa et al. 2021), but they are included in the 2020 system to reflect the date of the rule change.

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Annex

Table A1: Tax and benefit instruments simulated in UGAMOD: Number of recipients (of the benefits) and payers (of the tax and social insurance contributions)

Tax–benefit policy	UGAMOD						External					Ratio				
	2016 (A)	2017 (B)	2018 (C)	2019 (D)	2020 (E)		2016 (F)	2017 (G)	2018 (H)	2019 (I)	2020 (J)	2016 (A/F)	2017 (B/G)	2018 (C/H)	2019 (D/I)	2020 (E/J)
Personal income tax	1,473,040	1,524,232	1,545,163	1,571,944	1,471,223	*A+B*	626,637	684,335	765,822	779,159	855,439	2.35	2.23	2.02	2.02	1.72
						C+D	916,496	1,211,240	1,386,166	1,506,470	Not available	1.61	1.26	1.11	1.04	/
						A	582,241	633,651	684,542	693,947	747,290					
						B	44,396	50,684	81,280	85,212	108,149					
						C	578,860	780,476	867,619	928,899	1,024,954					
						D	337,636	430,764	518,547	577,571	Not available					
Presumptive tax	850,174	904,680	946,858	970,964	994,384[e]		13,641	20,387	24,461	16,245	25,802	62.32	44.38	38.71	59.77	38.54
Rental income tax	167,665	179,111	179,149	179,149	183,461		4938	5,973	6,979	7,041	Not available	33.95	29.99	25.67	25.44	/
VAT	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N.A	N/A	N/A	N/A	N/A	N/A
Excise duty	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
LST	2,215,826	2,394,998	2,406,292	2,420,482	2,251,360		Not available	Not available	Not available	Not available	Not available				/	/
Social insurance contributors	901,801	901,801	901,801	901,801	730,258		1,623,082	1.8 million[a]	1.8 million[b]	Not available	2.1 million[d]	0.56	0.50	0.50	/	0.43
Senior Citizens' Grant	333,927	394,919	394,919	394,919	568,251		150,000[c]	155,810[c]	156,000[c]	157,000	Not available	2.23	2.53	2.53	2.52	/

Notes: PT, presumptive tax; VAT, value-added tax; LST, local service tax; N/A, not applicable; A, Number of employees declared by employers in PAYE returns; B, Number of individuals that actually paid income tax (Excl. employees); C, Number of registered taxpayers with employment as source of income; D, Number of registered individual income taxpayers (Exc employees & rental taxpayers). [a]NSSF (2017: 4). [b]NSSF (2018: 3). [c]Figures obtained from MGLSD (2019b: 144–45). [d]NSSF (2020: 30). [e]This figure is obtained with the switch 'Presumptive Tax with records' OFF; with the switch 'Presumptive Tax with records' ON the figure is the same. In both cases, the 'Presumptive Tax with records downward adjustment' switch for 2020 is turned OFF.

Source: Columns A–E: UGAMOD version 1.8. Columns F–J: URA data warehouse (eHub) accessed on 24 November 2020, unless otherwise specified in notes.

Table A2: Tax and benefit instruments simulated in UGAMOD: Annual amounts

Tax–benefit policy	UGAMOD						External					Ratio				
	2016, UGX billion (A)	2017, UGX billion (B)	2018, UGX billion (C)	2019, UGX billion (D)	2020, UGX billion (E)		2016, UGX billion (F)[a]	2017, UGX billion (G)	2018, UGX billion (H)	2019, UGX billion (I)	2020, UGX billion (J)	2016 (A/F)	2017 (B/G)	2018 (C/H)	2019 (D/I)	2020 (E/J)
Personal income tax[6]	1,693.9	1,856.8	1,933.2	2,031.8	1,894.6	Total PIT (*A*+*B*)	1,993.4	2,342.8	2,644.4	2,763.0	2,829	0.85	0.79	0.73	0.74	0.67
						A	1,944.1	2,286.0	2,581.8	2,707.1	2,714					
						B	49.3	56.9	62.5	56.0	114.96					
Presumptive tax [7]	274.1	290.2	302.1	303.5	167.7 (PT with records OFF); 90.3 (PT with records ON)[g]	Total presumptive tax	4.5	5.3	7.2	5.2	6.6	60.91	54.75	41.96	58.37	25.41 (PT with records OFF); 13.68 (PT with records ON)
Rental income tax[8]	142.7	156.4	164.3	170.9	183.5	Individual rental income tax	72.7	91.3	117.7	104.0	118.5	1.96	1.71	1.40	1.64	1.55
VAT[9]	3,536.5	3,763.8	3,862.9	3,949.8	4,119.0		2,022.4	2,234.8	2554.5	2608.6	2,992.9	1.75	1.68	1.51	1.51	1.38
Excise duty[10]	860.0	831.7	923.9	929.3	1,054.8		819.8	953.9	1,317.0	1,266.1	1,479.9	1.05	0.87	0.70	0.73	0.71
LST	53.0	59.7	60.7	61.5	56.3		12.4[a]	14.5[a]	18.5[a]	18.7	19.6	4.27	4.12	3.28	3.29	2.87
Social insurance contributions	999.1	1,056.0	1,088.2	1,115.4	941.3		785.5[b]	917.0[c]	1,049.0[d]	1,208.0	1,271.0[f]	1.27	1.15	1.04	0.92	0.74
Senior Citizens' Grant	100.2	118.5	118.5	118.5	170.5		29.9[e]	51.3[e]	66.7[e]	69[e]	Not available	3.35	2.31	1.78	1.72	/

Notes: PT, presumptive tax; N/A, not applicable; A: Employment tax (PAYE); B: Individual income tax. [a]UBOS (2020: 279). [b]NSSF (2016: 16). [c]NSSF (2017: 4). [d]NSSF (2018: 9). [e]MGLSD (2019b: 122). [f]NSSF (2020: 30). [g]If both PT switches ('pt_wr' and 'pt_wr_adj') are turned ON in the 2020 system, the simulated revenue is downscaled to 6.6 Bn UGX.

Source: Columns A–E: UGAMOD version 1.8. Columns F–J: URA data warehouse (eHub) accessed on 24 November 2020, unless otherwise specified in notes.

[6] PIT actual collections were extracted from eHub database because it is not presented separately in the published revenue tables.

[7] Presumptive tax actual collections were based on the published annual revenue tables.

[8] Rental collections were extracted from eHub because in the annual report, aggregated rental tax collected is reported, which includes that collected by individuals and companies.

[9] VAT actual collections are based on published revenue tables

[10] Excise duty actual collections are based on published revenue tables.

Table A3: Income inequality

Year	UGAMOD Income-based (A)	UGAMOD Consumption-based (B)	External Consumption-based (C)
2016	0.66	0.40	0.42
2017	0.66	0.40	/
2018	0.66	0.40	/
2019	0.66	0.40	/
2020[a]	0.66	0.40	/

Notes: [a]The results for 2020 are the same irrespective of whether the 'presumptive tax with records' switch is turned ON or OFF in the 2020 system. In all cases the downwards adjustment switch in the presumptive tax policy for 2020 is turned OFF.

Source: Column A: UGAMOD version 1.8. Column B: UBOS (2018: 94).

Table A4: Poverty rates

Year	UGAMOD Income-based (A)	UGAMOD Consumption-based (B)	External Consumption-based (C)
2016	52.76	21.66	21.4
2017	52.78	21.61	/
2018	52.79	21.59	/
2019	52.81	21.64	/
2020	55.21	23.92[a]	/

Notes: The eight basic needs poverty lines (comprising an urban and a rural poverty line for each of the four regions Central, East, North, and West) were applied in UGAMOD version 1.8. These lines were uprated using the overall CPI to 2017, 2018, 2019, and 2020 prices for the subsequent years. [a]This is the poverty rate with the switch for 'presumptive tax with records' turned OFF in the 2020 system; with the 'presumptive tax with records' switch turned ON, the poverty rate is 23.84 (consumption-based) and 55.16 (income-based). In all cases the downwards adjustment switch in the presumptive tax policy for 2020 is turned OFF.

Source: Column A: UGAMOD version 1.8; Column B: UBOS (2018: 90).